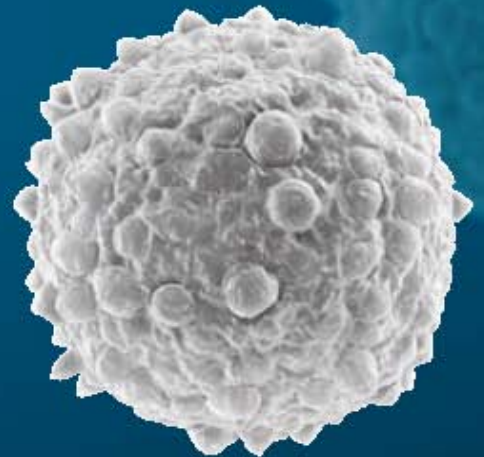




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Support our campaign to build a world-leading
Centre for Cancer Immunology at Southampton

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**The Centre for Cancer Immunology
University of Southampton**

**Outline Business Case (OBC)
June 2015**

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PURPOSE OF THIS DOCUMENT

This document is the Outline Business Case (OBC) in support of the development of the Centre for Cancer Immunology (CCI) at the University of Southampton. The proposal focuses on the development of the UK's first dedicated Centre for Cancer Immunology, which will support innovation in the field of immunology research, place the UK firmly on the map as a global Centre of Excellence for the development and delivery of new therapies that will cure cancer and create a significant number of new jobs in the Southampton region.

This case outlines the context, both national and local, against which the proposal has been planned and details the key drivers for change and therefore the objectives and benefits that the proposal will deliver. It confirms the affordability of the proposal for the development both in capital and revenue terms. Importantly, the case demonstrates the essential role that Solent LEP funding will play in accelerating this innovative and timely project that is ready to proceed immediately with LEP investment. With LEP support, the University of Southampton will underwrite the project, at its own risk, securing the commencement of construction in 2015.

Pace of delivery is important. For the University and the UK to maintain leadership in these breakthrough therapies, work needs to commence on the CCI in 2015. Project delay will result in a high probability that research groups, particularly in the USA and Asia who are investing in new facilities, will overtake Southampton. If this were to happen, the UK risks losing members of Southampton's talented research group, which the University has built-up over the last 40 years, who could relocate to overseas centres where accelerated investment is taking place. LEP funding will prevent this happening, it will accelerate the start of the project in 2015, help unlock other funding and establish Southampton, and the Solent region, as the place to invest in new cancer therapies.

This OBC has been prepared using the agreed standard and format for business cases using the Five Case Model, which comprises the following key components:

- The **strategic case** section. This sets out the strategic context and the case for change, together with the supporting investment objectives for the scheme
- The **economic case** section. This demonstrates that the organisation has selected the choice for investment which best meets the existing and future needs of the service and optimises value for money (VFM)
- The **commercial case** section. This outlines the content and structure of the proposed project
- The **financial case** section. This confirms funding arrangements and affordability and explains any impact on the balance sheet of the organisation
- The **management case** section. This demonstrates that the scheme is achievable

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GLOSSARY OF ABBREVIATIONS

AHSN	Academic Health Science Network
BRF	Biomedical Research Facility
CCI	Centre for Cancer Immunology
CPB	Campaign Project Board
CRUK	Cancer Research UK
CTU	Clinical Trials Unit
ECMC	Experimental Cancer Medicine Centre
ECPC	European Cancer Patient Coalition
IDS	Institute for Developmental Sciences
IFLS	Institute for Life Sciences
NCI	National Cancer Institute
NIH	National Institute for Health
NIHR	National Institute for Health Research
PMU	Programme Management Unit
UHS	University Hospital Southampton

1. EXECUTIVE SUMMARY

1.1 Introduction

This Outline Business Case invites the Solent LEP Board to approve the investment of £4.5m in support of a £25m world-leading Centre for Cancer Immunology adjacent to the University Hospital Southampton (UHS) NHS Foundation Trust. This new Centre will have a significant economic impact in the Solent LEP area.

LEP funding of £4.5m is essential for unlocking this new development. The University's successful 'The Cure for Cancer? – You're It'¹ campaign has already secured £13.5m, this leaves a funding gap of £9.5m, without LEP support it would not be in a position to start this project in 2015. The LEP investment of £4.5m will secure the commencement of construction in 2015 with the University will underwrite the remaining funding gap. Without Solent LEP support Southampton's lead in this groundbreaking research would be jeopardised by the delay.

The University of Southampton's vision is to be a distinctive, global leader in education, research and enterprise. This proposal outlines the need and justification for developing the UK's first dedicated Centre for Cancer Immunology, a Centre that will be globally significant and a beacon for attracting research and business investment and more importantly the top talent to the Solent area and retaining our best graduates too.

The proposal is aligned to the University and Solent LEP visions, supporting the University's Strategic Plan and the LEP's Strategic Economic Plan. It will establish an internationally-leading Centre for immunology research and clinical development that will put the UK and the Solent LEP area on the map in the development and delivery of new therapies that will cure many types of cancer, transforming the lives of millions of people across the globe. The project will secure the future of 175 jobs and create 49 new ones by 2017. The headcount will continue growing beyond 2017 enabling Southampton to more than double its research income to over £12m per annum by 2026.

Cancer is one of the leading causes of death world-wide and with an ageing population; it is becoming increasingly common globally. In the UK it is projected that one in two people born since 1960 will be diagnosed with cancer. What this project will do is build on Southampton's 40 years of experience to develop treatments that mobilise the immune system as a weapon against cancer. Immunotherapy is in effect a revolutionary new treatment that supercharges the body's natural defences to find and destroy cancer. The University of Southampton is a global leader in ground-breaking immunology research with a strong portfolio of drug discoveries in this area.

This business case presents our bid for funding within the five cases – Strategic, Economic, Commercial, Financial and Management. The case outlines the context, both national and local, against which the proposal has been planned and details the key drivers for change

¹ <http://www.southampton.ac.uk/youreit/>

and therefore the objectives and benefits that the proposal will deliver. It confirms the affordability of the proposal for the development both in capital and revenue terms.

1.2 Strategic Case

1.2.1 The Strategic Context

The proposal outlined in this case focuses on the provision of a new Global Centre of Excellence located adjacent to the University of Hospital Southampton NHS Foundation Trust, which will support significant growth in research capacity that would only be made possible by the development of modern state-of-the-art facilities that replace obsolete ones.

This is aligned to the Solent LEP's sector priorities supporting the important Life Sciences Sector. The Centre of Excellence will also deliver significant Enterprise, Inward Investment and Skills outputs in the Solent LEP area. There is a strong absorptive capacity within the Solent area to create significant jobs in addition to the 175 existing direct jobs secured by the project and the 49 plus new direct jobs that will be created by the Centre for Cancer Immunology between 2015-17. The University's Science Park has ready-made clean rooms that have the capacity to support the growth of SMEs, and collaborations between SMEs and big pharmaceutical companies involved in this project.

The project will support the following Solent LEP Strategic Priorities:

1. Building on our substantial knowledge assets to **support innovation and build innovative capacity** in the Solent area to stimulate growth in Solent businesses and in new high-growth sectors, particularly linked to our HE excellence.
2. Developing strategic **sectors and clusters** (interconnected groups and businesses) of marine, aerospace and defence, advanced manufacturing, engineering, transport and logistics businesses, low carbon and the visitor economy – establishing the area as a business gateway, at both local and international levels and developing local supply chains.
3. Supporting **new businesses, enterprise and ensuring SME survival** and growth.
4. Establishing a single **inward investment** model to encourage companies to open new sites in the region, supported by effective marketing.

In order to capitalise on the 40 years of pioneering cancer research that has taken place in Southampton, the University has established a strategic vision for the development of the UK's first dedicated Centre for Cancer Immunology to provide world-leading research facilities that will accelerate innovation and commercialisation in the field of Cancer Immunology delivering new therapies that will cure many types of cancer and extend patient lives. Solent LEP funding is essential for making this world-leading Centre happen, it will act as the tipping-point that will enable the university to underwrite the remaining £5m funding gap, so that building work can commence in 2015.



Professor Martin Glennie and Professor Christian Ottensmeier

This is aligned to the University of Southampton's vision and development strategy and will build on Southampton's ranking as an institution in the top one percent of universities world-wide. With 23,000 students from 130 different countries across 7 campuses, it directly employs over 6,000 people and contributes £750m per annum to the Solent Economy².

The University of Southampton is a leading research-intensive institution and strives to be a global leader in education, research and enterprise; this is why the project has been chosen for support. The 2014 Research Excellence Framework (REF) confirmed Southampton's position as a leading research institution ranking 8th among UK universities on research intensity and 11th on power. Southampton has world-leading research centres, including developmental origins of health and disease, marine engineering, microelectronics and computer science, ocean and earth science, sound and vibration and optoelectronics. It therefore has the skills, knowledge and experience to deliver this project on time and within

² Economic Impact of the University of Southampton: Biggar Economics

budget, the Centre for Cancer Immunotherapy will add to the University's portfolio of Global Centre of Excellence.

1.2.2 The Case for Change

Cancer Immunology is a rapidly emerging field with international reach and the potential to shift the paradigm in the way that we can understand and treat cancer. The University of Southampton has a track record of research and successful commercialisation in this field spanning four decades, expertise unrivalled in the UK. This has made a significant contribution to the development of the expanding Life Sciences cluster in the Solent LEP area.

Major competition in the area of Cancer Immunology research is focused outside Europe, the University has collaborative links with many of the top immunology centres in the world; including: the Mayo Clinic, The MD Anderson Cancer Centre and the La Jolla Institute of Allergy and Immunology (LIAI). Southampton is currently in strong collaboration with LIAI, with respiratory immunology scientists sharing their research time between Southampton and San Diego and ongoing discussion to establish a formal partnership, as they are very keen to strengthen the collaborations with Southampton's Cancer Immunology group. The new CCI building would allow more scientific exchanges and increase revenues as well as development of new IP. For Southampton to maintain its leadership role and capitalise on the commercialisation benefits of its research it needs to act quickly to develop a Centre of Excellence fit for the 21st Century.

Research undertaken at Southampton has already led to the development of major breakthrough cancer treatments and the developments of new drugs for patients to change how we understand and treat cancer forever. Over half of patients with difficult and terminal cancers, including those of the lung and skin, are showing dramatic improvements with immunotherapy therapies that are under development at Southampton, this not only offers hope for millions of people but also represents a massive business opportunity.

The University has a number of therapies in clinical development; this centre will accelerate the translation and commercialisation of these treatments and help bring forward research to clinical trial faster than would otherwise be possible without this investment.

Currently the University has collaborations and strong track records with 11 of the 16 top Cancer Immunology companies of 2015. The income from industry in cancer research at the university is about 12% of the total research income. By increasing the number of scientists and improving the facilities, the new Centre is estimated to bring industry investments to 15-20% of total research income to support development of promising immunotherapies and beyond into clinical trials.

The current facilities that support this research and commercialisation have grown ad hoc over the last 40 years and are inadequate. Against a backdrop of international focus on the potential of immunology, current provision in Southampton for research into immunology is curtailed by the lack of adequate research space. Existing facilities are operating above capacity, with no opportunity to recruit and expand teams, limiting the number of active

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collaborations that can be delivered at one time. This is preventing the rapid progression of basic science discovery and limiting Southampton and the region's potential to lead national innovation in cancer care and establish the region as a hub for research and development in this area. The current Cancer Immunology research facilities can be defined as:

- Limiting collaborative working due to poor adjacencies
- Inadequate space for research;
- Inappropriate research facilities;
- Suboptimal estate and physical environment; and
- Impaired research progression with time lost due to lack of co-location; and
- Limiting translation for patient benefit and preventing expansion of clinical trials

The global interest in immunology is increasing at an exponential rate, it is highly competitive and the top talent is highly geographically mobile. International and other UK research centres are increasing their focus on harnessing the power of the immune system as we enter this new era of cancer research, those that will win the drug discovery race will be the ones who can retain and attract the best researchers. Southampton boasts researchers of national and international significance, retaining and growing this team is of critical importance for Southampton to win the global race in Cancer Immunology. If the University of Southampton cannot offer state-of-the-art facilities, necessary to maintain its critical mass it will lose talented researchers to competitor institutions overseas and to industry outside the UK. This is why Southampton needs to act now to overcome these challenges by establishing a purpose built Centre of Excellence.

Solent LEP investment will resolve these challenges by bringing forward investment that will build innovative capacity that will put the University, and the Solent LEP area, on the map as a global centre of excellence for the development and delivery of new cancer therapies. With LEP funding this new Centre will place the Solent LEP area in the driving seat as the location for next generation of cancer therapies and accelerate the growth of the Life Sciences Sector in the Solent and wider South East of England.

We are pleased to support the University of Southampton's proposal to create the UK's leading Centre for Cancer Immunology at University Hospital Southampton Campus.

This investment in Southampton, bringing together all of the teams in world-class facilities, will make an important contribution to the world-wide fight against cancer, further enhance the city's international reputation in this rapidly expanding area of medical research, and make a vital contribution towards the growth of interdisciplinary Life Sciences in the Solent area.

***Councillor Simon Letts Leader Southampton City Council
Dawn Baxendale Leader Chief Executive Southampton City Council***

1.2.3 Vision for the Future

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Southampton has an enviable track record driven through a critical mass of researchers and clinicians, a close partnership with the University Hospital Southampton NHS Trust and a wide portfolio of collaborative partners ranging from the SME community in the Solent Area, to major global pharmaceutical partners and other leading academic institutions in the UK and overseas. The University has the opportunity to capitalise on a strategic partnership with The Francis Crick Institute, Europe's largest biomedical research centre

The University of Southampton has a vision to deliver the UK's first dedicated Centre for Cancer Immunology. The facilities will support the invention and deployment of new cancer immunotherapies, from their discovery in the laboratory, via preclinical modelling, to first-in-human clinical trials and on to wider multicentre trials run by a dedicated and co-located Clinical Trials Unit. Placing the Centre at the heart of a large NHS Foundation Trust will increase the focus on clinical success and drive patient benefit. All the key elements of Cancer Immunology development to date have been located across several buildings and two campuses. Co-location in modern physical infrastructure will have a transformative impact on this important work.

