The London Cancer Hub

A global centre
for cancer innovation

Our roadmap for The London Cancer Hub

ICR The Institute of Cancer Research

The ROYAL MARSDEN NHS Foundation Trust

Sutton

Image courtesy of Feilden + Mawson architects

10,000

researchers, clinical staff and support staff working together across one site

265,000m² of state-of-the-art facilities in beautiful green space

A vibrant community with a school and high-quality amenities

The vision

The London Cancer Hub will be a global centre for cancer innovation providing state-of-the-art facilities and delivering real benefits for patients.

Our ambition is to create the world's leading life-science district specialising in cancer research and treatment. The London Cancer Hub will create a vibrant community of scientists, doctors and innovative companies, intended to deliver real benefits for cancer patients and drive economic growth.

The London Cancer Hub is a partnership between The Institute of Cancer Research, London, and the London Borough of Sutton, with the support of The Royal Marsden NHS Foundation Trust and the Greater London Authority. The partners are also working in close collaboration with Epsom and St Helier University Hospitals NHS Trust. The vision is to create an improved, expanded, world-class campus for life sciences in Sutton, south London.

We plan to deliver an exceptional environment for cancer research that enhances the discovery of new treatments and their development for patients. State-of-the-art facilities will be built to enhance our global reputation for excellence, and will be joined by a multitude of high-tech enterprises in a network of 10,000 researchers, clinical staff and support staff all operating from one site. Working together, this community of scientists and doctors will take new treatments to patients through clinical trials and commercial partnership.

The London Cancer Hub will be a living, breathing community with research buildings, hospital facilities, a school, restaurants, cafes, and hotel accommodation for visitors and patients. The transformational design has the potential to deliver around 265,000 square metres of modern facilities in beautiful green space, making the most of the campus's unique location within London – a global city – but in easy reach of the outstanding Surrey countryside. The campus will provide attractive work and leisure space for researchers and clinicians, and an outstanding healing environment for patients.

The London Cancer Hub will be a living, breathing community with a school, restaurants, cafes, and hotel accomodation for visitors and patients.

The ICR, The Royal Marsden and the London Borough of Sutton have together carried out a feasibility study for The London Cancer Hub, which has established eight key principles for the project:

1. To create a focal point for talented scientists and clinicians by establishing world-class facilities to attract top researchers and through educating the life-science workforce of the future.

2. To expand the world-leading cancer research, treatment and care carried out by the ICR and The Royal Marsden – translating groundbreaking discoveries from the laboratory through to patients in the clinic.

3. To develop an environment that encourages collaboration between disciplines and institutions – for instance by bringing people from different scientific fields together in the same physical space.

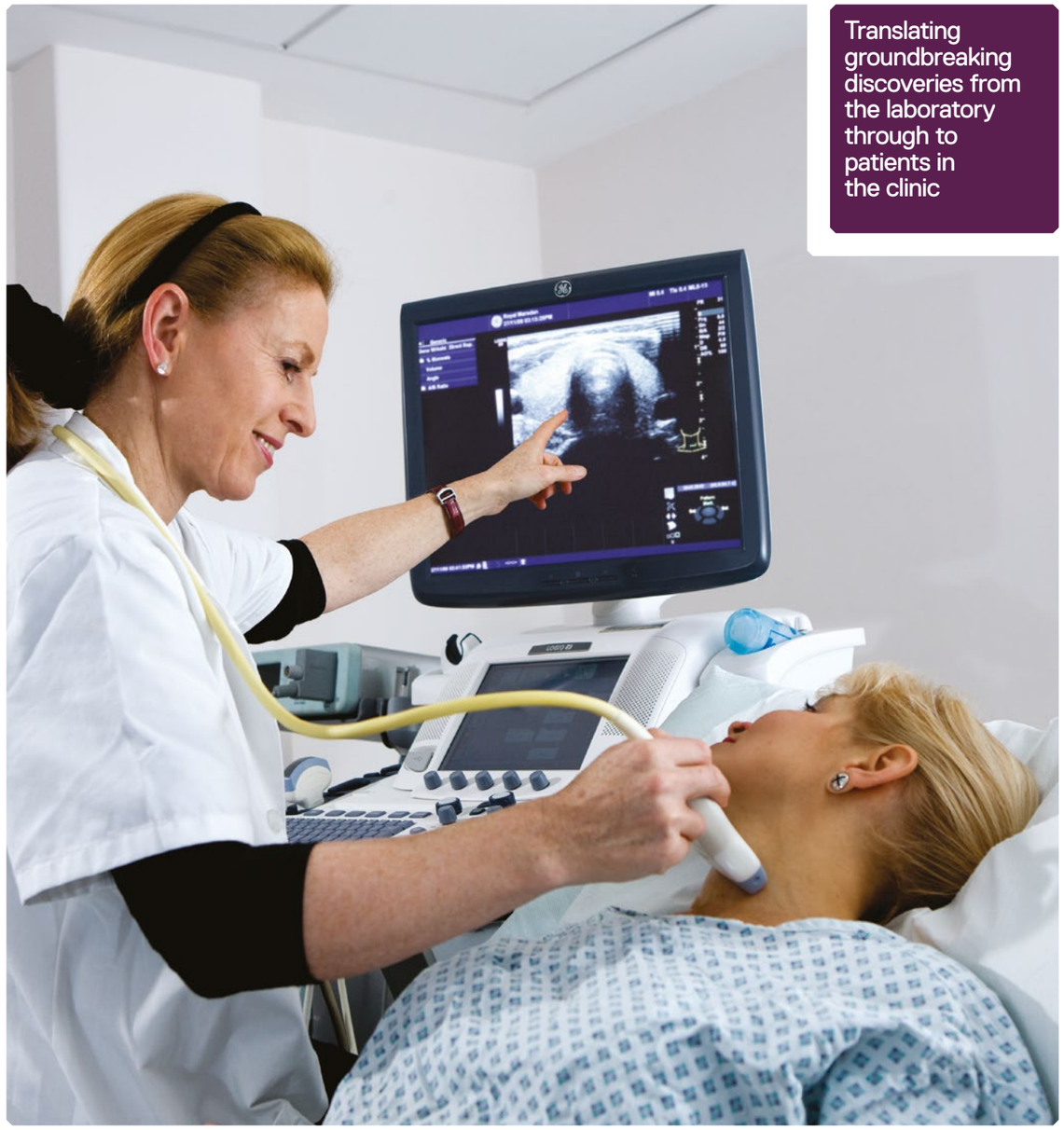
4. To bridge the public and private sectors by ensuring academic researchers share space with global and local private enterprises within integrated facilities.

5. To create an outstanding environment for staff and patients by developing a green spine through the site and organising space in a recognisable, easily navigable urban grid.

6. To deliver a vibrant public space and community, including educational facilities, high-quality amenities and excellent public transport, for the benefit of people who work on or visit the site, and the local area.

7. To deliver this transformation while maintaining continuity of research and patient care by identifying development plots that can be built on over time with minimal disruption to users.

8. To create opportunities for people living in Sutton by developing unused brownfield land to boost the local economy, improve local transport links and create thousands of jobs with a career ladder that starts from the secondary school planned for the site.



Translating groundbreaking discoveries from the laboratory through to patients in the clinic

An outstanding environment for staff, visitors and patients

The London Cancer Hub is a major, long-term programme to transform the Sutton site into a world-leading life-science campus specialising in cancer research, treatment, education and enterprise. The total transformation will cost in excess of £1bn over the lifetime of the project and is expected to create more than 13,000 jobs – 7,000 life-science or support jobs, and another 6,200 in the site's construction. It is one of the most significant regeneration projects in London and will require the coordination of multiple public institutions and private partners.

The projected benefits are huge. The London Cancer Hub will form one of three outstanding life-science districts within London, alongside the White City Campus and the Euston Corridor, site of the Francis Crick Institute. It will also be an important component of the London-Oxford-Cambridge 'golden triangle' of life-science research. We anticipate that the development will deliver at least two extra cancer drugs every five years and will contribute around £1.1bn each year to the UK economy.

The partners

The London Cancer Hub is a partnership between the ICR and the London Borough of Sutton– working in close collaboration with The Royal Marsden, the Greater London Authority and Epsom and St Helier University Hospitals NHS Trust.

The Institute of Cancer Research, London

The ICR is one of the world's most influential cancer research organisations, with an outstanding record of achievement dating back more than 100 years. It provided the first convincing evidence that DNA damage is the basic cause of cancer, discovered many of the early chemotherapies, and helped lay the foundation for modern immunology and immunotherapy.

Today, the ICR discovers more new cancer drugs than any other academic organisation globally, and is also a world leader in identifying cancer genes and developing precision radiotherapy.

