Cambridge Biomedical Campus

2.3
CBC Case for Expansion

December 2022

Quod

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1 Executive Summary

1.1 The unique alchemy of Cambridge Biomedical Campus ('CBC' or the 'Campus'), the mixture of academic brilliance, business dynamism and the dedication and practical insight of local healthcare professionals in a contained environment has helped it to establish its position as one of the best places internationally for Life Sciences research and the development of therapies. The discoveries made in CBC laboratories have improved lives around the world.

1.2 Home to three NHS trusts, ten major research centres[1], and the headquarters of multinational Life Sciences firms, the Campus hosts the concentration of institutions and expertise which makes new discoveries possible and provides health services for the whole region. Activities at CBC drive an integrated care system of 1m people locally and 5m regionally.

1.3 CBC is uniquely special and the UK's best opportunity to attract ground breaking, global biomedical Life Science occupiers. However, CBC's ability to maintain its position on the global stage is at risk. Around the world, Life Science clusters are growing rapidly as competitors – the Harvard-MIT powerhouse of Kendall Square in Boston, the Stanford University-based developments in Silicon Valley, and even newer developments in Shanghai – invest in their researchers, their institutions, the environments they work in and provide space for them to grow. In contrast, space at CBC for the continued growth of Life Sciences research, development and delivery and the associated amenities that occupiers need are in short supply.

1.4 Much of the Campus is already occupied or committed to future clinical uses and subject to business case approval from Government before development can come forward.[2] The brownfield land that will eventually be released when Addenbrookes is relocated is not expected to be available until the early 2040s, beyond the draft Local Plan period.

1.5 The land that is available for development during the draft Local Plan period, comprising the residual undeveloped greenfield plots and several surface car parks that could be released for development, is forecast by Knight Frank to be fully committed by 2031. Without intervention and the adoption of a positive plan for expansion, the exceptional platform for UK based research, innovation and growth offered by the Campus would be lost.

1.6 Securing a confident future for Life Sciences excellence in Cambridge requires planning policy to support the provision of more space, in the right location, where additional floorspace can generate the most benefit. The only location in Cambridge that delivers a critical mass of *both* clinical/research on-site collaboration opportunities *and* true bench-to-bedside potential is CBC.

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[1] Research institutes include: Cancer Research UK; MRC Laboratory of Molecular Biology; the Institute of Metabolic Science; the UK Dementia Research Institute; MRC Cambridge Stem Cell Institute; the Cambridge Institute of Therapeutic Immunology & Infectious Disease; the Milner Therapeutics Institute; the Cambridge Centre for Myelin Repair; the Cambridge Institute for Medical Research; the National Institute for Health and Care Research; and the University of Cambridge Early Cancer Institute.

[2] There is a long term plan to replace Addenbrookes through a series of new hospital buildings at the centre of the Campus but the programme for delivery is subject to business case (particularly government funding) approval.

1.7 Enabling the opportunity for the Campus to fulfil its potential could not be more strongly supported in up to date government policy. Policy recognises quite how exceptional our expertise is in the field of biomedical research and quite how distinctive that sector is in providing an opportunity for the UK to thrive economically:

"The human Life Sciences sector is amongst the most valuable and strategically important in the UK, and critical to the country's health, wealth and resilience." [3]

1.8 In the Autumn Budget 2022, a commitment to supporting Life Sciences was restated and in a November 2022 policy paper, the UK Board of Trade recognised that further investment in infrastructure is essential:

"UK SME growth can be frustrated by.. [a] lack of infrastructure for success, particularly modern, world-class purpose built R&D and manufacturing facilities….Too often these promising companies leave our shores in search of scale-up potential." [4]

1.9 The Cambridge Local Plan should embrace the potential expansion of CBC and plan positively for the expansion of research, hospital and commercial R&D floorspace, alongside a diversity of supporting and collaborative facilities to enable CBC to match the best in the world.

CBC Vision 2050

1.10 In recognition of how special the Campus is and the need to plan for its future, CBC Limited[5] published its *Vision 2050* in 2021 and the subsequent year it began working on a *Spatial Framework*, which will create a physical plan to deliver the Vision. Both the Vision and the emerging Spatial Framework are necessary to guide the further development of the Campus and to give confidence to current and future occupiers that a plan is being developed to maintain the Campus as an exemplary and internationally important focus for biomedical life sciences.

1.11 Together, these documents will set out a comprehensive plan for a globally competitive campus that can deliver extraordinary healthcare and economic benefits, rooted in a recognition of the importance of place and the environment required by world class research and businesses. Through the implementation of the Framework, CBC will be able to maintain its status as a location of choice but also as a sustainable environment that integrates with, complements and supports its neighbours.

1.12 The purpose of this report is to explain why expansion of CBC is necessary, how it can be delivered in a way that will enhance CBC and Cambridge as a whole, and consequently why there are exceptional reasons to support its growth through a draft allocation for its expansion in the Greater Cambridge Local Plan. The report examines the case for enhancing the Campus and for releasing an area of Green Belt to the south of CBC and the terms on which such a

[3] Life Sciences Vision: Build Back Better – our plan for growth; July 2022.
[4] UK Board of Trade, Life Sciences: What's next for this top UK sector.
[5] CBC Limited is comprised of Abcam plc, Astra Zeneca, Cambridge University Hospitals NHS Foundations Trust, Cambridge University Health Partners, Cambridgeshire and Peterborough NHS Foundation Trust, the Medical Research Council Laboratory of Molecular Biology, Royal Papworth Hospital NHS Foundation Trust, and the University of Cambridge.

release should be sanctioned, including the opportunity to secure substantial compensatory improvements to a significant area of retained Green Belt.

1.13 The report is submitted alongside a series of other complementary reports instructed by CBC Limited to inform the Greater Cambridge planning authorities as they start to prepare their first draft Local Plan for the City in Q3 2023. At this stage, all work is provided in draft as work in progress in recognition of the need for further engagement with GCSP and the local community. The additional documents submitted alongside this Planning Report are:

- Spatial Framework – Hawkins Brown
- Transport Strategy – KMC Transport
- Demand and Deliverability Report – Knight Frank
- Utilities Strategy – Hydrock
- Sustainability Strategy – Hydrock
- Heritage Desk Based Appraisal – Lanpro
- Preliminary Ecological Appraisal – Ecus
- Drainage Strategy – Hydrock

1.14 The submission is also made alongside a coordinated set of reports prepared by the owners of the land to the south of the Campus – Cambridgeshire County Council and the Pemberton Family – which provide more detail on how the emerging principles of the Spatial Framework could be applied to the land that GCSP has indicated might be allocated for development and green infrastructure in the Local Plan First Proposals.[6] The landowners have worked collaboratively with CBC Limited to ensure consistency between the two sets of reports.

[6] In 2021, GCSP consulted on the Regulation 18: Preferred Options version of their joint Greater Cambridge Local Plan ('the First Proposals'). Under Policy S/CBC Cambridge Biomedical Campus (including Addenbrooke's Hospital), the First Proposals proposed the potential allocation of land to the south of the existing Campus to: "meet local, regional or national health care needs or for biomedical and biotechnology research and development activities, related higher education and sui generis medical research institutes, associated support activities to meet the needs of employees and visitors, and residential uses where it would provide affordable and key worker homes for campus employees."
The potential site allocation (S/CBC/A) was identified as an area of Major Change.

2 Significance of Cambridge Biomedical Campus

2.1 In 1999, the publication of CBC's 2020 Vision started a period of development which has led the Campus to today. In 2006, the Cambridge Local Plan secured the release of 70 acres of Green Belt alongside the Addenbrooke's Treatment Centre, the Cancer Research UK Cambridge Institute, and the Cambridge University Clinical School, enabling the delivery of several high profile clinical and research facilities. In 2018, a further 22 acres were allocated through the new Local Plan.

2.2 The concentration of clinical and research expertise found at CBC today is unlike anywhere else in the UK.

Table 1: CBC major occupiers in 2022

Type	Name
Healthcare and the NHS	Addenbrooke's Hospital
	Rosie (Maternity Hospital)
	Royal Papworth Hospital
University and Research Institutes	University of Cambridge School of Clinical Medicine, comprising 12 academic departments, 4 research institutes and 5 Medical Research Council (MRC) units
	Medical Research Council Laboratory of Molecular Biology
	Cancer Research UK Cambridge Institute
	Heart and Lung Research Institute
	Addenbrooke's Centre for Clinical Investigation
Education	The Deakin Centre
	Cambridge Academy for Science and Technology
Industry and Expansion	AstraZeneca and MedImmune's Strategic R&D Centre
	GlaxoSmithKline's (GSK) Experimental Medicine and Clinical Pharmacology Unit
	Abcam PLC Headquarters
	ideaSpace – a co-working community of start-ups
	IOTA Pharmaceuticals

2.4 Many science or business parks do not benefit from the presence of a research institute or a hospital – or are sometimes clustered around a single core 'anchor' – at CBC there are three hospital trusts. The range of specialist expertise is remarkable and, as a result, it has attracted major businesses to CBC. In 2019, Abcam, one of Cambridge's early innovators, opened their new HQ on the Campus as an established multinational Life Sciences giant. In 2023, the global

pharmaceuticals giant AstraZeneca will open its new £1bn UK R&D hub that will accommodate 2,200 research scientists.[7]

2.5 Access to patient data and the ability to collaborate with medical expertise is a crucial attraction of CBC to many occupiers. An exceptional concentration of institutions is connected in a way that allows researchers first hand insight into the nature of diseases and up-to-date and practical understanding of their treatment. In turn, healthcare providers can benefit from the faster development of ground breaking new treatments and their tailoring to specific needs. This bench-to-bedside cycle of Life Science development is what attracts research-intensive businesses and the world's most talented academics.