The Centre for Cancer Immunology will be a powerhouse for driving national and international research advancements, will incentivise investment by industry, will attract, retain and grow high-quality skills in the area, and will increase the activity and success of the Life Sciences Sector in the Solent area, delivering increased business growth and high-quality job creation. The Centre will cement a strategic partnership with The Francis Crick Institute, Europe's largest biomedical research centre. The project will expand the Southampton headcount by £2.5m per annum, many of these new jobs will be senior appointments, but a number of these roles will be for early stage researchers who will be engaged in enterprise programmes, such as ICURE an Innovation-to-Commercialisation programme, piloted by the SETSquared Partnership and funded by InnovateUK and HEFCE³.

The project is shovel ready and with Solent LEP funding of £4.5m construction will start in 2015, with the University underwriting the remaining funding gap of £5m of this £25m project. The University can commit to spending LEP investment in a timely fashion and will work with the LEP to draw down funding to meet the preconditions of any LEP investment. This will also deliver productivity gain helping to unlock additional research (£3M) and commercial (£3M) funding that will bring the total to £12m per annum, which will help Southampton capitalise on its portfolio of patents and help it develop new patents. This will deliver a broad range of additional direct economic benefits for the Solent area including business start-ups, inward investment, wider productivity benefits, SME collaborations with big pharmaceutical companies.

³ The ICURE Innovation-to-Commercialisation programme, piloted by the SETSquared Partnership and funded by InnovateUK and HEFCE, offers university researchers with commercially-promising ideas up to £50k to 'get out of the lab' and validate their ideas in the marketplace. <http://www.setsquared.co.uk/research-commercialisation/icure-innovation-commercialisation-university-research-programme>

“It is vital to close the gaps in translation if we are to improve patient benefit and economic benefit and I believe that the new Centre for Cancer Immunology represents an important step in making this a reality”

Sir David Cooksey, Chairman, The Francis Crick Institute

1.2.4 Project Scope

In taking forward the vision for Cancer Immunology the University's aspirations for a dedicated Centre for Cancer Immunology are outlined below:

- Expansion of our critical mass of internationally-leading multidisciplinary scientists and clinicians to drive new discoveries;
- Provision of 21st Century facilities to expand and consolidate scientific research in this field;
- Re-housing the existing Biomedical Research Facility (BRF) currently located in the basement of Tenovus/ Duthie into a new Pre-Clinical Unit and;
- Co-location of the Clinical Trials Unit (CTU) to speed the translation of research discoveries into the clinic.



Architect's Impression of The Centre for Cancer Immunology

1.3 Economic Case

1.3.1 The Long List

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The University has identified a number of key objectives and benefits which it is seeking from the development of the Centre for Cancer Immunology. It is clear from these objectives and the University's current position that there is a need to alter or re-provide the existing facilities. Consequently four options were developed for review by University Council and key stakeholders.

These options were identified having considered the overall strategic redevelopment of the research facilities, the need for co-location of teams from across the University Highfield and Southampton General Hospital Campuses, and the delivery of a cohesive estates strategy. Each option, in terms of its high level descriptor, is summarised in the following text.

- **Option 1** – Do Nothing
- **Option 2** – Limited Capital Development 1 – Refurbish Tenovus building
- **Option 3** – Limited Capital Development 2 – Phased construction of the a new Centre
- **Option 4** – New Build adjacent to the University Hospital Southampton NHS Trust

1.3.2 The Preferred Option

The options were reviewed by the University Capital Project Board and University Council and it was agreed that Options 1, 2 and 3 should be discounted as they would not provide facilities that would enable the expansion in research activity or deliver against the University's strategy to provide national and international collaborations, or research growth in the field, and would require substantial capital investment that would not deliver value for money in the long term for the University, or the region.

The outcome of both the non-financial and economic appraisals is that the preferred option for the delivery of the project objectives is Option 4 – New Build on the University of Southampton General Hospital Campus.

1.3.3 Economic Impact

Overall, Solent LEP investment will:

- Unlock and bring forward a sustainable £25m Capital Project that will put the Solent Area on the map as the place to invest in new cancer therapies by establishing a Global Centre of Excellence for Cancer Immunology;
- Secure the future of 175 direct jobs;
- Create 49 new direct jobs;
- Create 300 new jobs at the peak of construction;
- In the medium to long term create over 550 jobs across SMEs and large companies involved in the project within the Solent LEP area;
- Support the creation of 25 new life science related businesses;
- Grow research income to Southampton by £3m;
- Deliver 40 new business relationships between Solent LEP based SMEs and Big Pharmaceutical companies;

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- Draw in over £3m of private sector investment directly related to the work of the Centre before 2019 and the Solent LEP area, of which £2.5m will be inward investment;
- Deliver significant productivity gains in the development of new cancer therapies, one of which is estimated to be worth \$1bn per annum in revenues;
- Deliver productivity gains in healthcare that will make the Solent Area as a leader in cancer treatment innovation, leading to wider productivity benefits through improved patient outcomes;
- Fill identified clinical and non-clinical skills gaps;
- Support enterprise skills development for Solent based SMEs so that they are able take advantage of commercialisation opportunities made possible by this Centre.

This table summarises the key outputs from the economic appraisal and shows that that project offers excellent value for money and a significant return on investment for the project from 2015 - 2026:

Table 1: Benefit:Cost Ratio

Present value of benefits (PVB)	£950m
Present value of costs (PVC)	£173m
Net present value (NPV)	£777m
Benefit: Cost Ratio (BCR)	5.5

1.4 Commercial Case

1.4.1 Description of the Works

The proposed development will provide a single centre situated adjacent to the Somers Cancer Research Building at the University Hospital Southampton, located across from the main entrance of General Hospital.

The new building will consist of four stories of 4120 m² including plant space. The Clinical Trials Unit will be located at ground floor level. Open-plan working space, offices, and meeting rooms will be provided on the 1st floor. Open-plan general laboratories, a suite of specialist laboratories and further open-plan working space for research teams, hot-desking for students and offices for senior academics will be provided on the 2nd floor level. A secure Pre-Clinical Unit will be located on the 3rd floor along with plant facilities.

Figure1: Site Context for the Preferred Option



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1.4.2. Project Timetable

The key milestone programme of the project is outlined in the table below.

Table 2: Project Timetable

Schedule of Key Dates		Timeline
1	Revised client brief issued	Oct-14
2	Kier submit documents for CPB	Dec-14
3	CPB (Capital Project Board)	Dec-14
4	University instruction to proceed with design in accordance with developed brief and cost plan and complete P21+ Stage 2	Dec-14
5	University instruction to Kier to complete P21+ Stage 3 and submit GMP	Feb-15
6	Kier submit Planning Application - This next stage is dependent on LEP financial support	Summer 2015
7	Kier submit GMP	Late Summer 2015
8	University instruction to complete P21+ Stage 4 – Construction	Autumn 2015
9	Start on site	Autumn 2015
10	Handover completed and certified building (Kier Practical Completion)	Early Spring 2017
11	University Fit Out and Decants	Spring 2017
12	Building Occupation	Late Spring 2017

1.4.3 Procurement Strategy

The University of Southampton will deliver the project under ProCure21+. ProCure21+ is a framework provided by the Department of Health for the procurement, development and refurbishment of NHS facilities. ProCure21+ can be used as a fast track procurement solution to achieve savings and re-configuration proposed in the 'Liberating the NHS' document published in 2010 and also supports investment aspects of the Quality, Innovation, Productivity and Prevention programme.

Kier Healthcare is appointed as the Design and Build Contractor under the Procure21+ Framework on the basis of their knowledge of the UHS site and their experience of delivering similar facilities.

1.4.4 Risk Management

The early establishment of a Risk Register has taken place, and the University and Design Team manage either the removal or mitigation of items in the Register as the design and

construction develops. Regular risk sessions are held by the design team, and the review team.

1.4.5 Contingencies and Management Reserves

In order to manage the potential programme and cost impact of known and un-known risks, the project has identified a series of contingencies covering various areas such as design and construction, plus an overarching management reserve. All change and risk is monitored by the Project Advisory Group and monthly dashboards, detailing costs (spend and forecast), risk, programme and progress is submitted to the Capital Programme Board.

1.5 Financial case

1.5.1 Financial Expenditure

Table 3: Summary of Financial Appraisal

	(£'000)						
	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	
	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	
Capital	1,949	1,024	7,002	12,375	528	0	22,878
Revenue	77	314	484	611	314	200	2,000
	2,026	1,338	7,486	12,986	842	200	24,878
Funded by:							
Existing	2,026	1,338	2,986	6,414	436	200	13,400
Additional				6,572	406		6,978
LEP Funding			4,500				4,500
	2,026	1,338	7,486	12,986	842	200	24,878

Note: Financial Year 1st Aug – 31st July

1.5.2 Overall Affordability

The University of Southampton generates a modest surplus which is reinvested to support the University's strategy and deliver the University's capital programme to maintain and improve its infrastructure. Our capital programme supports the delivery of our strategy across the range of our operations, encompassing teaching and learning, residences, research and enterprise. Typically our capital programme requires around £50m cash spend per annum, funded through a mixture of surplus, external funding, philanthropy and borrowing. The University currently has capital requirements in the region of £350m. It is therefore not in a position to move forward with this Centre at the pace demanded by the project, therefore Solent LEP financial support is essential for unlocking this new Centre of Excellence.

The Centre for Cancer Immunology will be funded through external sources and philanthropic donations, with £25m required in total. To date £13.5 million has been secured in external support for the development of the Centre.

The University will be in a strong position to accelerate delivery of the Centre if additional funding is secured from the Solent LEP. Investment of £4.5m would enable the University to proceed with construction in 2015 at its own risk.

The sustainability of the Centre post construction has been considered carefully and follows a successful model used in the Faculty of Medicine and across the University.

1.6 Management Case

1.6.1 Project Management Arrangements

The delivery of the Centre is an integral part of the University's capital redevelopment programme and wider strategy. The University has a successful history in the management and implementation of large projects and appropriate project methodologies are in place to ensure the successful delivery of the Centre.

The Capital Programme Board reflects ownership of the project at the highest level of the University and draws upon the traditional roles associated with capital project management, along with a number of multi-disciplinary representatives from across the University, to ensure that the wider business objectives of the organisation are met.

The Project Advisory Group includes senior University representatives and stakeholders with a vested interest in the development and will remain in place until the new facilities are complete and become operational. It will be responsible for the overall management of the scheme and will be accountable to the Capital Programme Board.

The University of Southampton has established a specialist team to oversee the delivery of major Capital Programmes – The Programme Management Unit. The Centre for Cancer Immunology is being strategically managed by the PMU via the appointment of the Review and Compliance Team.

1.6.2 Post Project Evaluation Arrangements

The University is committed to the full evaluation of all major schemes and projects through the formal evaluation methodology. The ongoing success of the Centre will be monitored through an established range of Key Performance Indicators.

1.7 Recommendation

The University of Southampton is committed to a vision for the redevelopment of the research facilities provided on the University of Southampton General Hospital Campus to ensure that it can appropriately address the global interest in innovation in Cancer Immunology. This is a transformative project in a field of research and innovation that will act as a catalyst for the continued growth of the local economy. It represents a ground-breaking project that will attract attention and investment to the University of Southampton and the local area.

A key milestone in the delivery of that vision is the provision of a new Centre enabling the colocation of teams within a state-of-the-art environment with the aim of improving the staff experience, improving quality and efficiency of research, ensuring the rapid translation of research to treatments and future-proofing capacity to meet demand.

Approval of this case will be a significant step in the development of the University of Southampton General Hospital Campus and will be a key enabler for the future development of the research facilities and other crucial services on the site.

The proposal is fully supported by the clinical and operational teams within the UHS Trust and other external stakeholders.

2. THE STRATEGIC CASE

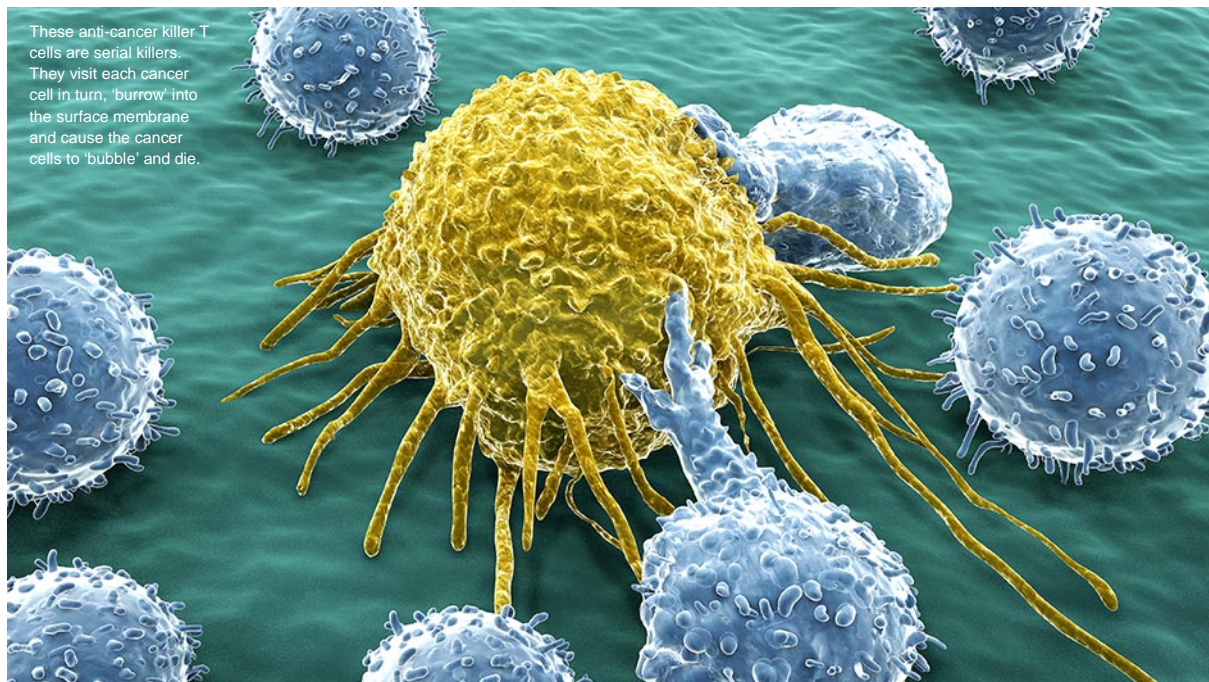
The purpose of this section is to explain how the scope of the Centre for Cancer Immunology fits within the existing business strategies of the University of Southampton and outlines a compelling case for change, in terms of existing and future operational needs.