As well as being a world-class research institute, the ICR is also a higher education institution and a college of the University of London. It came top in the league table of university research quality compiled from the Research Excellence Framework. The ICR has charitable status and relies on support from partner organisations, charities, donors and the general public.

The ICR is based on two London sites, in Chelsea and Sutton. The Sutton campus hosts the majority of the ICR's drug discovery and development activities, along with major research programmes in genetics, cancer imaging and radiotherapy.

The London Borough of Sutton

The London Borough of Sutton is a dynamic local authority that is leading the way in developing new investment opportunities to benefit its residents and businesses.

Through its inward investment arm Opportunity Sutton, the council has set up its own energy services company and housing development company, and had the vision to develop brownfield land in Belmont to create the world's leading cancer research and treatment centre.

The London Cancer Hub will create a ladder of opportunity for Sutton residents by offering around 13,000 jobs. It will generate £1.1bn per annum for the UK economy, and benefit the local economy by creating more jobs and opportunities for Sutton's residents.

Sutton Council has some of the best schools in the country. Now it is giving its young people the opportunity to enter the sector by purchasing 1.6 Hectares within the site to accommodate a school with a specialism in the sciences.

It is leading the masterplanning work for The London Cancer Hub on behalf of the partners, including a consultation as part of its Local Plan which sets the vision for the development of the borough over the next 15 years.

Supported by: The Royal Marsden NHS Foundation Trust

The Royal Marsden opened its doors in 1851 as the world's first hospital dedicated to cancer diagnosis, treatment, research and education.

Today, together with its academic partner, the ICR, it is one of the world's leading and most comprehensive cancer centres, treating more than 50,000 NHS and private patients every year. It is a centre of excellence with an international reputation for groundbreaking research and for pioneering the very latest in cancer treatments and technologies.

The Royal Marsden, with the ICR, is the only National Institute for Health Research Biomedical Research Centre dedicated to cancer. First awarded the status in 2006, it was re-awarded in 2011. A total of £62 million is being provided over five years to support pioneering research, and is being shared out over eight different cancer themes.

The Royal Marsden has two hospitals: one in Chelsea, and one in Sutton. The Sutton facilities provide 50,387 square metres of space for clinical and support activities. The Royal Marsden also currently provides community services in Sutton.

The Sutton site today

Together, the ICR and The Royal Marsden rank in the top four centres for cancer research and treatment worldwide, but they are constrained by their current capacity and facilities.

The ICR and The Royal Marsden are globally renowned for their pioneering work in cancer research and treatment, much of which takes place on their shared site in Sutton. The two organisations were founded in Chelsea in central London, but expanded outwards to Sutton in south London in the 1950s. Ever since, the Sutton site has been at the heart of the ICR's and The Royal Marsden's work together to drive forward dramatic advances in cancer treatment. Many of the treatments pioneered in Sutton are in use throughout the world today – including some that were developed in the early days of the site, back in the 1960s.

The ICR and The Royal Marsden worked together to discover and develop many of the early chemotherapies on the site, including busulfan, chlorambucil, melphalan and carboplatin, which are still widely used. They drove forward modern high-precision radiotherapy techniques, which shape beams of radiation to precisely fit the contours of a tumour. And the ICR discovered the prostate cancer drug abiraterone – now used as standard treatment throughout the world – on the Sutton site, and ran clinical trials there jointly with The Royal Marsden to develop the treatment for patients. Most recently, the two organisations jointly ran early clinical trials of the drug olaparib, which has become the first cancer treatment targeted against an inherited genetic fault to become available on the NHS.

The ICR now discovers more new cancer drugs than any other academic centre in the world, largely through its Cancer Research UK Cancer Therapeutics Unit in Sutton. It is also the most successful academic organisation in the UK at earning invention income from its discoveries. The ICR and The Royal Marsden jointly run the Drug Development Unit on the site – and it has grown to become one of the world's largest phase I clinical trial centres. Together, the ICR and The Royal Marsden rank in the top four centres for cancer research and treatment worldwide.

The Drug Discovery Unit in Sutton is one of the world's largest phase I clinical trial centres

There is an opportunity for a fundamental rethink of the whole Sutton site

But the world of cancer research and treatment is fiercely competitive and all leading organisations must continue to develop, innovate and grow, or they risk getting left behind. The ICR and The Royal Marsden face strong competition for talent, resources and patients, and in seeking to stay ahead of the game they are constrained by their current capacity and facilities. In Chelsea, both organisations are landlocked, and land prices are so high that it would be extremely difficult to expand. The Sutton site offers far more prospect for growth – but while it houses state-of-the-art facilities, its layout is confusing and difficult to navigate, and some of the existing buildings are in need of upgrading. Rather than simply adding to the existing estate, there is an opportunity for a much more fundamental rethink of the whole Sutton site. The London Cancer Hub will aim to deliver a world-class environment for cancer research and treatment fitting for a site of such heritage, and capable of sustaining and building upon its international reputation.

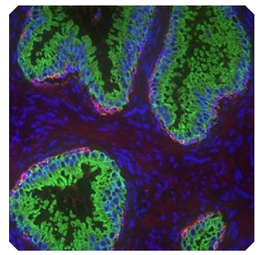
Case study: Abiraterone

In the UK, more than 10,000 men die of prostate cancer every year, the second most common cause of cancer death in men. Prostate tumours are dependent on male sex hormones, called androgens, and one of the main ways doctors treat the disease is by blocking these. However, over time most patients' cancers stop responding to standard hormone treatments.

Scientists working at the ICR's Sutton site revolutionised treatment of these tumours by proposing to target androgen production. Researchers at the ICR designed and synthesised abiraterone, and showed it had therapeutic activity. The ICR collaborated with healthcare company BTG, which licensed abiraterone to Cougar Biotechology – later aquired by Janssen Pharmaceutical Companies.

Trials led by the ICR and The Royal Marsden found that up to 70% of men with advanced prostate cancer responded to abiraterone. A phase III trial co-ordinated by the ICR in 2008 found that treatment with abiraterone led to a 35% reduction in the risk of death in men with the disease.

Abiraterone was approved by NICE for use on the NHS in June 2012. It is now significantly prolonging survival and improving quality of life for hundreds of thousands of patients worldwide.



The cancer challenge

The past decade has seen astonishing progress in our understanding of cancer. However, major challenges remain.

Overcoming cancer is a huge challenge – in numerical terms the greatest medical challenge that humanity faces. Cancer is the leading cause of disease worldwide, with around 14 million new cases each year. And it is the leading cause of death, with around 8 million deaths each year. In developed countries like the UK, the burden of cancer on society is enormous and growing. One person in two born after 1960 in the UK will now develop cancer in their lifetime.

Cancer research has delivered spectacular advances in our understanding of how cancer develops, evolves and spreads. It has helped to fuel a huge global market for cancer drugs, growing at 7% a year, and projected to reach $112bn a year by 2020.

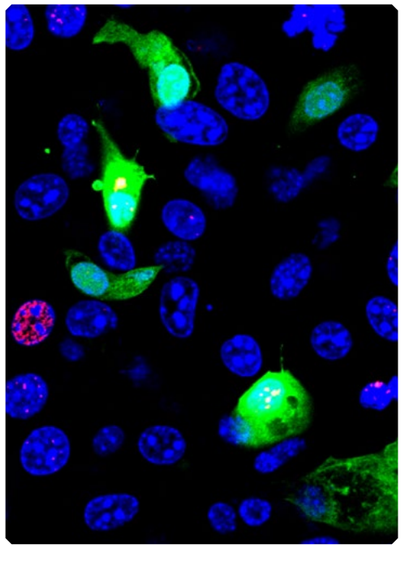
Advances in drug treatment, radiotherapy and surgery have delivered substantial improvements in outcomes for cancer patients. In the UK, just a quarter of patients with cancer survived 10 years after diagnosis in the 1970s, but that figure has now doubled. Progress has been particularly dramatic in the last decade, with median cancer survival rising from five years to 10 years between 2005/6 and 2010/11.

Just 5% of those with lung cancer survive for 10 years

However, major challenges remain. Survival rates differ starkly between different cancer types – 98% of patients with testicular cancer survive for 10 years but just 5% of those with lung cancer. Rates of progress have also variedly markedly, with breast cancer survival doubling since the 1970s, but survival from pancreatic cancer barely improving at all. Many of the newer targeted treatments have proved highly effective at first, only for cancers to then develop resistance against them. So there is an urgent need to discover and develop a new generation of cancer treatments, which can not only target specific molecular features of tumours, but do so in a way that anticipates and overcomes their propensity to evolve drug resistance.