2.6 The sheer concentration of healthcare providers is one attribute which sets CBC apart from other Life Sciences clusters around the world. It creates exceptional opportunities for innovation and collaboration, accelerating the transition of research into healthcare delivery for patients locally and across the UK. There are few places that can match the strength of CBC's triple helix of frontline healthcare, academic excellence and business dynamism.

2.7 That unique combination of resources has generated extraordinary outcomes.

Table 2: 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; and Meatable, a Dutch company producing cell-based meat.

2.8 The current configuration of CBC provides a platform for the highest quality healthcare delivery. However, it could do more. There are opportunities for additional specialist centres providing cutting edge support for ageing, mental health, movement, obesity and other issues,

[7] https://www.astrazeneca.com/media-centre/press-releases/2021/astrazeneca-unveils-the-discovery-centre-disc-in-cambridge.html#!

as ground-breaking research is undertaken in concert with pharmaceutical and other specialist businesses to deliver life changing remedies.

2.9 The critical mass at CBC is self-reinforcing, creating unparalleled opportunities for co-location and collaboration. The concentration of research and clinical excellence is exceptionally attractive to life sciences business, for whom a campus location creates an opportunity for collaboration with the greatest minds and leading practical clinicians. But the presence of well-funded businesses benefits both the research institutes by extending the resources available for research – and creates an opportunity for clinicians to share knowledge and drive improvements in patient care. There is nowhere else like it in the UK or Europe.

The Innovation Ecosystem

2.10 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 it needs to be stimulated with relationships, structured or chance encounters, and the competitive atmosphere that concentrations of people with expertise enable, driving individuals and organisations to ground-breaking discoveries. These agglomerations or clusters drive innovation and productivity. 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."*

2.11 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, the concentration of talented and intelligent people in the same place allows them to combine their skills, share ideas, collaborate and compete.[8] 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. Innovation in turn drives productivity and economic dividends, meaning that companies are able to maximise their returns on investment. CBC boasts the institutions and businesses necessary to generate the ideas and, crucially, the networks that help an innovation ecosystem to thrive.

2.12 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 CBC as an innovation ecosystem. Awarded University Enterprise Zone status in 2019, the University is now

[8] Agglomeration, clusters, and industrial policy, Max Nathan and Henry Overman, 2013.

redoubling its focus on this model of collaboration between academia and business, as demonstrated by the number of collaborations (130+) with Astra Zeneca that it is currently committed to. Appendix 1 to this report provides details of how other top ranked global universities have similarly developed clusters of excellence for research and clinical activity around them.

2.13 The University also supports a thriving Life Science SME scene though its commercialisation arm, Cambridge Enterprise. More than 54 Life Science companies, started by academics, researchers, staff and students have spun-out of the University since 2011.

2.14 The c0llocation of one of the world's leading clinical schools and major academic research institutes, such as the MRC Laboratory of Molecular Biology, makes CBC the City's foremost concentration of biomedical expertise. It is here 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 is best placed to attract international Life Science businesses to the City to further its track record of innovation.

2.15 The Heart and Lung Research Institute, which opened on the Campus in July 2022, provides an excellent example of how spaces are being created at CBC that will benefit from the local innovation ecosystem.

Table 3: HRLI Case Study

Case Study - Heart and Lung Research Institute
The Heart and Lung Research Institute (HLRI) is a joint venture between the University of Cambridge and Royal Papworth Hospital. The new building brings together nearly 400 researchers, scientists and clinicians from the NHS, academia, industry and charity under one roof, with the purpose of delivering high-impact research tackling global cardiovascular and respiratory diseases - some of the world's biggest killers.[9] The HRLI has created the largest concentration of scientists and clinicians in heart and lung medicine in Europe. The building comprises state of the art laboratories, a clinical research facility, data science and epidemiology research teams, spaces for postgraduate education and collaboration spaces. Its location on the Campus provides immediate access to three hospital trusts, the departments and institutes that form the University's School of Clinical Medicine, as well as AstraZeneca's new research & discovery centre and, embedded in Addenbrooke's, the GSK Clinical Unit. The pharmaceutical companies are expected to play a crucial, collaborative role in the HRLI's work, with an open source approach to research meaning that all parties sharing expertise and discoveries in areas of common interest, from basic science to clinical expertise, designing clinical trials and finding patients to take part in studies. **The HRLI creates an opportunity for discovery, validation, and clinical trials, through to implementation – the whole pipeline – all in one place. Nowhere else in the UK could that be achieved.**

[9] https://www.cam.ac.uk/stories/heart-and-lung-research-institute

UK Significance

2.16 The opportunities created by CBC are of national significance. The shortage of space, which has been recognised by Government as a critical issue that is limiting inwards investment, represents a risk not just to Cambridge but to the UK's economy:

"There is a significant deficiency in dry and wet labs, making it harder for UK firms to grow and international companies to expand here."[10]

2.17 Life Sciences are demanding about the necessary credentials for their location and if the right space is not available in the right location, occupiers will look overseas. CBC, therefore, has an important role to play in the national interest.

2.18 UK Life Sciences generated a turnover of £88.9bn in 2020 and employed 268,000 people, growing by 13% since 2011.[11] 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.[12] The sector represents one of the very best opportunities for growth in the UK and it is unsurprising that government policy is very supportive. Policy urges that the sector is supported to make its full contribution to the country.

2.19 The *Life Sciences Sector Deal*, first published in 2017 as part of the Government's *Industrial Strategy* and subsequently updated in 2018, 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, better patient outcomes can be delivered alongside domestic economic growth. The second Sector Deal states:

"The strength of the partnership between the Government, the NHS and the life sciences sector is making the UK a global standard-bearer for discovery research and advanced manufacturing. We are committed to continuing the hard work of implementation over the coming years because the prize – a globally-leading UK life sciences environment – will deliver huge benefits to the people of this country through a stronger economy and a stronger NHS."[13]

[10] Department for Business, Energy and Industrial Strategy Policy Paper. Board of Trade: Life sciences – What's next for this top UK sector?
[11] UK Life Sciences Bioscience and Health technology Sector Statistics 2020, Office for Life Sciences.
[12] Centre for Business Research (2020)
[13] Life Sciences Sector Deal 2, December 2018

2.20 More recently, the Government has published *Build Back Better – our plan for growth.*[14] 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. It leaves no doubt that the Government is determined that the UK should capitalise on its world leading credentials, which represent one of the country's most significant opportunities for growth. As the plan for growth 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."*[15]

2.21 The UK's strength in Life Sciences connects us to our neighbours, near and far. Talented researchers travel to the UK to learn and work, and the UK is renowned for the quality of its institutions and the 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.

2.22 Apart from economic growth, the product or output, of course, is literally life changing. There can be few if any industries which warrant and receive stronger support from Government policy for expansion.

2.23 Whilst the UK remains strong, it cannot afford to stand still, as global economies continue to invest and expand their Life Sciences offering. The Cambridgeshire and Peterborough Combined Authority has an ambition, set out in its devolution deal, to double GVA over 25 years and it recognises that Cambridge has the talent and building blocks to spark discovery and attract new investment. [16] But fulfilling the ambition will require new floorspace and a supportive planning framework. Specifically, it will require CBC, where the NHS, research, and industry can connect, to fulfil its potential at the heart of the Life Science ecosystem in Cambridge. There is an imperative for the City to play its full part so that the UK can realise one of its most important potentials for growth.

[14] Life Sciences Vision – Build Back Better: our plan for growth, July 2021.
[15] Page 54, Build Back Better – our plan for growth, March 2021
[16]Cambridgeshire and Peterborough Devolution Deal, March 2017.

3 Challenges and Opportunities of Growth

3.1 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 full innovation potential of the site and to make this an inspiring place to live, work, and do business. More is now understood about how CBC operates and its impact, which has informed our perspective in designing a better future CBC for all of Cambridge.

Space to Grow

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

3.3 A recent study by Bidwells confirmed that there was no laboratory space immediately available in Cambridge and a year's wait for newly constructed space despite demand for 1.2m sqft.[17] When committed new space is delivered from late 2023 to 2025, it will meet less than one third of current lab demand. As a result, businesses have been forced to repurpose office stock for labs, but as the demand for office floorspace increases the availability is forecast to tighten. The acceleration in demand, combined with the acute floorspace shortage is driving rents in both office and laboratory markets.