Part A: The Strategic Context

2.1 Introduction and Background

The University of Southampton is a Russell Group, research-led university, with an unprecedented track record in the field of Cancer Immunology Research. Forty years of research activity has resulted in mature research programmes, delivering rapid translation of basic science discovery to clinical application through a partnership with the University Hospital Southampton NHS Trust, and more broadly research bodies and industrial collaboration around the world.

Cancer immunology focuses on harnessing the body's immune system to fight and provide lasting defence against cancer. By improving, targeting or restoring immune system function, we are able to stop or slow the growth of cancer cells and stop cancer spreading to other parts of the body.



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The University of Southampton is seeking investment to deliver the Centre for Cancer Immunology, a 4120m², four-storey building. The centre, the first in the UK focussing specifically research field, will house facilities to support the invention and deployment of new cancer immunotherapies, from their discovery in the laboratory, via preclinical modelling, to first-in-human clinical trials and on to wider multicentre trials run by a dedicated and co-located Clinical Trials Unit.

The development will result in the assembly of a critical mass of personnel and technologies capable of pursuing Cancer Immunology at an internationally-leading level. The co-location of laboratory research groups with the clinical research team will build upon our capacity for bench to bedside research translation, and the site on the General Hospital campus further strengthens this aspect. Such a concentration of multidisciplinary expertise on a single hospital site will provide a highly attractive partner for collaboration and attract inward investment in the Solent LEP Region.

The creation of the first dedicated Centre for Cancer Immunology will put Southampton in a strong position to raise its existing collaborations to a new level and to initiate new ones at the highest level to drive the growth of the Life Sciences Sector within the Solent region. In turn, this will provide quality new jobs and revenue, both at the Centre and in organisations collaborating with the Centre.

There is a pressing need to expand the breadth and depth of Cancer Immunology research at the University to retain our leading position. In 2013 the international journal *Science* identified cancer immunotherapy as the number one break through across all areas of science. The field of Cancer Immunology is poised for major expansion at other centres in response to recent clinical success and rapid investment from industry. Southampton will not remain competitive unless it grows and it has the necessary facilities to deliver innovation and high calibre research.

2.2 An Overview of the University of Southampton

2.2.1 Overview

The University of Southampton ranks in the top one percent of universities world-wide, with 23,000 students from 130 different countries across 7 campuses. The 2014 Research Excellence Framework (REF) confirmed Southampton's position as a leading research institution ranked 8th among UK universities on research intensity and 11th on power. The University of Southampton is the only Russell Group University in the Solent LEP area, but has a strong track record of working collaboratively with all the universities across the Solent area.

The University of Southampton is committed to providing a distinctive educational experience for its students, and confident in its place as a leading international research University, achieving world-wide impact.

2.2.2 Our Vision

The University of Southampton vision states: The University of Southampton is a world-class university built on the quality and diversity of our community. Our staff place a high value on excellence and creativity, supporting independence of thought, and the freedom to challenge existing knowledge and beliefs through critical research and scholarship. Through our education and research we transform people's lives and change the world for the better.

2.2.3 Our Values

The University of Southampton activities will be underpinned by the values determined by our community: excellence, creativity, community and integrity.

2.2.4 Our Aims

The University of Southampton seeks to have delivered the following by 2020:

- Revolutionised our education
- Transformed our global research competitiveness
- Become a globally connected University
- Made important contributions to our society and economy
- Become a partner for growth in our city and region
- Strengthened our community in keeping with our values

2.3 Cancer Immunology at the University of Southampton

The University of Southampton has unique strengths in immunology research, with developed research programmes spanning cancer, respiratory and musculoskeletal disease.

Cancer Immunology treatments harness and enhance the innate power of the immune system to fight and provide lasting defence against cancer. By improving, targeting or restoring immune system function, we are able to stop or slow the growth of cancer cells and stop cancer spreading to other parts of the body.

Cancer Immunology is an internationally recognised peak of research excellence in the University, and is an integral component of the University's strategy of delivering high quality basic biomedical research that underpins clinical translation.

Southampton has an unrivalled history of research in immunotherapy which started in the 1970s and now boasts more than 175 staff focused on this aspect of cancer research. One of the major distinguishing features of the programme of work at the University of Southampton is the clear translational element, as at this time we are leading the development of five new immunotherapy drugs which all originated from the Southampton labs.

Southampton's scientists were among the first to use antibody treatments for Leukaemia and to test a DNA vaccine for Adult Leukaemia. Trials delivered at Southampton helped bring Yervoy, the first antibody drug for the treatment of Metastatic Melanoma, to approval, which has delivered unprecedented survival successes, and we are leading investigations into why the drug works in some patients but not in others. Through links with the University's Institute for Life Sciences (IfLS), we have discovered how the shape and mobility of immunological molecules can indicate the likelihood of them delivering an immune response. This research was made possible through our privileged access to the Southampton IRIDIS 4 supercomputer, the largest of its kind in Europe.

“The demonstrable commitment of the Faculty of Medicine to deliver a hub of excellence for clinical research and development is admirable and their plans to develop a new Centre for Cancer Immunology will see them building on an impressive track record in this area”

Sir David Cooksey, Chairman, The Francis Crick Institute

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2.3.1 Southampton's Antibody Discovery Programme – A Case Study

Some of the newest therapies being developed to fight cancer are not drugs but antibodies. These provoke the body's immune system to destroy and eliminate its own tumours. Southampton research underpins the clinical development of a new class of anti-cancer monoclonal antibodies and has played a leading role in bringing two types of drugs from the laboratory to the clinic.

In 2002, Professor Martin Glennie's team at Southampton discovered two types of anti-CD20 antibody that targets a protein called CD20 found on the surface of cancer cells. The antibody sticks to all the CD20 proteins it finds; allowing cells of the immune system to identify the marked cancer cells and kill them. Until this point, cancer cells would have been undetected by the immune system. One type of antibody was much more effective than the others and was significantly better than the standard anti-CD20 already in use to treat Lymphoma. Glennie's team developed and patented this monoclonal antibody, leading to the delivery of a next generation drug, Arzerra, in October 2009 to treat advanced chronic lymphocytic leukaemia. Southampton was one of the first sites to test Arzerra, with the University's Professor Peter Johnson as the UK Lead Investigator for clinical testing.

Arzerra demonstrated a 42% response rate in patients who had failed current "best in class" treatment. It has now been launched in 26 countries and is used in 19 current clinical trials world-wide for diseases ranging from Lymphoma to Rheumatoid Arthritis and Multiple Sclerosis. Only eight years elapsed between its discovery at Southampton and FDA approval, reflecting its impact on global cancer treatment, and further clinical trials look set to see its application expanded across other cancers and diseases. Research that will be delivered within the Centre for Cancer Immunology will focus on the development of engineered derivatives of this and other monoclonal antibodies recognising CD20. The Centre will improve our activity by understanding how the antibodies work in the body. In addition, it will provide the infrastructure needed to apply the same engineering principles to therapeutic antibodies focussed on different targets as they emerge from our antibody discovery programme.



Dr Angelica Cazaly

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2.4 The National Context

The Outline Business Case for the Centre for Cancer Immunology is underpinned by key policy and strategy themes from the public, private and charitable sectors. These are outlined below:

- **Department of Health:** *2010-2015 Government Policy Cancer Research and Treatment* identifies that 250,000 people in England are diagnosed with cancer, and around 130,000 die as a result of the disease. Annual NHS costs for cancer services are £5 billion, but the cost to society as a whole – including costs for loss of productivity – is £18.3 billion. More people are surviving cancer, however UK survival rates are still worse than those for other countries that are as wealthy as the UK. The Department of Health has identified a target to save 5000 lives from cancer through early prevention, lifestyle changes, early diagnosis, improving treatment and improving aftercare and current information suggests that this target may be doubled. Immunotherapy forms an important part of the strategy to improve treatment options for patients however more research needs to be done.
- **Cancer Research UK:** has identified therapeutic innovation as a key part of its strategy, of which immunotherapy will play a significant role. CRUK will maintain investment in immunotherapy and identify commercial partners early to take potential therapeutic candidates forward. CRUK will also prioritise a greater volume of research into tumour immunology for translation for patient benefit, support greater networking of this community, and develop partnerships with industry.
- **NHS:** In summer 2015, the NHS England will deliver a five-year action plan for cancer services aimed at improving survival rates and save thousands of lives. The plan will focus on better prevention, swifter diagnosis and better treatment, care and aftercare. Immunotherapy forms an important part of the NHS' commitment to better access to treatment.
- **Europe:** The European Cancer Patient Coalition (ECPC) within the European Parliament has the Immuno-Oncology Policy Action Framework as well the Guide for Patients on Cancer Immunology. The ECPC consists of patient organisations, cancer specialists, researchers and policymakers from across Europe who are working together to improve awareness and understanding of Cancer Immunology amongst policymakers and to propose a framework for action for European and national policymakers to encourage rapid and appropriate access for patients to the most effective cancer immunotherapies.
- **National Institutes of Health, United States:** The National Institutes of Health (NIH), a part of the U.S. Department of Health and Human Services, is the nation's medical research agency—making important discoveries that improve health and save lives. The National Cancer Institute (NCI) leads the National Cancer Program and the NIH effort to reduce the prevalence of cancer dramatically and improve the lives of cancer patients and their families, through research into prevention and cancer biology, the development of new interventions, and the training and mentoring of new researchers. Immunotherapy research at NCI is done across the institute and spans the continuum from basic science discoveries to clinical research applications. NCI scientists were among those that developed the first effective immunotherapies and gene therapies for patients with advanced cancer.

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- **National Institute for Cancer Research - Cancer Research Network:** The Cancer Specialty within National Institute for Cancer Research (NIHR) is one of 30 specialties which bring together communities of clinical practice to provide national networks of research expertise. The driving vision of the National Institute for Health Research Clinical Research Network: Cancer is to bring benefit to patients, the public and the NHS through improving the coordination, integration, quality, inclusiveness and speed of delivery of cancer research.
- **The Francis Crick Institute:** Europe's largest centre for biomedical research opening early in 2016 has a strategy to adopt a multidisciplinary approach, with an emphasis on practical application of research, and links with academia, industry and the public sector to speed up the translations of discoveries made in the laboratory into treatments for disease. The Institute has five strategic priorities, one of which is research into basic immunology, in addition to the priority to collaborate creatively to advance UK science and innovation.
- **Office for Life Sciences:** The aims of the Government's ten-year Life Science Strategy are to enable the UK to become the global hub for the sector, to continue to ensure that the UK is the location of choice for investment, and to sustain the UK's position as one of the global leaders in the Life Sciences. The establishment of the Centre for Cancer Immunology will support this national strategy.

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2.5 The Local Context

Against the national background there are also a significant range of local drivers for changes at a regional, health economy, University and departmental level which underpin the proposals for the future of Cancer Immunology at the University of Southampton.

- **Wessex Cancer Strategic Clinical Network:** Wessex Cancer Strategic Clinical Network is committed to improving the outcomes for cancer patients. The strategic vision sets out the current status of cancer services in Wessex and outlines local priorities for the next five years. The network will work closely with partners to develop a delivery plan of this strategic objective.
- **University Hospital Southampton Hospital NHS Foundation Trust:** The UHS NHS Trust (UHS) 2020 Vision corporate strategy identifies oncology services as one of six key “defining” services and will seek to produce outstanding research, innovation and service levels to patients in these areas. The vision identifies the University of Southampton as a key partner in achieving this ambition through the creation of clinical-academic centres, resulting in greater performance management of research efforts within divisions and expansion of clinical trials capability to attract commercial and non-commercial income.
- **Southampton City Council:** Southampton City Council seek to create a city of growth and opportunity and have seven priorities including the creation of jobs for local people, services for all and city pride.
- **The Wessex Academic Health Science Network:** The Wessex Academic Health Science Network (AHSN) aims to bring discovery and innovation into the Wessex health system so that the population has better health and benefits from a thriving health innovation sector. The AHSN strategy is to secure innovation, improvement and wealth creation opportunities in each priority area for health and social care organisations, industry and academia across the region. Their ambition is to realise life-long, society-wide health benefits by catalysing system-wide collaboration, accelerating the emergence of new technologies, services and wealth, whilst facilitating rapid knowledge exchange and uptake into education and training.
- **NIHR Experimental Cancer Medicine Centre:** Through collaboration and teamwork, the ECMC network aims to enhance the delivery of early phase trials by providing capacity, increasing speed and efficiency, and ensuring safety; It aims to ensure that the UK remains at the forefront of international efforts to develop and test new treatments for cancer, built upon outstanding science and increase the attractiveness of the UK as a location for industry-sponsored early phase trials.

2.6 Solent LEP Strategic Economic Plan

The project will support the following Solent LEP Strategic Priorities:

1. Building on our substantial knowledge assets to support innovation and build innovative capacity in the Solent area to stimulate growth in Solent businesses and in new high growth sectors, particularly linked to our HE excellence.
2. Developing strategic sectors and clusters (interconnected groups and businesses) of marine, aerospace and defence, advanced manufacturing, engineering, transport and logistics businesses, low carbon and the visitor economy – establishing the area as a business gateway, at both local and international levels and developing local supply chains.
3. Supporting new businesses, enterprise and ensuring SME survival and growth.
4. Establishing a single inward investment model to encourage companies to open new sites in the region, supported by effective marketing.