There is an urgent need to discover and develop a new generation of cancer treatments

The ICR and The Royal Marsden are in a unique position to meet this challenge. The ICR's pioneering Centre for Evolution and Cancer is opening up new understanding of how cancers adapt and change in response to treatment. The ICR and The Royal Marsden are also leading development of new treatment strategies to counter resistance, including adaptive therapy, immunotherapy and combination treatment. Together, they are in a position to deliver advances in treatment that have major benefits for cancer patients, and make an important contribution to the UK economy.



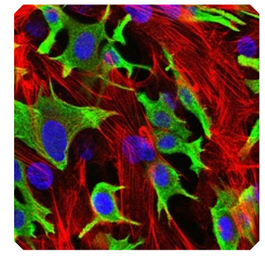
Case study: Olaparib

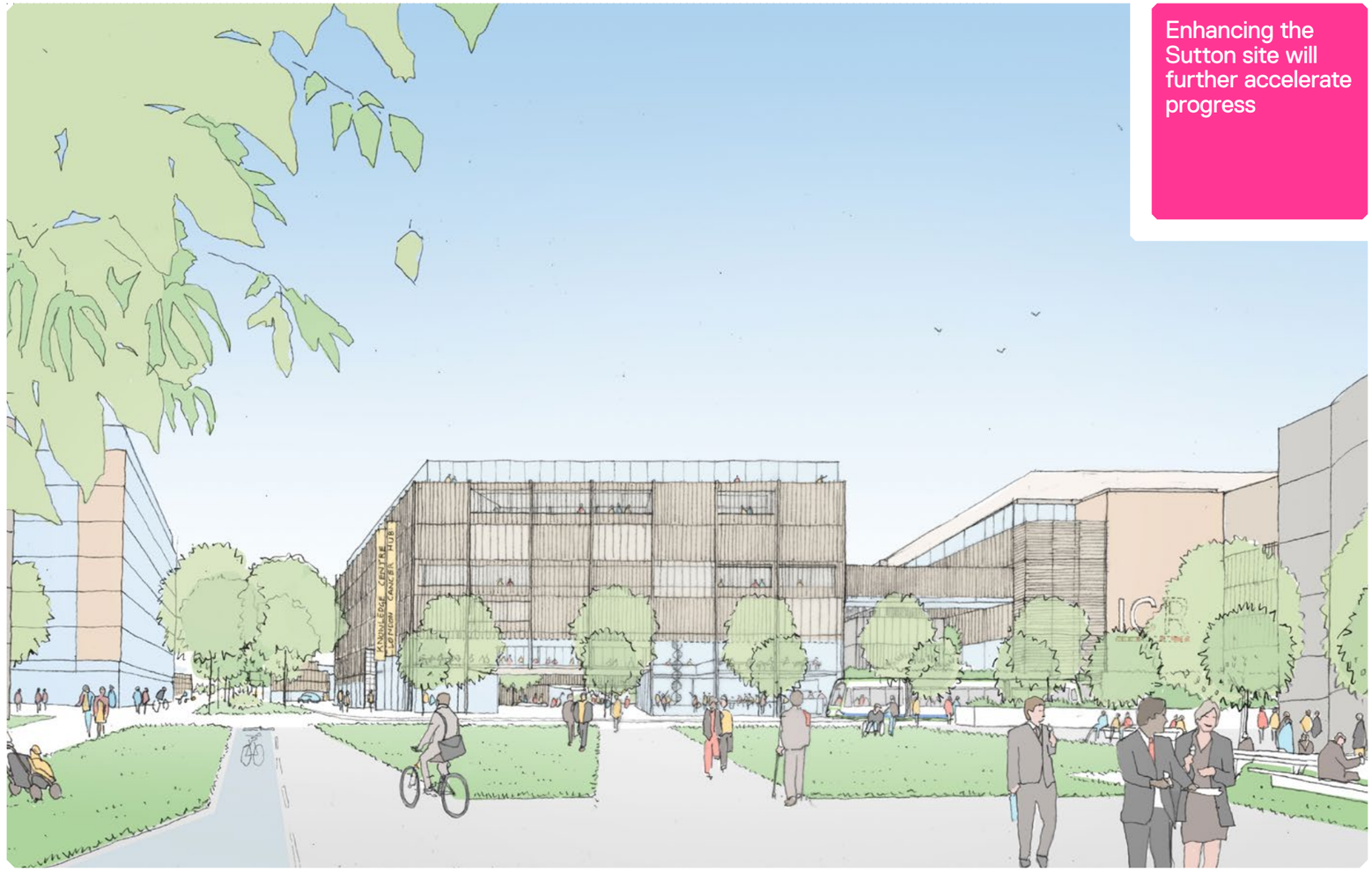
In the 1990s, researchers at the ICR identified a gene called *BRCA2*, which when mutated increases the risk of breast and ovarian cancer. The discovery was the first step in the development of a drug called olaparib, which treats women with mutations to the *BRCA* genes.

Researchers at the ICR showed that the protein encoded by the *BRCA2* gene plays a key role in DNA repair. The team proposed that cancer cells lacking *BRCA* function would be highly sensitive to drugs that inhibit an alternative DNA repair pathway, involving a protein called PARP. In 2005, they found that cells with *BRCA* mutations were up to 1,000 times more sensitive to inhibition of PARP than those without.

This work rapidly led to clinical trials of PARP inhibitors carried out by researchers at the ICR and The Royal Marsden, and at other centres across the UK. Cancer patients received the PARP inhibitor olaparib, developed by UK company KuDOS – later acquired by AstraZeneca. These early trials demonstrated that olaparib caused significant tumour shrinkage, without causing many of the side-effects of chemotherapy.

Olaparib has now shown remarkable clinical effectiveness in women with ovarian and breast cancer carrying mutant forms of *BRCA1* or *BRCA2*, and more recently in men with prostate cancer. It has become the first cancer treatment targeted against an inherited genetic fault to be approved for patients. In December 2015, olaparib was accepted by NICE for use on the NHS.





Enhancing the Sutton site will further accelerate progress

World-class cancer research and treatment requires the very best facilities

The ICR urgently needs to enhance its existing strengths in drug discovery

Why change is needed

An ambitious plan to transform the Sutton site will ensure that it remains globally competitive.

The ICR and The Royal Marsden have immediate and pressing needs to enhance their facilities on the Sutton site in order to stay ahead of the competition and to accelerate their progress against cancer.

At the ICR, the Cancer Research UK Cancer Therapeutics Unit is the world's most successful academic centre for discovering new cancer drugs, but it is constrained by space and its facilities need urgently to be upgraded to further accelerate progress. The Royal Marsden is facing rising demand from patients for its world-class cancer care, and needs to further improve its facilities on the Sutton site.

The ICR and The Royal Marsden could meet their short-term needs through specific, limited developments, but to remain globally competitive they require a more ambitious, longer-term plan to transform the Sutton site. They have identified the following development needs for the Sutton site, in order to ensure they stay ahead of their competitors and deliver further benefits for patients.

An enhanced working environment.
The Sutton site contains a range of state-of-the-art facilities, but the layout is confusing and difficult to navigate. The ICR and The Royal Marsden face global competition for new talent, and need to offer the best people not only top scientific and clinical facilities, but also a high-quality working environment with a range of choices over where to live, work and play. The site would benefit from being remodelled as a more walkable and attractive neighbourhood, where jobs, housing and leisure amenities intermix.

Expanded capacity for research
The ICR has outgrown its current space and some of its existing buildings are approaching the end of their expected lifespans. It is already having to turn down potentially important

opportunities for commercial partnership on drug discovery because of a lack of space and facilities. The ICR urgently needs to enhance its existing strengths in drug discovery, while taking advantage of new opportunities in fields such as cancer evolution and immunotherapy. It believes it needs to build an initial three new buildings offering an additional 20,000 square metres of research space. Doing so will substantially increase the ICR's capability to discover new cancer treatments, and is expected to deliver at least an extra two cancer drugs every five years.

Greater opportunity for multidisciplinary collaboration

The Sutton site could do more to maximise the benefits the ICR and The Royal Marsden enjoy from their co-location, and to drive collaboration between researchers of different disciplines. The modern economy is based on collaboration and innovation, and buildings and entire districts need to be designed with that in mind. The ICR and The Royal Marsden have both set out in their estate strategies the need to design new buildings with the aim of optimising the interaction between scientists and clinicians, in order to translate research findings into clinical practice as quickly as possible.

Better integration between public and private sectors

The ICR and The Royal Marsden work closely with private companies in the discovery and development of new drugs and medical technologies, but few of these companies have any permanent base on the Sutton site. Our most creative institutions, firms and workers crave proximity so that ideas and knowledge can be transferred more quickly and seamlessly. We see a need to create space for companies to move onto the site, or for companies to be spun out from the ICR's research.