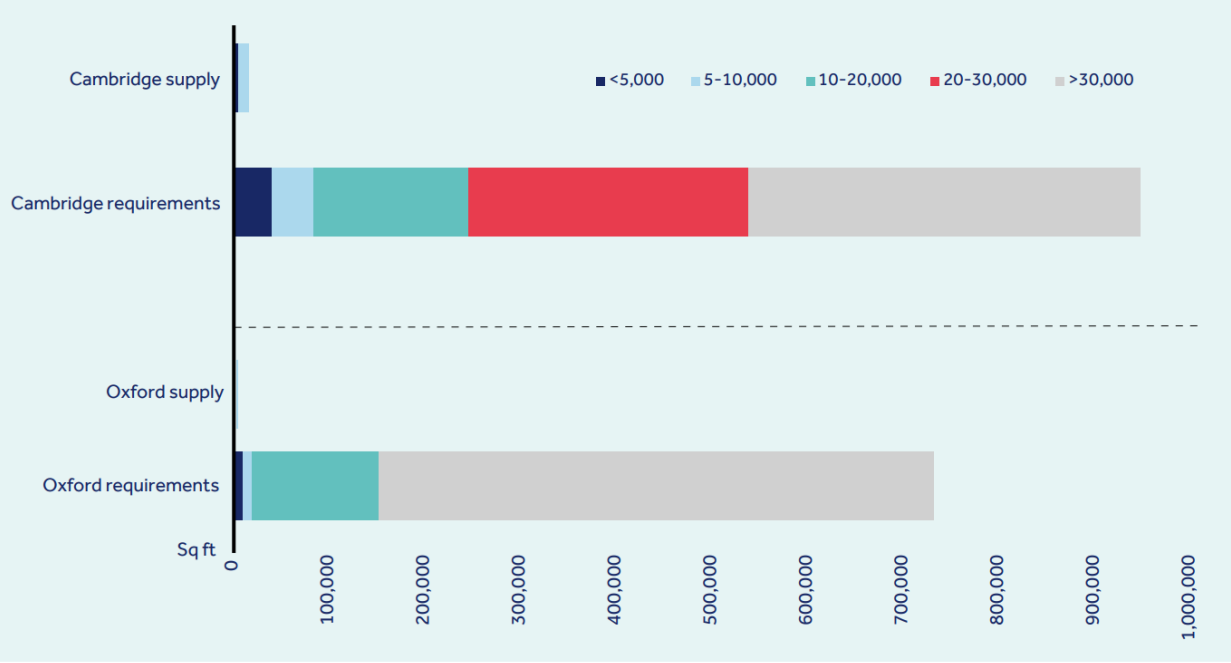


Figure 1: Laboratory requirements and supply in Cambridge, December 2021
(Life Sciences 2030: The implications for real estate. Bidwells, June 2022)

[17] Bidwells Arc Market Databook, July 2022

3.4 The challenges facing Cambridge are shared by CBC. The ongoing interest of occupiers and investors in CBC and the desire to share in success that being here has had for other firms continues to bring demand for space. However, the ability to meet all requirements will not be possible without the allocation of additional land to grow the Campus.

3.5 On the land known as 'Phase 1', all development plots are already committed and secured by commercial agreement.[18] At the very heart of the Campus, a new healthcare core is planned, comprising the Cambridge Cancer Hospital, Cambridge Children's Hospital, a new Acute Hospital, Planned Care, and Outpatient and Diagnostic Hub. Development plots have been secured, but the programme for delivery of the new hospitals is reliant on business case (government funding) approval. Where appropriate, interim clinical and associated uses might be used on the safeguarded plots in the short to medium term.[19]

3.6 On the land known as 'Phase 2', delivery of new floorspace for biomedical research and development is now underway following the conclusion of the necessary commercial deals associated with a change in the ownership and to enable increased flexibility in building delivery to speed up development.[20] The completion of 1000 Discovery Drive is expected in October 2023 and the landowners intend to submit a reserved matters application for the next building in the same year. In accordance with the outline planning permission for Phase 2, only two thirds of the site is available for biomedical research and development and ancillary uses, with the remaining third reserved for clinical, ancillary and related uses.

3.7 Without further allocations in the draft Local Plan, the undeveloped and unallocated land at the Campus could potentially deliver approximately 2,495,000 sqft floorspace for biomedical research and development. This assumes that some development plots are intensified beyond that already approved in the Phase 1 and Phase 2 outline planning permissions.[21]

Table 4: Indicative capacity of undeveloped land at CBC

Area	Approx. indicative capacity (sqft)
Land benefitting from an extant or expired planning permission (Phase 1 and Phase 2)	750,000
Phase 3 land (allocated in 2018 Local Plan)	1,400,000
Underutilised plots - surface level car parks (No extant planning permission)	240,000
Densification of land above established planning capacity (AZ and Plot 9)	105,000
Total	**2,495,000**

[18] The land known as 'Phase 1' (Land to the west and south west of Addenbrookes Campus Robinson Way) was the subject of an outline planning application, approved on 15 October 2009 (ref: 06/0796/OUT).
[19] CUH Expansion Land is shown on page 8 of the emerging Spatial Framework
[20] The land known as 'Phase 2' (land south of Dame Mary Archer Way) was the subject of an outline planning application that was approved 5 September 2017 (ref. 16/0176/OUT). One third of the site is reserved for clinical, ancillary and related uses and two thirds is reserved for biomedical R&D and ancillary uses.
[21] The potential for additional capacity on the existing Campus is shown on page 9 of the emerging Spatial Framework.

3.8 The Demand and Delivery Report, prepared by Knight Frank and accompanying this report, seeks to quantify the level of demand that might be expected at the Campus over the next twenty years in order to understand how quickly the available floorspace will be taken up. Evidence of previous transactions (2018 to 2023) would justify baseline demand for 150,000 sqft per annum, however, Knight Frank advise that demand is accelerating and will continue to do so as the Campus grows. Based on their specialist knowledge of the sector and their global experience, Knight Frank advise that an average rate of 240,000 sqft should be expected over the Local Plan period. On this basis, the available space identified in Table 4, would be exhausted in 2031, approximately four years into the plan period.

3.9 Constraining supply will put CBC's vitality at risk. Rents have risen sharply across Cambridge due to the lack of supply. 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 establish and grow. Many of Cambridge's and CBC's successful businesses began as speculative ventures and benefitted from the local environment and networks – to ensure that the economy continues to thrive, it is important to ensure there is room for them to develop, to grow on and in turn to attract small new innovators around them. Such an ecosystem also has the potential to attract one or more of the world's life science titans, from time to time – but only if the space is made available to allow them that choice.

Table 5: bit.bio Case Study

Case Study – bit.bio
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.

3.10 The rate of growth assumed by Knight Frank is considered to be conservative: it takes no account, for instance, of any additional demand from research institutes or hospitals, beyond that which is already reserved. Nor does it factor in that the Campus is the premier location to attract a major international floorplate to the UK, i.e. another Astra Zeneca.

Supply of excellent commercial spaces

3.11 While CBC has been successful in attracting major businesses to Cambridge, there is also work to be done to curate the mix of businesses that drive the productivity of the whole ecosystem.

3.12 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. In turn large businesses are attracted to concentrations of dynamic small and start up businesses.

3.13 The interplay between businesses of different sizes enables good ideas to be developed into viable ventures, boosting the productivity and prosperity of Cambridge.

3.14 It is essential that the Greater Cambridge Local Plan addresses the need for growth beyond 2031, to fulfil the promise of this highly concentrated network of world leading institutions and businesses.

Creating amenity

3.15 CBC has work to do to realise the aspiration of the 2020 Vision for shared and amenity space. The Campus has developed rapidly and with great scientific success but it has grown faster than its amenities and sustainable infrastructure, with consequences for the quality of its environment and for its impact on surrounding communities. There remains a need to develop an integrated and attractive wider quarter to foster collaboration and better serve the local community. As the global competition is showing, support space is also an essential part of the mix.

3.16 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 available consumer services in CBC which provide for the needs of the people who work there, whether shops, cafes, restaurants or entertainments. To reduce travel and to enable the mixing of individuals from different organisations (which characterises the world's best innovation districts), there must be more amenities at CBC. Competing campuses offer a more diverse range of facilities, including state of the art gyms, wellness centres, climbing facilities, social clubs and large conference centres.

3.17 Growth may come regardless. But if not properly planned for, growth could exacerbate the problems which are emerging at CBC, further increasing traffic, pricing even more key workers out of homes, and putting additional pressure on the communities and services residents need. To be sustainable, growth needs to be planned.

3.18 As set out in the accompanying Demand and Deliverability Report, occupiers are now seeking high quality workplaces that support the portrayal of brand, underpinned by amenities that support the physical and mental wellbeing of their employees. In Life Sciences and innovation

sectors, collaboration is key and the environment must foster connections, creating spaces, internally and externally to encourage collaboration between occupiers, health and research functions on the Campus. The workplace has to present a compelling, progressive experience that gives people more than they can achieve from a remote location.

3.19 Knight Frank and Hawkins Brown have undertaken a gap analysis of the Campus against its peer group and have identified the following essential ingredients necessary for the Campus to compete globally and achieve longevity:

- retail and food and beverage facilities – a diverse offer distributed across the Campus;
- hotel / hospital facilities – a diverse offer;
- bespoke conference facilities;
- wellness, health and fitness facilities (gym, spa, medical and leisure);
- community facilities;
- child care – creche / nursery facilities;
- resilient energy and power sources;
- concierge – service offer to support companies/employees based there;
- smart building environment – to demonstrate environmental accountability;
- residential accommodation; and
- investment in sustainable transport solutions that offer fast, reliable options for commuting.

3.20 The emerging CBC Spatial Framework illustrates the opportunity for CBC to become a fully-fledged Innovation District but also a different kind of sustainable neighbourhood for occupiers and for local communities with supporting uses distributed to areas with appropriate intensity. Delivering these uses will impact on capacity, but evidence demonstrates that they are necessary if the Campus is to full realise its potential and develop a greater sense of place.

3.21 This learning means that change is necessary to address challenges and deliver a better future CBC for all of Cambridge.

Best-in-class placemaking

3.22 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. Doing more to replicate these attributes at CBC by creating a liveable, thriving quarter will enable CBC to fulfil its promise and integrate the Campus more closely into the city.

