Full Business Case for the Relocation of Level 3 ICU and associated services off the LGH site

Author: Sue Nattrass Sponsor: Paul Traynor **Trust Board paper G**

Executive Summary

Context

The Outline Business Case for the relocation of Intensive Care Unit Level 3 and associated services off the Leicester General Hospital site was approved by University Hospitals of Leicester (UHL) Trust Board on 4th November 2017, by Clinical Commissioning Groups Governing Bodies on 14th November 2017, NHS Improvement on 17th April 2018 and, at the point of submitting, Department of Health approval is expected on 2nd July 2018.

The Outline Business case proved the clinical and business need for the project and therefore the purpose of the Full Business Case is to validate the project costs following the detailed design phase and tender process.

The Full Business Case needs approval by the UHL Trust Board and the Clinical Commissioning Group Boards before it is considered by the NHS Improvement local and Regional Teams. The case has been supported by the Executive Performance Board on 26th June 2018 and UHL Finance and Investment Committee on 28th June 2018, for onward approval by the Trust Board, with the assumption that Department of Health approval is given for the Outline Business Case on 2nd July 2018

The summary paper for the Finance and Investment Committee is attached as Appendix 1

Questions

1. What are the key changes between Outline Business Case and Full Business Case?
2. What are the key interdependencies in the delivery of this project?
3. What is the process for securing Commissioner support for the Business Case?
4. What is the current timescale for delivering the project?

Conclusion

1. The key changes from Outline Business Case stage reflect:
   1.1. Completion of detailed design for the schemes;
   1.2. Refined capital costs from the outcome of the tendering process; with the total capital requirement remaining at £30.8m;

1.3. The conditions placed by NHSI in approving the Outline Business Case, which needed to be met in the Full Business Case (Appendix 2);

1.4. Meeting the requirement placed by the Department of Health, for the Outline Business Case approval , of ensuring specific plans are in place to mitigate the additional revenue cost of the case of £3.6 million.

2. There are key interdependencies in the delivery of this project, with the relocation of East Midlands Congenital Heart Centre from Glenfield Hospital to Leicester Royal Infirmary:

2.1. The completion of the scheme to refurbish wards at Leicester Royal Infirmary, for services moving from Leicester General Hospital, enables the release of a ward at Leicester Royal Infirmary to support necessary enabling works for East Midlands Congenital Heart Centre.

2.2. The relocation of East Midlands Congenital Heart Centre to Leicester Royal Infirmary vacates operating theatre space which will support the relocation of services from Leicester General Hospital to Glenfield Hospital.

3. The Full Business Case will be presented to Clinical Commissioning Group Boards on 10th July 2018 for approval, and will be submitted to NHS England Specialised Commissioning Midlands and East Management Team and subsequently their Senior Management Team for approval.

4. The programme is currently based on the following key milestones:

4.1. NHS Improvement and Department of Health approval by September 2018;

4.2. Commencement of construction by October 2018;

4.3. Completion of all construction by December 2019;

4.4. Service moves to be planned from April 2020

Any delay in the approval process will impact on the milestones outlined.

Input Sought

The Trust Board is requested to **RECEIVE** the Full Business Case for "The Relocation of Level 3 Intensive Care Unit and associated services off the Leicester General Hospital site" and provide its **APPROVAL.**

For Reference

Edit as appropriate:

1. The following **objectives** were considered when preparing this report:

Safe, high quality, patient centred healthcare	[Yes]
Effective, integrated emergency care	[Yes]
Consistently meeting national access standards	[Yes]
Integrated care in partnership with others	[Not applicable]
Enhanced delivery in research, innovation & ed'	[Yes]
A caring, professional, engaged workforce	[Yes]
Clinically sustainable services with excellent facilities	[Yes]
Financially sustainable NHS organisation	[Yes]
Enabled by excellent IM&T	[Yes]

2. This matter relates to the following **governance** initiatives:

a. Organisational Risk Register [Yes]

If YES please give details of risk ID, risk title and current / target risk ratings.

Datix Risk ID	Operational Risk Title(s) – add new line for each operational risk	Current Rating	Target Rating	CMG
3113	There is a risk that if the infrastructure in our ITU's is not updated and expanded to meet current standards and demand, then clinical teams will not be able to provide safe care to all patients requiring level 2 or 3 care resulting in deterioration in clinical outcomes benchmarked against other centres (ICNARC).	20	8	ITAPs

If NO, why not? Eg. Current Risk Rating is LOW

b. Board Assurance Framework [Yes]

If YES please give details of risk No., risk title and current / target risk ratings.

Principal Risk	Principal Risk Title	Current Rating	Target Rating
Yes	If the Trust does not adequately develop and maintain its estate and infrastructure, **caused by a lack of resources to address the backlog maintenance programme, insufficient clinical decant capacity and the sheer volume of technical work to address ageing buildings**, then it may result in an increased risk of failure of critical plant, equipment and services, leading to suboptimal standards of patient care and potential to breach statutory compliance obligations.	15	

3. Related **Patient and Public Involvement** actions taken, or to be taken: Project Board Membership

4. Results of any **Equality Impact Assessment**, relating to this matter: Equality Impact Assessment is included as an Appendix to the FBC.

5. Scheduled date for the **next paper** on this topic: [TBC]

6. Executive Summaries should not exceed **4 sides** [My paper does comply]

7. Papers should not exceed **7 sides.** [My paper does not comply]

University Hospitals of Leicester NHS
NHS Trust

Full Business Case

Relocation of Level 3 ICU and associated services off the LGH site

June 2018

Version 1.14

Issue date 28th June 2018

This remains a DRAFT FBC subject to DH confirmation of approval of OBC (expected 2nd July 2018)

Building Caring at its best

Contents

Document control

Document Title	Relocation of Level 3 ICU and associated services off the LGH site
Date	
Prepared by	Sue Nattrass, Senior Project Manager
Checked by	Nicky Topham, Reconfiguration Programme Director
Authorised by	Paul Traynor, Chief Financial Officer and SRO for Reconfiguration Programme

Document History

Version	Date Issued	Brief Summary of Change	Author
1.0	11/12/17	First Draft of FBC	K Leeder
1.1	30/1/18	OBC v 18 reformatted	K Leeder
1.2	5/2/18	Strategic case updated & comments added	S Nattrass
1.3	8/2/18	Economic & finance cases updated	T Pearce
1.4	28/3/18	Clinical quality case updated	E Neal
1.5	4/4/18	Further updates to quality case	S Nattrass
1.6	3/5/18	Updates to Clinical Quality Case	E Neal
1.7	4/5/18	Corrections to formatting for table references	S Nattrass
1.8	8/6/18	Update to clinical quality case	E Neal
1.9	8/6/18	Revised Financial & Economic Cases inserted	S Nattrass
1.10	15/6/18	Comment from Project Board & updated Economic Case	S Nattrass
1.11	20/6/18	Updated Executive Summary	S Nattrass / E Neal
1.12	22/6/18	Issued for EPB 26th June	S Nattrass
1.13	25/6/18	Reconfiguration Programme Director review	N Topham
1.14	27/6/18	Revisions following EPB	N Bond /S Nattrass/E Neal

Schedule of Approval

Version	Date Issued	Forum	Date Approved
1.11	11th June 2018	Project Board	13th June 2018
1.12	22nd June 2018	Executive Performance Board	26th June 2018
1.12	22nd June 2018	Reconfiguration Programme Board	26th June 2018
1.13	22nd June 2018	Finance and Investment Committee	28th June 2018
1.14	28th June 2018	UHL Trust Board	
1.14	28th June 2018	CCG Boards	

Confirmation of External Support

Organisation	Date
Leicester City CCG	
East Leicestershire & Rutland CCG	
West Leicestershire CCG	
NHSE Specialised Commissioning	

Glossary of Terms

Acronym	Description
AEDET	Achieving Excellence Design Evaluation Toolkit
AICU	Adult Intensive Care Unit
ALOS	Average Length Of Stay
ASGBI	Association of Surgeons of Great Britain and Ireland
BCF	Better Care Fund
BIM	Building Information Modelling
BRE	Building Research Establishment
BREEAM	Building Research Establishment Environmental Assessment Method
CCG	Clinical Commissioning Group
CDM	Construction Design Management
CDU	Clinical Decisions Unit
CHP	Combined Heating and Power
CHUGGs	Cancer, Haematology, Urology, Gastroenterology and General Surgery
CIP	Cost Improvement Programme
CMG	Clinical Management Group
CR	Computed Radiography
CRL	Capital Resource Limit
CS	Core Strategy
CSI	Clinical Support and Imaging
CT	Computerised Tomography
CVD	Cardiovascular Disease
D&B	Design and Build
DCCM	Department of Critical Care Medicine
DCP	Development Control Plan
DH	Department of Health
DIPaC	Director of Infection Prevention and Control
DQI	Design Quality Indicator
DR	Digital Radiography
EAC	Equivalent Annual Cost
ECG	Electro Cardiogram
ECMO	Extra Corporeal Membrane Oxygenation

Acronym	Description
EDU	Emergency Decisions Unit
EF	Emergency Floor
EFL	External Financing Limit
EMCHC	East Midlands Congenital Heart Centre
EPB	Executive Performance Board
ERCP	Endoscopic Retrograde Cholangio-Pancreatography
ESAC	Emergency Surgical Ambulatory Care
ESB	Executive Strategy Board
ESM	Emergency and Specialist Medicine
EUS	Endoscopic Ultrasound
FBC	Full Business Case
FIC	Finance Investment Committee
FICM	Faculty of Intensive Care Medicine
FM	Facilities Management
FYE	Full Year Effect
GEM	Generic Economic Model (Department of Health)
GH	Glenfield Hospital
GI	Gastro Intestinal
GIRFT	Getting It Right First Time
GMP	Guaranteed Maximum Price
GP	General Practitioner
H&S	Health & Safety
HBN	Healthcare Building Notes
HDU	High Dependency Unit
HM	Her Majesty's
HPB	Hepato-Pancreato-Biliary
HSE	Health and Safety Executive
HTM	Health Technical Memoranda
HVAC	Heating, Ventilation and Air Conditioning
I&E	Income and Expenditure
IBD	Interest Bearing Debt
ICNARC	Intensive Care National Audit and Research Centre
ICSL	Interim Capital Support Loan

Acronym	Description
ICU	Intensive Care Unit
IFPIC	Integrated Finance and Performance Investment Committee
IM&T	Information Management and Technology
IP	Infection Prevention
IPS	Isolated Power Services
IR	Interventional Radiology
IR(ME)R	Ionising Radiation (Medical Exposure) Regulations
IRR	Ionising Radiation Regulations
ITAPS	Intensive Care, Theatres, Anaesthetics, Pain and Sleep
ITFF	Independent Trust Financing Authority
JCT	Joint Contracts Tribunal
JSNA	Joint Strategic Needs Assessment
KPI	Key Performance Indicators
LGH	Leicester General Hospital
LHC	London Housing Communities
LLR	Leicester, Leicestershire & Rutland
LRI	Leicester Royal Infirmary
LSMS	Local Security Management Specialists
LTFM	Long Term Financial Model
LZC	Low and Zero Carbon
MDT	Multi-Disciplinary Team
MES	Managed Equipment Service
MRI	Magnetic Resource Imaging
MRSA	Meticillin-Resistant Staphylococcus Aureus
MSS	Musculoskeletal and Specialist Surgery
NEC	New Engineering Contract
NHSE	NHS England
NHSI	NHS Improvement
NIHR	National Institute for Health Research
NPC	Net Present Cost
NSSG	Network Site Specific Groups
NTBR	Nurse to Bed Ratio
NTDA	National Trust Development Authority

Acronym	Description
OBC	Outline Business Case
ODN	Operational Delivery Network
ODP	Operating Department Practitioner
OGC	Office of Government Commerce
OJEU	Official Journal of the European Community
OOA	Out of Area
OSC	Overview and Scrutiny Committee
P&D	Privacy and Dignity
PA	Planned Activity
PACH	Planned Ambulatory Care Hub
PACU	Post Anaesthetic Care Unit
PAM	Premises Assurance Model
PAU	Project Assurance Unit
PCT	Primary Care Trust
PDC	Public Dividend Capital
PER	Project Evaluation Review
PET/CT	Positron Emission Tomography / Computed Tomography
PF2	Private Finance 2
PIR	Post Implementation Review
PLACE	Patient Led Assessment of the Care Environment
PMO	Project Management Office
POE	Post Occupancy Evaluation
PPV	Positive Pressure Ventilation
PSCP	Principle Supply Chain Partner
PVE	Portal Vein Embolization
RCR	Royal College of Radiologists
RLB	Rider Levett Bucknall
RO	Reverse Osmosis
RPA	Risk Potential Assessment
RRCV	Renal, Respiratory, Cardiac and Vascular
RT	Renal Transplant
RTT	Referral to Treatment Time
SACU	Surgical Acute Care Unit

Acronym	Description
SARF	Sever Acute Respiratory Failure
SAU	Surgical Assessment Unit
SDMP	Sustainable Development Management Plan
SIRT	Selective Internal Radiation Therapy
SMART	Specific Measurable Realistic Achievable Time
SME's	Small and Medium Sized Enterprises
SOA	Schedule of Accommodation
SpR	Specialty Registrar
SRO	Senior Responsible Officer
STF	Sustainability and Transformation Fund
STP	Sustainability and Transformation Partnership
TACE	Transcatheter Chemo Embolization
TART	Transanal Resection of Tumour
TAVI	Trans-Catheter Aortic Valve Insertion
TEMS	Transanal Endoscopic Microsurgery
T&O	Trauma and Orthopaedics
UHL	University Hospitals of Leicester
UKAS	United Kingdome Accreditation Service
UPS	Uninterrupted Power Supply
USS	Ultrasound Scanner
VAT	Value Added Tax
VFM	Value for Money
VIE	Vacuum Insulated Evaporator
VSU	Vascular Studies Unit
W&C	Women's and Children
WTE	Whole Time Equivalent

Schedule of Figures

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1 Executive Summary

1.1 Full Business Case (FBC)

Structure and Content of the Document

The FBC has been prepared using the agreed standards and format for business cases, as set out in Department of Health guidance and HM Treasury Green Book.

The approved format is the Six Case Model, which comprises the following key components:

- The Strategic Case section. This sets out 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 most economically advantageous offer, which best meets the existing and future needs of the service and optimises value for money (VFM);
- The Quality Case section. This demonstrates that the organisation has considered the investment from a clinical quality, workforce, patient safety and patient experience perspective, and has engaged with key stakeholders for the benefit of patients, the public and the wider health community;
- The Commercial Case section. This sets out the content of the proposed procurement method;
- The Financial Case section. This confirms funding arrangements, affordability and the effect on the balance sheet of the organisation;
- The Management Case section. This details the plans for the successful delivery of the scheme to cost, time and quality.