Transformed public transport access

The Sutton site is served by multiple buses, connected via frequent rail services to central London and well positioned for international travel through London's airports – but its further development will require a step change in the quality and capacity of public transport. There is a particular need to deliver better transport from Sutton station to the site, potentially through the proposed south London Tramlink extension and enhancements to Belmont station. There is also a need for better walking and cycling opportunities to provide quick and sustainable means of travelling to the site.

Stronger role in nurturing the scientific talent of the future

The Sutton area could do more to develop mutually beneficial links between the ICR (a college of the University of London), The Royal Marsden, and local schools and colleges. Sutton has a shortage of secondary school places, and lacks any specialist science academy to play an active role in nurturing future scientists, doctors and technicians. A local school with a science focus could be guided – and its curriculum enriched – by the ICR and The Royal Marsden, and in turn could play an important role in developing relevant skills for the local area. There is also an opportunity to develop closer links with local further education colleges.

High-quality hotels for patients and visitors

The Sutton area needs improved hotel space and temporary accommodation. The Royal Marsden treats patients who travel from all over the UK and the world to benefit from its world-class cancer care. Patients will often stay in Sutton long term during treatment and the hospital's many younger patients will also be accompanied by their families. The amount of high-quality accommodation available for patients and their families is limited. Demand may well also increase, as cancer care is increasingly delivered on an outpatient basis. There is also increasing demand for high-quality hotel accommodation for visitors, and an unmet demand for conference space.

A local school with a science focus could play an important role in developing relevant skills for the local area

Sutton has a shortage of secondary school places

The London Cancer Hub partners believe that only a comprehensive reimagining of the Sutton site can meet their needs for development, and ensure that the ICR and The Royal Marsden retain and build on their position as world leaders. The project will aim not only to expand the site and upgrade its facilities, but also to create a new overarching design, encourage collaboration and commercial partnership, and improve the quality of life of staff and patients. Its broad ambition also includes driving the London Borough of Sutton's goals for economic development and job creation, creating a vibrant community around the Sutton site, and integrating its activities with the provision of high-quality, science-focused education, through the establishment of a new school and links with local colleges.

The opportunity for success

It is an exciting time for cancer research. There is a supportive environment for life sciences, a new generation of cancer therapies, and a shared vision for a world-leading campus in Sutton.

The ICR and
The Royal Marsden
are world leaders
in cancer research
and treatment

The ICR and the London Borough of Sutton together have a unique opportunity to create a truly world-class cancer research district that will deliver benefits for cancer patients and the UK economy. A coming together of circumstances has opened up the chance for a radical rethink of the whole Sutton site, to turn it into an international centre for cancer innovation.

The London Cancer Hub partners – by working closely with Epsom and St Helier – expect to have access to land for growth. This is a time of dramatic progress in cancer research and treatment, and there is demand for expansion of life-science facilities on the site from commercial partners and patients.

Assessments of existing life-science campuses suggest there are a number of features shared by those that have become internationally successful. These include the anchoring of a site around excellent founder organisations – normally including a higher education institution – high-quality facilities for cross-disciplinary research and clinical trials, and space to expand. Successful life-science clusters also tend to have access to commercial partners, investment capital and systems to protect intellectual property. They normally benefit from a supportive political environment.

The London Cancer Hub is in the rare position of fulfilling all of these criteria for success. We are confident that we will be in a position to create a thriving, truly world-class life-science campus.

World-class partners

A common feature of all successful life-science clusters is that they are anchored around excellent founding partner organisations. The ICR and The Royal Marsden both have international reputations as world leaders in cancer research and treatment. That gives the project a huge head start in its aim to create the world's leading life-science campus focused on cancer. The ICR ranks as the UK's leading academic research centre and The Royal Marsden as the UK's leading cancer hospital. They already successfully integrate their research and patient care, including jointly running the world's largest phase I clinical trial unit for cancer. Together they are ranked in the top four cancer centres worldwide.

There is strong demand from investors, funders and politicians for The London Cancer Hub

An existing site available for expansion

The ICR and The Royal Marsden are already located alongside one another in Sutton, and by working with Epsom and St Helier – which owns Sutton Hospital on the site – there is substantial space for expansion and more efficient use of land. Epsom and St Helier is currently running many of the hospital's services at other locations, and is keen to develop new, enhanced facilities for local patients. Epsom and St Helier is talking to the London borough of Sutton, the ICR and The Royal Marsden about how and where it should redevelop its local hospital facilities. Together, the parties are developing a shared vision in which the site will be radically reshaped. Several options are being considered, including relocation of Sutton Hospital to elsewhere on the site. By working with Epsom and St Helier, The London Cancer Hub can gain access to 7.2 Hectares of land currently occupied by Sutton Hospital buildings. Together with existing land held by the partners, that could give The London Cancer Hub twice the space currently occupied by the ICR and The Royal Marsden.

£4.7bn

a year generated by life-science organisations in London

Huge opportunities in cancer research

We are seeing some extraordinary increases in our understanding of the genetics and biology of cancer, driven by technological advances in areas such as DNA sequencing.

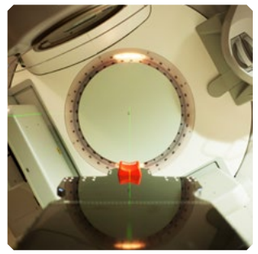
Researchers are now developing a new generation of molecularly targeted cancer drugs and immunotherapies, with the potential to treat cancer more effectively and with fewer side-effects than ever before. Cancer's ability to become resistant to treatment remains a huge challenge – but new opportunities are opening up to tackle resistance, through advances in our understanding of cancer evolution. The ICR, with its Centre for Evolution and Cancer and unrivalled record in cancer therapeutics, together with The Royal Marsden, with its exceptional reputation for clinical trials and cancer care, are in the ideal position to take advantage of this exciting period for cancer science, and deliver real benefits for cancer patients.

Vibrant London and UK life-sciences sector

The London Cancer Hub will sit within one of the world's leading cities for life sciences, with easy access to a powerful network of potential funders and collaborators. London has the greatest concentration of life-science organisations anywhere in the UK, with its companies employing 21,500 people and generating £4.7bn a year. London sits at the heart of a vibrant UK life-science industry, growing faster than the economy as a whole, with further bases in Cambridge, Oxford, Manchester, Edinburgh and Belfast. The UK has been highly successful at supporting partnerships between world-class academic institutions, the NHS, industry and charitable funders like the Wellcome Trust.

Growing investment in international life-science hubs

We believe there is strong demand from investors, funders and potential partners for The London Cancer Hub as a world-class life-science campus. The UK is the number one European destination for life-science investment. Research organisations and private companies internationally are increasingly attracting investment to establish collaborative life-science campuses, as a means of delivering benefits for patients and the economy. Creating life-science hubs is seen as a way of encouraging innovation and collaboration, speeding the development of new medicines, and allowing private companies to develop ideas from academic research as an alternative to investing heavily in their own research and development.