3.23 CBC's growth has outpaced its ability to develop 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 public realm 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. Linking spaces are limited and often car dominated.

3.24 CBC has the foundations in place to act as a standout global centre of healthcare delivery, Life Sciences research and commercialisation, but it must become a new, integrated and attractive quarter of Cambridge to do so. Creating the attractive green and public spaces that add amenity and sustainability will contribute to the wellbeing of staff, visitors and nearby residents.

Accelerating Healthcare Improvements

3.25 The hospitals at CBC benefit significantly from their location in the heart of the CBC cluster. Improvements in healthcare provision are a direct result of the collaboration that happens with the surrounding research institutes and industry leaders.

3.26 This is not collaboration that happens over zoom but involves the movement of researchers and clinicians between the different environments, in person discussions about experiments or patients, shared facilities and moving cells and samples between facilities. In Covid, the researchers of the University of Cambridge, working to understand variants and the impact on protection as well as what treatments worked, were able to see patients and access samples from the hospital and then work in the specialised viral containment facilities of the Jeffrey Cheah building.

3.27 Advancements in treatment can then be applied to patients. In the world of personalised cell and gene therapy a close link is required between testing, creating the therapy and applying it back to the patient. Similarly, the ability of Abcam to develop a novel antibody or agent and then rapidly get feedback from customers in neighbouring institutions is facilitated by location.

3.28 Investment in the future of the three hospital trusts is intrinsically linked to their position on the Campus. The opportunity created by collocation with the occupiers already at CBC, as well as those expected in the future, is likely to play an important role in securing funding for the development of the new hospitals on the Phase 1 and Phase 2 land.

Addressing transport pressures

3.29 CBC's success has put pressure on nearby transport networks, the limits on capacity of public transport to this part of the city contribute to an increase in traffic and parking on local networks. As more people have come to work at CBC, these pressures have grown. The lack of housing and other amenities at 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.

3.30 Future solutions must incorporate a mix of uses which reduce the need to travel and allow active travel networks between. The culture at CBC must become one that embraces the enhanced public transport already in prospect and puts in place the investment and the mechanisms to maximise sustainable travel. CBC has the ingredients to develop as a highly sustainable district as transformational improvements are progressed by the Greater Cambridge Partnership and Network Rail, including: Cambridge Southeast Transport Study (CSET); Cambridge South Rail Station; Cambridge South-West Travel Hub; the Greenways; Foxton Travel Hub; and East West Rail.

3.31 Growing the Campus by allocating land for expansion to the south presents an opportunity to better connect and integrate the Babraham Road Park and Ride with the Campus, opening up a new access and public transport corridor into the campus and reducing pressure on existing entrances. The opportunity can also be taken to enhance active travel links, to facilitate public transport connections, consolidate car parking and to reduce the use and dominance of the car.

Affordability for key workers

3.32 CBC also lacks access to sufficient housing to meet the demand from people who work in the hospitals and institutions that would like to live near the site, in particular key worker housing. 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 greater life to the Campus. Similarly, visitors need amenity and many need overnight or short term accommodation, of which there is none.

3.33 Thousands of people work at CBC, from key workers and early career researchers to business leaders and senior academic researchers. Many of these workers, particularly those at the beginning of their careers, find the high housing costs make living close to CBC unaffordable.[22] This in turn is putting pressure on the local transport networks.

3.34 Housing needs to be much more readily available but also carefully positioned 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.

[22] In 2020, Cambridge University Hospitals NHS Foundation Trust (CUH) commissioned a survey to investigate the housing needs of its employees. In 2022, a further study was instructed by CBC Limited to assess the needs of the wider campus occupiers. Both surveys found a lack of appropriate housing within a reasonable commuting distance that was affordable to campus workers.

4 CBC Vision 2050 and the emerging Spatial Framework

4.1 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.

4.2 Having largely fulfilled its 2020 Vision, CBC's occupiers and landowners came together in 2021 to consider what role they should play in the coming decades to support Cambridge, the UK and Life Sciences globally. CBC Limited was formed, comprising Abcam plc, Astra Zeneca, Cambridge University Hospitals NHS Foundations Trust, Cambridge University Health Partners, Cambridgeshire and Peterborough NHS Foundation Trust, the Medical Research Council Laboratory of Molecular Biology, Royal Papworth Hospital NHS Foundation Trust, and the University of Cambridge, and together they created CBC Vision 2050.

4.3 Vision 2050 recognises 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 their city; they have a right to expect this.

4.4 Working together with the parties that own land on the Campus, CBC Limited has instructed a team of specialist consultants to translate Vision 2050 into a Spatial Framework to guide practical development. The emerging Spatial Framework puts sustainable, attractive, and mixed development at the heart of CBC's future.

4.5 The Spatial Framework will need to be shaped working with the community, and it will need to be examined and tested through the Greater Cambridge Local Plan, which will itself be subject to extensive consultation and independent examination. The emerging work sets out principles for development – 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 published in draft in 2023, and for affected communities to make their views known.

4.6 CBC Limited recognises its responsibility to nearby communities and to the environment. The land proposed 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 should seek to meet the Councils' objectives, which include net zero carbon and no increase in traffic on local roads. CBC Limited has embraced those challenges and has 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.

Vision: a world class innovation district

4.7 In order to consolidate its position as a globally leading and locally rooted vibrant community, 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.

4.8 Fulfilling this aspiration requires a spatial framework for growth. The emerging Spatial Framework prepared by Hawkins Brown demonstrates the practical application of the Vision 2050, by planning an enhanced, sustainable future for the Campus. Eight placemaking principles have been identified to achieve this:[23]

i. Health creating environments

- create spaces for active and passive leisure in accessible locations around the Campus;
- create outdoor spaces for recuperation and respite, particularly near patient care facilities; and
- create food/crop growing and other outdoor activities for staff, researchers and visitors.

ii. Densify and intensify

- make the most efficient use of land through appropriately dense building; and
- enable the interaction of people through mixed use nodes and multi-purpose public spaces.

iii. Activate landscape

- encourage outdoor spaces for multiple activities including working, meeting and recreation;
- promote a visible and multi-purpose blue-green network; and
- enhance biodiversity, achieving a minimum of 20% biodiversity net gain.

iv. Connect the campus

- provide legible walking networks connecting the main campus nodes;
- create beautiful streets for walking, cycling and dwelling;
- maintain primacy of blue light routes while rationalising all vehicular routes; and
- prevent rat-running.

v. Support life

- provide a broad hospitality and recreational offer; and
- share amenities between buildings and user groups.

[23] Draft Spatial Framework, pages 39 and 40

vi. Engage the public

- create welcoming building entrances with publicly accessible ground floor uses; and
- create ground floor frontages that enhances the public realm, e.g. through exhibition space.

vii. Think beyond the boundary

- provide a broad hospitality and recreational offer;
- share amenities between buildings and user groups;
- engage the public;
- create welcoming building entrances with publicly accessible ground floor uses; and
- create ground floor frontages that enhances the public realm, e.g. through exhibition space.

viii. A whole life carbon approach

- transition to all-electric across campus;
- work with natural systems for drainage and flood alleviation;
- pursue energy efficiency and onsite generation;
- enact circular economy principles including waste and water usage; and
- uphold high building certification standards.

4.9 The application of these principles is intended to create a legible campus of centres and character areas with healthcare at the core, seamlessly linking the existing campus with the expansion land to the south. Setting the right framework for growth is of central importance to achieving a sustainable future for the Campus.

Land Use Strategy

4.10 Informed by the commercial expertise of Knight Frank and the essential ingredients that they have identified as necessary for the Campus to compete globally and to achieve longevity, Hawkins Brown is developing a Spatial Framework for a new, integrated, and attractive quarter of Cambridge.

4.11 The supporting policy wording for draft Policy S/CBC in the Local Plan First Proposals recognises that a new masterplan cannot be designed from scratch.[24] Much of the Campus is already committed or occupied and delivering very important services. Therefore, opportunities for intervention must be developed sensitively and in collaboration with the relevant landowners and occupiers.

4.12 The objective set by the Vision 2050, for a more integrated and inclusive part of the City, has required Hawkins Brown to consider how improvements might be made to all elements of the Campus, including any extant masterplans that could be absorbed, reworked or improved. The

[24] Page 89 of the Local Plan First Proposals states, "*if the identified land is to be released for development it is important that the best use is made of the existing campus site first. Whilst there are some fantastic buildings and areas on the site, there are other areas which are underused, and do not provide a good environment for visitors and workers. It is proposed that the policy in the new Local Plan seek a comprehensive approach to the site through a new masterplan.*"

emerging Spatial Framework attempts to consider how a more joined up approach can support a more ambitious land use strategy and approach to spatial planning. It has a strong focus on public realm, green spaces, community uses, and the integration of sustainable transport networks.

4.13 The land uses and areas illustrated on page 63 of the emerging Spatial Framework are set out below.

Table 6: CBC Ltd. proposal - emerging land use summary

Use	Total GEA (sqm)
Healthcare	388,425
Laboratories and offices	520,750
Research institute	20,000
Higher education	94,100
Residential	62,900
Leisure	8,000
Retail F&B	12,100
Hotel	13,000
Conference	3,500
Community	2,600

4.14 The mix of uses shown within the emerging Spatial Framework and listed above reflects the initial advice provided by Knight Frank to include space for a new major research institute. However, this assumption is conservative and the requirement could realistically increase, requiring flexibility for additional floorspace to be accommodated from within the area that has been identified for laboratories and offices.