1.2 Introduction

The Leicester, Leicestershire and Rutland (LLR) Sustainability and Transformation Partnership (STP) sets out the actions that are needed across the health and care system over the next five years in order to improve health outcomes for patients and ensure our services are safe and high quality, within the financial resources available. The STP identifies the essential need for University Hospitals of Leicester NHS Trust (hereafter referred to as “UHL” or “the Trust”) to consolidate onto two acute sites to deliver its clinical reconfiguration strategy, whilst enabling the disposal of the majority of the Leicester General Hospital (LGH) site which is directly linked to returning the Trust to financial balance.

The capital requirement to enable this consolidation is £366.7m. This formed the basis of UHL’s bid for capital from the 2017 Autumn Budget (Wave 2), which is now being resubmitted and forms the basis of the July 2018 bid for capital from Wave 4. The total capital requirement excludes £30.8m which has been supported from the 2017 Spring Budget (Appendix 1 and 2) to allow Level 3 Intensive Care and all dependent services to be moved off the LGH.

This Full Business Case (FBC) supports the requirement of £30.8m for the first stage reconfiguration of elements of the Intensive Care Unit (ICU), and dependent services, currently

located at LGH, and represent the next stage within the Trust's overall Reconfiguration Programme and Estates Strategy. The move of vascular services from LRI to GH in May 2017 released clinical space at LRI to allow the subsequent service moves, outlined within this Business Case, to take place.

The scheme is a key enabler for the long term plan, but provides the solution to the risks identified in the Trust's ability to provide Level 3 ICU from all three acute sites on an on-going basis.

The Trust's long term plan is for the development of two "super-ICUs" at both the LRI and GH sites which further expand the Trusts ICU capacity to facilitate an improvement in the per capita provision of ICU beds against national and international benchmarks, and to develop a capacity which will support increasing future service demands based on demographic and case mix changes. This future expansion will be subject to a separate business case as part of the future reconfiguration programme.

This case proposes to transfer current Level 3 adult critical care activity, and associated dependent services, to the Leicester Royal Infirmary (LRI) and the Glenfield Hospital (GH), whilst retaining a reduced Level 2 service only at LGH.

This FBC relates to the following schemes required to deliver this:

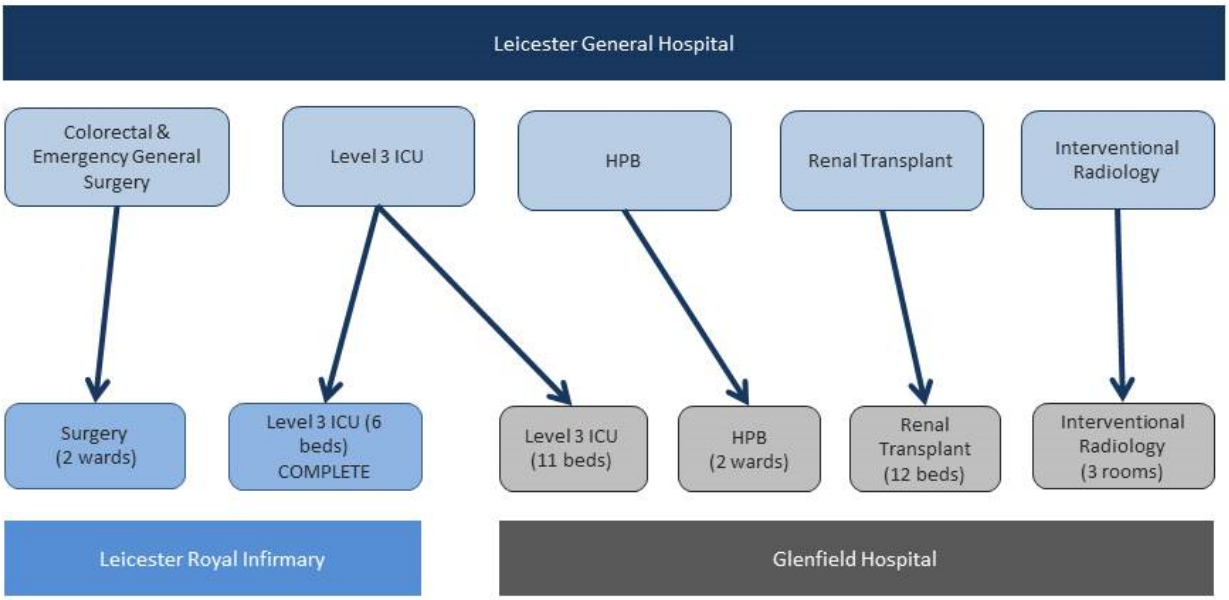
- The expansion of ICU at GH by 11 bed spaces (a net increase of 3 physical ICU beds across the three sites following the reduction at LGH);
- The refurbishment of space at GH for the development of interventional radiology facilities;
- The development of new wards at GH to support the transfer of HPB and transplant services from LGH;
- The refurbishment of ward space at LRI to support the transfer of colorectal and emergency general surgery services from LGH.

In 2015, the ICU at the LRI was expanded by six beds into the theatre recovery area, funded from the Trust's internal Capital Resource Limit (CRL) as the first step in the programme to consolidate services. This is therefore excluded from this FBC.

This case incorporates the transfer of services from the LGH which are dependent on the use of level 3 ICU: HPB, transplant and interventional radiology from LGH to GH; and colorectal and emergency general surgery from LGH to LRI. These service moves secure an interim position to the delivery of the Trust's long term reconfiguration plans which will see the further enhancement of inpatient services at GH with the transfer of emergency and elective urology, elective orthopaedics and nephrology from LGH to GH and the development of an outpatient and day case hub at GH delivering the majority of this type of care for adult patients.

The programme attached to this Business Case, based on current assumptions, sees this interim move of services from the LGH site taking place in Spring 2020.

Figure 1 - Key service relocations



1.3 Strategic Case

1.3.1 Leicester, Leicestershire and Rutland (LLR) Sustainability

The LLR footprint forms a Sustainability and Transformations Partnership (STP) boundary. The LLR health partners commission and provide health and care services for over a million people in Leicester, Leicestershire and Rutland. Over the next five years, LLR health services will need to adapt and transform in order to ensure that they remain clinically and financially sustainable. The STP plan sets out the actions that will need to be taken to balance the pressures of continued growth in patient demand from an ageing and growing population, and a requirement to recover and maintain delivery against national access and quality standards. This is necessary at a time of historically low levels of financial growth in the NHS and substantial pressures on social care funding

The local requirement set against this national backdrop is to make more rapid progress in the early years of the plan to move the provider sector back into financial surplus. This is going to be incredibly challenging.

The STP builds on the work of the established Better Care Together programme, the plans of which were already well advanced and articulated in many areas, particularly around proposals for reconfiguring acute hospital services to address long standing issues around the condition of our premises and how they are utilised.

The clinical strategy in the LLR STP outlines the requirement for UHL to consolidate services on to two hospital sites and split elective and emergency activity. For nearly two decades the need to consolidate acute services in Leicester has been widely recognised. The current, three acute site configuration is an accident of history, not design, and is suboptimal in clinical, performance and financial terms, which has a direct impact on patient outcomes and experience. This results in duplication, sometimes triplication of services, which is an inefficient model. Clinical resources are therefore spread too thinly making services operationally unstable. Many planned, elective and

outpatient services currently run alongside emergency services and as a result when emergency pressures increase, it is elective patients who suffer delays and last minute cancellations, as bed, theatre and ITU capacity is taken by emergency activity.

In addition, over the last two decades there has been sustained under-investment in UHL's acute estate relative to other acute hospitals across the UK. There is a £78m backlog maintenance requirement which will be reduced by £29m through the consolidation of services onto two sites and a change of use for LGH.

Through the Trust's Reconfiguration Programme, there will be a focus on emergency and specialist care at LRI and GH, whilst ensuring that appropriate clinical services are provided in the county's community hospitals, to offer care as close to home as possible. The patient is at the heart of reconfiguration, and consolidation will deliver improved patient experience and quality.

The capital requirement to enable this consolidation is £366.7m. This forms the basis of UHL's bid for capital against the Wave 4 capital bid which will be submitted in July 2018.

Operational Efficiencies

Ensuring the best use of resources is key to delivering clinical and financial sustainability across the system by 2022/23. Plans set out how services can be redesigned and the reconfiguration of acute and community hospitals make the best use of resources.

Lord Carter's report, Operational Productivity and Performance in English NHS acute Hospitals (2015), identified significant unwarranted variation across main resource areas, whilst the Naylor Report asserted the need for estate efficiency, including the release of land for sale. Through the Reconfiguration Programme, UHL have plans to implement the Carter and 2017 Naylor recommendations; using the Model Hospital to help identify the opportunities for improved efficiency and reduced expenditure.

UHL Cost Improvement Programme delivery includes plans that are based on benchmarking, analytics and opportunities from national best practice such as Getting It Right First Time.

Five year Financial Gap

Health and social care organisations nationally face financial challenge, as demand and demographic growth for services out-strip resources available year on year.

Whilst there is an expectation that the funding available will rise by c.2% per annum, equating to an additional £200m over the time of the five year plan, predictions for growth in both cost and demand range from 0.5% in some specialties rising to 4.73% in more specialist areas of medicine, year on year.

The social care sector faces similar challenges with no assumed increase in available funding, despite growth in demand.

Developing new ways of working to mitigate the impact of increased demand is vital in order to avoid a financial gap of £399.3m for health and social care over the five year timeframe of the LLR STP plan. Healthcare accounts for £341.6m of the gap, with social care gap equating to the remaining £57.7m.

The LLR Health system has been aware of this continuing demand/resource gap for some years and has developed a number of plans to mitigate this through the local transformation programme, Better Care Together. The revised STP plan builds on the earlier Better Care Together work, which covered the period up to 2018-19.

Overall the impact of growth is primarily in acute and specialised services. Solutions will be targeted through investment in community based services to deliver care in the most appropriate settings.

Five STP strands of work have been developed to close the gap. These are:

- New Models of Care;
- Service Configuration;
- Redesigned Pathways;
- Operational Efficiencies, and;
- Getting the Enablers Right.

Savings plans for LLR Local Authorities and for specialised services are included within these solutions.

CIP schemes are in place to deliver c.£175m of the required savings as articulated in the November 2016 LLR STP.

UHL will reduce its funding gap by working collaboratively with its LLR Health and Social Care partners to re-design patient care pathways to ensure that they continue to provide high quality care, outcomes and patient experience whilst delivering value for money. The Trust has an on-going operating deficit, in part related to the current configuration of its clinical services, which do not optimise clinical adjacencies and patient pathways. UHL's reconfiguration strategy will optimise where and on which site its services are located as care pathways change to meet the financial challenge. The methodology supporting the future location of services will be clinically driven and evidence based, however will necessitate tough decisions for the health community if it is to meet the 'value for money' test. Once reconfiguration is complete the cost saving directly attributable from this will be c.£25m each year.

1.3.2 UHL Clinical Vision and Reconfiguration Strategy

UHL's clinical strategy is focussed on delivering high-quality, patient-centred services in the most appropriate setting with excellent clinical outcomes.

The clinical model will be to provide consultant delivered, rather than consultant led, patient care. It will create a sustainable workforce for the delivery of responsive multi-disciplinary clinical services seven days a week which meets the needs of patients and clinicians. It will seek and exploit opportunities for service integration across health and social care by removing the historical barriers to change. Training and education will play an integral part in ensuring staff have the right skills now and for the future. Training opportunities to support self-care in long-term condition management and carers will be explored.

The Trust is proactively responding to the national drive towards fewer regional centres of excellence for specialised services by ensuring its services deliver innovative, high quality patient care through robust Research and Development programmes which enable patients to benefit from leading edge developments in the care of specific conditions. UHL will specifically seek to ensure it remains as a national centre of excellence for its work in Cardiac, Respiratory, Vascular, Renal, Cancer and Diabetes and significantly strengthen its portfolio of other key services to ensure they are sustainable in the future.

UHL's patients are at the heart of all the Trust does, and UHL believes that 'Caring at its Best' is not just about the treatments and services provided, but about giving patients the best possible experience. That is why the Trust is proud to be part of the NHS and proud to be Leicester's Hospitals.

The Trust Strategic Objectives for 2018/19 are outlined below:

Figure 2 - Trust Strategic Objectives for 2018/19

The key focus during 2017/18 is articulated within the Trust's Quality Commitment:

Figure 3 - Trust Quality Commitment Statement 2018/19

1.3.3 UHL and LLR Estates Strategies

The 2014 UHL Estates Strategy, incorporating Development Control Plans and outlining the plan to move to 2 acute hospital sites, has now been updated to 2018, and are attached at Appendix 5 and 6. The proposed development is consistent with the UHL Estates Strategy.

Recognising that confirmation of funding will be subject to demonstration that this scheme is part of a robust estates and capital strategy across the STP area, the LLR Estates Strategy is being updated for submission in July 2018.

1.3.4 National Strategies, Programmes and Policies

A number of key national strategies, programmes and policies are relevant to this project. These are summarised in Table 30 in section 2.7.1.

1.3.5 Organisational Overview

UHL provides services from three sites - the Leicester General Hospital (LGH), Glenfield Hospital (GH) and the Leicester Royal Infirmary (LRI) hospitals, the future long term reconfiguration plans for the sites are outlined below

Leicester General Hospital

Subject to the formal public consultation, the plan remains for emergency and specialist services to be moved off the LGH to the LRI and GH. The Leicester Diabetes Centre of Excellence (as well as some connected services) will remain at LGH and will continue to expand to become the pre-eminent diabetes research institute in the UK.

LGH will also continue to be home to other health and social care services. The Evington Centre will continue to provide community beds and it is likely that this will incorporate the Stroke and Rehabilitation ward. Joint health and social care teams delivering services in people's homes will continue to have a base at the site. Leicester City CCG are also considering using a small portion of the LGH site as a centre for a primary care hub providing extended hours GP services and associated diagnostics.