2.6.1 Innovation

The project will enable the University of Southampton to capitalise on its world-leading cancer research. £4.5m of Solent LEP funding will bring forward, to 2015, the University's new £25m Centre for Cancer Immunology. The Centre will focus on research into new Cancer Immunology therapies, it will accelerate new drug discovery and enable Southampton to stay ahead of competitor research groups overseas. This will build the University's global reputation for research excellence and for the commercialisation of cancer research. It will establish put the Solent LEP area, and the UK, on the map as the place to invest in revolutionary cancer research, treatments and teaching.

This project will safeguard 175 jobs, which could be at risk if this investment is delayed. It will also create 49 new direct jobs, plus 300 jobs during the construction phased (our construction partners share the University's commitment to supporting the recruitment of local labour). In the medium to long term over 550 jobs will be created across SMEs and large companies, within the Solent LEP area's Life Science Sector, as a direct result of the commercialisation of new drug discoveries make possible by this new Centre of Excellence.

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2.6.2 Sectors, Supply Chain and SME growth

The project will support the growth of the established Life Sciences Sector in the Solent Area, which is part of a wider cluster in the South of England. The recent Solent Life Sciences Report⁴ identified the strong cluster of SMEs centred on the University of Southampton. An objective of this project will be to support the findings of this report by working with this SME community to involve them in the drug and social care commercialisation activities of the project.

The approach will be to help SMEs collaborate with the University and the large pharmaceutical companies associated with this project including GSK and Bristol-Myers Squibb amongst others, through Open Innovation activities, such as those pioneered by the SETsquared⁵ partnership. SETsquared, which is independently ranked as the top university business incubator in Europe has already delivered a range of SME focused outputs, including:

- between 2002-14 SETsquared supported 1041 SMEs that contributed £3.8 billion GVA to the economy and is forecast to contribute a further £7.4 billion GVA by 2025;
- employment due to these businesses is estimated at 8,900 jobs in 2014, projected to rise to 14,200 by 2025;

It is estimated, using SETsquared methodology based on 10 years of experience running existing incubators at SETsquared universities, that the Centre for Cancer Immunology will have a significant impact on the formation of SME, SME growth and SME job creation within the Solent economy. We anticipate that this project will deliver between 2015-2026:

- 25 new life science related businesses that are connected to the cluster, this includes two significant University spin-out companies
- 40 new business relationships between Solent LEP based SMEs and Big Pharmaceutical companies
- Support the creation of over 550 new jobs within the Solent area
- Help SMEs raise over £67m of private sector investment

The University will also work with the Solent Growth Hub and national organisations, such as InnovateUK to ensure that local SMEs are aware of, and take advantage of Government programmes designed to support innovation and business growth. The University of Southampton also has a first class track record in helping SMEs access private sector investment from angel, venture capital and institutional investors and will continue to use its experience to help Solent SMEs raise commercial funding to help them grow.

⁴ Solent Life Sciences Report | Submitted by the Institute for Life Sciences, University of Southampton 2015

⁵ Enterprise collaboration between five leading research-intensive universities: Bath, Bristol, Exeter, Southampton and Surrey
<http://www.setsquared.co.uk>

2.6.3 Inward Investment

This project will support the development of a world leading Global Centre of Excellence for Cancer Immunology, which will maintain Southampton's lead in breakthrough drug discovery and therapies. LEP funding is essential to bring forward investment in this new Centre of Excellence. Without LEP funding the project will be delayed and, Southampton could lose out in the race to bring new cancer therapies to market. Failure to invest now could see centres based in overseas, and particularly in the US, seize the commercial opportunities that will come from Cancer Immunology research. Without LEP support, Southampton could be relegated to the second tier of research groups, which would potentially jeopardise its research group's long term sustainability, putting at risk the positions of the current 175 strong team.

LEP investment will allow the project to proceed at pace and enable it to be operational by 2017. This will provide Southampton, the Solent and the UK the world's first dedicated Cancer Immunology Centre, which will mean that the UK will be in the driving seat for future immunology based cancer therapies.

The University already has established relationships with world-leading pharmaceutical companies, and discussions are at an advanced stage as to how the pioneering drug discovery work of the Centre can be fast tracked to market. Southampton already has a strong track record in taking cancer drug discovery to market rapidly. This investment will mean that Southampton will be the focal point for new drug discovery; and the Centre will act as a magnet for investment from both UK based and overseas pharmaceutical companies.

Currently the University has collaborations and strong track records with 11 of the 16 top Cancer Immunology companies of 2015:. The income from industry in cancer research at the university is about 12% of the total research income. By increasing the number of scientists and improving the facilities, the new Centre is estimated to bring industry investments to 15-20% of total research income to support development of promising immunotherapies and beyond into clinical trials.

Between 2015-2022 the commercialisation work of the centre is estimated to draw in over £3m of investment from industry, of which £2.5m will be inward investment from overseas pharmaceutical companies, making a significant contribution to net UK foreign direct investment. In addition, as new drug discoveries are commercialised, based on Intellectual Property developed at the Centre, either in the UK or overseas, will make a major contribution to UK export earnings and create import substitution opportunities. The University is already working with UKTI to maximise inward investment and trade development opportunities.

As an example, in June 2015, Southampton announced a new three year collaboration with BioInvent International AB, a research-based pharmaceutical company focused on the discovery and development of innovative antibody-based drugs against cancer.

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“We are especially pleased to be undertaking this additional research collaboration with the team at the University of Southampton. This esteemed research center and its renowned clinicians are experts in the fields of immunology and oncology and are at the forefront of unlocking the potential of therapeutic antibodies. In collaboration with our colleagues in Southampton, we aim to generate more efficacious and safer immune modulatory antibodies for cancer treatments.”

Björn Frendéus, PhD, Chief Scientific Officer of BioInvent and Visiting Professor at the University of Southampton

2.6.4 Increasing Productivity

2.6.4.1 Centre

A key motivation for this investment from a University perspective is that a new Centre of Excellence will bring together all the elements necessary to advance groundbreaking cancer therapies rapidly. This will unlock productivity gains by creating an environment where the best scientists in the world can work with the best equipment in a state of the art purpose built facility. This will enable Southampton to steal a march on rival centres overseas by significantly accelerating the pace at which it takes to bring new therapies to market.

2.6.4.2 Healthcare

The productivity benefits do not end with the Centre; new therapies developed in Southampton will also have the potential to revolutionise cancer care and therefore deliver significant productivity gains to all healthcare systems. Highly target immunology based therapies will reduce some of the shortfalls of conventional cancer treatments. Chemotherapy, which relies on a more systemic approach often leads to debilitating side effects. Similarly, radiotherapy and surgery have a range of side effects and they also require heavy capital investment. Although immunotherapy will not replace these treatments it does have the potential to offer a quantum leap in treatment for many common cancers. This presents the NHS with the opportunity to achieve considerable productivity gains with relevance to; healthcare systems globally in the face of demographic changes and spiralling healthcare cost.

The partnership between the University and UHS NHS Trust will permit productivity innovation to be centred in the Solent LEP area, with new approaches to treatment developed in Southampton adopted across the whole NHS and ultimately by overseas healthcare systems. This will create additional benefits to social care and create business opportunities for SMEs to work with the Centre and hospital on the development of services that take advantage of these productivity gains. With investment, the Solent LEP area will be at the centre of this healthcare productivity revolution.

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“Our partnership with the University of Southampton enables us to be involved in discovery programmes to develop the next generation of healthcare solutions. What we can offer through combined working with the University is much greater than the sum of its parts, enabling researchers to work faster and more effectively. With quality assured nursing, specialist laboratories, clinical governance and facilities we are able to efficiently investigate a wide range of health issues”

Fiona Dalton, CEO, UHS NHS Foundation Trust

2.6.4.3 Society

The therapies developed in the Centre has the potential to delivery significant benefits to wider society as they will effectively cure some cancers, which, up to now have been challenging to treat. Southampton’s pioneering work has already delivered very promising results in trials for cancers such as melanoma, a cancer that is increasingly affecting younger patients. By effectively curing certain types of cancer, with treatments that maintain the quality of life for patients, we can expect those patients to remain economically active during treatment and continue as productive members of society into old age. The productivity benefits to wider economy of immunotherapy treatments are potentially enormous and the intangible benefits to society of providing hope for those people who might not have not been able to plan for a future is incalculable.

2.6.5 Skills

In order to capitalise on the revolutionary therapies developed at the Centre a key aim will be to build strong skills and high level training around the work of this Global Centre of Excellence. Higher-level skills shortages are holding back the UK’s ability to lead in this area, this Centre will tackle this challenge by filling the skills gaps that are holding back innovation. Specifically, the Centre will be a focal point for the development of non-clinical skills development in immunometrics, immunogenomics and related informatics, to maximise the productivity benefit of the social and care made possible by immunotherapy.

There will also be skills development support around entrepreneurship and innovation adoption to enable SMEs in the Solent area to take advantage of the commercial and business opportunities that will flow from the Centre.

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2.7 Case Study: Babraham Research Campus

Babraham Research Campus serves as a case study for the impact a project can have upon the clustering of businesses around a centre, the indirect job creation and inward investment.

Established in 1998, the Babraham Institute is a world-class research institution, situated at the heart of the Babraham Research Campus, near Cambridge. Their mission is to be an international leader in research focusing on basic cell and molecular biology with an emphasis on healthy ageing through the human lifecycle.

The Institute's research is supported by strategic funding from the Biotechnology and Biological Sciences Research Council who fund four core areas of research: epigenetics, lymphocyte signalling, nuclear dynamics and signalling. The Institute receives additional funding from other bodies including the Medical Research Council, Wellcome Trust and the European Commission. Funding is also obtained through research collaborations with industry and medical charities.

The Campus' combination of outstanding facilities, research services and the world-leading fundamental bioscience research have enabled it to support over 60 SMEs, with 46 currently residing on the campus. Between them, all the companies who have graduated from, or are still located on, the Babraham campus have raised at least £360m in equity funding.

At an operational level, the economic impact of the Babraham Group in 2011/12 contributed GVA of £41.5million, supporting 660 jobs nationally. The local economic impact is estimated at GVA of £29.5 million, supporting 477 jobs, directly and indirectly, in the local economy.

Part B: The Case For Change

2.8 Investment Objectives

The University has identified the key priorities for the delivery of a Cancer Immunology Centre within the wider context of the University of Southampton Strategy.

These objectives are:

- Increase active world-leading research programmes in Cancer Immunology
 - 50% increase in active Principal Investigators in 5 years
 - 200% increase in value of research applications submitted in 5 years
- Increase skills levels in the Life Sciences in the Solent Region
 - Secure retention of existing research and clinical staff
 - Increase workforce through the recruitment of 50 highly skilled jobs
 - Expand postgraduate studentships
- Increase Life Sciences activity and investment in the Solent Region through increased collaborations and licensing opportunities
 - Deliver a 50% increase in active collaborations with SME and major biotech and pharma
 - Deliver 40 new relationships with public, private and charity sector organisations
- Increase active clinical trials in the region to deliver improved treatment options for patients
 - Deliver 10 new active clinical trials in the next 5 years
 - Increase the clinical trials portfolio managed by the Clinical Trials Unit in the Centre by 100% in 5 years
- Increase productivity and cost effectiveness of research through modern facilities and equipment
 - Increase working efficiencies through co-location and improved facilities and equipment
 - Reduce estates liabilities
- Increase translational research outcomes through strengthened partnership with UHS NHS Trust and other local NHS Trusts.

2.9 Existing Arrangements

The current Cancer Immunology research provision at the University of Southampton includes the following services and facilities:

- Tenovus Building
- Duthie Basement and associated BRF extension
- Areas within the Institute of Developmental Science (IDS) & Somers Buildings
- Modular Building housing Clinical Trials Unit

The current facilities can be defined as:

- Limiting collaborative working due to poor adjacencies
- Inadequate space for research;
- Inappropriate research facilities;
- Suboptimal estate and physical environment;
- Slowing research progression with time wasted due to lack of colocation; and
- Limiting translation for patient benefit and preventing expansion of clinical trials

2.10 Issues impacting Cancer Immunology in the Solent Region

The key aims of the University of Southampton's Centre for Cancer Immunology are around driving innovation, increasing productivity, increasing outputs and creating a cluster of life science activity in the Solent Region. A number of factors have influenced the creation of the investment objectives for the Centre.

2.10.1 Increasing Global Demand

The University of Southampton has experienced increasing demand and interest in our Cancer Immunology research programme which reflects trends across the globe. The demand for research in this field has steadily grown over recent years. As the number of cancer patients rises across the globe and access to healthcare widens in both developed and emerging markets there is an increasing demand for specialised pharmaceuticals and services. Ageing populations and increased lifestyle risks exacerbate the strain. Better understanding of this increasingly important area of research will enable significant improvement in Cancer Immunology treatment and allow immune boosting therapies that are tailored to treat individual tumours in cancer patients. There is an increased need for more effective cancer treating drugs and this nascent market has already experienced appreciable growth recently.

Market research has identified that the global market for Cancer Immunology was valued at \$30.8bn in 2012 and nearly \$34.3 billion in 2013. Research expects the market to grow to \$67.9bn by 2018 and register a five year compound annual growth rate of 14.7% from 2013 to 2018.⁶

Case Study: Yeroy (Ipilimumab)

The University of Southampton's Cancer Immunology programme supported the delivery of the trial of Bristol-Myers Squibb Melanoma Drug Yeroy. This was granted FDA approval in 2011. YERVOY is the first and only therapy for unresectable or metastatic melanoma to demonstrate a significant improvement in overall survival. In October 2014 BMS announced results for Yervoy of \$350 million with sales increase of 47%.

On the back of spectacular results from established results programmes such as that at Southampton and a range of clinical trials demonstrating potential to revolutionise treatment of cancer, there is increasing demand from SME and major pharmaceutical and biotech partners to enter into and expand their programmes in this field. Since the start of 2014 alone there have been 44 corporate deals in the immuno-oncology market.