4.15 The proposed scenario includes significant interventions across the Campus and thus, the question of deliverability is relatively complex. However, if successful, Knight Frank has advised that the attraction of the Campus would improve significantly, physical and mental wellbeing would be enhanced, and retention of staff would be expected to increase. The Campus would also become a better neighbour for its local communities.

4.16 An alternative approach, which Hawkins Brown has considered to inform the design process but which has been deemed less successful, assumes less coordination between landowners as they work independently to implement their own masterplans. While this could also achieve growth and high quality individual buildings, investment in the wider public realm, green spaces and community uses may be harder to secure. Without a joined up approach to the future of the Campus, it is likely to be much harder to ensure future investment in the right infrastructure to support the longevity of the Campus.

Transport Strategy

4.17 Central to the success of the Spatial Framework is a coherent transport strategy that adopts and builds on the significant sustainable and transformational transport improvements being delivered by the Greater Cambridge Partnership and Network Rail.

4.18 There are significant and transformational investments set to occur in the Greater Cambridge area and none more significant than those which will benefit CBC, including Cambridge Southeast Transport Study, Cambridge South Station, East West Rail, Cambridge South-West Travel Hub, the Greenways and Foxton Travel Hub.

4.19 The campus has previously flourished through demand management, travel planning and as a result of the Cambridge Guided Bus but, in the next 5 years, existing connections will be supplemented by hugely beneficial further investments in terms of Cambridge South rail station, CSET Phase 2 and East West Rail.[25] Ensuring that the Spatial Framework embraces and responds to these connections through improved connectivity to them will be essential.

4.20 Details of the emerging Transport Strategy are set out in a separate report by KMC Transport, but the key interventions being considered for the Campus have been summarised below:

- Creation of a new east-west link (pedestrian and public transport) through the delivery of a 'High Street' that would connect Hills Road with Francis Crick Avenue and the forthcoming Cambridge South Station. Requires the removal of the existing hospital food court.
- Redesign of the Hills Road junction to create a better gateway to the Campus and safer walking and cycling conditions.
- Integration of the Babraham Road Park and Ride with the Campus through a new road link on the Phase 4 land.
- Improvements to the existing Public Right of Way that connects Granham's Road to Nine Wells Nature Reserve and CBC.
- Improved access to public transport services on the campus by opening up new routes through the site.
- Commitment to a CBC wide parking strategy, which frees up surface car parking sites for development and consolidates car parking.
- Prioritisation of an orbital route around the campus reducing the number of potential conflict points between pedestrians, cyclists and public transport users.
- The revised access and circulation strategy would reduce car penetration into the heart of the Campus and free up space for investment in enhanced public realm.

4.21 The proposed transport interventions are made possible by taking a holistic view of development at the campus. Their delivery would be linked to the phasing of development, thereby ensuring that appropriate mitigation is provided as the Campus grows, and as the Campus can afford to invest in new infrastructure.

[25] A commitment to delivering East West Rail was confirmed by Government in the Autumn Statement 2022.

4.22 A Trip Budget is proposed which would limit car trips to their 2017 level and work together with the improvements in public transport and active travel (and the introduction of a wider range of land uses, which will limit the need to travel) to dramatically change the mode share of campus related trips away from the use of the car.

Green Belt enhancement strategy

4.23 The emerging Spatial Framework also includes indicative proposals for a new comprehensive green edge to the city and a substantial area of enhanced Green Belt. The Local Plan First Proposals provides clear direction that removal of land from the Green Belt for the purpose of extending the campus along Babraham Road must be subject to compensatory improvements to the environmental quality and accessibility of the Green Belt around the areas of Nine Wells and White Hill.[26]

4.24 It is also important that the impacts of development are minimised by effective landscaping and mitigated through the enhancement of green infrastructure south of the existing campus.

4.25 The emerging Spatial Framework and the accompanying Green Infrastructure Strategy prepared by Logika, illustrates an opportunity to convert the existing arable land on the upper slopes of White Hill to species-rich chalk grassland, contributing towards the creation of an additional stepping stone habitat within the proposed corridor of the Gog Magog Hills Priority Area. This would be managed as permanent, species-rich, pasture for grazing animals, thereby building soil health and soil carbon in the process.

4.26 On the lower ground, the arable fields would be retained but with changes to cropping practices to enable the land to be managed as conservation headlands. Hedgerows would be restored and created to provide ecological connectivity within and beyond the area, and to create new dedicated routes for recreation. The emerging strategy seeks to be multifunctional, combining a requirement flood risk requirement with a recreation focus for the Expansion Land, improving quality of life for those living and working on the Site, whilst building resilience to climate change.

4.27 Taken together with the Phase 4 expansion land, the proposed green infrastructure strategy could achieve an enhancement in biodiversity which the specialist consultants Logika have estimated at 59%.[27]

[26] The area labelled 'S/CBC/A' in the Local Plan First Proposals (2021) is identified as a potential area into which CBC could be extended. The area bounded by the blue line and labelled 'Proposed Area of Major Change' in the Local Plan First Proposals is identified for Green Belt enhancement.
[27] 42% biodiversity net gain could be achieved across the expansion land (Phase 4), the Phase 3 land and the area of Green Belt enhancement land. This calculation does not include the existing Campus area.

5 An exceptional case for Green Belt release

Background

5.1 The only appropriate land for the expansion of CBC 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 exceptional reasons and any development needs to be very carefully and sensitively planned with care and respect.

5.2 The exceptional circumstances policy test is met if there is a need for development that cannot be met elsewhere. If there is, the National Planning Policy 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... plans should give first consideration to land which has been previously-developed and/or is well-served by public transport. They should also set out ways in which the impact of removing land from the Green Belt can be offset through compensatory improvements to the environmental quality and accessibility of remaining Green Belt land."[28]

5.3 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 than immediately adjacent to CBC through a development which itself brings sustainability benefits and helps fund improvements to the Campus.

5.4 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." [29]

5.5 To consider whether Green Belt release is necessary as part of the new Local Plan, the Councils assessed eight different spatial growth options, which included 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;

[28] Paragraph 142, National Planning Policy Framework, 2021
[29] Paragraph 25. Joint Local Planning Advisory Group Committee Report, 24th November 2020.

- 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.

5.6 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.

5.7 In the First Proposals published October 2021, Greater Cambridge Shared Planning ('GCSP') concluded that it may be possible to demonstrate that exceptional circumstances exist to justify a limited release of Green Belt at Cambridge Biomedical Campus to provide an opportunity to improve the sustainability and qualities of this unique international campus and to allow it to continue to grow into the future.

Exceptional Circumstances

5.8 The strong need for employment and housing 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.

5.9 In the 2018 South Cambridgeshire Local Plan, the Council acknowledged when releasing land to the south of CBC that "*the need for jobs can comprise exceptional circumstances justifying a review of the Green Belt so far as this would not cause significant harm to Green Belt purposes.*"[30] Even though no overall shortage of employment land for high-tech and research and development companies had been identified, the Council agreed to the allocation of land to the south of Abcam ('Phase 3'), concluding that an extension to CBC could be accommodated "*without causing significant harm to the purposes of the Cambridge Green Belt.*"

5.10 However, there are a number of additional circumstances which create a compelling case for the southern expansion of CBC.

i. CBC's growth is nationally important

5.11 Earlier sections of this document have explained the critical importance of CBC to the local, regional and national Life Sciences sector. CBC is extraordinary. The exceptional co-location of world class research and clinical expertise, combined with leading commercial research and development make it unique in the UK. It provides an internationally significant concentration of biomedical Life Science expertise; its rapid growth since 2008 has established a remarkable platform for innovation and growth which national policy and the national interest require not to be constrained. And yet the remaining available plots could be 'used up' in the early years of the Local Pan.

[30] Paragraph 8.19, South Cambridgeshire Local Plan 2018

5.12 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.

ii. Enabling sustainable outcomes

5.13 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. A carefully masterplanned expansion to CBC would offer the opportunity to optimise the success of the Local Plan against these critical objectives. Alternative locations at which to attempt to address the need would act against the Councils' objectives.

5.14 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, an enhanced CBC 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;
- enable uses that wish to collaborate to be within walking distance of each other; and
- provide 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 in transport infrastructure such as enhanced connectivity, shared travel, public transport enhancement and freight consolidation but also investment in:
  - social infrastructure such as new nurseries and health facilities;
  - transport infrastructure and strategies to reduce the car dominated character of the Campus;
  - sustainable energy and utilities solutions; and
  - greenspace – which forms the essential structuring framework for the CBC expansion – see further below.

5.15 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 optimise CBC's contribution to the outcomes which lie at the heart of the new Local Plan.

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

iii. Benefits to the Green Belt

5.17 The Cambridge Green Belt was analysed for the Councils most recently in the Greater Cambridge Green Belt Study (2021). The Study is helpful in establishing that:

- there is an area adjoining Babraham Road and north of Granham's Road where the harm of release would be lower than other land in this area, although this is still acknowledged as a high level of harm;
- there is potential to focus development on this lower land (reference S/CBC-A[31]), away from White Hill, specifically to meet the long term needs of the Campus;
- the impact of development can be minimised by effective landscaping and the enhancement of green infrastructure south of the Campus;
- there are opportunities to use land immediately south of the Campus and west of the potential Green Belt release to deliver major public benefits, including a new area of open space with enhanced public access; biodiversity net gain; new connections between Nine Wells and the Gog Magog Hills;
- there is an opportunity to create a new comprehensive green edge to the city.