Leicester Royal Infirmary

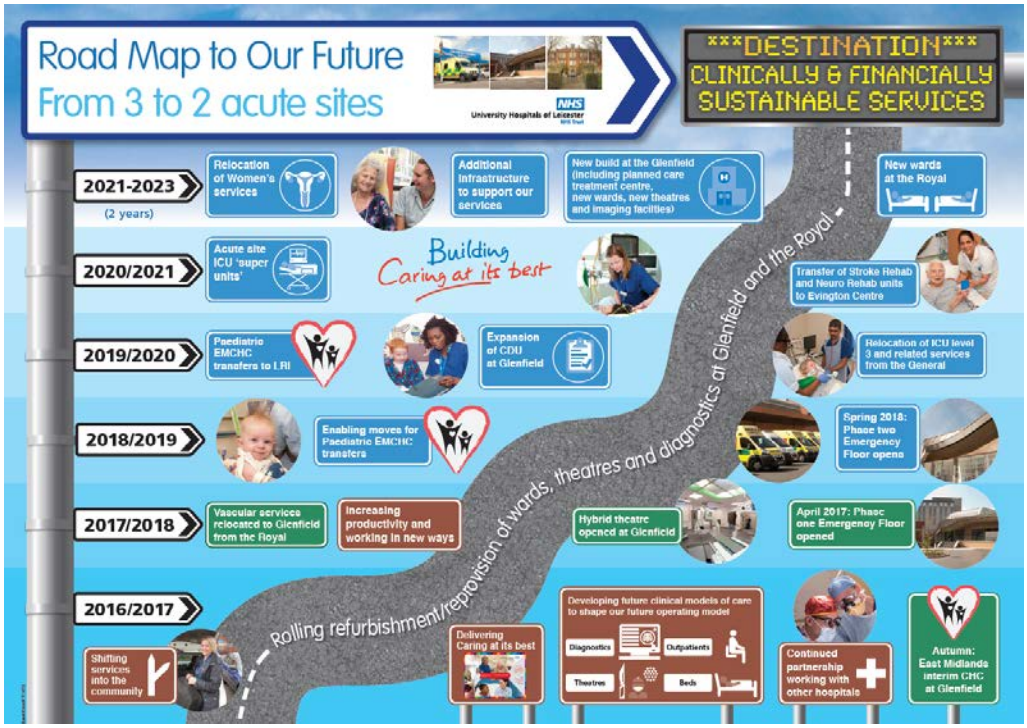
LRI will continue to be the primary site for emergency care. LRI will accommodate a consolidated maternity service and all gynaecology services, as well as the creation of a 'super ICU'. The paediatric element of the East Midlands Congenital Heart Centre (currently at GH) will move to LRI in March 2020 as part of the vision to create a fully integrated children's hospital and in order to meet national standards.

Glenfield Hospital

GH will grow as services move from both LGH and LRI. The relocation of vascular service from LRI was the first of these moves creating a complete cardiovascular centre. ICU, some surgical and renal services (including transplant) will move from LGH to GH into new build wards. GH will also see the creation of a 'super ICU'. The Trust also intends to build a new elective care treatment centre at GH which will offer outpatient and day case care with a stay of up to 23 hours.

The diagram below depicts our planned journey to deliver service reconfiguration:

Figure 4 - Planned Journey to Deliver Service Reconfiguration



The first step in the Reconfiguration Programme was delivered in May 2017 with the transfer of vascular services from LRI to GH; this entailed the development of a new Hybrid Theatre and establishment of a comprehensive integrated vascular, cardiology and cardiac surgery service providing the best possible care to our patients with cardiovascular disease. This will be followed by the relocation of ICU Level 3 capacity and associated specialties from the LGH in 2020/21 as presented in this Business Case. 2022/23 will see the completion of the two acute site "super

ICU's" and by which remaining acute services will be moved off the LGH site with the relocation of women's services to LRI, and new build at GH; including the planned care treatment centre, new wards, new theatres and imaging facilities.

The scheme detailed in this FBC is the next set of key building blocks towards acute site consolidation and will bring significant clinical benefits both for this project, the wider Reconfiguration Programme, and the STP. The total capital requirement of £30.8m has been supported in principle from the 2017 Spring Budget, subject to Business Case approval.

1.3.6 Clinical Drivers for Change

There is a widely recognised and well-articulated need to consolidate acute services in Leicester, which are currently spread across three sites. The current configuration is suboptimal in clinical, performance and financial terms. This is exemplified by the fact that ICU (and services that depend on ICU) are located on all three sites. The scheme detailed in this FBC is the next key building block towards acute site consolidation and will bring significant clinical benefits for patients.

1.3.7 Capacity Gap

Demand outstrips ICU capacity across UHL, resulting in cancellations in elective procedures (see Table 32) reliant on Level 2 and 3 care (due to a shortage in beds). The future strategy for ICU units at LRI and GH will be to consolidate care for Level 2 and 3 patients into the 'super ICUs'. Aligned with this provision will be a robust cohort of beds for Level 1 care within specialties throughout the Trust, as well as critical care outreach services delivering a 24/7 service.

Modelling work has been undertaken, based on assumption's relating to growth rates, occupancy levels and final service configuration to confirm the future ICU bed numbers required at GH and LRI. These expanded facilities will incorporate the repatriation of current satellite HDUs that operate within service areas. This future expansion will be the subject of a separate business case as part of the reconfiguration programme.

The first step in this journey is the move of Level 3 ICU and associated services dependent on Level 3 ICU from the LGH to the LRI and GH which will improve our ability to accommodate demand, reduce elective cancellations by separating emergency from elective work through the move of day case activity from LRI and GH to LGH, and improve cancer performance in line with national drivers to achieve 62 day and 31 day metrics. Currently UHL consistently struggles to deliver 31 days in several tumour site groups in part due to the lack of ITU/HDU capacity.

This scheme allows for:

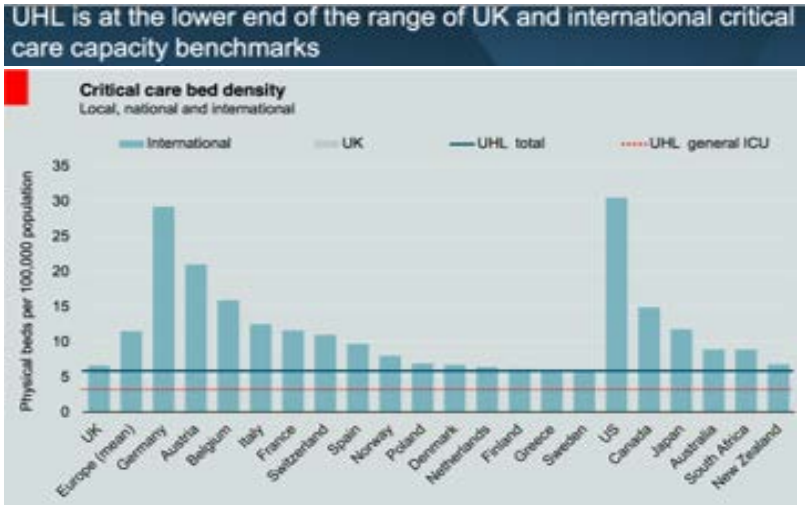
- A transfer of commissioned Level 3 and associated activity from LGH to GH. The relocation of services to this site allows for efficiency of flow through a larger physical footprint;
- The move of Level 3 and associated activity to LRI, creating a single site surgical emergency take, which delivers a more efficient patient pathway.

Once the developments identified above have been delivered, it will be possible to move forward incrementally, as funds permit, ultimately achieving the objective of two "ICU-dependent" acute sites in Leicester. This is the key to the Trust's future clinical and financial sustainability and the achievement of key performance targets.

1.3.8 ICU Strategy/ Clinical Drivers for Change

There is a recognised move towards using critical care beds at an earlier stage in a patient's treatment. On an international level the UK has a low number of ICU beds compared to its population, and within the UK, UHL has a lower than average per capita provision of ICU beds.

Figure 5 - Critical Care UK and International Capacity Benchmarks



Independent analysis was commissioned from an external contractor (Bazian) in 2014 to assess the current and future requirements for ICU and HDU beds in UHL. This was subsequently updated in 2016 by Capita Health using the Simul8 model, which has validated the required bed numbers.

The Trust's five-year clinical strategy therefore includes the need to deliver critical care services through the creation of two 'super ICUs' by 2022/23 located at LRI and GH. Triplication of services creates inefficiency and an unsustainable clinical position; the biggest risks are the lack of a suitably qualified workforce to maintain safe Level 3 ICU services across the three sites, and the cancellation of elective cases.

The need to move Level 3 ICU away from LGH was first identified in 2014 owing to the increasing risk of clinical sustainability of the service. These include:

- The reduced opportunities for critical care staff to gain adequate experience in providing care for the most ill patients has been affected by a reduction of Level 3 patients cared for at LGH;
- Recruitment to substantive posts at LGH has failed repeatedly as posts have become unattractive owing to the loss of training designation and the reduction in patient acuity;
- Changes in the way medical training for intensive care staff is structured has led to the removal of training designation status at the LGH unit and therefore the ability to place trainees at LGH;
- The retirement of experienced consultant grade staff from LGH;
- A national shortage of experienced critical care nursing and medical staff compounding recruitment problems.

1.3.9 Project History

In 2014, the project was progressed by splitting it into discrete business cases:

- GH: 11 bed extension to ICU – new build;
- GH: Refurbishment to existing inpatient wards;
- GH: Interventional Radiology suite – retained estate;
- LRI: Refurbishment to existing inpatient wards.

These cases were approved internally by the Trust in 2015. This approach was supported at the time by the National Trust Development Authority (NTDA). Owing to the national lack of capital for NHS developments, external capital for this project has not been available to date, therefore project delivery stalled.

A number of mitigations have been put in place to ensure the continued safe service provision at LGH since this time and during the development of this project. Whilst these mitigations help to ensure the continued delivery of a safe service at LGH, the service remains unsustainable in the long term, primarily due to the workforce pressures outlined above.

UHL was successful in its bid for funds for the move of Level 3 ICU away from LGH from the 2017 Spring Budget. Discussions with NHS Improvement (NHSI) and NHS England (NHSE) have concluded that UHL needs to submit a new OBC and FBC for the whole £30.8m value of the scheme.

1.3.10 Investment Objectives

The key investment objectives for this project are as follows:

- To provide a solution that maximises clinical quality and safety;
- To deliver, at the earliest possible opportunity, a sustainable Level 3 ICU service across the Trust;
- To deliver an ICU solution that facilitates recruitment and enables the delivery of high levels of teaching and training;
- To ensure that the quality of the patient environment and experience remains a priority;
- To provide a solution which fits with future Trust Reconfiguration Programme and is consistent with the DCP;
- To deliver a solution that ensures accessibility to services and maximises clinical adjacencies and efficiency

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1.3.11 ICU Expansion

Current Activity and Demand

An option appraisal review was held in February 2015 involving representatives from all specialties and support services affected by the ICU Reconfiguration. The purpose of this meeting was to agree the immediate configuration of services across the three sites which would enable Level 3 adult critical care to re-locate from LGH by December 2015.

A set of over-arching principles were agreed at the meeting which will govern the remainder of the project:

- Any part of a service that is dependent on Level 3 adult critical care must be re-located to LRI or GH;

- If the above results in parts of a services remaining that are so small as to be destabilised then these parts must also move or have a robust interim solution;
- Any services at LRI and GH that do not require Level 3 adult critical care and can move to LGH to free up the estate footprint must consider moving.

To ensure this analysis is as robust as possible, two complementary investigations have been carried out to:

- Review overall bed days proposed on each site;
- Analyse the number of patients in beds on a daily basis;

Examining both figures has ensured that peaks in demand have been allowed for in terms of physical space deemed to be required.

The reconfiguration of services, associated with the removal of Level 3 ICU services from LGH (with Hepatobiliary (HPB), and Renal Transplantation services being transferred to GH and colo-rectal and emergency general surgery to LRI) adjusts the ICU bed requirement on LRI and GH. The detailed activity analysis is outlined in section 2.9.1; the table below identifies the current and future numbers of physical spaces on each site to feed into the estates brief.

Table 1 - Current and Future Provision for ICU Bed Spaces across UHL

Site	Current Physical Bed Spaces provision	Future Physical Bed Spaces
LRI	21, plus 6 annex.	21, plus 6 annex.
GH	22	33
LGH	12	4 (Level 2) plus 1 Level 3 for stabilisation
Total	**55 plus 6 annex.**	**58 plus 6 annex.**

LGH Sustainability

For services remaining at LGH, a retrieval service will be put in place for any unplanned patients requiring on-going Level 3 care beyond an initial four-hour stabilisation period. Planned Level 3 patient's surgery will take place either at LRI or GH on an agreed basis.

1.3.12 Surgical Services moving from the LGH to the LRI

Existing Arrangements

At present, LGH receives emergency 'general' gastro-intestinal surgery admissions (e.g. hernias, non-specific acute abdominal pain, abscesses etc.) as well as emergency HPB admissions (acute cholecystisis, acute pancreatitis, biliary colic, chronic pancreatitis and obstructive jaundice).

The LRI also receives emergency general surgery admissions, with the surgical emergency take split on a 1:1 basis between LRI and LGH. Elective work is carried out across all three sites, with elective patients who have a predicted length of stay of more than one day undertaken only at LRI and LGH. GH currently takes day case general surgery patients only. Utilisation data for 2016/17 is identified in the table below:

Table 2 - Current Configuration of GI Surgery across LRI and LGH

		LGH		LRI		
		Colorectal	HPB	Emergency Surgery Ambulatory Care	Colorectal (CRC)	Gastro-esophageal (UPGI)
Wards	Elective ward bed occupancy (average)	6	9	n/a	6	4
	Emergency ward occupancy (average)	22	36	n/a	21	22
Theatres	Main Theatre sessions	7.5	10	1	9.5	9
	Ave. Weekly Emergency Theatre Cases	15	n/a	n/a	34	
	Day case theatre sessions per week	n/a	2	2	0.5	1
Critical Care	Elective Level 2 ICU bed days	153	622	n/a	143	179
	Emergency Level 2 ICU bed days	272	456	n/a	257	143
	Elective Level 3 bed days	83	91	n/a	130	285
	Emergency Level 3 bed days	263	529	n/a	259	213

The Position Post Reconfiguration

The future proposed configuration relocates colorectal and emergency general surgery from LGH to LRI.

The reconfiguration of colorectal and general surgery to LRI will enable better pathways for emergency patients with prompt intervention for patients who require emergency surgical treatment. The move will allow for economies of scale with the improved use of middle-grade and junior doctor cover and provide new training opportunities. By ensuring prompt and efficient processing of emergency patients, more bed spaces will become available for elective cases, leading to fewer cancellations for cancer resections. The pooling of consultants at LRI onto a single merged rota will reduce the frequency of on-calls.

Demand and Capacity at LRI

The surgical service will occupy bed and theatre capacity vacated by the move of the vascular service to GH and the creation of the Emergency Floor and further theatre capacity will be vacated by the transfer of day case work from LRI to LGH.

The following will ensure that there is sufficient theatre capacity to manage the emergency surgical take moving to LRI:

- Release in emergency pressures from transfer of vascular to GH (already complete);
- Utilisation of day case theatre sessions to accommodate the increase in emergency procedures.