There is political support for the project – at local, London and national level

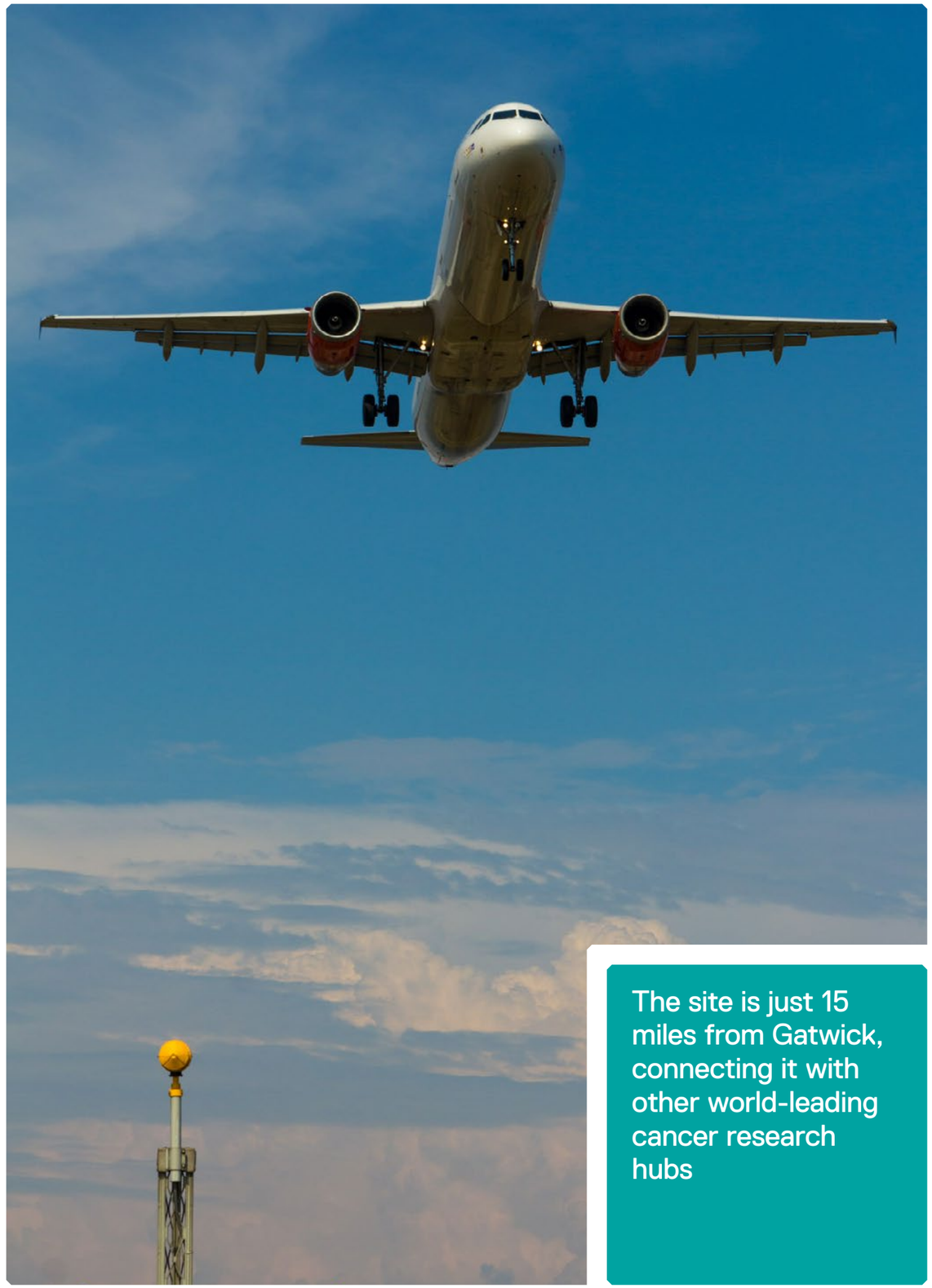
Demand from partners for co-location on the Sutton site

We have evidence that many private companies and public institutions may be willing to move to The London Cancer Hub to reap the benefits of co-location. The ICR and The Royal Marsden work with a diverse range of biotech, pharmaceutical, medical device and software companies. Many of these firms have said they would like to work together on a single site with the ICR and The Royal Marsden, as a means of enhancing their research capability. Companies interviewed cited three main attractions to potentially moving to the site: access to highly skilled research staff, access to patients, tissue and blood, and the benefits to their brands of being associated with the ICR and The Royal Marsden within an international centre of excellence.

Many commercial partners are major firms that would only relocate to Sutton for a compelling reason, and might not do so straight away. But there is an immediate opportunity in providing incubator laboratory space either for small companies, or for spin-off activities of larger companies. This model is highly flexible, giving companies – including those developed from the ICR's own research – the space to grow and expand on flexible leases. The ICR is developing a research alliance in drug discovery with a partner which is excited by the prospect of a bioscience incubator, and has indicated strong interest in taking up a minimum of 10 incubator units. We also have interest from another higher education institution in the south east which is unable to expand on its own site and would value the opportunity to work closely in collaboration with the ICR and The Royal Marsden in Sutton.

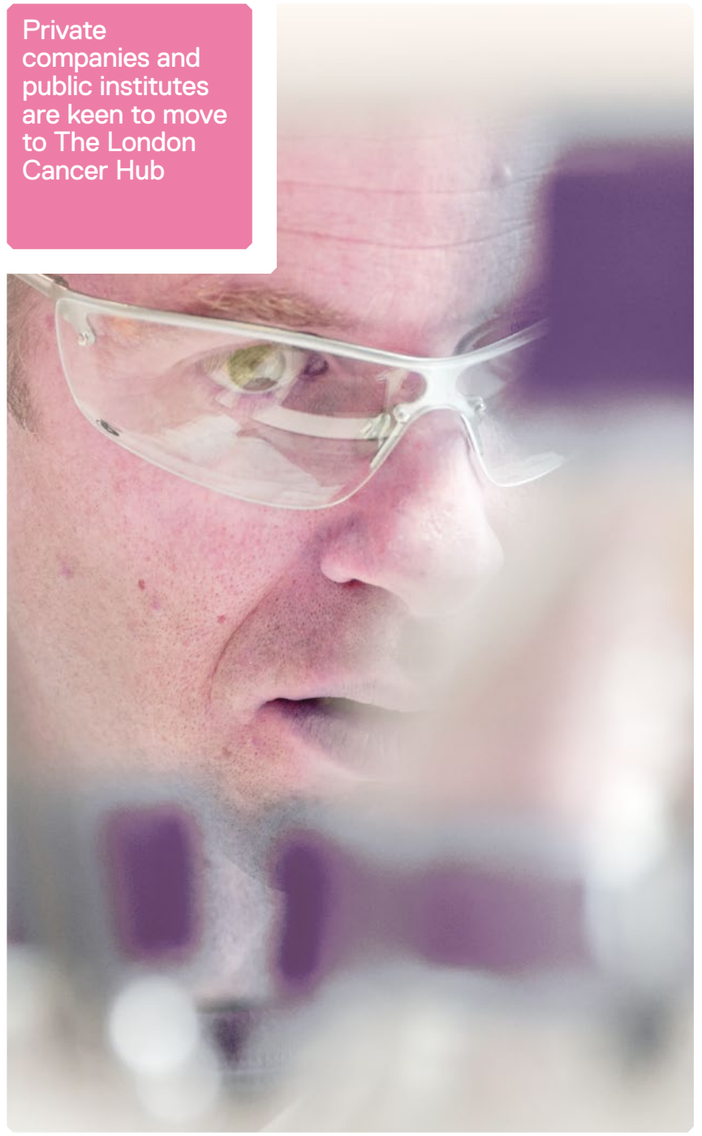
Supportive political environment

There is political support for the project – as a key element of the development of the UK life-science industry – at local, London and national level. We believe that support can help clear barriers and provide access to funding. The London Borough of Sutton has included the project in its core strategy, pledging to "support the development of The Royal Marsden and the ICR site as a centre of medical excellence in providing cancer care, research facilities and associated activities". The Greater London Authority is helping to fund The London Cancer Hub project and has cited it as an important element of its city-wide plan for life sciences, while the Mayor of London's MedCity initiative is aiming to grow life sciences across London and the south east. The UK Government is also actively seeking



The site is just 15 miles from Gatwick, connecting it with other world-leading cancer research hubs

Private companies and public institutes are keen to move to The London Cancer Hub



to build on the UK's strengths in life sciences and to make this country a location of choice for pioneering research initiatives.

Good location and international transport links

Sutton is within London but on the edge of the urban area, with access to green space, excellent schools and relatively affordable housing. It therefore combines many of the advantages of a big city location with the environmental attractions of the countryside. There are direct rail links from Sutton to Victoria and St Pancras International, meaning the site is connected with other research campuses in west London, Euston Road and beyond into Cambridge. The Sutton site is just 15 miles from Gatwick and 40 minutes by car to Heathrow, connecting it with other world-leading cancer research hubs in Boston, New York, Texas and Sweden. There is also potential for an extension of the London Tramlink network to the site and an upgrading of nearby Belmont station, to reduce journey time and increase accessibility.

The Greater London Authority is helping to fund The London Cancer Hub project and has cited it as an important element of its city-wide plan for life sciences

Lessons from others

Assessments of existing life-science campuses suggest there are a number of features shared by those that have become internationally successful. The London Cancer Hub is in the rare position of fulfilling all of these criteria for success.

White City Campus. Image courtesy of Imperial College London

St Olav's Hospital. Image courtesy of Helioscreen

Vertical integration of research and hospital staff can encourage collaboration

Biopolis

Biopolis is a life-science technology park in Singapore, designed to bring biomedical research institutes together with global and local biotechnology and pharmaceutical companies, and national governmental bodies. It was launched by the Singapore government in 2003 and provides approximately 275,000 square metres of office and research space as well as cafes, shops and amenities.

Adjacent to the National University Hospital and the National University of Singapore, it constitutes a third node in a biomedical knowledge corridor, supporting translation of academic biology into clinical applications. It is designed to intensify interactions between scientists, clinicians and private companies.