The recent American Society of Clinical Oncology conference in Chicago in May 2015 resulted in global press coverage about the potential for immunology to cure cancer. The world of Cancer Immunology is busier than ever before and Southampton needs to respond

⁶ <http://bccresearch.blogspot.co.uk/2014/04/global-cancer-immunotherapies-market-to.html#.VW2nOM9Viko>

to increasing demand regionally, nationally and globally to position the Solent region at the forefront of this emerging market and capitalise on a potential market worth of \$34.3bn.

2.10.2 Sub-optimal Physical Capacity and Environment

The Cancer Immunology research at the University of Southampton is currently delivered from a number of disparate locations across both the General Hospital Campus and Highfield Campus. Areas of the estate are over 40 years old and now unsuitable for the science that is undertaken within them.

The potential for future growth in our Cancer Immunology research programmes is constrained by lack of space on the General Hospital campus, with no room for expansion. No new research groups can be accommodated. Existing programmes have been critically constrained by lack of research space. Existing facilities are now accommodating more than double the number of researchers than originally specified when the last expansion in facilities was commissioned in 2000.

The University Clinical Trials Unit is currently housed in a temporary building provided by the UHS NHS Trust, and this space is urgently needed for decanting as part of the Trust's own estates reconfiguration.

In addition the associated Biomedical Research Facilities (BRF) are at the limit of compliance with new national regulations, as a result of their outdated accommodation.

The Centre for Cancer Immunology will provide new accommodation for decant from a number of existing buildings at the Southampton General Hospital Campus: -

- Tenovus Building
- Duthie Basement and associated BRF extension
- Areas within the IDS & Somers Buildings

The Tenovus building is a 4 storey building (including basement) which dates from the early 1970's. This building houses scientific research areas as well as part of the Biomedical Research Facility (in the basement) which supports cancer research.

Figure 1: Tenovus viewed from the North



Issues associated with accommodation in Tenovus are:

- The building is nearing the end of its life;
- The building is difficult to maintain;
- The laboratories are nearing the end of their life & are cramped;
- The laboratories do not promote interaction between groups and sections; internally it is very insular with no internal glazing;
- The building services provision and quality are not to today's standards The BRF has requires upgraded ventilation and accommodation is far from being "state of the art".

The Duthie building is of a similar age. The basement within Duthie accommodates the Biomedical Research Facility (BRF) holding rooms and links directly to a new extension housing the cage wash and stores for the BRF.

Figure 2: Duthie Extension



Issues associated with accommodation in the Duthie Basement are:

- The building is nearing the end of its life;
- The building is difficult to maintain;
- The BRF requires upgraded ventilation & accommodation is not "state of the art";
- The BRF holding is inefficient;
- The building services provision and quality are not to today's standards, in particular the ventilation within the BRF is an issue;

- As a result of the dated open plan design, there is no segregation between the labs and office corridors.

The Institute for Developmental Sciences (IDS) and Somers Buildings are modern buildings which meet today's standards and the user's requirements. These areas will continue to be used although some groups will relocate where direct colocation with the cancer immunology teams would be of specific benefit.

Issues associated with accommodation in the IDS and Somers Buildings are

- Lack of clear separation between science and non science;
- Provides excellent interaction between groups and sections with labs opening directly onto the corridor and break out spaces between the 2 buildings.
- Good corridor widths;
- Overly generous circulation space within the general laboratories.

The Modular Building, where the CTU is currently housed, is modern and was redecorated in late 2011. It is a single storey "Portakabin" type building for office accommodation.

Figure 3: View of the Modular Building



Issues associated with accommodation in the Modular Buildings are

- Remote from the academic area
- The unit is not owned by the University but leased from the hospital; this includes all of the office furniture.

In summary, the facilities currently housing teams working on Cancer Immunology are sub-optimal. They limit expansion and efficiency and hampering the success of the University's research programme, therefore impacting the University's ability to retain its world-leading status in this field and drive innovation, collaboration and commercialisation.

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2.10.3 Workforce Issues

Several large universities in the UK and elsewhere are planning expansions in their Cancer Immunology programmes in response to emergent clinical results and shifting strategy of research funders, and if the University of Southampton cannot offer state-of-the-art facilities and critical mass we will lose talented researchers to competitor institutions.

Southampton boasts researchers of national and international significance. These staff are critical to the continued success of the programme and the retention of Southampton's global position in Cancer Immunology. The Centre for Cancer Immunology will deliver security in this regard. Failing to retain leading researchers will damage the current research programme and impact future recruitment. It will also result in the loss of interconnections between other research areas such as Cancer Genomics and therefore have a negative impact on other research fields, and on the University's wider research strategy. This will put Southampton at risk and will be detrimental to the Solent region.

With increasing interest in the field of immunology more young and emerging researchers are looking to work in these programmes. At present Southampton is not able to expand research teams, and therefore is not able to bring new talent to the area due to the constraints of the physical research environment. Nurturing and developing the next generation of researchers is critical to ensuring future research success and sustaining the market interest in immunology in Southampton and the Solent region.

The University of Southampton does not only risk losing its talented workforce to competitor research institutes but also to industry as Life Sciences companies are competing globally for increasingly scarce technical and professional skills. According to the Deloitte report "Global Human Capital Trends 2014: Engaging the 21st-century workforce", 75 percent of survey respondents rated workforce capability as "urgent" or "important"; however, only 15 percent believe they are ready to address it. Securing a Centre of Excellence in the Solent Region will ensure retention of this highly skilled workforce in the Solent region.

2.11 Estates Strategy

The University's Estates strategy has been developed to create the quality of environment and facilities required to support the University's strategy which identifies how the University will use and supports its existing building, which buildings will become obsolete and where new buildings are required to underpin the delivery of the strategy. This objective is therefore reflected in this business case and the provision of new research facilities is a feature of the University's Estate Strategy.

The Southampton General Hospital estate strategy 2020, developed in 2008 with a strategic master plan, identified a Clinical Sciences zone and new build opportunity adjacent to the existing Somers buildings. The Centre for Cancer Immunology footprint is within this zone, ensuring that development does not compromise other estate development strategies or future development/expansion opportunities, but also ensures that appropriate adjacencies for key University of Southampton-led research functions are preserved.

University Hospital Southampton is a large teaching hospital and provides specialist expertise to the South of England region. It houses renowned centres of excellence in the treatment of cancer, heart disease, respiratory illness, neurological disease, gastro-intestinal conditions and illnesses affecting children. The hospital is fortunate to benefit from a high number of specialist consultants working in large multi-disciplinary teams and plays a leading role in the development of new and improved treatments for NHS patients

The University of Southampton and UHS NHS Trust work collaboratively to improve services and treatment opportunities for NHS Patients. Research, Development and Education initiatives through joint schemes underpin this collaborative working ethos.

2.12 The Vision for Cancer Immunology at Southampton

The University of Southampton will deliver the UK's first ever dedicated Centre for Cancer Immunology; a Centre that will be a powerhouse for driving research advancements, that will be a beacon to retaining existing researchers and attracting talent to work in the region, and will increase the activity and success of the Life Sciences community in the Solent area, delivering increased business and high-quality job creation in the region.

The Centre will deliver world-class facilities that will allow the rapid acceleration and expansion of laboratory discoveries to clinical work. The treatment of cancer using immunology is now becoming a reality and the University of Southampton will remain at the forefront of this field with the delivery of a new research Centre. Through close partnership working and through physical adjacency the research outcomes from the Centre for Cancer Immunology will be rapidly translated into patient benefit. Patients will benefit directly from world-leading research undertaken in Southampton.

The vision for Cancer Immunology at Southampton will act as a magnet for investment both in the region and the in the wider UK. It will cement our position at the forefront of this research and transform the Solent region's leadership in research, translation and commercialisation.

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2.13 Project Scope

In taking forward the vision for Cancer Immunology, the University's aspirations for a dedicated Centre for Cancer Immunology are outlined below:

- Provision of facilities to expand and consolidate scientific research in this field;
- Re housing the existing BRF currently located in the basement of Tenovus/ Duthie into a new Pre Clinical Unit and;
- Co-location of the Clinical Trials Unit into the same building from elsewhere at the hospital.

2.14 Functional Content and Schedules of Accommodation

The functional content required for the Centre for Cancer Immunology is as follows:

- Core: both science research areas and associated write up
- Clinical Trials Unit: an office facility;
- Pre-Clinical Unit: a bespoke experimental facility;
- Shared facilities: entrance and meeting rooms;
- General; senior academic cellular offices;
- Circulation and support areas;
- Plant;

A full and detailed schedule of accommodation and inter-relationships of the areas has been completed.

2.15 Consultation and Engagement

The Requirements for the Centre for Cancer Immunology were determined by meetings with;

- Project Leads
- Key stake holders
- Personnel who have specific roles and responsibilities in relation to the proposed building. These included representatives from the Faculty, Estates and Facilities and iSolutions.

Wider internal and external consultation was undertaken with the following stakeholder groups:

- University Leadership
- UHS NHS Trust
- Research Funders
- Industry Partners
- Research, Clinical and Operational staff members
- Local Communities
- Local Authorities

2.16 Key Risks

The main business risks associated with the project are shown in Table 4 together with their counter measures.

Table 4: Key Risks and Mitigations

Risk	Mitigation
Financial	
Lack of capital funding to support project	Investigation of alternate sources of funding and procurement model. Consider Re-profiling investment and scope on other projects within capital programme. Monthly Programme Management reviews via dashboard submissions on a project by project basis to determine options for re-profiling expenditure and capital commitments
Scheme is unaffordable from University revenue perspective	The CCI is a re-location and decant of existing key groups into a new facility, with the spatial opportunity for expansion for up to 49 new staff. Current operational costs have been reviewed, re-profiled and forecasted to determine the impact of operational costs against revenue. This has indicated that a new facility, resulting in a reduction in relative Long-Term Maintenance costs against other occupied space, in a more energy efficient building, will result in a nominal operational running cost of the facility, which can be accommodated.
Capital costs increase	Contingencies included in capital costs against design and construction/package procurement risk. A strategic management reserve is held within the project budget for unforeseen risk. Model capital cost increase as a sensitivity. Re-profile spend on other projects within capital programme.
Design and Planning	
Planning issues	The project has entered into a pre-application agreement with the city council. Close working with Southampton City Council on detailed planning to close down issues in a timely manner.
Change in research scope to that briefed	Stringent change control procedures are set out within the P21+ framework. In addition change control is managed through the University of Southampton gateway process and governance structure. Ensure all requirements are picked up at design workshops

	and refer any potential issues to Project Advisory Board for agreement.
University does not resource project sufficiently	Resourcing has been secured via the Initial Stage Agreement and Development Agreement with the Trust, and also via the Programme Management Unit. On-going review of staffing requirement for the duration of the project.

2.17 Main Benefits

The Centre for Cancer Immunology will deliver benefits for the University of Southampton and other key stakeholders in the Solent Region. The priorities of a number of key stakeholders will be strongly supported by this development;

2.17.1 The University will expand its capacity for cutting edge research with direct clinical application, closely linked to the work of the Francis Crick Institute, thereby increasing its ability to win research grants and train the next generation of laboratory and clinical researchers. In estate terms, the University will expand and eliminate some long-standing liabilities in the Tenovus Building and its Biomedical Research Facility.

2.17.2. University of Southampton NHS Trust will regain space for re-location of key clinical services and research support, and will realise a critical component of its estates plan. The clinical research supported by the Centre for Cancer Immunology will directly enhance the Trust's standing as a research-active hospital and its income from commercial trials activity linked to the laboratory programmes.

2.17.3. The Wessex Academic Health Science Network has the ambition to develop a significant portfolio of Life Sciences research, to facilitate and target development of basic and translational biomedical research and clinical application. The Centre for Cancer Immunology will support this ambition in a leading area of cancer therapy research.

2.17.4. The Southampton Centre for Biomedical Research has clinical translational as its core mission, and this project will strongly enhance this, spanning as it does from basic laboratory science to clinical testing in a single centre.

2.17.5. Cancer Research UK has the pursuit of increased research in immunology and biotherapeutics as a key element in its next 5-year strategy (2014-2019), reflecting the potent growth in this field. The Centre for Cancer Immunology will directly support this strategic ambition, and will be in an excellent position to prosecute the research strategy and win further funding in the process. An increase in the critical mass of cancer researchers in Southampton will address the needs of CR UK to support centres of adequate size to justify significant core funding for research infrastructure, in addition to pure response-mode grants.

2.17.6. The Francis Crick Institute will find the Centre for Cancer Immunology an invaluable clinical and translational partner. The Crick has a pressing need to demonstrate that its creation will have benefits beyond the three founding partners in the City of London, and this provides just such an opportunity to show national reach.

2.17.7 Life Science Industries will find the Centre for Cancer Immunology an attractive partner for collaboration and inward investment. There is already a significant income stream from clinical and pre-clinical collaborative research with biotech/pharma companies, and this can be substantially enhanced with updated and expanded facilities.

2.17.8 The City of Southampton will benefit from the presence of an internationally recognised research Centre, enhancing its reputation for investment in science and technology, and the higher education sector and acting as a magnet to secure further inward investment to the region.

The addition of the new Centre for Cancer Immunology will strengthen the core expertise and specialist resources that Southampton can offer in the field of immunology and the co-location of this facility at Southampton General Hospital will take us one step closer to our ultimate aspiration as a trust that every patient at UHS should be given the opportunity to be part of a research trial.

Fiona Dalton, CEO, UHS NHS Foundation Trust

2.18 Constraints

The main constraints associated with this scheme are as follows:

- The University has a limited amount of capital available to deliver its immediate need for research, teaching and learning demands under Capital Programme 3;
- The University has to deliver the project within an extremely busy time for the industry which results in a commercially sensitive environment with resourcing pressure and rising inflation;
- The University has to deliver the scheme in an environment of increasing pressure on the research programme from both a demand and performance perspective;
- Interface with the infrastructure, logistics and operational management on the General Hospital Site, including the Somers Cancer Research Building;
- Interface between construction activities within the SGH estate and patient, staff and visitors access to the hospital site.