Impact for Gynaecology

Following the project, the majority of the Gynaecology and Gynae-oncology elective surgery will remain at LGH co-located with urology and maternity services. However some surgery that requires colorectal surgical input and Level 3 ICU care will be transferred to the LRI site. Patients will be looked after on the General Surgical Wards. There will continue to be colorectal surgeon presence at LGH for outpatient clinics during the week to provide advice and assistance if unexpected general surgical complications are encountered during elective surgery.

1.3.13 Surgical Services Moving from LGH to GH

HPB

The Hepato-Pancreato-Biliary (HPB) multi-disciplinary team is a multi-professional group serving the populations of Leicester, Leicestershire, Rutland, Northampton, Peterborough and Kettering. The overall population served approximately 2.5 million. The unit in Leicester is a Level 1 Primary HPB Cancer service (as defined by the new HPB Cancer Measures).

The team is comprised of seven HPB Consultants, three Clinical Nurse Specialists, two Multi-Disciplinary Team (MDT) coordinators, a data analyst, clinical assistant and administration and support staff.

40% of all emergency surgical admissions relate to biliary diseases. National recommendations from both the Association of Surgeons of Great Britain and Ireland (ASGBI) and recent NICE guidance have strongly recommended that biliary diseases are managed as a separate tier of emergency by appropriate surgeons.

Although biliary pathology is already streamed to LGH, some operations are not always undertaken as quickly as they could be due to emergency theatre pressures at LGH.

HPB Services at GH

The HPB surgeons are not currently on-call 24/7 at LGH because of a combined rota with the colorectal surgeons. Separating the emergency take into specialist services between LRI and GH will ensure the most appropriate surgeon manages the right patients. This will ensure there is timely input from specialists for patients in ED and support the delivery of 7-day service standards.

It will also improve efficiency by delivering a reduced length of stay, reductions in readmissions and reduced activity for commissioning CCGs.

There will be two 1:9 on-call rotas for the surgeons at LRI. The HPB surgeons will undertake a 1:7 on-call service at GH managing all biliary diseases.

The HPB Clinical Operational Policy includes the patient pathways that will be in place with the formation of a standalone HPB unit at GH, with the inclusion of admission criteria.

Although the inpatient and emergency service will relocate to GH, outpatient and day case activity will remain at the LGH. This will mean a change in the way of working in clinics; using more all day clinics with two consultants running parallel clinics.

HPB Activity – Capacity Requirements

Theatre Capacity

HPB requires 13.5 weekly theatre sessions (incorporating evenings and weekend working). This excludes day case operating lists, which will continue to be based at LGH. The service requires access to an emergency 24-hour theatre (non-resident staffing from 20:00). There are of 2.1 cases per day on average.

Bed Capacity at GH

55 inpatient ward beds are required for emergency and elective patients, to deliver capacity at 1.5 Standard Deviations from the mean as identified in Figure 22 in section 2.11.1

Impact for Urology

It has been confirmed by the Trust that the future location for Urology services will be on the GH site. An interim solution will be put in place in advance of this. Planned level 3 ICU Urology patients will have their surgery at GH and be looked after, following discharge from ICU, on one of the new HPB wards. Unplanned level 3 patients will be transferred to GH by the retrievals service that will be in place.

Transplant Services

The nephrology and renal transplant service at UHL provides services for patients with kidney disease in LLR, Northamptonshire, Lincolnshire, Peterborough and parts of Cambridgeshire.

The criticality of moving transplant first relates to its requirement, in accordance with the National Service Specification, to be co-located with both Level 3 ICU and also with access to a 24/7 emergency theatre. This case moves the existing transplant beds from Ward 17 at LGH to GH and reduces the total number of Transplant beds from 14 to 12, aligning with the STP bed bridge.

There is a recognition that the resulting site spilt for transplant and nephrology is only clinically sustainable over a short term period, not least because of the pressure this will place on small consultant workforce. The Trust is therefore developing separately the options to move nephrology to GH, at an early stage, at low cost. This will be subject to a separate business case.

The co-location of renal transplant services with cardiology, cardiothoracic and vascular at GH brings synergies that will further enhance the outcome of renal patients with multiple co-morbidities.

Theatre Capacity at GH

The additional demand on theatre capacity at GH from the service moves, together with the plans for how this will be met, are outlined in the table below.

Table 3 - Demand for Theatre Capacity at GH

Service	Sessions required
HPB - emergency	Emergency theatre access (5 sessions required to create an emergency theatre at GH)
HPB - elective	13.5 sessions (including evening and weekend working)
Transplant - emergency	emergency theatre access
Transplant - elective	7
Total	**25.5**

The table below identifies that there is sufficient available capacity for the move of additional surgical activity to GH.

Table 4 - Available Theatre Capacity at GH

Theatre	Sessions
Theatre 6 – General Surgical day case activity to be relocated to LGH	10
Theatre 1 paediatric cardiac sessions –the Trust will relocate Children's congenital heart disease services to LRI by March 2020.	8
Extending theatre operating sessions, in line with the Trust's Operational Policy, to include	8

Theatre	Sessions
three session days and six days elective operating.	
Total	**26**

1.3.14 Interventional Radiology

The principal objectives of UHL's imaging services are to provide high-quality, safe, efficient and effective patient imaging at the right time and in the right place to facilitate timely decision-making and treatment planning throughout the patient journey.

This OBC identifies the changes required within GH's imaging services in order to support the immediate clinical need to re-locate Level 3 adult critical care activity from LGH. It proposes the preferred option for investment in imaging services that will ensure optimal clinical outcomes while maintaining efficiency and value for money.

Due to the phased nature of this reconfiguration, IR will be required on all three sites in four locations. Each IR department has an essential requirement for daycase and recovery facilities. IR will be required on the LGH and GH simultaneously to provide continuing support for Urology and Nephrology (which remain on the LGH site), resulting in interim inefficiencies.

There is also a need to dual run 2 departments and these need to be adequately stocked and all essential equipment to support the patients' intervention must be present. There can be no transfer of equipment from LGH to GH for the interim period as both departments will be fully operational at the same time.

UHL Imaging Services: Future Activity and Demand

Detailed capacity and demand planning was undertaken at an early stage in this project to assess the impact of moving Level 3 dependant activity between sites (and particularly which activity requiring IR) would move to GH.

The provision of IR on GH is required to support the move of HPB and vascular access inpatient services. Each service has a different requirement in terms of IR due to the variance of procedures undertaken across specialities.

Monitoring will continue to ensure that activities are performed at the relevant sites so as to meet clinical and organisational waiting times (independent of specialty sites except where supervised scanning/procedures are performed). The capacity being provided through this OBC represents re-provision of existing capacity – the key change proposed is the site of the IR rooms. There is no proposed increase in overall IR provision.

The following facilities will be developed on the GH site:

- Three IR rooms;
- An Interventional Ultrasound Scanner (USS) Room.

In summary, two IR rooms relocate from LGH to GH, with one of the rooms receiving new equipment as part of the Managed Equipment Service (MES) and one room at GH relocating to the new IR department. At the point that all moves are complete and Urology and Nephrology have moved from LGH, the remaining IR room will transfer from LGH to GH.

The existing USS area will be extended to reflect the transfer of increased ultrasound inpatient capacity, and the fluoroscopy room will become an interventional USS room to support the transferring workloads with HPB.

1.3.15 Main Benefits Criteria

In the context of the outlined service strategies, the Trust's strategic objectives and the proposals incorporated with the STP, the SMART objectives for this project are detailed below, and are within the Benefits Realisations Plan attached at Appendix 9.

Satisfying the potential scope for this investment will deliver the following high-level strategic and operational benefits.

Table 5 - Investment Objectives and Benefits

Objectives		Measurement
A	To provide a solution that maximises clinical quality and safety.	Reduced DATIX incidents, associated with this group of patients, relating to serious harm
B	To deliver, at the earliest possible opportunity, a sustainable Level 3 ICU service across the Trust	Reduced elective cancellations Removal of risk for on-going provision of Level 3 service at LGH. 4 hour transfer time cross site for Level 3 patients.
C	To deliver an ICU solution that facilitates recruitment and enables the delivery of high levels of teaching and training.	Reduced staff turnover Reduced vacancy factors Reduced agency expenditure
D	To ensure that the quality of the patient environment and experience remains a priority	Increased single room provision Improved privacy and dignity Improved infection prevention.
E	To provide a solution which fits with future Trust reconfiguration plans and is consistency with the DCP	Timeline and sequencing of reconfiguration programme
F	To deliver a solution that ensures accessibility to services and maximises clinical adjacencies.	Delivers essential clinical adjacency and most of desirable.

The main 'dis-benefits' are as follows:

- Interim separation of some clinical services between two sites until the long term Reconfiguration Programme is complete;
- The requirement, for the duration of the full Reconfiguration Programme, of a retrieval service which ensures patients cared for at LGH requiring unplanned Level 3 ICU care can be safely transferred to GH or LRI.

1.3.16 Main Risks

The main business and service risks (design, build and operational over the lifespan of the scheme) associated with the scope for this project are shown below, together with their mitigations. Further details can be found within the full project risk register (Appendix 12).

Table 6 - Main Risks

Main Risk	Mitigation
Business Case	
Timescales are delayed to due to approval processes required for OBC and FBC	Business Cases will allow for the current programme and highlight how transitional costs and phasing will be managed
Estates	
Inability to undertake enabling works to allow schemes to deliver on time	Solutions for enabling moves have been identified and agreed. Communication plan with those impacted in place.
GH Wards - Design is derogated and does not meet NHS standards	Derogations agreed and approved by a number of key stakeholders, inc IP etc who have agreed space functionality and impact on patient quality
GH Wards - Concern re reliability of existing Asbestos information within existing building, leading to added expenditure required for surveying / removal of any asbestos that is present.	Review asbestos drawings. Full R&D survey to be undertaken at next stage.
GH Wards - Disruption to clinical activities caused by noise or vibration from construction works. Delay to programme and risk of late delivery	Detailed disruption management plan to be produced. Communications strategy to be agreed with teams operating in the affected area. Regular construction updates to be issued. MTX have confirmed adherence to restrictions set out in Glenfield Contractor Handbook.
GH Wards - Further restrictions to those agreed during the contract negotiations	If working hours need changing to reducing the impact the works have on the operations of the hospital additional costs and or programme implications may be incurred. Regular work planning meetings with MTX and Trust
IR Project - Asbestos survey to be completed when area vacated	Whilst an asbestos survey has been carried out, a further R&D survey will be required once the area has been emptied and access given for the survey.
IR Project - Early enabling works commencement	The main IR project cannot start until the new office accommodation and new med records store (Mansion House and the Snoezelen). The trust has undertaken extensive surveys to better understand the extent of the issues. Asbestos has been removed from the building in preparation for the main works
IR Project - Undertake full survey of project area	Whilst the area has been surveyed and as installed drawings referred to, a detailed services survey will be undertaken once occupation is given.
IR Project - Ensure works are sealed.	The project is an internal refurbishment adjacent to theatres and an existing X Ray dept. We will be consulting with the IP dept to install negative pressure fans with appropriate filters to assist with a dust management regime. More detailed business continuity plans have been developed – see Section 4.4
LRI Wards – the main risk is dust affecting adjacent clinical areas and public areas	The site boundary is clearly defined by the ward envelope and affords the opportunity to fully enclose the site, with entrance hoarding and keeping all perimeter windows closed during construction works. In addition, the contractor will deploy air scrubbers to filter dust in the environment and tac mats at the site access/egress point. The tender specification specifically required the contractor to allocate resource to clean and maintain the routes to and from the site location on a regular basis

Main Risk	Mitigation
LRI wards - Movement of materials and waste through public areas	The contract will restrict the times during which materials can be moved to site and waste can be moved from the site. All waste will be moved in sealed wheeled containers. Large items of materials will be moved in the early morning or late evening (after visiting hours) and will be accompanied by a banks man.
LRI Wards - Noise and vibration	The Trust Project Manager has extensive experience in delivering refurbishment projects in the heart of the building concerned. As a result, the following key mitigations will be established: • Regular and detailed communication with ward matrons/sisters and other stakeholders, highlighting noisy activities and when they will take place • Restriction of the times during which contractors can carry out noisy activities • Supply of ear plugs where necessary and appropriate • Elimination of unnecessary noise from the site, such as the use of music/radios and the use of radios to communicate rather than shouting when cabling pulling etc
Operational	
Managing ICU demand and capacity during the construction period	Construction period to avoid forecast surge period as far as possible, plans to maintain flow from ICU with GH services agreed and in place together with contingency arrangements for ICU beds.
Insufficient theatre capacity at GH & LRI to meet the demand requirements	Clinical input and sign off of assumptions. Detailed work under the Theatre Programme Board to support, areas highlighted for improvements in theatre utilisation and efficiency.
Workforce and OD	
Effective and sustainable medical cover across all sites for impacted services.	On-going workforce planning and rostering across all sites for all specialties with education and service leads. Plans being developed for the final model (full reconfiguration) with impact for interim solutions. Builds on work already commenced to move vascular from LRI to GH.
Finance	
Delivery of identified cash and non-cash releasing savings	Appropriate governance and sign up within the Trust, implementation plan and monitoring agreed with ownership and accountability in a place.
Communications	
Securing sufficient CMG & clinical engagement throughout the life of the project	Planning through programme for input required. Clinical input funded through project. Clinical Operational Policies owned by CMGs.

1.3.17 Constraints and Dependencies

The following outline the key constraints and dependencies associated with the delivery of this project and its component schemes:

- There will be multiple construction locations on GH site at the same time, with different constructors accessing the site simultaneously. This will require careful management for the associated workforce and deliveries to site to minimise the impact for staff and patients moving around the site on a daily basis;
- Multiple site compounds on GH at the same time will adversely impact on the provision and availability of parking for staff and potentially patients. There will be additional flexibility for staff in accessing both on-site and off-site car parks for GH, and the availability of on-site parking will be maximised as far as possible during the construction period. An additional 80 space temporary car park is being constructed to support a scheme which is being undertaken by Leicestershire Partnership Trust (LPT) on the GH site. We have negotiated the beneficial use of this site during the ICU construction period in exchange for granting a temporary licence for LPT to place it on our land.
- At various stages of construction there may be a requirement to find alternative hospital access points to support constructors' needs. These have been identified and a plan developed to manage the consequences;
- Construction work will take place both above and below live operational areas. A plan will be put in place to minimise disruption during working hours and monitor the situation with regard to impact on operational areas. Business continuity plans are summarised in Section 4.5
- There is a requirement to ensure access can be provided at all times, through the construction period, to the GH main entrance, mortuary and pharmacy. This will be managed by identifying alternative routes, limiting disruption duration and use of out of hours working;
- The central operating department at GH is directly above the IR construction site. Noise and impact of vibration will be minimised during the working day. The impact on theatres will be monitored and assessed, with alternative plans put in place if necessary;
- Access to the IR area is dependent on the successful decanting of offices and medical records within their new facilities in the Snoezelen building and Mansion House. Delays in either the enabling work or the decanting will delay the commencement of construction for IR;
- Major electrical shutdowns will be required to provide the required infrastructure. This will be managed at an appropriate time to minimise disruption to clinical services and staff, and there will be communication across he site to ensure awareness, impact and timescales;
- Existing electrical and mechanical services will require relocating to provide a clear site for ward installation. This will be managed to minimise downtime and as far as possible prevent loss of clinical activity. Ventilation plant will be replaced with new compliant equipment which can be pre-installed thus minimising downtime;
- The existing live ICU department is adjacent to construction area and the impact on this area for noise and vibration will be minimised
- Works required that will affect adjacent catheter department – these works will be planned in accordance with that department to minimise disruption
- Works required that will affect adjacent outpatients department – these works will be planned in accordance with that department to minimise disruption
- Requirement for the implementation of the outcome of the tender process for the new UHL decontamination service prior to the transfer of HPB to GH.
- Completion of programme of work to refurbish and improve LRI operating theatres prior to service moves;

1.3.18 Commissioner Support from NHS England (NHSE) and Leicester, Leicestershire and Rutland (LLR) Clinical Commissioning Groups (CCGs)

This FBC is founded on the transfer of existing activity levels from the impacted services (ICU, HPB, transplant, colorectal, emergency general surgery) to their new sites. No assumption has been made in relation to any future expansion or growth of these services.