Biopolis has been successful in attracting leading pharmaceutical companies such as GlaxoSmithKline, Lilly, Novartis and Merck to establish research and development bases in Biopolis. It benefits from being part of a wider initiative also serving other sectors such as communications technology, media, physical sciences and engineering.

The White City Campus

Imperial College London has developed a joint venture with Voreda to redevelop several sites as part of its new White City Campus. The project includes implementing a masterplan for a new mixed-use academic and commercial development.

The development will include new academic, research and office space for Imperial, commercial offices, a hotel with conference and health and fitness facilities, and private, key worker and postgraduate residential accommodation. The site will also offer a range of retail and restaurant facilities, and social space.

The vision is to create an ecosystem for research that is fully integrated into the city, and benefits from proximity with existing institutions such as Hammersmith Hospital and Imperial itself. The challenge for the development is the price of land and making sure that working at the site is affordable for staff.

St Olav's Hospital, Trondheim, Norway

St Olav's Hospital in Norway is an example of a major redevelopment of an existing research and hospital campus, applying modern urban planning principles to create a high-quality new environment. Its original campus was a typical collection of hospital buildings and research facilities that had been added to incrementally over the years. The layout was confusing and difficult to navigate, and some of the facilities were becoming tired and worn.

The municipal authorities needed extra hospital capacity and opted to develop existing urban site, rather than create a new greenfield facility. A masterplanning team considered how to create new buildings that would increase capacity and through their design enhance patient care, while keeping the hospital fully operational throughout.

The design arranged new buildings on urban streets organised around courtyards, making the area easier to navigate and allowing phased redevelopment, one block at a time. It also helped ensure every building had good access to light and views of green space, supporting patients' recovery.

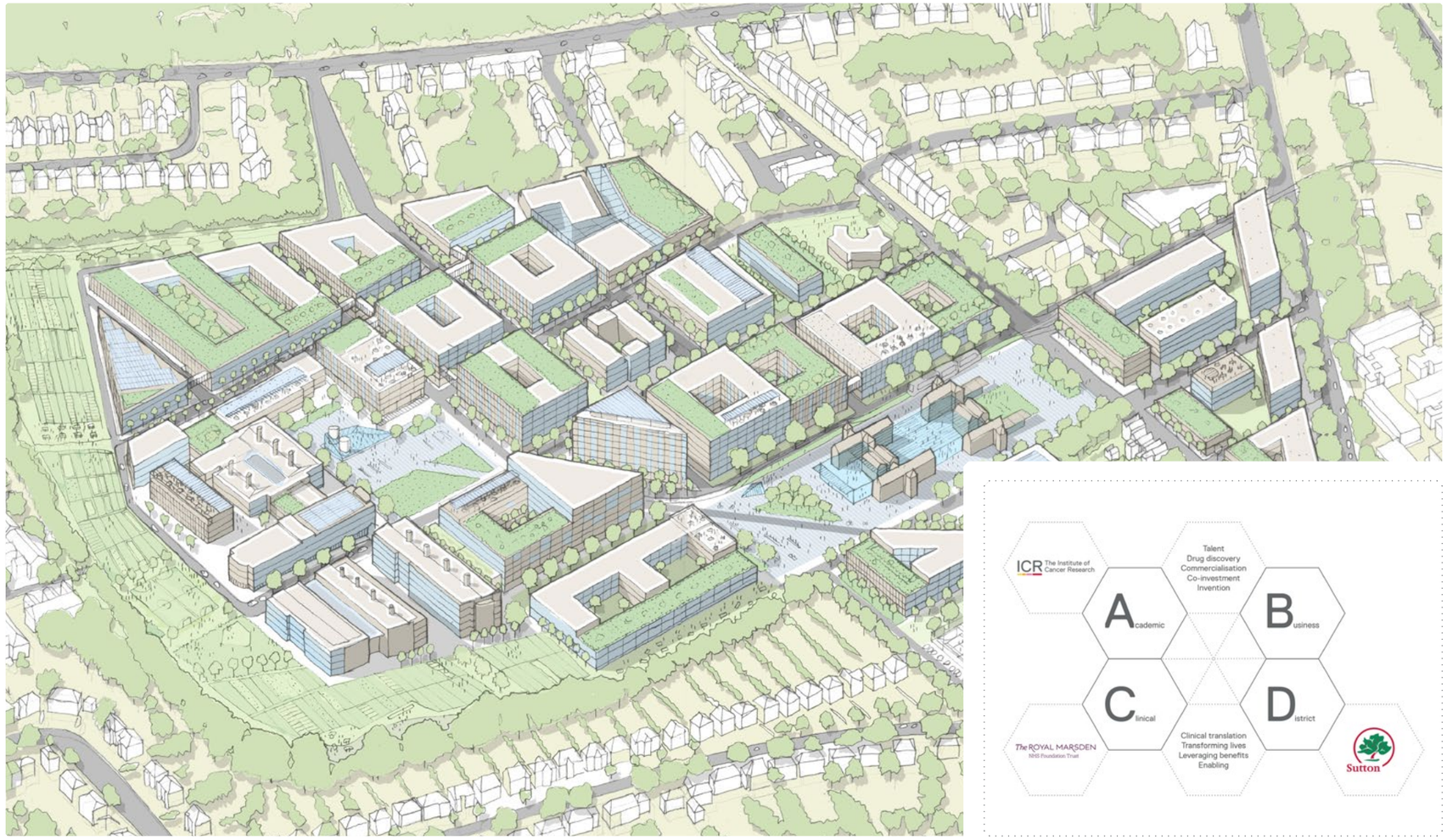
The development vertically integrated research and hospital staff within buildings to encourage collaboration, and created hotels for patients. The new site was green, attractive and well integrated into the fabric of the city, and has proved successful at attracting talented new recruits and improving the quality of life of staff.

Biopolis. Image courtesy of Henry Leong Him Woh

Successful campuses intensify interactions between scientists, clinicians and private companies

What we are planning

The London Cancer Hub will involve a complete reimagining of the existing Sutton site to create a vibrant community of collaborating organisations, educational facilities and leisure amenities.



The ICR will develop state-of-the-art facilities to enhance their global reputation for excellence, and will be joined by a multitude of world-leading enterprises to create a network of 10,000 researchers, clinical staff and support staff operating from one site.

The plan is to entirely remodel the existing site to create a green campus of research and enterprise buildings, and hospital facilities. The site will be designed as a living community with a school, leisure space, and hotels for visitors and patients. It will be an intensely interactive research village, an enjoyable place to work, and an attractive healing environment.

Central to the design of the site will be a green spine running through its heart, knitting the buildings together and making the space easily navigable for staff and visitors. Around the spine, the development will begin to establish a regular urban grid, again to make the site easily navigable, but also to allow the development to proceed one block at a time, without disrupting existing research or patient care. The complete redevelopment of the site will provide more than 265,000 square metres of integrated life-science buildings including facilities for cancer research, diagnosis, treatment, education and commercial collaboration. The following are key elements of our plans:

The site will provide more than 265,000m² of integrated life-science buildings

Doubled capacity for research and patient care

The London Cancer Hub will double the amount of floor space devoted to life-science facilities for research and innovative patient care. The ICR will build new state-of-the-art research facilities to house its activities in drug discovery, cancer evolution, immunotherapy and bioinformatics, and to build on its success as the world's leading academic organisation at discovering new cancer treatments.

Collaborative space

New ICR buildings will be designed to closely integrate research and cancer care. One option which has worked well in Scandinavia is 'vertical integration' – with labs on the lower floors and patients treated higher up – in order to actively drive interactions between scientists and clinicians. Buildings will provide lots of shared meeting space, cafes, restaurants and leisure amenities, to encourage both planned and accidental interactions between staff.

An active community

The ground floors of new buildings will be public spaces, offering cafes, restaurants and leisure facilities. These will cater for researchers, clinicians, visitors and patients alike – to create a vibrant and interactive urban environment, rather than the more sterile atmosphere of a traditional science or business park. Some buildings will house high-quality patient hotels, where patients being treated at The Royal Marsden on an outpatient basis can stay with their families. The new facilities will complement those already available in Belmont and Sutton town centres.

Public and private interactions

Fundamental to The London Cancer Hub will be its ability to attract a new network of commercial enterprises to the site – biotech and pharmaceutical companies, medical technology manufacturers and software developers. ICR buildings will be designed to house incubator laboratory space for spinout companies from its own research, biotech companies, or certain types of research and development activity for the larger pharmaceutical companies.

The site will also aim to attract a variety of private companies to rent office, laboratory or manufacturing space, with the aim of creating

Public spaces will offer cafes, restaurants and leisure facilities

an enterprise zone that drives interactions between the public and private sector.

Educating the talent of the future

The London Cancer Hub will create powerful synergies between research and education.