2.19 Dependencies

The project is subject to the following dependencies that will be carefully monitored and managed throughout the lifespan of the scheme.

- Availability of capital from the University's fundraising campaign;
- Recruitment and availability of key research staff;
- Competitiveness of suppliers to enable the scheme to be delivered within budget;
- University's continued strong financial position;
- Value engineering and quality control;
- Planning Consent, Considerations and Sectional Agreements (for example Section 106 obligations);
- Transfer of Cancer Immunology activity to the new Centre;

3. THE ECONOMIC CASE

3.1 Introduction

This section of the OBC documents the wide range of options that have been considered in response to the potential scope identified within the strategic case.

3.2 Option Development

3.2.1 Long List

The University has identified a number of key objectives and benefits which it is seeking from the redevelopment of its research facilities. It is clear from these objectives and the University's current position that there is a need to physically alter or re-provide the existing facilities. Consequently four options have been developed for review by University Council and other key stakeholders.

These options were identified having considered the overall strategic redevelopment of the research facilities, the need for co-location of teams from across the University Highfield and Southampton General Hospital Campuses, and the delivery of a cohesive estates strategy. Each option in terms of its high level descriptor and identified benefits and issues is summarised in the following text.

Option 1 – Do Nothing

This would involve no reconfiguration, refurbishment or development works to any existing buildings or departments.

Benefits

- No disruption to existing services as no construction required.

Issues

- Disruption to delivery of research programmes in the short to medium term due to lack of capacity;
- No opportunity to re-profile workforce as critical mass of services through co-location would not be achieved;
- The physical and environmental issues facing the current research programmes would remain unresolved;
- There would be significant limitations in providing the necessary capacity, improved significant adjacencies and workflow within the department to cope with current and future demand;
- No or little opportunity to improve the staff experience;
- No opportunity to expand recruitment within the programme;
- Estates issues relating to the condition of the estate;
- Failure to comply to standards required for Biomedical Research Facility.

Option 2 – Limited Capital Development – Refurbish Tenovus Building

Undertake renovation of existing estate portfolio through renovation of the Tenovus building and trying to develop other space on the General Hospital Site could be considered.

Benefits

- Lower level capital investment required

Issues

- Decant space would be required during refurbishment which is not available;
- Will not deliver fit for purpose facilities for the long term;
- Loss of income;
- Estates issues with building condition and access remain;
- Major reconfiguration of space would be required which would add additional cost;
- Recruitment of senior academics would be impaired;
- Significant overcrowding will remain an issue;
- Sub-optimal environment will remain;
- Little opportunity to improve staff experience;
- Key co-location of research teams would not be achieved;
- Failure to comply to standards required for Biomedical Research Facility;
- Jeopardise status as a CRUK and an NIHR/CRUK Experimental Cancer Medicine Centre

Option 3 – Limited Capital Development – Phased Construction of a New Centre

Limit commissioning of a new building for occupation as funds become available.

Benefits

- *Mitigation of risk*

Issues

- Potential for escalating project costs through inflation;
- Recruitment of senior academics would be impaired;
- Jeopardises link with the Francis Crick Institute;
- Loss of position as regional, national and global research Centre
- Escalation of project costs through inflation

Option 4 – Build a New Centre

This option would provide a purpose-built facility in an area currently designated occupied by a disabled car park.

Benefits

- The new Centre would allow the expansion of research teams;
- Proposed location provides much closer links with the key clinical users and other research facilities on the Southampton General Hospital Site;
- The capacity and environmental issues would be resolved;
- There would be a significant contribution to the quality and functional suitability of the estate;
- Design changes would improve adjacencies and workflow and address current limitations;
- Construction of new facilities would add a stimulus to recruitment;
- The redevelopment fits with the site master plan;
- Space available would support extended research activity;
- Site is available for construction to commence;
- A new Biomedical Research Facility would ensure compliance.

Issues

- Re-provision of disabled parking will be required.

3.3 The Preferred Option

The options were reviewed by the Capital Project Board and University Council and it was agreed that Options 1, 2 and 3 should be discounted as they would not provide facilities that would enable the expansion in research activity or deliver against the University's strategy to provide national and international collaborations and would require substantial capital investment that would not deliver value for money in the long term for the University, or the region.

3.3.1 Option1: Do Nothing

The existing facility layout and adjacencies are insufficient to support the needs of new and expanded specialist research demands. Key spatial requirements to support the success of a cancer immunotherapy research are adjacencies to spaces, collaborative working areas, opportunity to expand and specialist research equipment. The existing facility will require significant maintenance investment within the next 3-5 years to replace the roof, major plant, windows and new stair cores. It was considered that it would not be possible to undertake the required research without significant refurbishment or expansion of the existing facility.

3.3.2 Option2: Refurbishment

The footprint and spatial layout of the existing building does not permit the right configuration of space to be provided, nor does it have sufficient space to provide expansion opportunities to support cancer immunotherapy research. This is important because not only does the research facility need to house specialist rooms with specific adjacency requirements, but also new cutting edge research equipment and opportunities for collaborative working. In addition the existing building is not energy efficient and will soon require extensive maintenance work to the facades, roof and windows. New specialist equipment is required to support the research which would result in a replacement of major services within the building and provision of additional specialist plant and associated support services. This would require either wholesale replacement of the roof and a review of structural integrity of the building, or side expansion to house plant with costly horizontal connections into the existing facility. Refurbishment of the existing facility was considered to require extensive and costly works which would not yield the most appropriate space for cutting edge specialist research.

3.3.3 Option3: Phased Redevelopment

The new research facility requires a suite of specific research areas to be provided across a single floor layout. This is vital to ensure that sensitive research is undertaken in a strictly controlled and secure environment with appropriate adjacencies between rooms. This need drives the requirement for a single floor plate which cannot be provided in a phased manner.

The outcome of both the non-financial and economic appraisals is that the preferred option for the delivery of the project objectives is Option 4 – New Build on the University of Southampton General Hospital Campus.

3.4 Value for Money

The University contributes more than £729 million GVA and 11,700 jobs to the Southampton economy, more than £1 billion GVA and over 16,300 jobs to the region and more than £2 billion GVA and over 26,500 to the UK. The University of Southampton's impact extends beyond quantitative measures because of the excellence of its research which has informed policy and strategy and had a significant impact on society. These include supporting sectors key to the competitiveness of the local, regional and UK economy, contributing to Southampton's regeneration and helping millions of people through its health research.

The impact of the University's medical and healthcare research is more than £51 million GVA. The full impact of the research at Southampton is underestimated particularly in terms of the unquantifiable nature of improvements to quality of life and the difficulty of measuring how better healthcare policy and delivery leads to better health outcomes.⁷

Solent LEP investment in the Centre for Cancer Immunology will:

- Unlock and bring forward a sustainable £25m Capital Project that will put the Solent Area on the map as the place to invest in new cancer therapies by establishing a Global Centre of Excellence for Cancer Immunology;
- Secure the future of 175 direct jobs;
- Create 49 new direct jobs;
- Create 300 new jobs at the peak of construction;
- In the medium to long term create over 550 jobs across SMEs and large companies involved in the project within the Solent LEP area;
- Support the creation of 25 new life science related businesses;
- Deliver 40 new business relationships between Solent LEP based SMEs and Big Pharmaceutical companies;
- Draw in over £3m of private sector investment directly to the work of the Centre and the Solent LEP area before 2019, of which £2.5m will be inward investment;
- Deliver significant productivity gains in the development of new cancer therapies
- Deliver productivity gains in healthcare that will place the Solent Area as a leader in cancer treatment innovation, leading to wider productivity benefits through improved patent outcomes
- Fill identified clinical and non-clinical skills gaps
- Support enterprise skills development for Solent based SMEs so that they are able take advantage of commercialisation opportunities make possible by this Centre.

⁷ Economic Impact of the University of Southampton: Biggar Economics

3.5 Economic Impact

This is a project that is of national significance to the UK, and as such it brings with it enormous long term economic benefits and prestige to the Solent LEP area.

While £4.5m of LEP support is not an insignificant amount of funding, its role in unlocking this project, bringing forward £21.5m of private sector investment, which will make the difference between the University of Southampton capitalising on its world lead in immunotherapies and potentially losing out to overseas institutions. From 2015 to 2026 the project costs are significant and represent a major financial commitment by the University of Southampton:

- Over £25m of capital costs, plus running costs of £7m, giving a total of £32m for the building related elements of this project
- Long term revenue costs, which include the salaries for over 200 members of staff, plus enterprise activities - this will total over £130m.

For the next eleven years, the total costs for this project are in excess of £165m, this is the period that we have used to undertake our economic impact analysis, although the lifespan of the building is 40 years. We felt that the eleven-year period offered the University scope to undertake a more meaningful appraisal of the economic benefits.

While the costs of this project are substantial, in the long run it could deliver significant economic value. Not only will the investment in the building and ongoing revenue cost make a big impact on the local economy:

- During the peak of the construction phase over 300 workers will be employed, generating £12.3m of local economic value for the whole construction phase
- The wider local supply chain impact of this project will support many hundreds of local jobs, generating over £121m of economic value between 2015-2026.

Given the size of the market for the breakthrough therapies that will be developed at this centre of excellence, the University has projected that by 2026 over £250m of revenue could be generated for the UK from the direct commercialisation of intellectual property at this centre. In addition, over £140m of research income could be expected to be drawn in by this world-leading research, with an increasing proportion coming from the major pharmaceutical companies.

The centre will be a magnet for business investment and will directly attract inward investment from overseas pharmaceutical companies into the Solent LEP area. The University will also be able to capitalise on its successful track record securing funding from charities and donations, having already raised over £13.5m of funding for this project, the new building will help the project gain the momentum necessary to draw in even more from charities and donors.

The University of Southampton is not only a world leader in cancer research but also a pioneer in translating research into local economic impact. Through its membership of the SETSquared partnership, according to a recent report produced by Warwick Economics &

Development⁸, the University has already delivered thousands of high quality jobs in the Solent LEP area. This work includes the formation of world-class University spinout companies and the connection of hundreds of Solent based SMEs, through open innovation programmes, to large companies. Open innovation programmes have unlocked many millions of Pounds of investment for SMEs in the Solent LEP, helping them grow faster, creating wealth and new jobs for people across the Solent economy. This experience has been used to model the wider local economic impact of this project; we have also drawn on the local economic impact experience, and the evidence base, from the Babraham Institute, near Cambridge, which is a world-class research institution of similar scale to this project.

With its own Science Park, the University of Southampton has both the intellectual and physical infrastructure to support Solent based SMEs, and new start-up companies, helping them make the most of the commercial opportunities that will result from having a world-class cancer research centre in the area. We would anticipate over the next eleven years, this project would support:

- The creation of over 550 new jobs in the Solent LEP area, across SMEs and large companies, we estimate that the jobs alone will unlock over £116m of economic value
- The formation of 25 new companies, including two university spinouts
- SMEs, helping them unlock over £67m of business investment from the private sector and from public funds, such as the schemes operated by InnovateUK
- Open innovation relationships between the Life Sciences cluster in the Solent area; helping SMEs work with large companies could open-up orders, collaborations and joint ventures worth over £100m
- Inward investment activities, the new centre of excellence will act as a magnet for investment from UK and overseas business, potentially unlocking over £50m of business investment into the Solent area.

The potential productivity benefits of this project are enormous for the research group at Southampton, the University Hospital Southampton NHS Trust, the NHS more widely, healthcare systems globally and society. The productivity benefits of the new centre could unlock over £6m of productivity saving over the next eleven years. This will be accompanied by productivity gains of new treatments trialled at Southampton, and wider benefits across the NHS and society, all of which will be very significant, but for the purposes of this economic evaluation we have not quantified. What we cannot put a value on will be the lives that the work of this new centre will save and the associated economic value that this will unlock.

This table summarises the key outputs from the economic appraisal and shows that that project offers excellent value for money and a significant return on investment for the project between 2015 - 2026:

Present value of benefits (PVB)	£950m
Present value of costs (PVC)	£173m
Net present value (NPV)	£777m
Benefit: Cost Ratio (BCR)	5.5

⁸ Warwick Economics & Development, The Economic Impact of SETsquared December 2014

<http://www.setsquared.co.uk/news/201412/new-study-shows-outstanding-economic-impact-setsquared-start-ups-grow-successful>

3.6 Funding Leveraged

The Centre for Cancer Immunology will seek to leverage additional funding, particularly from the wider private sector. Investment of £4.5m from Solent LEP will unlock £13m of secured private sector and charitable investment. Securing investment from the Solent LEP will act as a stimulus in securing additional private and charitable investment. In the interim period, investment from the Solent LEP will enable the University to proceed with construction at risk, while further investment is secured.

Securing investment for the capital development of the Centre for Cancer Immunology will also leverage public, private and charitable funding through increased research activity in the expanded facilities and research groups.

3.7 Direct and Indirect Employment

The Centre for Cancer Immunology will provide a stimulus for recruitment, both directly and indirectly and will deliver direct employment for 225 members of staff.

The Centre will facilitate the expansion of research teams at the University of Southampton and will result in the creation of 49FTEs. The Centre will also secure the future jobs of research teams located throughout Cancer Sciences.

Furthermore the Centre will act as a catalyst for job creation in organisations in the surrounding area.

The creation of a world-leading Centre with the capacity to deliver increased commercial collaboration will further support the growth of the Life Sciences network and associated industries in the region, delivering increased indirect employment.

The construction of the Centre for Cancer Immunology will result in approximately 300 direct jobs. As appointed design and build contractors, Kier will be required to demonstrate the fulfilment of the Section 106 agreement regarding local employment and skills. This will maximise the social and economic outcomes linked to the development by creating local labour initiatives for new apprenticeships and jobs to reduce unemployment, provide employer-led opportunities for local people to raise skills levels, and provide curriculum support/placements for schools and colleges.

3.8 Wider Economic Impacts

3.8.1 Increasing Productivity

3.8.1.1 Centre

A key motivation for this investment from a University perspective is that a new Centre of Excellence will bring together all the elements necessary to rapidly advance groundbreaking cancer therapies. This will unlock productivity gains by creating an environment where the best scientists in the world can work with the best equipment, in state of the art purpose built facility. This will enable Southampton to steal a march on rival centres overseas by significantly accelerating the time that new therapies come to market.