The long term reconfiguration solution captures assumptions in relation to the impact of demographic changes across all services and delivers the modelled, required acute bed numbers outlined in the LLR STP. The schemes have been future proofed with reference to the bed numbers upon which the 2018 estates strategy and Development Control Plan (DCP) have been based.

This FBC is an integral part of the LLR STP which is supported by all health partners across LLR. Commissioner support has been received from both NHSE and LLR CCGs. The commissioners confirm their understanding that there is no planned increase in activity associated with this case or financial implications outside of normal commissioning arrangements.

1.4 Economic Case

1.4.1 OBC summary option appraisal

The overall options appraisal undertaken for the OBC is summarised below:

Table 7 - OBC summary option appraisal

	Net Present Cost		Equivalent Annual Cost	
	Do Nothing	**Relocation of ICU**	**Do Nothing**	**Relocation of ICU**
GEM Generated NPC/ EAC £'000	1,877,164	1,575,107	70,789	59,398
Risk Adjustment NPC/EAC £'000	23,823	38,292	898	1,444
Risk Adjusted NPC/EAC £'000	**1,900,987**	**1,613,398**	**71,687**	**60,842**
Benefits score	298	793	298	793
Cost Per Benefit Point £'000	**6,390**	**2,036**	**241**	**77**

1.4.2 Changes since OBC

The Trust has undertaken further work since OBC in quantifying the benefits and savings which can be delivered as a function of the service moves associated with this Business Case. These are summarized below:

Table 8 - Quantified Benefits

	Benefit £	Cash Releasing £	Non Cash Releasing £
HPB Efficiencies	514,000		514,000
Cancelled Day Case operations	100,000	100,000	

Cancelled Operations - Premium rate sessions	273,840	273,840	
Increased ECMO capacity	340,200	340,200	
Cost of ECMO Capacity (34 bed days)	(40,000)	(40,000)	
Savings from waiting list initiatives	2,312,000	2,312,000	
Savings on premium rate expenditure	250,000	250,000	
Reduction in assessment of additional estates costs	155,000	155,000	
Total	**3,905,040**	**3,391,040**	**514,000**

A tender process for the schemes has now been undertaken and the FBC capital costs reflect the change from pre-tender estimates, as included in the OBC, to tendered prices. The high level variance of costs, including VAT, is included in the table below:

Scheme	OBC £'000s	FBC £'000s	Variance %
GH wards	17,936	17,175	-4.24
ICU extension	5,171	5,075	-1.85
Interventional Radiology	6,056	6,229	2.86
LRI Ward refurbishment	1,634	2,320	41.97
Total	**30,797**	**30,800**	**0.01**

The variances for each scheme have been examined in more detail, with the key reasons summarised below:

- Increase in on -costs as the scope of works has become fully defined;
- Internal Trust fees have increased to cover an extended period of time;
- Equipment costs have changed as detailed equipment schedules have confirmed the level of equipment to be transferred.

1.4.3 Financial Re-appraisal

All schemes, with the exception of the LRI ward refurbishment, varied be less than 5% from the OBC cost. However all schemes have been re-appraised reflecting changes in lifecycle and all revised assumptions relating to cash and non-cash releasing benefits.

The outcome of this appraisal is that all preferred options identified at OBC remain valid, with the results of this process summarised in the tables below:

Table 9 - GH wards re-appraisal

	Net Present Cost £'000		Equivalent Annual Cost £'000	
	Option 1	Option 2	Option 1	Option 2
GEM Generated NPC	419,436	431,039	15,817	16,255
Risk Adjustment	10,040	10,342	379	390
Risk Adjusted NPC	429,476	441,381	16,196	16,645
Benefits score	808	728	808	728
Cost Per Benefit Point	**531.86**	**606.71**	**20.06**	**22.88**

Option 1 remains the preferred option for the GH wards

Table 10 - ICU extension re-appraisal

	Net Present Cost £'000			Equivalent Annual Cost £'000		
	Option 1	Option 2	Option 3	Option 1	Option 2	Option 3
GEM Generated NPC	304,426	306,311	306,904	11,840	11,551	11,574
Risk Adjustment	4,111	4,432	4,459	155	167	168
Risk Adjusted NPC	308,537	310,743	311,363	11,635	11,718	11,742
Benefits score	740	700	840	740	700	840
Cost Per Benefit Point	**416.94**	**443.92**	**370.67**	**15.72**	**16.74**	**13,98**

Option 3 remains the preferred option for the ICU Extension.

Table 11 - IR re-appraisal

Appraisal Summary - ICU	Net Present Cost £'000			Equivalent Annual Cost £'000		
	Option A	Option D1	Option D2	Option A	Option D1	Option D2
GEM Generated EAC	626,540	621,535	622,383	23,627	23,438	23,470
Risk Adjustment	8,074	7,670	7,824	304	289	295
Risk Adjusted EAC	634,614	629,205	630,208	23,932	23,728	23,765
Benefits score	705	900	885	705	900	885
Cost Per Benefit Point	**900**	**699**	**712**	**33.95**	**26.36**	**26.85**

Option D1 remains the preferred option for Interventional Radiology.

Table 12 - LRI wards re-appraisal

NPC	Option 1	Option 3	Option 5	Option 6	Option 9
GEM Generated NPC £'000	817,487	817,487	817,487	817,487	816,327
Risk Adjustment £'000	15,488	15,488	15,488	15,488	16,189
Risk Adjusted NPC £'000	**832,975**	**832,975**	**932,975**	**832,975**	**832,516**
Benefits score	790	750	738	693	865
Cost Per Benefit Point	**1,054**	**1,111**	**1,129**	**1,203**	**962**

EAC	Option 1	Option 3	Option 5	Option 6	Option 9
GEM Generated EAC £'000	30,828	30,828	30,828	30,828	30,784
Risk Adjustment £'000	584	584	584	584	610
Risk Adjusted EAC £'000	**31,412**	**31,412**	**21,412**	**31,412**	**31,395**
Benefits score	790	750	738	693	865
Cost Per Benefit Point	**39.76**	**41.88**	**42,59**	**45.36**	**36.29**

Option 9 remains the preferred option for the LRI wards.

1.4.4 Overall re-appraisal

The changes in capital cost have a very small impact on the economic appraisal. The additional non-cash releasing benefits allowed for increase the differential between Option 1 and the Do Nothing option. This is offset by the change in methodology assumed in calculating the cost of the lost activity in the Do Nothing.

Table 13 - Overall re-appraisal

	Net Present Cost		Equivalent Annual Cost	
	Do Nothing	Option 1	Do Nothing	Option 1
GEM Generated NPC/ EAC	1,769,459	1,488,371	66,727	56,127
Risk Adjustment	23,908	38,358	902	1,446
Risk Adjusted NPC/EAC	**1,793,366**	**1,526,729**	**67,629**	**57,574**
Benefits score	298	793	298	793
Cost Per Benefit Point	**6,028**	**1,926**	**227**	**73**

Following completion of the DH VFM template (Appendix x) a VFM ratio of 5.8 is achieved (discounted costs v. discounted benefits). This is reduced to a factor of 5.1 if reconfiguration does not take place.

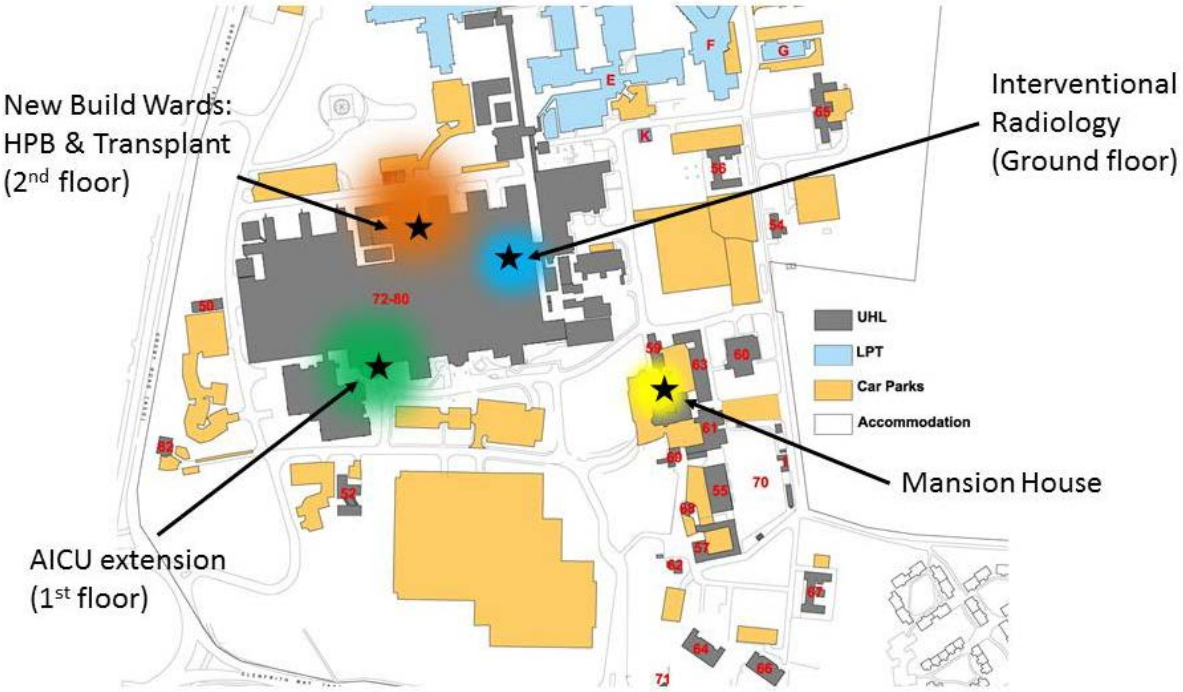
1.4.5 Summary of Preferred Option

The table below re-confirms the preferred option for each scheme, and the figure below shows where these options are located on the GH:

Table 14 - Preferred Option for Each Scheme

Scheme	Preferred Option	
ICU Extension	3	A new build expansion into Bay B, increasing the size of the existing unit.
Interventional Radiology	D1	Conversion of Medical Records and Office space, adjacent to existing Imaging space at GH
GH Beds	1	New build development situated on a newly developed Third Floor at GH above wards 24,25 and 26
LRI Beds	9	Ward 15, 16 and 21 refurbishment at LRI

Figure 6 - GH site Locations for Preferred Options



1.5 The Clinical Quality Case

1.5.1 Introduction

The Clinical Quality Case sets out how the proposed investment will improve the clinical quality of the Trust's services. It describes how the development will improve patient safety and experience by providing a clinically functional environment that facilitates efficient patient flows.

1.5.2 Overarching Principles informing the Design Brief

A number of key principles influence the design brief. These are outlined in detail in section 4.4.1. They include:

- Clinical Models of Care and Operational Policies;
- Infection Control;
- Quality of care and experience;
- Patient Led Assessment of the Care Environment (PLACE);
- Quality of the environment;
- Privacy and dignity;
- Safe Design;
- Access;
- Security;
- Fire Compliance;
- IT systems;
- Business Continuity.

In the development of the detailed design for the schemes there has been significant engagement across a range of stakeholders, including patient representatives, privacy and dignity lead, health and safety officers, fore officer, infection prevention and facilities management together with clinical leads for each area.

1.5.3 Scheme Design Development

ICU Extension - GH

Design Solution

The facilities comprise of a new build extension to the front of the current Glenfield hospital main building. This extends the current ICU (Bay B) from the current configuration of four beds (including two side rooms) to 15 beds which includes 4 isolation rooms (adding 11 physical bed spaces in total). This takes the Glenfield ICU to 33 beds of which 11 will be side/isolation rooms. The new extension will also have a dedicated nurse base, sluice, ward sister's/charge nurse's office and accessible shower and WC. It will meet the HTM compliance standards for medical gases and the provision of Isolated Power Services (IPS) and Uninterrupted Power Supply (UPS) electrical supply.

Due to the specialist and complex nature of the ICU environment, the needs of the patient and staff are particularly paramount and this is reflected within the design. Further detail can be found in section 4.5.1.

Patient Space Standards

The primary focus of the ICU extension is the provision of 11 additional beds. Constraints of available space has resulted in derogation from HBN guidance, however this still constitutes an increase above the existing spacing within the current ICU. Existing bed spaces in the GH ICU are 19.35m2; the new spaces are 20.0m2 - 23.9m2 as compared with the HBN requirement of 25.0m2. All derogations have been approved by the clinical leads for project, the Trust Infection Prevention Nurse and Chief Nurse, and are outlined in the schedule of derogations at Appendix 22.

The Trust Infection Prevention Nurse has been fully engaged in the detailed design process and has advised on, and approved, hand wash facilities throughout the unit with the addition of surgical scrub sinks for use in emergency situations.

The project delivers an additional four side rooms with gowning lobbies within the unit, taking the overall number of ICU side rooms to 10.

New Build Ward Development - GH

Design Solution

Three new build wards will be built on the roof of the Glenfield Hospital main building. Design reflects the Clinical Operational Policies which reflect the needs of the patient. As the scheme has progressed through the detailed design process, patient and patient partner representation has played a key part of the stakeholder team. Representatives from clinical support services (Occupational Therapy, Physiotherapy, Pharmacy, etc.) and non-clinical support staff (hard and soft Facilities Management (FM)) who work with clinical areas have been engaged throughout the design process.