5.18 These observations have helped inform our own analysis. At present the land to the south of CBC is arable agricultural land with very limited public access. If Green Belt land is released to enable the expansion of CBC, a positive strategy would be put in place funded by the development to transform the Green Belt, as required by the Local Plan First Proposals. The emerging Spatial Framework illustrates the commitment to a Green Infrastructure and Biodiversity Strategy that would deliver very substantial improvements to the quality, use and ecology of the Green Belt by opening it up to public access and investing in landscape, biodiversity, cultural and recreational enhancements. The current raw edge of the Campus onto private agricultural fields would be transformed into a soft edge to Cambridge with an extensive area of enhanced, accessible Green Belt.

5.19 This approach, whereby improvements to the local Green Infrastructure and Green Belt are proposed and secured through a planning application, have been used successfully at the Campus before. The Outline Planning Permission for the Phase 1 land included works to the Green Belt along the southern and western boundary of the site.[32] The enhancement works were on a smaller scale, but the benefits can be seen today in the form of an improved hedgerow on the southern edge of the Expansion Land.

5.20 New habitats would include species-rich chalk grassland, woodland, grassy margins and conservation headlands to arable fields, enhanced hedgerows, and restoration of historic hedgerows where appropriate. The land would play a key role in delivering restored and connected habitats from Nine Wells LNR through to Magog Down, Gog Magog Hills and wider countryside.

5.21 Recreation opportunities would be provided as an important secondary function. This includes a new network of footpaths, cycle paths and bridleways linking to the City, surrounding communities and the countryside including Magog Down, as well as an area of informal open space near the summit of White Hill. These recreational routes would be lined by hedgerows so as to prevent disturbance of ground-nesting birds and other important wildlife that occur in the adjacent arable fields, but would still provide a significant opportunity to deliver accessible nature-rich green space, access to which would help improve people's general health, wellbeing and happiness. An expanded network of pathways through landscaped areas, with features of

[31] Figure 28, Local Plan First Proposals 2021
[32] Schedule 11 of the S106 agreement for the outline planning permission (ref: 06/0796/OUT) required Off-site landscaping works and Schedule 9 required enhancement of the Nine Wells Local Nature Reserve

interest and alternative opportunities for recreation and amenity, would additionally help to protect Nine Wells Local Nature Reserve from recreational damage.

5.22 These proposals are strongly consistent with planning policy objectives – to enhance the remaining Green Belt when exceptional circumstances justify the release of Green Belt land.

Conditions for Release

5.23 In outlining the potential for Green Belt release, the Local Plan First Proposals document is clear that six tests must be met to the satisfaction of the Councils.

a) Significant Green Belt enhancement in adjoining areas of White Hill and Nine Wells will be required to provide green infrastructure and biodiversity improvements supporting the objectives of the Strategic Green Infrastructure Initiative 3: Gog Magog Hills and chalkland fringe. These areas would remain within the Green Belt and are included in the Area of Major Change to highlight that future proposals for built development on the allocated areas must also include green infrastructure and biodiversity improvements within this adjoining open area.

- A comprehensive strategy to enhance approximately 40ha of Green Belt is being developed by CBC Limited and the landowners and is shown in the Logika report titled 'Green Infrastructure and Biodiversity Strategy'. Trees, woodland and hedgerows would be protected and enhanced, large areas of farmland would be managed as conservation headlands, and new areas of species-rich chalk grassland would be created around White Hill. A future allocation could be subject to a detailed scheme for enhancement and an agreed timetable for implementation.

b) A comprehensive landscaping plan, including the delivery of new publicly accessible green space will need to be delivered, to create a soft green edge of the city, to minimise the urbanising effects of the development and help compensate for harm to the Green Belt.

- The developed area would have a clearly defined landscape structure as an edge to screen and soften the transition from development to countryside, as illustrated in the Logika report titled 'Green Infrastructure and Biodiversity Strategy'. Additional landscaping would be introduced throughout the Campus, creating a necklace of open amenity spaces. A future allocation could be subject to a detailed scheme of enhancement and an agreed timetable for implementation.

c) Design parameters regarding the scale and height of buildings will be established, to respond to the landscape and townscape of Cambridge.

- The scale and height strategy within the emerging Spatial Framework has been developed through a thorough assessment of the emerging Local Plan Landscape Character Assessment (2021) and site-specific studies and fieldwork by Terra Firma consultants .[33] Initial photographic and illustrate sketches have been produced to show the urban /countryside edge typology and to demonstrate how the

[33] Appendix 1 of the Expansion Land and Green Belt Enhancement Vision Report, Allies and Morrison.

development proposals can support the defined Character Areas and protect the character of identified strategic viewpoints. This analysis might be developed into a Landscape and Visual Impact Assessment and the submission of Design Codes in support of a future allocation. The emerging height parameters propose to retain height at the north of the site, then they step down towards the settlement edge. The plan also allows for an appropriate landscape buffer treatment with the rural landscape of the new Green Belt edge.

d) Development is dependent on the successful implementation of a Trip Budget approach, to ensure that the level of vehicle trips is limited to an appropriate level for the surrounding road network.

- The emerging Transport Strategy proposes a Trip Budget for the Campus and an approach to its implementation. As a destination, car parking controls can provide the necessary confidence and control that the budget can be adhered alongside the implementation of further measures to maintain accessibility to the Campus. Travel monitoring would be used to ensure sufficient controls are in place prior to additional development being brought forward. The KMC report demonstrates the practicality of the Trip Budget.

e) Development on the additional land will only be allowed to take place when evidence is provided that opportunities on the existing campus have been fully explored and utilised before development takes place on the released land.

- There are wide ranging and substantial benefits associated with expanding CBC southwards and reinvigorating the existing Campus. The emerging Spatial Framework illustrates the opportunity for CBC to become a fully-fledged Innovation District but also a different kind of sustainable neighbourhood for occupiers and for local communities with supporting uses distributed to areas with appropriate intensity. The funding for investment in the Campus, the Green Belt and in supporting transport networks is most likely to be secured in part from development on the expansion land, which may require the delivery of the expansion land prior to all land on the existing campus being utilised (many of the plots on the Campus are safeguarded for clinical uses which may not come forward in the short to medium term). The emerging Spatial Framework is the forerunner of a masterplan that demonstrates how a plan can be developed in a way which co-ordinates activity across the Campus to achieve sustainable outcomes.

f) Given the existing piecemeal development on the biomedical campus, any proposed release must contribute towards improving the wellbeing of campus users and surrounding communities, as well as addressing the spill over impacts on individuals and communities of this intensive employment location.

- The emerging Spatial Framework has demonstrated that new community facilities should form the new core of the Campus. The extension of the On-street Parking Controls in the area surrounding the Campus, as well as the delivery of new and improved transport measures would help reduce the parking stress and congestion on local roads.

5.24 The emerging Spatial Framework has identified a number of investments and interventions that are necessary to meet the requirements of the First Proposals document – in transport, utilities, sustainability, public realm, biodiversity – that could be realised through the development of existing and additional land at the Campus. These items are subject to discussion and agreement with the respective landowners, but the principle of securing contributions towards the delivery of new infrastructure, supported by the value that is generated from commercial laboratories and offices is agreed.

5.25 Whilst academic and healthcare development will have to mitigate the direct impacts arising from any future application, these uses do not generate an uplift in value that could be captured for general investment across the wider Campus.

5.26 Public investment may be available via GCP to fund some of the transport interventions but it is difficult to see how substantial contributions could be secured from landowners within the Campus, whose land already has planning permission or is unconditionally allocated for development. Accordingly, funding is most likely to be secured from development on the expansion land, permission for which could be made conditional on there being in place a mechanism to fund and deliver the improvements to the campus required by planning policy. In itself, this provides another component of the exceptional circumstances necessary to justify the release of the land from the Green Belt.

5.27 A discussion on the potential policy approach is set out in the next section.

6 Terms of the Local Plan Policy

6.1 A new allocation in the emerging Greater Cambridge Local Plan that enables the Campus to expand southwards would help secure a confident future for Life Sciences excellence in Cambridge and the UK and bring a number of sustainability and other advantages.

6.2 In releasing Green Belt land for development, the emerging Local Plan should set the conditions which must be met for development to occur. The draft conditions that were included in the Local Plan First Proposals, listed in section 5, are supported in principle by CBC Limited and the affected landowners. These requirements have helped define the approach to the Spatial Framework and helped identify future deliverables / strategies that must be developed. Further detailed engagement with GCSP is necessary and would be welcomed to refine the conditions and ensure they reflect an agreed, deliverable approach to developing the expansion land and enhancing the Green Belt.

Delivery Mechanism

6.3 This report and the accompanying suite of documents prepared by CBC and the landowners – namely the emerging Spatial Framework, the Transport Strategy, the Green Infrastructure and Biodiversity Strategy – set out the potential for wide ranging and substantial benefits associated with expanding CBC southwards and reinvigorating the existing Campus. The support which has been expressed by the landowners creates confidence that all affected parties recognise the benefit of joint working in order to create the best outcomes for the Campus.

6.4 To ensure that CBC reaches its full potential, whilst integrating with, complementing and supporting its neighbours, it will be necessary for the emerging Local Plan to propose a robust mechanism for securing such benefits. There are multiple policy mechanisms which can create confidence for the planning authorities and for the community (but also for investors and occupiers) that development will come forward at CBC in a co-ordinated and sustainable manner.