3.8.1.2 Healthcare

The productivity benefits do not end with the Centre; new therapies developed in Southampton will also have the potential to revolutionise cancer care and therefore deliver significant productivity gains to all healthcare systems. Highly target immunology based therapies will reduce the inefficiencies of conventional cancer treatments. In the case of chemotherapy, which relies on a more systemic approach often leads to debilitating side effects. Similarly radiotherapy and surgery have a range of side effects and they also require heavy capital investment. Although immunotherapy may not totally replace these treatments it does have the potential to offer a quantum leap forward in treatment with many common cancers being effectively cured in a totally different way. This presents the NHS with the opportunity to achieve considerable productivity gains; this is of international significance to healthcare systems globally as they all face the challenges of an aging population and spiralling healthcare cost.

The partnership between the university and Southampton Hospital will mean that productivity innovation will be centred in the Solent LEP area, where new approaches to treatment developed in Southampton will be adopted across the whole NHS and ultimately by overseas healthcare systems. This will create other benefits to social care and create business opportunities for SMEs to work with the Centre and hospital on the development of services that take advantage of these productivity gains. With investment, the Solent LEP area will be at the centre of this healthcare productivity revolution.

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3.8.1.3 Society

The therapies developed Centre has the potential to delivery significant benefits to wider society as they effectively cure cancers, which up to now have been challenging to treat. The pioneering work of Southampton has already delivered very promising results in trials for cancers such as melanoma, a cancer that is increasingly affecting younger patients. By effectively curing certain types of cancer, with treatments that maintain the quality of life for patients, we can expect those patients to remain economically active during treatment and effectively continue as productive members of society into old age. The productivity benefits to wider economy of immunotherapy treatments are enormous and the intangible benefits to society of giving hope to people who would have not been able to plan for a future is incalculable.

“Seeing how cancer affects you makes you feel all the more strongly that something has to be done – it’s not just your life it wrecks but your whole families. If the new Centre can stop that in just one family, then that’s pretty fantastic”

Tom Worthen, Barrister, Clinical Trial Patient



3.8.2 Skills

In order to capitalise on the revolutionary therapies developed at the Centre a key aim will be to build strong skills and high level training around the work of this Global Centre of Excellence. Higher-level skills shortages are holding back the UK's ability to lead in this area, this Centre will tackle this challenge filling the skills gaps that are holding back innovation.

The Centre will be a focal point for the development of non-clinical skills development; these are associated in maximising the productivity benefit of the social and care made possible by immunotherapy.

There will also be skills development support around entrepreneurship and innovation adoption to enable SMEs in the Solent area to take advantage of the commercial and business opportunities that will flow from the Centre.

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3.8.3 Growth of the Life Sciences Sector

The project will support the growth of the established Life Sciences Sector in the Solent Area, which is part of a wider cluster in the South of England. The recent Solent Life Sciences Report⁹ identified the strong cluster of SMEs centred on the University of Southampton. An objective of this project will be to support the findings of this report by working with this SME community to involve them in the drug and social care commercialisation activities of the project. The Faculty of Medicine support the University's strong links with industry through the SET-Squared Partnership as part of its focus on enterprise and innovation. In addition to this, the Faculty of Medicine has an impact on the economy through start-up companies and spin-outs that have been founded within the Faculty.

The wealth and employment generated by these companies have global economic impacts. The University of Southampton has created successful spin-out companies that have focused on international health issues that have major impact within and outside the UK including notable spin-outs Synairgen, iQur and Capsant Neurotechnologies.

The approach will be to help SMEs collaborate with the University and the large pharmaceutical companies associated with drug commercialisation, through Open Innovation activities, such as those pioneered by the SETsquared¹⁰ partnership. SETsquared, which is independently ranked as the top university business incubator in Europe has already delivered a range of SME focused outputs, including:

- between 2002-14 SETsquared supported 1041 SMEs that have contributed £3.8 billion GVA to the economy and forecast to contribute a further £7.4 billion GVA by 2025.
- employment due to these businesses is estimated at 8,900 jobs in 2014, projected to rise to 14,200 by 2025.

It is estimated, using SETsquared methodology based on 10 years of experience running existing incubators at SETsquared universities, that this project will have a significant impact on SME formations, SME growth and SME job creation. We anticipate that this project will deliver between 2015-2026:

- 25 new life science related businesses that are connected to the cluster, this includes two significant University spin-out companies
- 40 new business relationships between Solent LEP based SMEs and Big Pharmaceutical companies
- Support the creation of over 550 new jobs within the Solent area
- Help SMEs raise over £67m of private sector investment

The University will also work with the Solent Growth Hub and national organisations, such as InnovateUK to ensure that local SMEs are aware of, and take advantage of the commercial benefits of this project.

⁹ Solent Life Sciences Report | Submitted by the Institute for Life Sciences, University of Southampton 2015

¹⁰ Enterprise collaboration between five leading research-intensive universities: Bath, Bristol, Exeter, Southampton and Surrey
<http://www.setsquared.co.uk>

4. THE COMMERCIAL CASE

4.1 Introduction

This section of the OBC outlines the proposed deal in relation to the preferred option outlined in the economic case.

4.2 Description of the works

The proposed development will provide a dedicated Centre for Cancer Immunology within a single building situated at the University of Southampton General Hospital Campus, located in close proximity to the main entrance of Southampton General Hospital. The functional content of the new building and schedule of accommodation are detailed in **Appendix 1 - Design Proposals**. The proposed construction site is currently being used for disabled car parking.

The new building will consist of four stories of 4120m² including plant space. The Clinical Trials Unit will be located at ground floor level. Open plan working space, offices, and meeting rooms will be provided on the 1st floor. Open plan general laboratories, a suite of specialist laboratories and further open plan working space for research teams, hot desking for students and offices for senior academics will be provided on the 2nd floor level. A secure Pre Clinical Unit will be located on the 3rd floor along with plant facilities.

Figure 4 provides a graphical representation of the proposed solution within the context of the hospital site. Further detail is included in **Appendix 1 – Design Proposals**.

Figure 4: Site Context for the Preferred Option



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4.2.1. Functional Content and Adjacencies

The proposed distribution of the key functions and adjacencies within the building including proposed floor layouts are detailed in **Appendix 1 – Design Proposals** which accompanies this business case.

The net impact on the Trust's Estates portfolio is an increase after the decommissioning of the Tenovus Building. This development will consequently result in an overall improvement in the condition, quality and functional suitability of the Estate.

4.3 Building Research Establishment Environmental Assessment Method (BREEAM) and Sustainability

As one of the UK's leading research institutions, we have an important role to demonstrate leadership by promoting sustainability in all that we do. Our corporate strategy commits us to making a positive impact on society and highlights our role as a globally responsible University. Our long term ambition is to be recognised as the global leader in sustainability in the Higher Education sector.

4.3.1 Sustainability at the University of Southampton

The University has a number of strategic objectives and initiatives outlined in an Environment and Sustainability Strategy. The University is committed to the sustainability of our estate and has achieved a number of key objectives since 2006 such as:

- Implementation of an active travel plan to promote sustainable travel and modal shift away from car usage
- Operation and provision of an award winning bus service, Uni-Link
- Achievement of Eco-Campus 'Platinum' award
- Development and implementation of a Carbon Management Plan to reduce energy usage and waste.
- Implementation of a Bio Diversity policy
- Implementation of a waste management and waste segregation scheme
- Operating an on-site energy centre to provide heat and power to the University estate at Highfield.

4.3.2 Sustainability at the Centre for Cancer Immunology

The design of the Centre for Cancer Immunology includes a number of sustainability features, including:

4.3.2.1 Energy Efficient Design

The building is designed to maximise energy efficiency while delivering the required laboratory conditions. The façade u-values and g-values are optimised to reduce heat transfer through the façade and to reduce solar gain to avoid overheating. Lighting design uses a reduced lighting power density and absence detection to reduce the energy used to light the building. High efficiency boilers and chillers will reduce the energy demand to heat and cool the building, and low specific fan powers will ensure that the high levels of ventilation required are delivered as energy efficiently as possible. High efficiency heat recovery is employed on the ventilation systems for the pre-clinical unit, laboratories and office areas. Overall the building achieves an 8% reduction in carbon emissions as compared to Part L of the Building Regulations 2010, demonstrating the design has made significant steps to reducing energy demand.

4.3.2.2. Water Efficient Design

Low-flow water fittings such as WCs, urinals, taps and showers will be used throughout the building to achieve a 40% reduction in potable water demand. Water metering and leak detection are provided and linked to BMS to minimise wastage of water. High efficiency instantaneous domestic hot water generators are utilised to reduce energy consumption associated with hot water demand.

4.3.2.3 Internal Environment Design for Wellbeing

The internal environments are designed to enhance wellbeing through appropriate levels of thermal comfort, lighting levels for visual comfort and high levels of acoustic performance. Waste will be segregated within the facility into recyclable, organic, hazardous and residual wastes in order to provide a safe system of waste disposal that encourages recycling.

4.3.2.4 BREEAM

During the course of Capital Programme 1 and 2, the University has achieved its target to secure BREEAM excellent on a number of new developments. Other developments which are known to be high energy attractors, such as the new Primary Data Centre and creation of new research facilities as part of Capital Programme 1 have achieved the highest possible ratings available for the specific building use under BREEAM, such as Good and Very Good respectively.

Southampton City Council has a BREEAM Excellent policy and each project is assessed on a case by case basis as many research facilities cannot meet the requirements to achieve BREEAM excellent.

A laboratory is a facility designed for collection, processing and/or testing of specimens or procedures, some of which may be hazardous. In order to maintain controlled conditions to enable experiments and comply with health and safety standards, typically laboratories:

- Contain high levels of specialist research equipment
- Are heavily serviced to circulate air and to supply heating, cooling, humidity, and clean air
- Require 24-hour access and fail-safe redundant backup systems and uninterrupted power supply or emergency power to enable irreplaceable experiments. As a consequence laboratories can consume up to 4 times more energy than the typical office.

It is therefore not possible for this specialist research facility to achieve BREEAM excellent in a cost effective manner which preserves carbon and energy management targets.

The Centre for Cancer Immunology is currently on track to achieve a BREEAM score of 54%, equivalent to a rating of 'Good'. This is achieved through a number of measures including those set out above as the sustainability features of the building, plus a commitment to best practice construction site management.

The Centre for Cancer Immunology is being assessed under BREEAM using specialist Research and Development credit criteria. The BREEAM assessor has confirmed that if the building did not contain the Pre Clinical Unit it would alter the credits achieved, and the building would be able to achieve BREEAM Very Good.

4.4 Equipment

In developing the design solution the team will take full account of the range of equipment needed to support the new centre and a full list including any equipment identified to transfer and that to be provided new will be developed.

4.5 Approvals

4.5.1 Planning Status

Documentation has been collated ready for issue to Southampton City Council as a full Planning Application, this includes

- Design and Access Statement
- Sustainability Report
- BREEAM Report
- Plan Drawings
- Elevation Drawings
- Section Drawings
- Photorealistic 3D images
- Travel Plans
- Site Logistics

The project has entered into a pre-application agreement with the city council. Close working with Southampton City Council on detailed planning to close down issues in a timely manner.

Final decisions are currently being made regarding the exact cladding type before the application is submitted and a submission of the end of June is being targeted.

4.5.2 Development Agreement

The location for the Centre for Cancer Immunology is on the University of Southampton General Hospital Campus. This site has been selected because of its adjacency to existing research facilities and proximity to clinical care.

The University of Southampton has therefore entered into an Initial Stage Agreement with UHS NHS Trust for the delivery of the project, on the Trusts estate. This agreement will be replaced by a full Development Agreement prior to construction.

4.5.3 University of Southampton Council Approval

The Centre for Cancer was ratified by the University of Southampton Council on 13TH November 2013.

4.6 Project Timetable

The key milestone programme of the project is outlined in the table below.

Table 5: Key Dates

Schedule of Key Dates		Timeline
1	Revised client brief issued	Oct-14
2	Kier submit documents for CPB	Dec-14
3	CPB (Capital Project Board)	Dec-14
4	University instruction to proceed with design in accordance with developed brief and cost plan and complete P21+ Stage 2	Dec-14
5	University instruction to Kier to complete P21+ Stage 3 and submit GMP	Feb-15
6	Kier submit Planning Application	Summer 2015
7	Kier submit GMP	Late Summer 2015
8	University instruction to complete P21+ Stage 4 – Construction	Autumn 2015
9	Start on site	Autumn 2015
10	Handover completed and certified building (Kier Practical Completion)	Early Spring 2017
11	University Fit Out and Decants	Spring 2017
12	Building Occupation	Late Spring 2017

A detailed project plan has been developed.

4.7 Risk Management

The early establishment of a risk register has taken place, and the University and Design Team manage either the removal or mitigation of items in the register as the design and construction develops.

Two types of risk exist and are being managed on the project; strategic risk and design/construction/package/procurement risk. The design, construction and procurement of package risks are managed by the Trust Project Manager for the scheme with the design and construction team. This is reported into the University Project Advisory Group who oversee the project on behalf of the University of Southampton Capital Projects Board.

Strategic and overarching risk is reported into the University Project Advisory Group and CPB Boards by the Project Review and compliance team.

Examples of strategic risk and associated mitigation are as follows:

Table 6: Examples of Strategic Risk

Item	Risk	Mitigation
1	P21+ Contractor liquidation	P21+ framework assessed bi-annually. Credit check on main contractor prior to appointment. Ongoing monitoring
2	Subcontractor/ supply chain default resulting in programme delay and loss	Financial assessment of primary sub contract packages, collaborative working. On going assessment as pack definition and scope are identified
3	Research timescales delaying decant opportunity	Direct End user interface into the research and built environment technical groups

Regular risk sessions are held by the design team, and the review team.