Patients currently staying on HPB and Transplant wards at the LGH have been engaged with regards to the proposed designs at 1:200 levels. Constructive comments have been made which will inform the next stage of the design process, particularly in relation to day / dining spaces within bays, accessing bathroom facilities from the bay and the most suitable configuration of the four beds within a bay.

Patient Space Standards

HBN recommendations have been adhered to wherever possible and delivered as part of the final design solution. Clear identification of associated derogations have been identified and signed-off by Clinical Leads, Infection Prevention and Estates representatives (Appendix 60)

The Trust estates embedded Senior Infection Prevention Nurse has been fully engaged in the design process to date and has advised on best practice with regards to bed spacing, multiple bed bay sizes and sink positions. Inpatient bed spacing is 3.6m md-bedhead to mid-bedhead fully achieving compliance.

The Trust has further reviewed the level of single rooms included in the design and has re-confirmed the delivery of 30% single rooms as being the preferred solution both on an economic basis and in terms of the level of quality improvement delivered from existing premises.

The renal transplant ward continues to have 4 single rooms, but 2 are now Isolation rooms which are HBN compliant.

General Surgery Wards - LRI

Design Solution

The development comprises of the minor refurbishment of three existing clinical wards with an improvement in facilities provided, including improvements to en-suite facilities by adding these to existing six bed and four bed bays and the addition of improved day room space and ward kitchen facilities. New decoration, flooring and lighting throughout these areas will deliver a contemporary environment with improvements for both patients and staff.

The needs of patients, staff and visitors will be fundamental to the success of the design and future operational functionality. The key objective is to develop a functional clinical area for patients and ward attenders within the bounds of a minor refurbishment scheme.

Patient Space Standards

The existing estate dates from the 1970's and as such there will be compromises made to current HBN and HTM standards, even following refurbishment. However, the improvements made will significantly improve the environment for both patients and staff and will address key privacy and dignity issues. Similar ward refurbishments carried out in recent years have realised significant benefits to improve staff and patient experience. Patients benefit from a cleaner, brighter environment. Task lighting over the bed allows patients to read and carry out hobbies. The use of silent close bins and sliding doors helps to create a quieter environment.

Interventional Radiology (IR) GH

Design Solution

A new IR department located adjacent to the existing X-ray department will support the HPB and transplant services moving from LGH to GH. The new IR facilities comprise three new Interventional Radiology (IR) rooms and an Interventional Ultra-sound Scanner (USS) with associated inpatient and outpatient facilities on the ground floor of the GH main building. This involves the alteration and refurbishment of an existing medical records and office area and encompasses all elements required to ensure it meets technical and clinical standards.

The needs of patients, staff and visitors will be fundamental to the success of the design and future operational functionality.

The design layout for IR has taken into account the necessity to address the requirements for delivering Privacy and Dignity (P&D) requirements. Bed Bays and Outpatient changing rooms are single sex with dedicated en-suite facilities, which have been signed off by the Trust lead Nurse for P&D.

Patient Space Standards

HBN recommendations have been delivered as part of the final design solution, wherever possible. Clear identification of associated derogations at this stage is identified in the Derogation Schedule in Appendix 28.

The Trust Infection Prevention (IP) Nurse has been fully engaged in the detailed design process and has advised on best practice with regards to optimised bed spacing and positioning of fixed items.

1.5.4 Leadership and Stakeholder Engagement

Clinical Leadership

Clinical leadership is key to the successful delivery of the project objectives:

- The Deputy Medical Director is one of the joint Senior Responsible Officers (SRO) for this project, and has been involved since the inception of the project. He has worked with clinical leads across services in the development and agreement of the models of care and clinical operational policies which support this project;
- Clinical leadership from within the Clinical Management Groups has been critical. CMG clinical leads have been key in both the development of models of care, clinical operational policies and input to the development and sign-off of design solutions that deliver a clinical and cost effective solution.

Stakeholder Engagement

Stakeholder engagement is a vital part of the project in order to ensure that all needs are met through the delivery of the project. The following engagement activities have occurred to date:

- **Healthwatch** - A local Healthwatch representative has been a member of the ICU Project Board;
- **Patient Partners** - The Trust has a network of Patient Partners; the lead patient partner is a key member of the Project Board and there is Patient Partner representative supporting each CMG, who have been supporting the project.
- **Commissioners** - There is representation from Leicester City CCG, as the lead commissioner for UHL, and NHSE Specialised Commissioners on the ICU Project Board for both the interim ICU case, but also the planning for the longer term solution for ICU at GH and LRI.
- **Overview and Scrutiny Committee (OSC)** - UHL Senior Managers presented the case for change for ICU, with regard to the on-going provision of Level 3 ICU at LGH, to the LLR Overview and Scrutiny Committees in March 2015. The OSCs were asked to note the operational and safety issues facing ICU services across UHL. The outcome was that the OSCs supported the need to reconfigure the services urgently. The Trust also presented at Rutland Adult Health and Scrutiny Committee in April 2018 where support was also provided;

- **Internal clinical support services** - Engagement has been undertaken and is on-going across a range of clinical support services impacted by the transfer of services from LGH to GH and LRI to ensure that the implications and impact for them have been considered and taken into account;
- **Estates and Facilities management** - leads from the Estates and Facilities management team have been fully engaged in the project with regards to the impact on the GH and LRI of the moves from an estates, infrastructure and FM perspective.
- **Staff Engagement** – sessions were held during February 2018 at LGH site for impacted and interested staff to attend to review the plans and ask questions relating to the moves. These sessions will be replicated on GH and LRI sites.

Consultation

This project was initiated in 2014 when the risk of clinical sustainability of a level 3 ICU service at the LGH became apparent. At that time, the OSCs were consulted on, and supported, the clinical imperative to move the service. Mitigations were put in place to ensure continuing safety of the service at the LGH, recognising the fact that there is a reliance on staff goodwill to continue to cover the site. This has been possible since the staff can see the intention to move the service through this project. (See Strategic case) .The availability of capital since this date has hindered progress, but the priority to move this service remains as important as ever. This intention has been published in our five year plan since 2014.

1.5.5 Workforce

Workforce planning is a critical component of any project plan. The approach to workforce development planning has been aligned to the “UHL Way” framework which is a Trust wide methodology that aims to support the way UHL manages change in a consistent and sustainable way. This incorporates approaches across three components, namely “Better Engagement”, “Better Teams” and “Better Change”. This ensures that we utilise Organisational Development (OD) input appropriately and has been recognised as a key element of the success criteria. Resources have been identified to support this change not only for the interim project but the longer term approach to delivering Intensive Care across UHL.

Responding to lessons learnt from our Emergency Floor and Vascular department moves, it has been acknowledged that the more staff are involved and engaged in the management of change and large scale projects, the higher the likelihood that these projects will be successful. This means assessing and responding appropriately in terms of communication and engagement with managers and staff; and investing the time, energy and resources to utilise proven techniques such as “cultural audits”, offering leadership support and team development, but also enacting any bespoke interventions or events that may enhance staff and therefore patient experience. Ultimately this means creating an environment that takes staff through change in a supportive way, to highlight potential benefits and to influence hearts and minds.

Workforce and Organisational Development

Creating ownership and engagement in change across the workforce is an essential part of the reconfiguration change programme. Maximising opportunities for staff to work together effectively, providing training and coaching throughout the process can ensure that new ways of working are realised, current problems addressed and people supported through this transition.

The Trust has invested in dedicated OD support to provide bespoke training and support required to deliver the change programme not only for this interim project but for the longer term reconfiguration of services across UHL.

Developing the workforce plans

In conjunction with finance and utilising intelligence in relation to activity, the workforce plan has been developed to reflect the required staffing to support a safe and sustainable workforce model. The Workforce plan is included in Appendix 38. The revenue impact of the workforce plan is included in the Finance Case.

Developing the plan has necessitated an in-depth look at all staff groups and particularly medical staffing across a range of surgical specialties alongside the theatre and specialist ICU workforces. The complex interdependency of services that require Intensive Care at all levels has required plans at a medical rota level that have included Consultant, Middle and Junior grade doctors to ensure operational and educational quality and sustainability is maintained. This has included analysis of cover over seven days, including nights and weekends, and applying safer staffing guidelines to the nursing, diagnostics and other support services.

The provision and consolidation of staffing across two sites is a considerable qualitative and quantitative benefit from a staffing perspective and ultimately supports workforce efficiencies across all disciplines. Some of the greatest challenges are supporting the interim arrangements however, which means that some of the benefits will not be realised until the long term critical care model is fully implemented at the end of the whole Reconfiguration Programme. Developing the FBC has given the opportunity to develop innovation and support new ways of working. There has been a particular focus on training and education which in turn supports enhanced attraction and retention.

Some of the on-going workforce challenges will be addressed by this project. For example, the removal of training designation status at LGH is a key driver of this project and highlighted the need to address the training requirements and experience for junior doctors as well as a wide range of staff. Recruitment to the LGH after losing its training designation has become less attractive and a national shortage of experienced critical care nursing and medical staff compounds the difficulty in recruiting and retaining staff. Maintaining a sustainable workforce across three sites accentuates workforce supply issues and hinders the ability to develop safe and high quality workforce support, particularly at nights and at weekends and stretches an already acknowledged deficit in terms of registered staff for Medical, Nursing and Therapeutic staff. Any move to consolidating services has a positive impact in terms of sustainable future workforce supply and workable rosters.

1.5.6 Learning and Continuous Improvement

The role of the leadership team is pivotal in engaging with, delivering and sustaining the required change and behaviours. It is essential to identify, consolidate and ‘live the way’ from an early point in the project lifecycle and then hold everyone to account right through and post project with clear guidance, training, direction and consequences to enable a consistent and transparent culture to operate.

To support this transition the Trust has the use of in-house development programmes, a clear capability framework and on-going OD support.

1.6 Commercial Case

This section of the OBC outlines the procurement methodology and tender evaluation process in relation to the preferred options outlined in the economic case, and the composition of procurement for each scheme.

The procurement options considered by the Trust were detailed in the OBC and the Trust can confirm that there have been on material changes to this strategy.

The table below confirms the preferred procurement option and the rationale for the choice in relation to each scheme.

Table 15 - Preferred Procurement Options

Scheme	Procurement Route	Reason for Selection
GH: 11 bed extension to ICU	Traditional tender	This scheme was tendered in 2015 but due to the amount of time passed and changes in the design, the project will be fully re-tendered, including the original contractors
GH: New build Modular Wards	Selection of a contractor from the 'Shared Business Service' framework.	Design and build by a specialist bespoke modular contractor will deliver Value For Money (VFM) and can be achieved to our timescales.
GH: Interventional Radiology (IR)	Traditional tender	Worked up to Guaranteed Maximum Price (GMP) under a previous framework with Interserve Construction*. Tender will now achieve best VFM.
LRI: General Surgery Ward	Traditional tender to local Small and Medium Enterprises	This method of procurement enabled us to build on lessons learned during 5 most recent ward refurbishments and deliver VFM through repeatable design and procurement.

1.6.1 Procurement Process

The procurement process was undertaken in accordance with the Public Contracts Regulations 2015.

The list of contractors invited to tender for these schemes was drawn from the Trust approved contractor list and they were selected for each scheme based on their proven track record for delivering schemes of a similar value or level of complexity.

Tenders were evaluated and scored against quality (70%) and cost (30%) according to the evaluation criteria below;

Table 16 - Tender Evaluation Criteria

Item	Element	weighting
	Financial	
A	Financial performance and status of the company - Contractor is to provide 3 years of accounts electronically (email to the EA) during the tender period.	Pass / Fail
	Tendered Price	

B	Tendered Price	30.00%
	Quality	
C	Provide a detailed tender method statement – outlining how you intend to approach the works. Your response should consider: Traffic Management, Buildability and Site Constraints	15.00%
D	Programme – detailed programme to be provided that complies with the dates as noted in the Employer's Requirements	12.50%
E	Management Structure – provide an organogram and CV's of key staff to be employed on the project, including experience working within the health sector	12.50%
F	Compliance with the tender and contract conditions – Acceptance of Schedule of Amendments, Statement of Compliance with the Employer's Requirements, Lack of Tender Qualifications	12.50%
G	Supply Chain – provide details of proposed supply chain, highlighting use of local labour/businesses	10.00%
H	Health & Safety – provide details of your organisation's health and safety representative for the works and outline how the project is controlled from a health and safety perspective in line with the CDM Regulations. Identify and discuss the mitigation of three risks that you consider to be fundamental to the safe completion of the project. Your response to this question must be specific to the works and must not consist of a copy of the health and safety policy	7.50%

1.6.2 Equipment Procurement Strategy

The Trust is adopting an approach whereby relevant equipment will be transferred between sites with the service moves, in order to minimise additional costs associated with the purchase of equipment.

Within this case there are specific elements which require separate consideration:

- **ICU Extension GH** – The equipment for the Level 3 ICU unit is complex and expensive. The equipment strategy reflects this, and as part of this project a number of Level 3 ICU beds at the LGH will be closed and the associated equipment will be transferred with these beds to the GH. New equipment will be procured for the remaining beds, as detailed within the full equipment schedule. The new ICU beds at the GH will benefit from new medical pendants and full patient monitoring;
- **New Build Wards GH** – a detailed equipment schedule has been developed to support the FBC. From early discussions with key stakeholders it is apparent that a mixed economy of transfer and new equipment is required due to the change in the way these wards will function;
- **IR GH** – The IR room equipment replacement schedule has been reviewed with the Managed Equipment Service (MES) supplier to align with the development of the new IR rooms at GH. The proposed solution is to bring forward the replacement of one LGH room to the GH and to defer the replacement of another at the LGH. An additional ultrasound will be added to the contract, for provision at the GH. The finance case incorporates the financial consequences of the revised phasing;
- **General Surgery Wards LRI** – As the 3 wards at the LRI will be transferred (2 wards from LGH and 1 ward relocating within the LRI), the majority of equipment will be transferred. A few items of equipment may be required to ensure the area is clinically functional before occupation. This is detailed and costed in the equipment schedule.

The table below summarises the equipment costs :

Table 17 – Summary of costed equipment schedule

Description	IR	ICU	New Wards	LRI Wards	Total
Equipment Schedule – Main Scheme	£250,943	£460,842	£308,551	£93,146	£1,298,025
Equipment Schedule - Mansion House	£20,105	N/A	N/A	N/A	£20,105
Equipment Schedule - Snoezelen	£164,438	N/A	N/A	N/A	£164,438
Equipment Schedule - Other Costs	£15,000	N/A	N/A	N/A	£15,000
IT Equipment	£244,688	£46,099	£168,604	£66,246	£525,637
TOTAL	**£695,154**	**£506,941**	**£477,155**	**£159,392**	**£1,838,642**

1.6.3 Milestones for Implementation

It is anticipated that the milestones for implementation will be agreed for each scheme with the service provider.