6.5 Planning policy can clearly specify the terms on which land would be released and can set planning policy for further developments within the Campus itself. The First Proposals specify the need for a new masterplan to be submitted and approved for the Campus. The emerging Spatial Framework is a forerunner of that masterplan and it demonstrates how a plan can be developed which co-ordinates activity across the Campus to achieve sustainable outcomes. Joint work can continue as the Local Plan moves forward to bring greater detail and consensus to the Framework. The Local Plan could include a diagram setting out the 'key moves' which the masterplan must deliver and / or it could delegate to an SPD or a later decision of the Councils the requirement to bring forward a more detailed plan in consultation with stakeholders, including the local community. Policy could require, for instance, the submission of a masterplan for approval by the Councils before specified development progresses.

6.6 Policy can also specify phasing requirements – examples are apparent in the way that the existing local plans specify the sequence of events which must take place at selected strategic

sites – particularly to ensure that necessary infrastructure is in place before development milestones are reached. Policy could require the submission of a Phasing Plan and an Infrastructure Delivery Plan for approval by the GCSP before further development takes place.

6.7 Policy will ensure the application of a Trip Budget to create confidence that traffic impacts will be limited, and that investment will necessarily take place in active travel and public transport. The policy could be developed in the plan or in SPD (or in mechanisms provided for by conditions of the policy) to set out the principles of monitoring progress against a trajectory. Similarly, policy could set out the nature of transport funding that would be expected in any s.106 agreements consenting major development at the Campus.

6.8 Planning policies generally in the Local Plan are expected to set quality performance requirements which apply to all developments on matters such as energy, thermal properties for buildings, water usage, biodiversity and climate change – if such matters have not by then been sufficiently established in new government standards or Building Regulations. Any specific requirements for CBC can clearly be set out additionally.

6.9 Planning policy could be sufficient in this context to achieve comfort that development cannot come forward without key conditions being met. The clear nature of that policy approach would be sufficient to ensure collaboration between parties to bring forward the required investment in facilities at the appropriate time – otherwise development cannot proceed. Policy would add to the incentive to ensure co-ordinated activity at the Campus and that the conditions for Green Belt release are observed.

6.10 Further engagement with GCSP is required before a single policy package can be selected.

Appendix 1

Creative Places – Globally leading research clusters

Globally leading research clusters

Cambridge University is ranked in the Top 5 global universities (QS and THE), alongside Harvard, MIT, Stanford and Oxford.

Each of these institutions has teaching and research activity located alongside or near to clinical activity.

The following slides assess the proximity of research (including academic institutions), clinical (hospitals) and R&D (commercial businesses) activity in relation to the university research at each of these locations, comparing them to the opportunity that exists at Cambridge Biomedical Campus.

November 2022

CreativePlaces

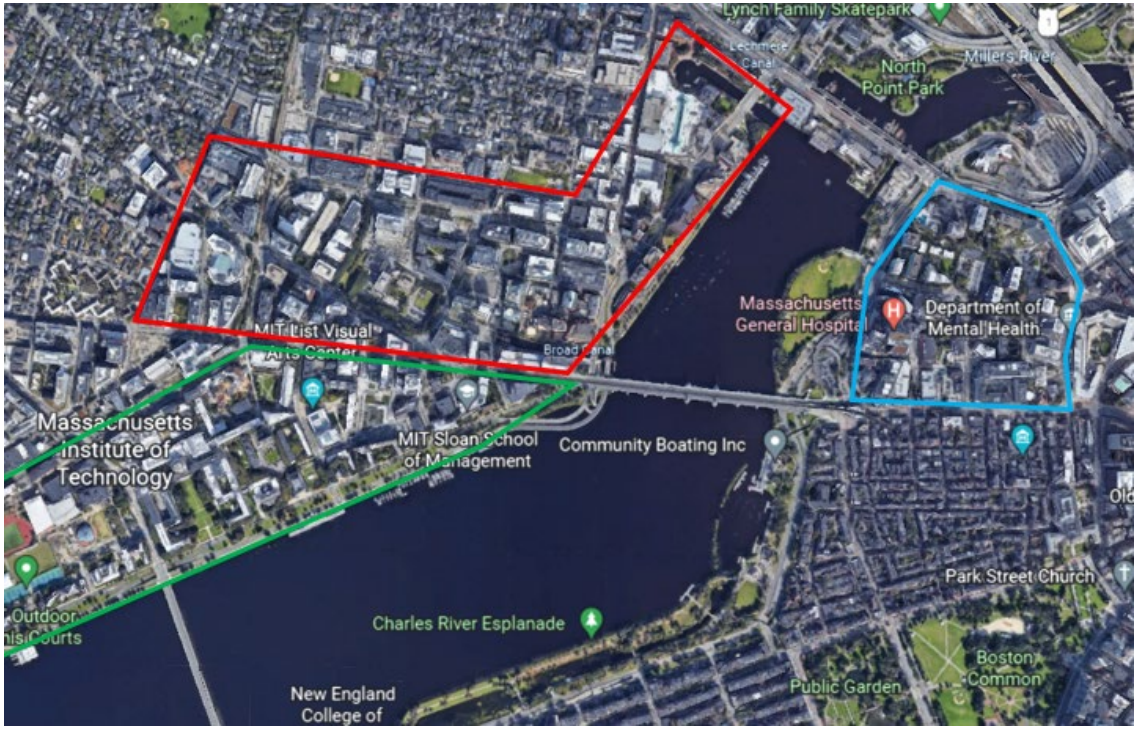
MIT

A dense cluster of research and R&D activity is located in East Cambridge, on the north bank of the Charles River

Research activity is centred around MIT and includes Koch Institute for Integrative Cancer Care, Broad Institute, McGovern Institute for Brain Research, MIT Institute for Medical Engineering Science and the Forsyth Institute

Commercial R&D activity takes place at scale, with around 15m sq ft of laboratory space located in East Cambridge alone. Major pharma companies co-locate with SME's and tech businesses, large and small. Activity here is focussed around Kendall Square, close to MIT

Clinical activity is centred around Massachusetts General Hospital where there is some research activity, but commercial R&D is less evident



Key:
Green edge – predominantly research/education
Red edge – predominantly R&D
Blue edge – predominantly clinical

Scale: 1 kilometre

Key message – Even at the world's largest research/R&D cluster, delivering space in and close to a hospital is difficult, so Cambridge Biomedical Campus has a quite unique proposition when we know that distance matters to the point that ½ a kilometre makes a difference. At Cambridge UK businesses want to co-locate with the healthcare related R&D too, but they can also get the benefit of being close to patient care because of the way the healthcare research has developed at CBC.

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Harvard

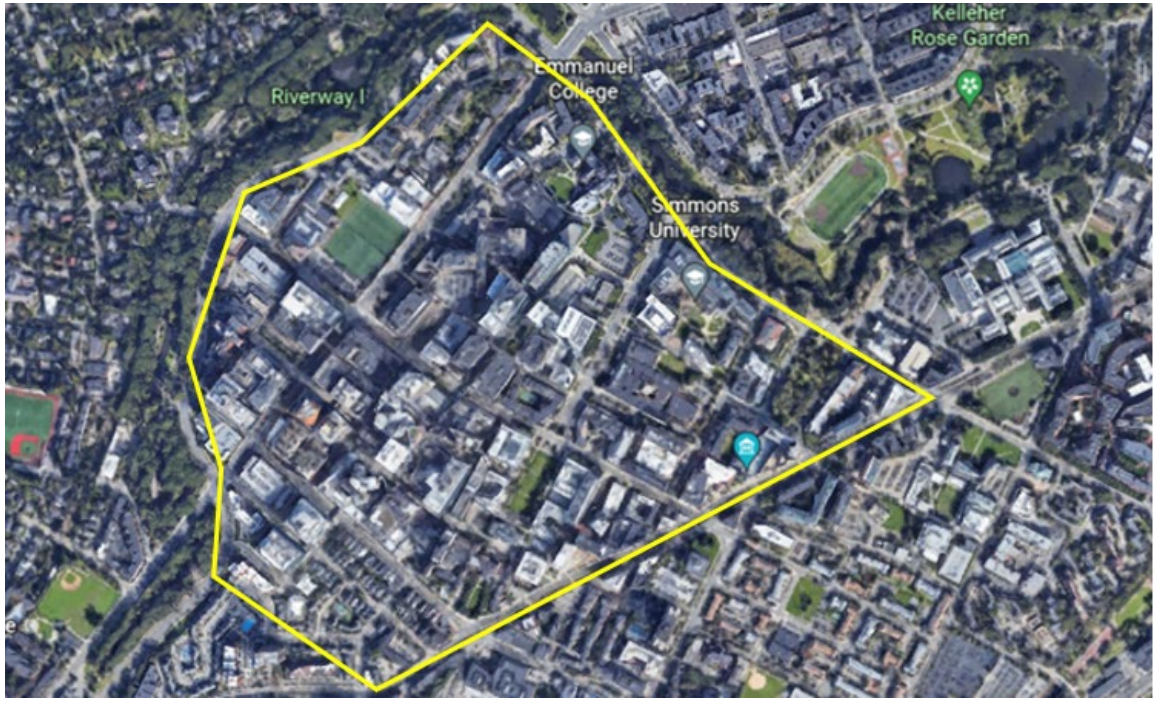
The principal clinical and healthcare research campus linked to Harvard is at the Longwood Medical Center, located around 4km south-west of central Boston.