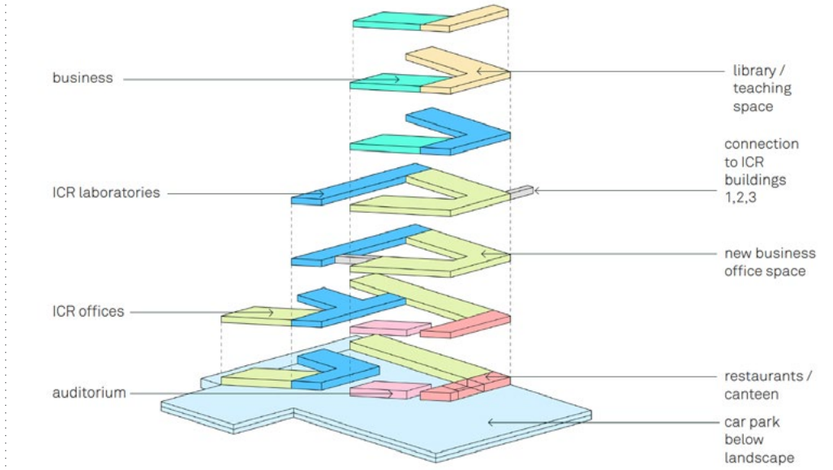
A centerpiece of the initiative will be a new school that will occupy a 1.6 Hectare plot purchased by Sutton Council. It has the potential for joint lecture facilities with the ICR, and multi-use games facilities shared with researchers and medical staff. To optimise the benefits of locality, the school could specialise in science. The ICR would play a key role in its sponsorship – and developing its focus on science and technology subjects. Students will be able to pursue life sciences as a career pathway, taking advantage of the school's integration within the site to increase secondary-level science provision. Science-based apprenticeships will also be supported.

An Education and Skills Survey undertaken by the CBI in 2013 found that 39% of 219 firms were struggling to recruit workers with advanced technical skills in science, technology, engineering and mathematics, with 41% saying shortages would persist for the next three years. This pattern is mirrored within Sutton, but it could be addressed by integrated talent development for the benefit of local residents and The London Cancer Hub. The creation of demand for a highly skilled local labour force will help to support the UK's pipeline of new research talent. The project will also expand vocational opportunities, creating construction roles, and requiring skills in physical regeneration and administration.

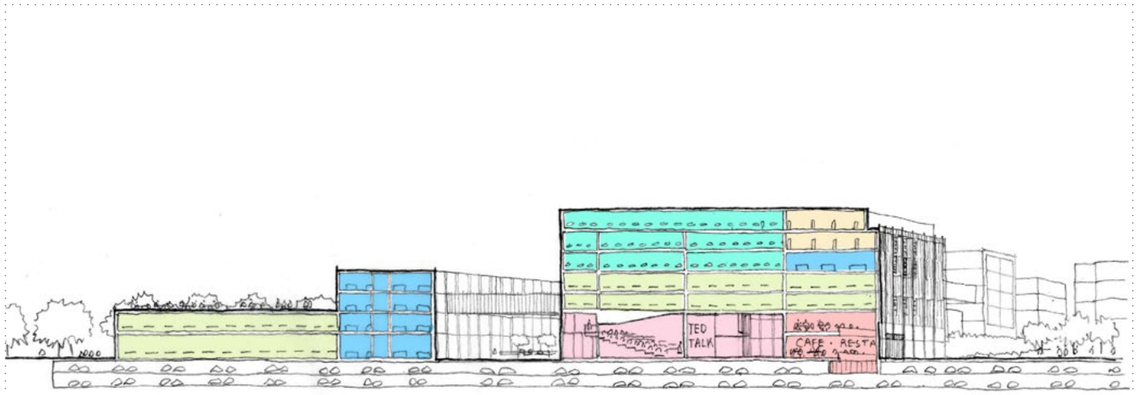
A centrepiece of the initiative will be a new school, which could specialise in science

Improved public transport

The London Cancer Hub will require public transport links to the Sutton site to be significantly upgraded. We need to ensure the site can cope with increasing traffic from staff and visitors, and that people can efficiently access it through comfortable, reliable, low-emission transport routes. It is also important for the project that the site feels better connected with Sutton town. We are exploring a number of long-term and short-term options for improving transport links with Transport for London. A key element of the project will be the extension of London's Tramlink network to the site. The Mayor of London has announced that an extension of Tramlink from Wimbledon to Sutton is one of three potential options under consideration by Transport for London. The London Borough of Sutton is keen that Tramlink is extended further from Sutton station to The London Cancer Hub, with a Tramlink station to be built on the site itself within the ground floor of one of the central life-science buildings. We are also exploring the possibility of enhancing the rail network.



New buildings will be designed to closely integrate research with patient care



Proposed timescale

The development of The London Cancer Hub will be phased over around 20 years, in a way that will minimise disruption to existing research and patient care.

The current site

Key

- Road network
- Retained buildings
- Green amenity area
- Energy plant
- Parking
- Demolished buildings
- New London Cancer Hub buildings
- Tram stops

The development framework for The London Cancer Hub is designed to be flexible to accommodate change. The following indicative plan for reshaping and expanding the site provides one potential solution for delivering the vision of the project:

1-3 years

A series of projects are already in the pipeline. The ICR will develop new drug discovery facilities delivering 20,000 square metres of high-quality research space. Incubator space will be provided to nurture ICR spin-out companies, biotechnology companies and pharmaceutical research and development. We envisage that The Royal Marsden's Maggie's Centre will open, to offer practical, emotional and social support to people with cancer and their families. During the initial stage of development, we will establish a central green spine, parking facilities and an energy plant. A new school, potentially specialising in life sciences, will be built at the gateway to the site in 2018. We hope to establish shared lecture and sports facilities to be used by the school, researchers and health professionals.

3-6 years

This phase of development will see the creation of two public squares, one with a business focus and one with a community focus. The London Cancer Hub Knowledge Centre will be established as the heart of research, knowledge and teaching. A future-proofed, flexible urban grid will be established and further life-science buildings will front onto the green avenue running through the site. Alongside plans for the London Cancer Hub, The Royal Marsden plans to expand its ambulatory care facilities by 2019.

12-15 years

A tram network will connect the campus to Sutton town and central London from the west, with various stops in the plazas. Additional life-science buildings will be developed to frame the entrance to the site and will offer a mixture of academic research space, private enterprise and medical facilities. There is a substantial and growing market for all of these uses, and our plan leaves flexibility in how that demand is met. All new buildings will be fully networked into the campus as a whole.

9-12 years

New business developments will provide facilities for private enterprise and these will overlook the focal public squares. World-class amenity space will be established next to the places where people will be working to provide options for leisure activities and relaxation. Landscaping in the eastern zone will allow for amenity and sports provision.

20 years

The complete redevelopment of the site will provide more than 265,000 square metres of integrated life-science facilities. The facilities will be vertically integrated to support active collaboration between researchers and clinicians. We would aim to bring the tram into one of the buildings at ground level to provide a fully integrated station concourse. The site will be entirely reoriented around the central green spine with greenery in every area to create an ideal healing environment and business space. With restaurants, cafes, hotels and a school, it will be a living, breathing life-science community. The flexible plan phases shared infrastructure and networks in preparation for alternative future demands.

Benefits of The London Cancer Hub

The project will deliver huge benefits – to cancer patients, the local community, the wider UK economy, and to the partners themselves.

The London Cancer Hub will allow the ICR and The Royal Marsden to enhance and expand their facilities, generate income and provide a sustainable future for their activities. It has the potential to be a game-changer for UK cancer research and treatment – with transformative benefits for patients and their families.

Benefits for cancer patients

The London Cancer Hub is intended to substantially increase the rate of discovery of new treatments and their availability for cancer patients. It will double the space available for world-class cancer research, treatment and care, and deliver a wide range of state-of-the art scientific facilities. We forecast that as a result, the ICR alone will be able to deliver at least two extra cancer drugs every five years, increasing its output by 40%, from five drugs to seven.

The initiative will deliver fully integrated research and treatment facilities, including shared meeting and interactive space. This collaborative environment will enhance the effectiveness of research and allow new findings to be taken to patients more quickly.

We anticipate that closer collaboration between scientists and clinicians, together with the increased rate of cancer drug discovery, will generate more demand for clinical trials of innovative new cancer treatments.

The London Cancer Hub will provide more patients with the opportunity of world-class cancer care. Plans are in development to increase clinical capacity at The Royal Marsden, including outpatient facilities and those for patients on clinical trials. The initiative will also enhance the experience of patients who are treated on the site. It will create an exceptional healing environment, provide a range of amenities to patients and their families, improve transport links and expand the provision of high-quality hotel space and temporary accommodation.