These will be as follows:

Table 18 – Milestones for Implementation

Milestone Activity	ICU Extension GH	New Build Wards GH	IR GH	Ward Refurb LRI
Planning Approval	Submitted and received	Submitted and received	n/a	n/a
Tender procurement construction works (7 weeks process)	March 2018	n/a	March 2018	March 2018
GMP received from Construction Partner	n/a	February 2018	n/a	n/a
FBC submitted to NHSI	July 2018	July 2018	July 2018	July 2018
NHSI FBC Approval	September 2018	September 2018	September 2018	September 2018
Award enabling works contract (IR Only)	n/a	n/a	September 2018	n/a
Commencement of enabling works (IR Only)	n/a	n/a	October 2018	n/a
Completion of Enabling Works (IR Only)	n/a	n/a	December 2018	n/a
Operational commissioning and go live of enabling works	n/a	n/a	December 2018	n/a
Award Construction Contracts	September 2018	September 2018	September 2018	September 2018
Commencement of construction	October 2018	October 2018	January 2019	October 2018

Construction complete	July 2019	December 2019	September 20 19	July 2019
Operational commissioning	August 2019	January 2020	October 2019	August 2019
Transfer of service and go live	April 2020	April 2020	April 2020	April 2020

1.6.4 Personnel

The workforce and organisational development teams within UHL HR service will develop plans to proactively manage the Management of Change (MoC) which the transfer of services between sites will necessitate.

1.6.5 Design Quality Indicator Review

A mid-design DQI assessment has been undertaken for the three new wards at GH and the final two stages of the process will be undertaken for Stage 4 (Ready for Occupation) and Stage 5 (In Use)

The Achieving Excellence Design Evaluation Toolkit (Lite) (AEDET) has been undertaken for both the ICU extension and the Interventional Radiology developments. The output of the AEDET report has supported the wealth of evidence that demonstrates the positive impact that the environment van have on the patients recovery and the Trust is confident that the design of these facilities will offer a high quality environment which will have a positive impact on clinical outcomes.

1.6.6 Mandatory Government Construction Strategy

This project has been developed in line with the Government construction strategy. This includes:

- Early engagement with the supply chain to develop designs which are buildable, cost effective and which account for site constraints;
- Use of BIM level 2;
- Soft landings.

1.6.7 Government Consumerism Requirements

Our design solutions, wherever possible, comply with consumerism requirements. These include:

- Achieving high levels of privacy and dignity;
- Creating gender specific day spaces;
- Good use of natural light;
- Use of high quality materials to reduce life cycle costs;
- Provision of single sex wash facilities.

Table 78 in section 5.10 outlines at a high level the delivery of each scheme against the criteria; with further detail being provided in the Clinical Quality Case. It should be noted that there is greater opportunity for the delivery of these criteria in new build schemes as opposed to retained estate, due to spatial restraints.

1.6.8 Compliance with HBN/HTM

Specific details for each scheme in relation to compliance and derogations can be found in the Clinical Quality Case.

Whenever possible, the schemes will comply with Building Regulations, European Standards, British Standards and Codes of Practice, guidance on the design and construction of primary care and general medical facilities. Much of this is contained in a series of DH publications and guidance documents primarily written for the NHS, including but not limited to the following:

- Health Building Notes (HBNs);
- Health Technical Memoranda (HTMs).

For this project, key titles among many that will be relevant include:

- HBN 00-01 General Design Guidance for Health Care Buildings;
- HBN 00-09 Infection Control;
- HBN 04-02 Critical Care Units;
- HBN 06 Diagnostic Imaging;
- HTM 03-01 Ventilation, 2006.

The design development of this scheme has endeavoured to be delivered within these guidance documents however as the scheme is developed within a limited footprint and also involves some refurbishment, some recommendations made by the DH guidance will not be achievable – these will be noted as derogations. The Trust will systematically review and, where required, approve each derogation before it is implemented.

The derogation schedules are included in Appendix 26, 27 and 28.

1.6.9 BREEAM (Building Research Establishment Environmental Assessment Method)

The Trust appointed BREEAM assessor carried out pre-assessments on all four projects to determine the available target level of classification at OBC stage and our focus was to achieve BREEAM 2014 Very Good.

However, following review of the OBC, the NHSE confirmed the ratings should be Excellent for the GH Wards, Very Good for ICU Extension and Good for IR and the LRI Wards. Recognising this, the Trust is currently reviewing additional credits in order to achieve the Excellent rating for the GH Wards. We have carried out a pre-assessment of the LRI Wards Refurbishment which suggests that Good is achievable, however as the project is under £2m build costs and therefore does not require a breeam assessment, the Trust has taken a view that spending circa £15k to achieve the accreditation is not necessary. We still intend to achieve Very Good for the IR refurbishments, which is a betterment to the minimum requirement set by the DoH.

The projects are now in the interim design stage and following a ‘confirm and challenge’ exercise with the design / construction team, evidence is currently being collated by our BREEAM assessor in preparation for submission to the BRE for approval and subsequent issue of the Interim Design Certification.

Table 19 - BREEAM Interim Design Stage Assessment

Scheme	BREEAM Rating
ICU extension	Very Good
Interventional radiology	Very Good
Additional wards GH	Excellent

The BREEAM interim design report can be found at Appendix 63.

1.6.10 DH Energy and Sustainability

The Trust will endeavour to implement environmentally sustainable facilities across all of its activities and processes with a strong focus on clinically led service redesign. The Trust has a Sustainability Management Plan (see Appendix 64)

1.6.11 Life Cycle Costing: Procurement of Capital and Revenue Projects

This will be introduced at all levels of procurement, not only on major projects. Over the term of this plan, we intend that this will have become a crucial part of assessing the efficiency of equipment and buildings and the related cost/carbon impact. While the concept of life cycle costing is generally accepted as a common-sense approach to adopt, these measures will be integrated into the purchasing mechanisms for both capital and revenue items.

1.6.12 Resilience to Hazards

In planning the design for the construction projects associated with this FBC, consideration has been given of the advice in HBN 00-07 (Planning for a Resilient Healthcare Estate).

1.6.13 Travel Plan

These developments take account of requirements under the Trust approved ‘Green Travel Plan’ – see Appendix 64.

Prior to the ICU related services moving from LGH, the EMCHC will move to the LRI - this will substantially off-set any additional traffic and parking requirement at GH. In addition, the Trust has recently completed an expansion of the staff car parking facility and will continue to increase the provision as part of business as usual activity.

The GH site is well served by public transport, including the Hospital Hopper bus service which is available to staff and public. The Trust has received Planning Permission covering the Business Case activity and none of the Planning Conditions require additional parking or updates to the Travel Plan.

1.6.14 Planning Permission

ICU GH

The Trust received planning permission for the extension to the ICU on 3rd November 2015, against Application reference 20151522. This is attached as Appendix 66.

The following conditions were imposed, and the Trust has confidence these will be met:

- The development shall be begun within three years from the date of this permission (To comply with Section 91 of the Town and Country Planning Act 1990.);
- The external elevations shall be constructed in facing bricks to match those existing. (In the interests of visual amenity, and in accordance with Core Strategy policy CS3.);
- This consent shall relate to the plans received by the City Council as local planning authority with the planning application and amended plans received on 25th August 2015 unless otherwise submitted to and approved by the City Council as local planning authority. (For the avoidance of doubt).

The Trust will need to ensure a start on site by late November 2018, under this planning approval. If FBC approval is received by October 2018 this timescale can then be delivered; if this is not received an application for an extension to the planning permission will be made. In order to prevent any delays in delivering the construction works post approval, the Trust will resubmit the planning application in August 2018. Based on discussions held with the local planning office, it is not anticipated that this will be an issue.

New Wards GH

The Trust submitted a planning application on 10th November 2017. The Trust has since received planning permission for the new build wards on 12th January 2018, against Application Reference 20172366.

The following conditions were imposed, and the Trust will meet the requirements:

1. The development shall be begun within 3 years from the date of the permission
2. Before the development is begun, the materials to be used on all external elevations and roofs shall be submitted to and approved by the City Council as local planning authority.
3. The plant units shall not become operational until details of the attenuation to control noise from the plant proposed part of the scheme has been submitted to and approved in writing by the City Council.
4. The development shall be constructed in accordance with the outcomes of the BREEAM report in order to achieve the 'Very Good' rating demonstrated by that report (the Trust is now targeting achievement of BREEAM 'Excellent' for the new wards at GH)

1.6.15 Potential for Risk Transfer

The general principle is that risks should be managed by the most appropriate partner in the construction process ensuring that the responsibility is placed on the designated partner with the ability to control and insure against that risk.

An assessment of how the associated risks might be apportioned between the Trust, the professional design team and the construction company has been carried out for each aspect of the project.

Due to our mixed procurement strategy the degree of risk transfer will vary. For example, the new build wards will be procured through a design and build contract which places much more of the risk with the contractor. Where traditional tender is used the Trust will employ the design team and thus bear a greater proportion of the responsibility if problems occur. We are confident that risk is appropriately placed to achieve best value for money and appropriate management of risk.

1.6.16 Land Transactions

This ICU FBC is the first step in delivering the LLR STP Estates Strategy. The reconfiguration of clinical services described in our STP will release the majority of land at the LGH for housing, helping to align with recommendations arising from the Naylor Report. In addition the Trust has identified surplus land at the GH which can be disposed of during 2018. The UHL property team are working with Simon Corben, Director of NHS Estates Efficiency and Productivity Division, to achieve a best value disposal of this land.

This is detailed in greater detail in Appendix 68..

1.7 Financial Case

The Financial Case examines the affordability of the preferred options and sets out the financial implications for the Trust in terms of capital expenditure and cash flow, the income and expenditure account and borrowing. The purpose of this section is to set out the forecast financial implications of the preferred options as set out in the Economic Case and the proposed procurement method as described in the Commercial Case.

The financial position of this FBC shows how the Trust will mitigate the additional costs outlined within the case with savings; ensuring that the Trust is not financially disadvantaged as a result of this development. The recurrent additional cost will be offset by savings from reconfiguration when the LGH closes and its associated infrastructure costs removed. The scheme thereby delivering a surplus position overall.

1.7.1 Capital Costs

The capital costs of the preferred option total £30.79 million. The table below summarises the total costs.

Table 20 - Summary of Capital Costs

Total	Cost exc. VAT £	VAT £	Total £
Departmental Costs	17,720,815	3,243,914	20,964,728
On Costs	1,503,381	269,340	1,772,721
Works cost	19,224,196	3,513,253	22,737,449
Provisional Location Adjustment	0	0	0
Sub total	19,224,196	3,513,253	22,737,449
Fees	3,145,838	75,794	3,221,632
Non Works Cost	0	0	0
Equipment Cost	1,838,642	367,728	2,206,370
Planning Contingency	1,343,435	245,495	1,588,931
Optimism Bias	884,324	160,889	1,045,212
Total Outturn	**26,436,434**	**4,363,160**	**30,799,594**

The elemental cost plans for each of the schemes have been reviewed by the Trust's VAT advisers, Ernst Young (EY), who have advised on the level of VAT reclaimable for each scheme.

1.7.2 Revenue Costs

The financial position of this FBC shows a breakeven position until the Trust reconfigures on to two sites, when there is a further saving from the non-recurrent costs invested.

The projected impact on the Trust's income and expenditure (I&E) position is summarised in the table below:

Table 21 - Financial Position of the FBC

Impact on Income and Expenditure	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25 to 2079/80
	£'000	£'000	£'000	£'000	£'000	£'000	£'000
ICU	0	91	632	632	632	7	365
IR	0	174	634	634	634	294	16,438
Glenfield Beds	0	42	(207)	(207)	(207)	(657)	(36,769)
LRI Beds	0	56	(1,982)	(1,982)	(1,982)	(2,536)	(142,016)
Total Additional Operating Costs	**0**	**364**	**(924)**	**(924)**	**(924)**	**(2,893)**	**(161,983)**
Income			(342)	(342)	(342)	(342)	(19,152)
Consultants	0	1	(769)	(769)	(769)	(1,002)	(56,127)
Mid Grades	0	35	423	423	423	0	0
Nursing	0	79	(1,283)	(1,283)	(1,283)	(2,196)	(122,961)
Scientific and Technical	0	141	400	400	400	0	0
Facilities Management	0	26	610	610	610	610	34,185
Non Pay	0	81	37	37	37	37	2,072
Total Additional Operating Costs	**0**	**364**	**(924)**	**(924)**	**(924)**	**(2,893)**	**(161,983)**
Capital Charges							
Depreciation	0	0	421	421	421	421	23966
Interest	0	0	0	0	0	0	
Return on Assets	364	588	443	431	416	402	25,137
Total Capital Charges	**364**	**588**	**864**	**852**	**837**	**823**	**49,103**
Total Impact on I&E	**364**	**952**	**(60)**	**(72)**	**(87)**	**(2,070)**	**(112,880)**

Operational Costs can be analysed by cost areas in the following way:

Table 22 - Operational Costs Analysed by Cost Areas

Impact on Income and Expenditure	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25 to 2079/80
	£'000	£'000	£'000	£'000	£'000	
Income		(342)	(342)	(342)	(342)	(19,152)
Consultants	1	(769)	(769)	(769)	(1,002)	(56,127)
Mid Grades	35	423	423	423	0	0
Nursing	79	(1,283)	(1,283)	(1,283)	(2,196)	(122,961)

Impact on Income and Expenditure	2019/20 £'000	2020/21 £'000	2021/22 £'000	2022/23 £'000	2023/24 £'000	2024/25 to 2079/80
Scientific and Technical	141	400	400	400	0	0
Facilities Management	26	610	610	610	610	34,185
Non Pay	81	37	37	37	37	2,072
Total Additional Operating Costs	**364**	**(924)**	**(924)**	**(924)**	**(2,893)**	**(161,983)**

1.7.3 Workforce

The capital investment will provide a sustainable physical solution for the location of ICU beds and related services at the GH and LRI. The workforce costs relate to additional core training (CT) level, middle grade doctors and consultant costs required at the GH and the LRI, additional emergency theatre capacity and additional Interventional Radiology resource spread over three sites, as opposed to the current 2 site service for general surgery and transplant. There is also a requirement for additional staff to support an enhanced retrieval service to transfer any patient at LGH requiring Level 3 ICU support to either the LRI or GH.

The detailed assumptions are included in section 6.3.3, the table below details the changes in costs which have been assessed as being necessary to deliver the scheme.