4.7.1 Contingencies and Management Reserves

In order to manage the potential programme and cost impact of known and un-known risks, the project has identified a series of contingencies covering various areas such as design and construction, plus an overarching Management Reserve. Design and Construction Risk is managed by the Trusts Project Manager through the P21+ process and via the Development Agreement. The management reserve is managed by the CBP, on advice from the Project Advisory Group and the Review and Compliance Team.

A robust change control process is implemented through the P21+ framework and also through University of Southampton Capital Project Management governance.

All change and risk is monitored by the Project Advisory Group and monthly dashboards, detailing costs (spend and forecast), risk, programme and progress are submitted to the CPB.

4.8 Procurement strategy

The UHS NHS Trust has therefore entered into a Develop and Construct Contract to procure the design and construction of the new facility under a P21+ framework. ProCure21+ is a framework provided by the Department of Health for the procurement, development and refurbishment of NHS facilities. ProCure21+ can be used as a fast track procurement solution to achieve savings and re-configuration proposed in the 'Liberating the NHS' document published in 2010 and also supports investment aspects of the Quality, Innovation, Productivity and Prevention programme.

It is consistent with Government Policy, Government Construction Strategy, the Public Contracts Regulations 2006 and 2009, the National Audit Office guidance on use of centralised frameworks and the Cabinet Office Common Minimum Standards. Whilst there are 6 Principal Supply Chain Partners, PSCP's, appointed to the framework it is estimated that they align to thousands of small and medium sized enterprises (SMEs). Both In terms of work packages and monetary value, around 80% are delivered by SMEs.

All 6 PCPC's were invited to tender and those shortlisted were interviewed and tenders evaluated. Kier Healthcare is appointed as the Design and Build Contractor under the Procure21+ Framework on the basis of their knowledge of the UHS site and their experience of delivering similar facilities.

In order to monitor quality, cost and risk, the University has in parallel appointed a specialist team to set the project brief and monitor delivery of the project to that brief for the duration of the project. At key stages this review team advises the university on all matters associated with cost, risk, programme and quality. The team is also responsible for scoping and delivering the fit out packages for the building and management of subsequent decant into the new space and decommissioning of vacated spaces.

5.0 FINANCIAL CASE

5.1 Introduction

The purpose of this section is to set out the forecast financial implications of the preferred option (as set out in the economic case section) and the proposed deal (as described in the commercial case).

We have set out in 5.2 below a high level estimate of the project costs. These costs represent estimates against current specification and quantities.

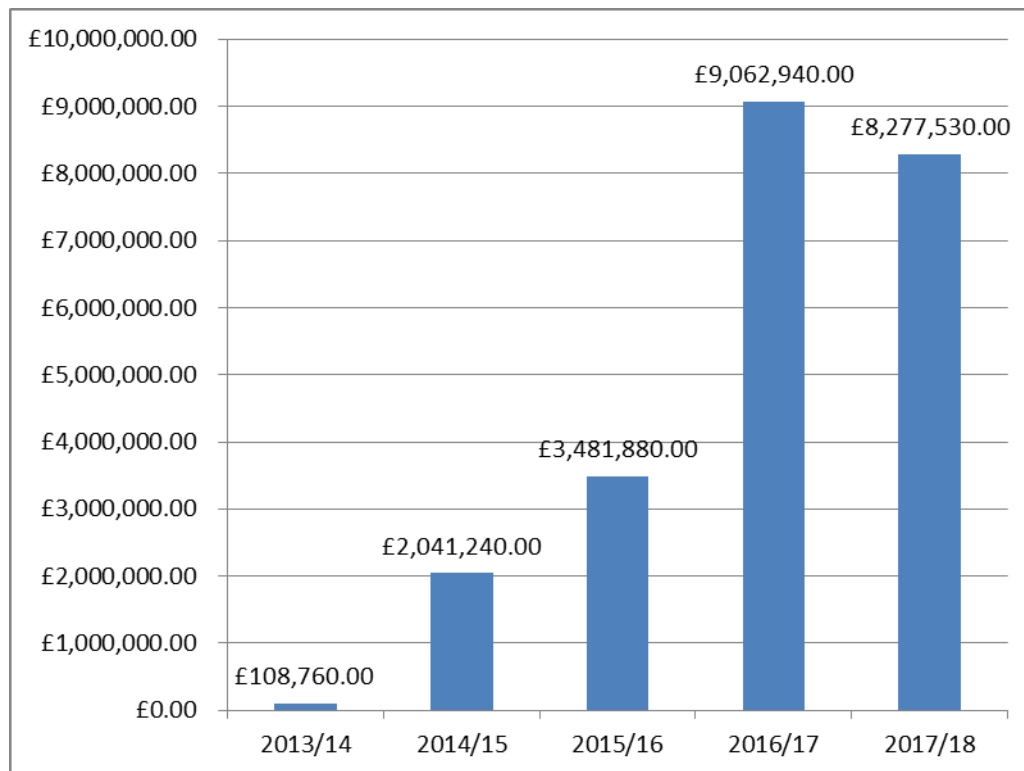
5.2 Costs

The total project cost for the delivery of the Centre for Cancer Immunology is £24.8m.

Table 7: Estimated Capital Costs

	Package	Current Forecast
		Total Forecast £
	Building costs	
	- Construction	
	Construction costs	10,097,400
	Preliminaries	1,214,532
	Construction Risk and Contingencies	412,000
	Design fees	1,079,496
	PSCP Fees 2 and 3	236,143
	Site preparation and Survey fees	159,931
	P21 Fee	898,672
	VAT Construction	40,000
	VAT Fees	135,000
	<u>Fees</u>	-
	Feasibility	88,677
	UHS Fees	883,462
	UHS Legal fees	36,000
	Inflation	626,200
	Construction contingency	-
	Planning / Briefing	1,269,260
		-
	Other costs	-
	Hub IT connection	75,000
	Contribution to parking	1,049,773
	University costs	
	Equipment and FFE	2,600,345
	Decant and other costs	625,487
	UoS Fees	1,350,815
	Total Cost £	22,878,193

Table 8: Capital Cash Flow Expenditure



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5.3 Budgets/Funding Cover

Table 9: Summary of Financial Appraisal

This table illustrates the short term capital requirement for this project, the Economic Case includes wider economic costs including revenue funding for the Centre.

	(£'000)						
	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	
	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	
Capital	1,949	1,024	7,002	12,375	528	0	22,878
Revenue	77	314	484	611	314	200	2,000
	2,026	1,338	7,486	12,986	842	200	24,878
Funded by:							
Existing	2,026	1,338	2,986	6,414	436	200	13,400
Additional				6,572	406		6,978
LEP Funding			4,500				4,500
	2,026	1,338	7,486	12,986	842	200	24,878

Note: Financial Year 1st Aug – 31st July

The University of Southampton generates a modest surplus (2014/15 budget £10.2m, 2.0%, 2013/14 £15.4m 3.2%, 2011/12 £5.8m 1.3%) which is reinvested to support the University's strategy and deliver the University's capital programme to maintain and improve the University's infrastructure.

The University's capital programme supports the delivery of the strategy across the range of our operations teaching and learning, residences, research and enterprise. Typically the capital programme requires around £50m cash spend per annum which is funded through a mixture of surplus, external funding and philanthropy and borrowing.

The Centre for Cancer Immunology will be funded through external sources and philanthropic donations, with £25m required in total. The University has committed to undertaking the University of Southampton's largest fundraising campaign to date, seeking to secure philanthropic funding to facilitate the development of the Centre.

5.4 Funding Secured

The University of Southampton has secured private capital contributions to the project totalling £13.5million.

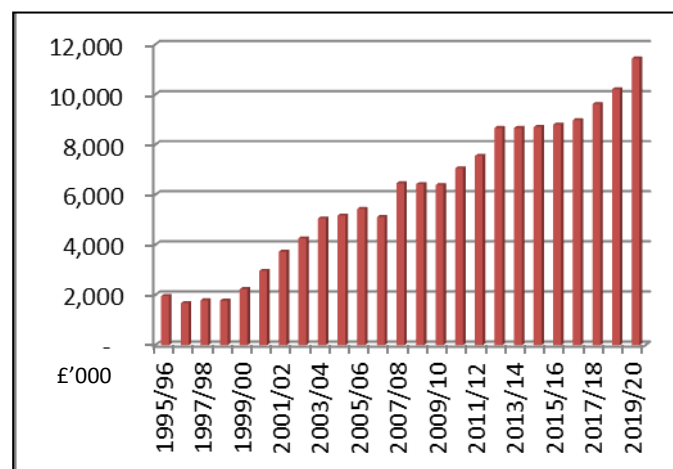
5.5 Financial Model – Post Build

The sustainability of the model post build has been considered thoroughly and follows a successful model used in the Faculty and across the University.

5.5.1 Increased Research Income

The graph below shows the growth of research income through Cancer Sciences at the University of Southampton since 1995/96 and its anticipated growth through the activities of the new Centre through to 2019/20. The future growth assumes that the current activity remains at a steady state as a minimum and would not be possible to deliver without improved facilities.

Table 10: Research income and predicted future research income from Cancer Sciences



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6. MANAGEMENT CASE

6.1 Introduction

This section of the OBC addresses the 'achievability' of the scheme. Its purpose is to in more detail the actions that will be required to ensure the successful delivery of the scheme in accordance with best practice.

6.2 Project Governance

The delivery of the Centre is an integral part of the University's capital redevelopment programme and wider strategy. The University has a successful history in the management and implementation of key projects and will ensure that appropriate project methodologies are put in place to ensure the successful development of the Centre.

At the highest level, each Capital Project 'need' and business case is presented to The University Senior Management Team and University Council for ratification in principle. On formalisation, the 'need' is subsequently scrutinised by the Capital Programme Board, who allocate the necessary resources to elicit the brief, scope the end user interfaces (technical and research) and the constitution for the project specific Project Advisory Group, advise on budget allocations, programme and risk.

The Capital Programme Board reflects ownership of the project at the highest level and draws not only upon the traditional roles associated with capital project management, but also upon a number of multi-disciplinary representatives from across the University, to ensure that the wider business objectives of the organisation are met.

The Project Advisory Group includes senior University representatives and stakeholders affected by the development and will remain in place until the new facilities are complete and become operational. It will be responsible for the overall management of the scheme and will be accountable to the Capital Programme Board.

The University of Southampton set up a specialist team to oversee the delivery of major Capital Programmes – The Programme Management Unit (PMU). The Centre for Cancer Immunology is being strategically managed by the PMU via the appointment of the Review and Compliance Team.

The University of Southampton is entering into a development agreement with University Hospital Southampton to manage the project, commission and construction of the Centre for Cancer Immunology.

A project governance structure is included in **Appendix 2- Governance Structure**.

6.2.1 University of Southampton Capital Programme Board

The Capital Programme Board within the University reflects ownership of the project at the highest level and draws not only upon the traditional roles associated with capital project management, but also upon representatives from across the University, to ensure that the wider business objectives of the organisation are met.

6.2.2. University of Southampton Project Advisory Group

The Project Advisory Group includes senior University representatives and stakeholders affected by the development and will remain in place until the new facilities are complete and become operational. It will be responsible for the overall management of the scheme and will be accountable to the Capital Programme Board.

The Project Advisory Group is chaired by the Provost and meets on a monthly basis or more frequently at key points in the programme as required. Although the membership of the team may alter throughout the project the responsibilities of the Project Advisory Group include:

- To oversee the development of the new facility on behalf of the Capital Programme Board, Trust Management Team and Trust Board;
- To receive a monthly Project Manager report
- To receive a monthly report from the Compliance and review team;
- To receive a monthly programme, financial and risk update
- To receive regular reports from the Technical and research Team Leads for the project in respect of progress with the Design and Construction elements of the scheme against the brief;
- To advise the Capital Programme Board, University Senior Management Team and University Council.

A number of end user groups have been formed to support the Project Advisory Group.

6.2.3 University of Southampton Programme Management Unit

The University of Southampton set up a specialist team to oversee the delivery of major Capital Programmes.

The Programme Management Unit was established in 2006 to oversee and deliver Capital Programme1, which is the redevelopment of the Boldrewood Campus. The scope of phase 1 of this project included a complex decant and demolition programme, carefully co-ordinated with the creation of several new research and teaching buildings across the estate to relocate 3 major faculties. This £230m Programme, spanning 3 phases has been successfully delivered on time and within budget, and included for the relocation of Lloyds Register into the new campus. The final phase of delivery for the campus redevelopment has just been commenced.

Capital Programme 2 encompassed the continued delivery of Boldrewood redevelopment Phase 2, which was the delivery of a world-class maritime research complex, creation of a new bus interchange in the heart of the Highfield Campus, plus the creation of an award winning new primary Data Centre and securing planning permission for the redevelopment of an existing hall of residence (Chamberlain Halls) All projects have been completed on time and within the budget constraints of Capital Programme 2.

The Centre for Cancer Immunology is a major project within Capital Programme 3, which is being strategically managed by the PMU via the appointment of the Review and Compliance Team. These include appointed external consultants with specialisms to compliment the construction, decant and FFE processes.

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6.3 Project Plan

A project execution plan and full design and construction programme are in place.

6.4 Gateway Review Arrangements

The project is delivered through a control process called the Route Map which requires the formal passing of key Gateways. These Gateways generally follow the principles of the RIBA design stages, but in addition seek more detailed assessments on budget allocation, expenditure, value, risk and programme management for fundamental stages such as Brief/scope sign off, planning, contractor procurement and handover/feedback.

Gateways also control budgetary release, which can only be authorised by the Capital Programme Board. Gateway stages are reported into the Capital Programme Board, following approval by the individual Project Advisory Group.

Each new Capital Project has a Faculty Project Sponsor and in the case of The Centre for Cancer Immunology this is The Dean of the Faculty of Medicine.

6.5 Outline Arrangements for Post Project Evaluation

The University is committed to the full evaluation of all major schemes and projects through the gateway process. Gateway 8 and 9 of the route map cover an assessment of the handover and occupation of the building at Practical Completion and 1 year post occupancy. The ongoing success of the Centre will be monitored through an established range of Key Performance Indicators.