The campus covers around 215 acres and houses 22 institutions in around 20 million sq ft but is relatively short of R&D space for businesses.

Research activity includes the Dana-Farber Cancer Institute, the Immune Disease Institute, and the CBR Institute of Biomedical Research, Wentworth Institute of Technology, alongside a major research facility for Harvard and teaching institutions including the Harvard Medical School.

Clinical activity sits across six hospitals.

Commercial R&D activity makes up circa 10% of the floorspace but further development capacity is limited.



Key:
Yellow edge – predominantly clinical, research and education with more limited commercial R&D

Scale: 1 kilometre

Key message – Whilst there are a good number of commercial companies that have taken space within the Longwood Medical Centre where Harvard and others undertake a lot of research, the location is hemmed in and as demand for commercial R&D floor space into the future grows they will find limited further opportunity to co-locate activity. Space has been taken up here first and space availability exhausted. Cambridge Biomedical Campus in the UK is therefore a place potentially able to grow to deliver what industry finds best for building business R&D productivity, versus potentially having to make compromises when working with Harvard, for example.

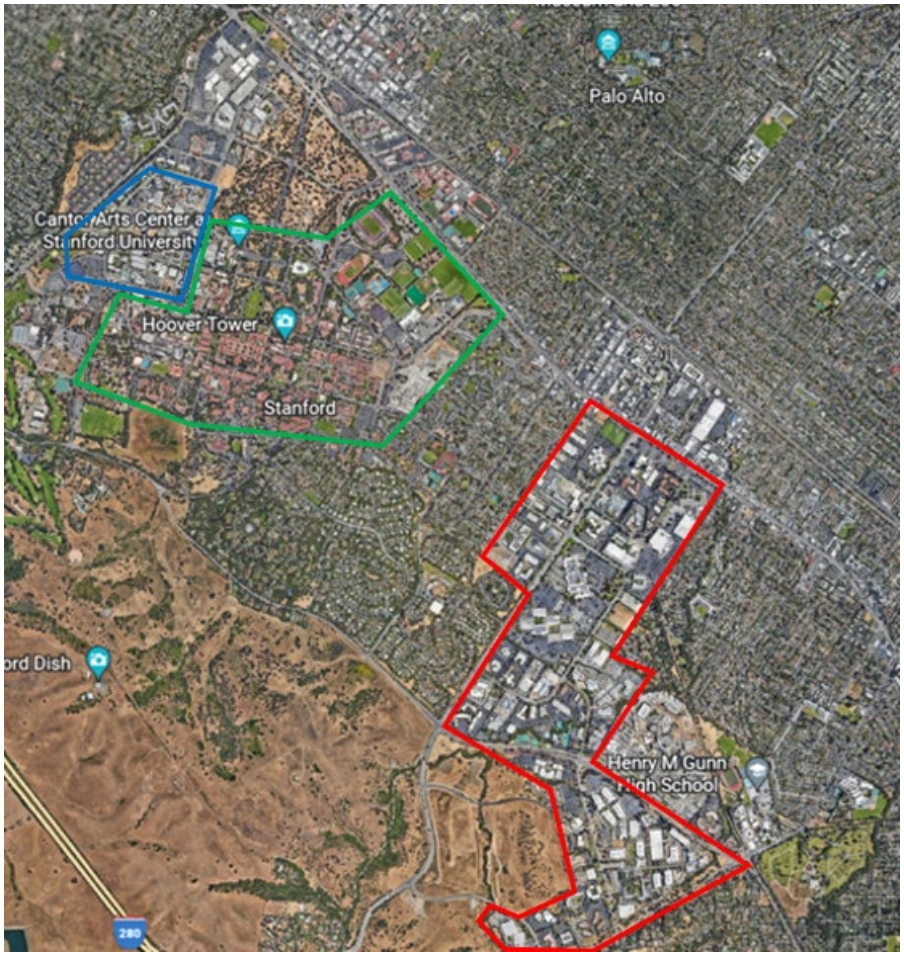
CreativePlaces

Stanford

Significant commercial R&D activity takes place at Stanford Research Park, one of the first such clusters in the world. The Park sits around 1km east of the University and 3km from the clinical cluster, covering 700 acres and with more than 10m sq ft of buildings.

Research activity is predominantly located within the University campus.

Clinical activity is located right alongside research activity and the University but a little distant from the commercial R&D.



Scale: 1 kilometre

Key:
Green edge – predominantly research/education (Stanford University)
Red edge – predominantly R&D (Stanford Research Park)
Blue edge – predominantly clinical

Key message – Stanford was one of the first science park developments in the world and has been very successful over more than 60 years, but its location is distant from the University and its related hospital activity. Into the future healthcare R&D is building very strongly in other California locations and without the USP of co-location it may struggle to be as relevant to healthcare product and service development.

CreativePlaces

Oxford

The principle clinical activity and medical school is located at the John Radcliffe Hospital on the eastern side of central Oxford. Further clinical activity takes place at the Churchill and Warneford Hospitals to the south.

Research activity associated with healthcare is increasingly focussed on the Old Road Campus which sits immediately to the north of the Churchill Hospital – around 1.25km to the south of the John Radcliffe

Commercial R&D adjacent to this clinical and research activity is limited and site constraints limit how much space can be built right alongside.

Scale: 1 kilometre

Key:
Green edge – predominantly research
Blue edge – predominantly clinical

Key message – Whilst the University of Oxford has started to build some small scale commercial activity at the Churchill Campus that has attracted SMEs and corporates like Novo Nordisk into space, there is little opportunity to develop commercial floor space at scale close to its Medical Sciences research on the Old Road campus and so Cambridge Biomedical Campus offers the UK's only real opportunity for businesses to co-locate with globally top 5 research capability and clinical activity.

CreativePlaces

Cambridge

Since the 1960's a major teaching hospital cluster has built up around Addenbrooke's. This has grown under the 2020 Vision so that further clinical, research and commercial R&D space has been delivered – right alongside each other.

Intensification of use and land to the south presents an opportunity to further grow this co-located activity – positioning world class research, clinical activity and a range of commercial R&D in close proximity. This is something of global significance.

Scale: 1 kilometre

Key message – Amongst the worlds top five university locations, Cambridge UK is unique in being able to offer true co-location and integration to businesses working in healthcare R&D. It is because of this opportunity to co-locate why clinical and research growth is likely to be progressed here into the future – enhancing patient care and lifting Cambridge University's scores in research excellence, knowledge transfer and teaching. That growth will further fuel desire of businesses to operate here, a snowballing effect of each area of activity growing and supporting others.

Key:
Green edge – predominantly research
Red edge – predominantly R&D
Blue edge – predominantly clinical

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Cambridge Biomedical Campus
- How distance matters to commercial R&D productivity

The agglomeration of R&D Labs – Research by Carlino, Hunt, Carr and Smith, 2012

'the clustering of labs is by far most significant at very small spatial scales, such as distances of about one-quarter of a mile, with significance attenuating rapidly during the first half-mile. The rapid attenuation of significant clustering at small spatial scales is consistent with the view that knowledge spill-overs are highly localized'

The impact of clustering on firm innovation – Research by Ruffner and Spescha, 2018

This research identifies the following:

- the positive relationship between 'own-industry' employment and innovation activity decays rapidly with increasing distance and vanishes after 500m to each side away from respective firms. Hence, personal contact to employees of other firms is only beneficial for a firm's innovation activities when these employees are located literally across the street
- universities are likely to make the firms located around them more innovative
- new technological opportunities generated by scientific advances can substantially bring down the costs of inventing and therefore play a decisive role in determining the speed of technological advance
- if a firm has more competitors in its direct neighbourhood it is likely to use more external knowledge from them for its innovation activities – with an analysis of data showing that knowledge spill-overs are only positive related to own industry employment within the 1km ring

Example of how distance influences decision making

In London MSD sought space within a five minute walk of the Francis Crick Institute. MSD ultimately took a lease on Belgrove House, Euston Road, within 500 metres.

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Cambridge Biomedical Campus
- How distance matters to commercial R&D productivity

How businesses will go elsewhere around the world if they cannot find what they want

Demand from growing SMEs and large global corporates needs to be considered in detail.

SMEs with potential for their products and services to have real world application/value and likely to grow fast, typically have fast evolving management teams and financial backing. Many businesses start up in Cambridge UK but can potentially find that very quickly the management team or the financial backers have people based overseas in influential roles. As a consequence as the company considers growth, the options of growing overseas, particularly in the US, are pitched against growth in Cambridge UK. For Cambridge to compete in these critical decision making periods it needs its USPs to be as strong as possible, for the Cambridge Biomedical Campus to offer something quite unique in the world. The Biomedical Campus can do that if it continues to grow its clinical, research and R&D activities, and plan to support company growth at scale.

Large global corporates will typically look strategically at locations around the world to pursue product and service development using open innovation. They will put under the microscope what different locations have to offer. Where they see vibrant, supported and highly productive places they will seek to explore further what the opportunities are - and sometimes they will want to believe that they can scale activity. If Cambridge Biomedical Campus isn't able to demonstrate it is has capacity to deliver more floor space into the future and that its stakeholders are not ambitious in their plans to build clinical, research and R&D activity, and build spin-outs and a dynamic ecosystem, they may choose to locate in other places where there is more belief for long term commercial advantage to be realised. Occupiers need confidence that grow-on space will be available.

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