Benefits for the research workforce

The London Cancer Hub will help nurture a vibrant workforce of scientists and clinicians. It will open up a wide range of career opportunities for researchers and the chance to work together with colleagues from many different fields. It will also offer a variety of

The London Cancer Hub will provide more patients with the opportunity of world-class cancer care

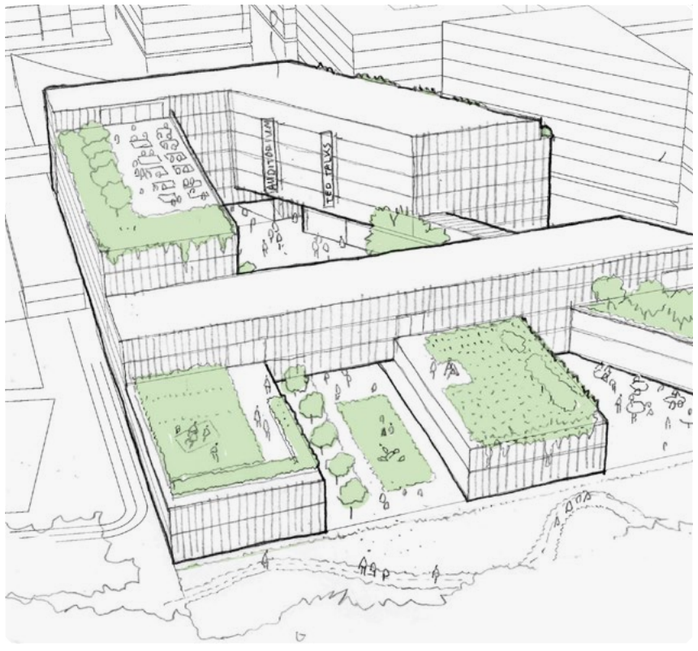
amenities to support flexible working and researchers with families, to ensure that all sections of society can contribute equally to the site's success.

The superb working environment and high-quality scientific facilities will help attract world-class researchers from across the UK and internationally. The initiative will also help support the future development of the scientific and technical skills needed to support the UK's life-science industry, through a school with a potential science focus, links with local colleges and the ICR's role as a higher education institution.

Benefits for the local community

The London Cancer Hub is a major redevelopment project, and will have very substantial benefits for the Sutton area. It will create jobs, generate revenue for the borough and act as an impetus for broader changes that will benefit all local residents.

It is projected that The London Cancer Hub will create more than 13,000 jobs on the Sutton site. It will create 7,000 jobs working on the site in research, healthcare, administration and



The world-class campus will be a major boost to the UK's life-science industry

2

extra cancer drugs will be delivered every 5 years by the ICR, increasing its output by 40%

leisure, and 6,200 jobs during construction. Once the project is completed, a network of 10,000 research, clinical and support staff will work across the site, 8,500 of them housed in new buildings. Of the 8,500, there will be a projected 2,600 highly skilled jobs in science, around 2,000 in healthcare, 2,600 in administration, and 1,300 in education, retail and leisure. The campus will attract a wide range of enterprises to the site, driving growth across Sutton and rebalancing the local economy, which is currently heavily skewed towards housing. There will be a significant boost to the local supply chain and wider jobs market.

The London Borough of Sutton expects The London Cancer Hub to generate more than £5m per year in business rates, and the Council will push for its reinvestment in transport, local services and other redevelopment projects. The campus will house a top-class science school, creating much-needed places for 1,200 pupils each year. It will also provide a strong rationale for taking Tramlink to Sutton, with provision in the plans for a 3,400 square metres tram depot at the site, and a line running through Sutton station to Belmont. Hotel and conference space on the site will stimulate wider regeneration of Belmont village and Sutton town centre, which are recognised to need further development so they can cater for the expected influx of new workers and visitors.

Benefits for the wider economy

The London Cancer Hub will be a world-class cancer research campus and a major boost to the UK's life-science industry and economy as a whole. It is projected that by expanding life-science activities, attracting enterprises and having knock-on benefits for the regeneration of the local area, it could contribute an estimated £1.1bn per annum to the UK economy.

But this is likely to be a substantial underestimate, since it does not take into account the anticipated increase in rates of discovery of new cancer treatments, diagnostic tests and technologies. We expect that the development will enable the ICR to discover at least an extra two cancer drugs every five years – an increase from five to seven. It will also bring a substantial rise in the number of clinical trials run on the site. The project will create an extra 1,440 jobs in the protection and exploitation of intellectual property. If some of the drugs discovered are successful, there could be a huge impact on the UK economy – abiraterone, a prostate cancer drug discovered at the ICR and approved worldwide in 2011, has alone made more than £3bn for its manufacturer.

£1.1bn

is forecast to be generated each year for the UK economy

13,000

new jobs could be created by The London Cancer Hub

£5m

per year in business rates is expected to be generated

The London Cancer Hub could add billions of pounds to the UK economy when all its potential benefits are taken into account.

How we will find the money

Substantial investment from private investors, public grants, charitable funding and philanthropy will bring the project to life

The London Cancer Hub project is a major, long-term development programme and comes at a substantial cost. The project involves the creation of world-class, cutting-edge facilities, and these will not come cheap. The ICR's planned drug discovery facilities alone are likely to cost in the region of £65m. The whole redevelopment of the site will require a multi-billion pound investment – although much of this is expected to be provided by private investors, and the initiative will be phased over around 20 years.

We are confident that the benefits of the project very substantially outweigh the costs, and that we will therefore be able to secure funding for full redevelopment of the site. We expect to take advantage of a wide range of funding sources available to us, including several public sources, grants from major charities, loans at preferential rates and philanthropy. We will also build strong, long-term partnerships with private investors. The project itself will also generate income during its development, through rental of incubator space, for example.

Public grants

The Higher Education Funding Council for England provides grants for major academic projects, normally as matched funding against money raised from other sources. The Greater London Authority is already providing some funding for the project and will be asked to give further support. There are also public sources of money that may be made available for specific aspects of the project. The London Borough of Sutton has already purchased the land for the secondary school on the site from Epsom and St Helier, and could use part of its school grant allocation to fund its development. The Borough is also submitting a business case to Transport for London arguing for an extension of Tramlink from Wimbledon to Sutton.

Charitable funding

The ICR works in close partnership with several major charities that do offer capital funding for major projects of this nature. It will be seeking grant funding for specific facilities to be developed as part of The London Cancer Hub. Cancer Research UK is interested in helping the ICR expand its facilities for drug discovery, while the Wellcome Trust is strongly involved in several major scientific initiatives on the Sutton site, including the ICR's Centre for Evolution and Cancer.

New drug discovery facilities alone are likely to cost in the region of £65m

Philanthropy

The ICR has an important private income streams from charitable donations. The ICR is itself an exempt charity. Philanthropy is likely to play an important role in funding some of the major research and patient care facilities on the site.

Low-interest loans

The Greater London Authority has Growth Funds which are available primarily as loans at extremely preferential rates.

The London Borough of Sutton has the capability to secure loans at low interest through the public works loans board. It is estimated that a loan would be repaid in 13 years based on forecast income streams, including from private patients and clinical research activity.

Private investment

Attracting private investment will be key to the success of the project. One tried and tested approach is for the land owners to pool their land. That land can be parcelled into development plots ready for a specialist life-science facilities provider to finance the delivery of new facilities. It might be possible to use private capital to build research buildings much more quickly than would otherwise be possible, with money for the buildings paid out longer term in the form of rent. Large real-estate investors have expressed an interest in being involved in development of the site. Any profits will be shared by The London Cancer Hub's partners and reinvested.

Philanthropy is likely to play an important role in funding major research facilities on the site

Making it happen

The project partners will engage with the Sutton community, politicians and policy makers to make the vision a reality.

The London Cancer Hub is a large-scale, transformational project intended to create the world's leading life-science district focused on cancer. Realising the vision for The London Cancer Hub will require a complete reshaping of the existing Sutton site. There will need to be coordinated action between partners, landowners, funders and policy makers, including complex arrangements over land ownership, major investment in new infrastructure, and the attraction of high-quality commercial partners.

The project partners have an excellent track record of securing funding for complex capital projects and delivering them on time and on budget. But for this project they will be entering new territory, because of the extent of its ambition, and the comprehensive approach required to the site's regeneration.

To make the project happen, we will need the active support and engagement of the local community, and regional and national government. The project partners are committed to undertaking an extensive community engagement programme with local residents, politicians, and policy makers in order to communicate our vision, and to listen to views about how best to make it a reality. With the support of the Sutton community and of government, this project can make a huge contribution to the local area, the economy, and most importantly to cancer patients.

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