Table 23 - Workforce Costs

	WTE	2018/19 £'000	2019/20 £'000	2020/21 £'000	2021/22 £'000	2022/23 £'000	2023/24 £'000
Glenfield Critical Care							
Consultants	1.00	0	10	117	117	117	0
Mid Grades	5.00	0	30	360	360	360	0
Nursing	4.00	0	16	188	188	188	40
Total Critical Care	**10.00**	**0**	**55**	**665**	**665**	**665**	**40**
Interventional Radiology							
Consultants	0.50	0	14	81	81	81	0
Scientific and Technical / Nursing	7.96	0	130	259	259	259	0
Total Interventional Radiology	**8.46**	**0**	**144**	**340**	**340**	**340**	**0**
Glenfield Wards							
Consultants	(2.35)	0	(24)	(340)	(340)	(340)	(357)
Nursing Theatres	10.13	0	24	(177)	(177)	(177)	(469)
Scientific and Technical	5.10	0	12	141	141	141	0
Total Glenfield Wards	**12.88**	**0**	**12**	**(376)**	**(376)**	**(376)**	**(826)**
LRI Wards							
Consultants	0.15	0	2	(610)	(610)	(610)	(628)
Core Training Doctors	1.00	0	5	63	63	63	0
Nursing	14.01	0	39	(1,310)	(1,310)	(1,310)	(1,783)
Total LRI Wards	**15.16**	**0**	**46**	**(1,857)**	**(1,857)**	**(1,857)**	**(2,411)**

1.7.4 Benefit delivery

The Trust has identified a number of benefits associated with the service moves in this Business Case as summarised below:

Table 24 - Additional Efficiencies

Benefit	£'000 per annum
HPB/Colo Rectal Reductions in ALOS (Non Cash releasing)	514
ECMO	302
Day Case Rates	100
Reduced cancellations due to lack of CCU bed	274
Additional Theatre efficiencies	2,312
Savings on Premium rates	250

These savings are delivered as function of the changes in clinical pathways delivered from the service moves, impacting on length of stay and cancelled operations in particular. The development allows for the creation of a consolidated day case centre at LGH as a step towards the Treatment Centre that will be built at the Glenfield Hospital as part of the Trust's reconfiguration plans. In order to release theatre capacity at both GH and LRI for the transfer of inpatient services from LGH, day case activity currently undertaken on these sites will be moved to LGH to create a consolidated day case unit. This provides the opportunity for the delivery of significant theatre efficiencies.

Work has been undertaken with the Trust by Four Eyes to establish the level of efficiency opportunity that could be obtained by improved use of theatre sessions.

The programme of work will be lead through the Theatre Programme Board within the Trust – which has dedicated Project Management support, transformation lead from within the theatres service and nominated clinical and managerial leads from each of the CMGs.

1.7.5 FM Costs

The Trust has reviewed the FM costs associated with each development in respect of addition services to the new areas and savings on areas from which services have moved.

Table 25 - FM Costs

Scheme	Additional Costs £'000	Savings £'000	Net Position £'000
ICU	309	0	309
Glenfield Wards	839	(794)	45
Interventional Radiology	418	(161)	257
LRI Wards	543	(543)	0
Total	**2,109**	**(1,499)**	**610**

1.7.6 Capital Related Revenue Costs

The other major cost element is the capital costs. The capital itself has been assumed to be funded through Public Dividend Capital (PDC). The revenue consequences represent the interest on the loan provided and depreciation. It has been assumed that refurbishment costs do not add to the value of the existing asset and depreciation has been assumed on the new build construction costs and equipment. An average asset life of 40 years has been assumed for buildings and 15 years for equipment The 15 years for equipment allows for the fact that some equipment will reflect the fabric of the building and include fixtures and fittings which will have a longer asset life than medical equipment.

The table below shows the basis of the capital charges calculation.

Table 26 - Capital Charge Impact of Scheme (ICSL)

Capital Charge Summary	2018/19	2019/20	2020/21	2021/22	2022/23
	£'000	£'000	£'000	£'000	£'000
Opening Net Book Value	0	20,822	12,592	12,531	12,110
Capital Expenditure	20,822	9,978	0	0	0
Impairments		(17,637)			
Depreciation	0	(210)	(421)	(421)	(421)
Closing Net Book Value	**20,822**	**12,952**	**12,531**	**12,110**	**11,689**
Depreciation	0	210	421	421	421
ROA	364	585	436	424	409
Total Capital Charges	**364**	**795**	**857**	**845**	**830**

1.7.7 Accounting Treatment

The capital expenditure on this scheme will be accounted for on the Trust's balance sheet, the scheme being treasury funded and of a capital nature. The Trust has assumed an impairment (discussed in 6.5) to reflect the nature of the expenditure and the likely valuation based on Modern Equivalent Asset (MEA) methodology..

The FB Forms show the costs are as at current prices allowing for any inflation in the construction period. The costs are shown this way rather than base the works costs at the current PUBSEC indices. These indices have not been updated for the NHS Capital costing purposes for a number of years and therefore are out of date. The costs defined reflect the tender prices submitted

1.7.8 Impact on Trust Income, Cash Flow and Balance Sheet

The table below sets out the impact on the Trust's cash flow.

Table 27 - Impact on the Trust's Cash Flow

Cash Flow	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24
	£'000	£'000	£'000	£'000	£'000	£'000
PDC	20,822	9,978				
Capital Expenditure	(20,822)	(9,978)				
ROA	(364)	(588)	(443)	(431)	(416)	(402)

Operational costs	0	(364)	924	924	924	2,893
Total	**(364)**	**(952)**	**481**	**493**	**508**	**2,491**
Cumulative Cashflow	**(364)**	**(1,366)**	**(835)**	**(342)**	**166**	**2,656**

An impairment of £17.6 million has been assumed relating to the cost of refurbishment (which is unlikely to add to value) and the costs over and above construction costs for the new build elements. This figure will be accounted for in the Trust's Income and Expenditure Account but will not impact on the Trust's financial performance as it is treated as an adjustment to the reported financial performance of the Trust.

1.7.9 Long Term Financial Model (LTFM)

The current five year LTFM which reflects the detail of the Financial Strategy approved by the Trust Board in November 2017 is constructed in a way which aggregates this development as part of the general site rationalisation service development.

The assumptions regarding this service development are consistent with the overall assumptions in relation to the site reconfiguration.

As shown above, the case identifies additional operating costs of circa £364k in 2019/20, before a reduction in operating costs in the following year.

1.8 Management Case

The management case details the project management and governance arrangements that UHL has put in place to support the delivery of this project. It sets out the following arrangements:

- Project management;
- Project plan;
- Change management;
- Business continuity;
- Benefits realisation;
- Risk management.

The project will be managed using PRINCE2 compliant methodology and project management tools such as Gantt charting and critical path analysis.

1.8.1 Premises Assurance Model

The NHS Premises Assurance Model (PAM) is a management tool that provides NHS organisations with a way of assessing how safely and efficiently they run their estate and facilities services.

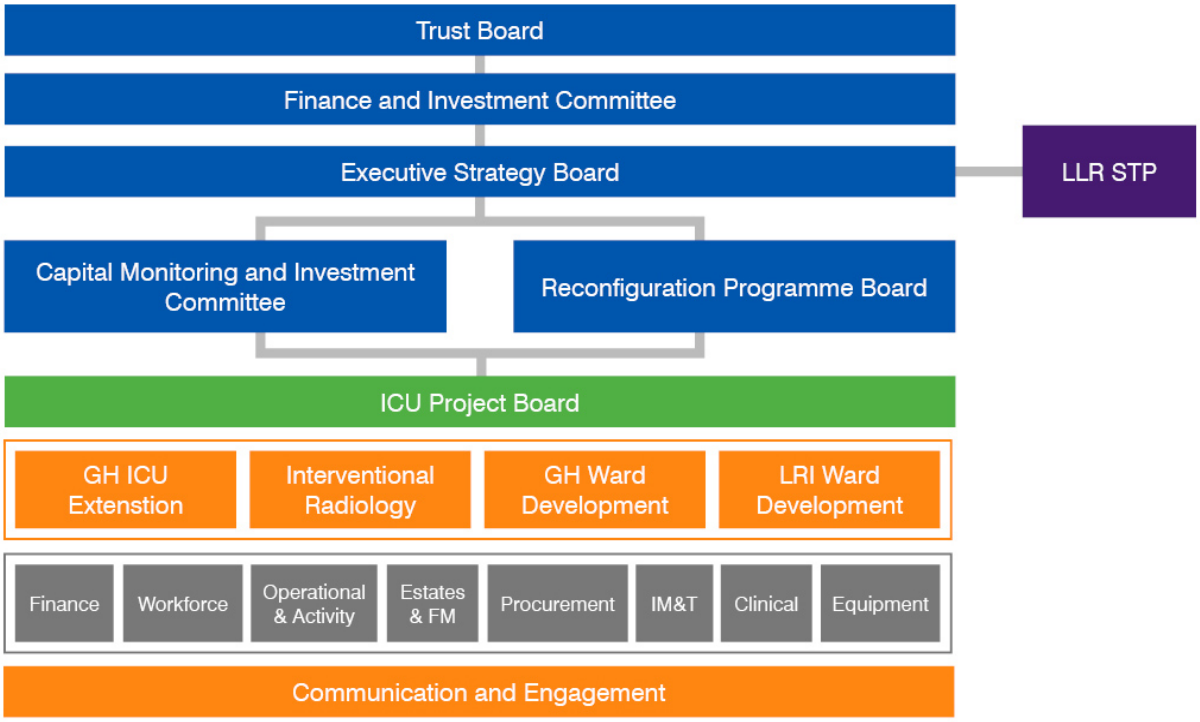
The Trust has completed a PAM for this financial year, which was approved at Trust Board on 28th July 2017. This is attached at Appendix 74.

1.8.2 Project Management Arrangements

There is a robust governance structure established for the management of the project within the Trust, which also links to the LLR Sustainability and Transformation Partnership (STP), which is outlined in Figure 7 below.

Membership of the Project Board incorporates the key work-stream areas to deliver the project together with Commissioner and patient representation. The Deputy Medical Director and Integrated Services Programme Lead are joint Senior Responsible Officers (SRO). Section 7.2.1 includes detail on the governance structure, formal lines of reporting and the Project Board members; roles and responsibilities.

Figure 7 - Trust Capital Governance Framework



1.8.3 Project Plan

The high level programme to deliver the project summarises the key milestones for delivery, which are included in the table below. A master programme can be found at Appendix 75.

Table 28 - Project Programme

Milestone Activity	ICU Extension GH	New Build Wards GH	IR GH	Ward Refurb LRI
Planning Approval	Submitted and received	Submitted and received	n/a	n/a
Tender procurement construction works (7 weeks process)	March 2018	n/a	March 2018	March 2018
GMP received from Construction Partner	n/a	February 2018	n/a	n/a
FBC submitted to NHSI	July 2018	July 2018	July 2018	July 2018
NHSI FBC Approval	September 2018	September 2018	September 2018	September 2018
Award enabling works contract (IR Only)	n/a	n/a	September 2018	n/a

Commencement of enabling works (IR Only)	n/a	n/a	October 2018	n/a
Completion of Enabling Works (IR Only)	n/a	n/a	December 2018	n/a
Operational commissioning and go live of enabling works	n/a	n/a	December 20 18	n/a
Award Construction Contracts	September 2018	September 2018	September 2018	September 2018
Commencement of construction	October 2018	October 2018	January 2019	October 2018
Construction complete	July 2019	December 2019	September 2 019	July 2019
Operational commissioning	August 2019	January 2020	October 2019	August 2019
Transfer of service and go live	April 2020	April 2020	April 2020	April 2020

1.8.4 Use of Special Advisers

Section 7.4 identifies the special advisers who have been used in a timely and cost-effective manner in accordance with HM Treasury Guidance.

1.8.5 Outline Arrangements for Change and Contract Management

Change management associated with the project will be managed through the Project Board, under the chairmanship of the Senior Responsible Owner (SRO). Day to day change management issues will be discussed at the project workstream level and any resultant contract and/or cost changes will need to be approved by the Project Board.

The Trust has introduced a new Change Management process – see Appendix 47 – to promote consistency and deter changes outside of the governance structure of each project. This will impact upon all business cases where there is a need to:

- Change assumptions in an approved business case;
- Change costs impacting the capital plan;
- Change the reconfiguration delivery programme;
- Change scope which impacts upon another project.

This process will require any changes detailed above to be authorised by the Project Board, followed by the Reconfiguration Board.

From a workforce perspective, UHL has a Management of Change Policy (Dec 2015) that provides the framework for managing organisational or service changes which impact on established roles and/or staff numbers. The policy has two main aims which are:-

- To help ensure that the Trust undertakes the management of change in a manner which is compliant with its statutory and contractual obligations;
- To provide transparency in relation to the processes for managing change to help ensure that the staff affected are dealt with equally and fairly.

This policy is available on the UHL insight page and is regularly reviewed in partnership with staff side colleagues and is maintained by the Human Resources team at UHL.

1.8.6 Outline Arrangements for Benefits Realisation

The delivery of benefits will be managed through the Project Board.

The Benefits Realisation Plan is provided in Appendix 9 and includes detailed plans for each benefit covering the following:

- A description of the benefit;
- The baseline and target measure of the benefit;
- A summary of how the benefit will be achieved;
- Details of the timescale over which the benefit will be achieved;
- Identification of the lead directors responsible for delivering benefits.

Some of the key benefits to be realised are:

- Reduced length of stay;
- Reduced elective cancellations due to lack of ICU bed;
- Improved PLACE scores;
- Improved theatre efficiency
- Improved infection prevention.

1.8.7 Outline Arrangements for Risk Management

The Project Board has undertaken a risk assessment to identify the major areas of risk and highlighted the controls currently in place, or to be put in place, to mitigate the risks.

The Trust monitors the risks that may affect the delivery of the project. Project risks are managed through the risk register (Appendix 12). This is a live document and as such will be amended as the project progresses. The project workstreams will monitor the risk and actions and will collectively review alterations to ensure a consistent approach. The risk register is also reviewed periodically at the Project Board, with the highest rated risks escalated to the Reconfiguration Board.

1.8.8 Outline Arrangements for Post Project Evaluation

The arrangements for Post Project Evaluation have been established in accordance with best practice. The Trust is committed to ensuring that a thorough and robust Post Project Evaluation is undertaken at key stages in the process to ensure positive lessons can be learned from the project that can inform processes and future projects undertaken.

The diagram below outlines the framework and timescales that will be adopted in the undertaking of PPE associated with this project, the more detailed Evaluation Plan is included at Appendix 79.

Figure 8 - Framework for delivering PPE

Post Project Evaluation: Framework for Delivery								
NHS Standard project & business case planning		FBC	Construction Phase	Post Project Evaluation Stage				
					← PER →			
				POE		PIR		
				3 month	6 month	1 year	2 year	5 year
Post Project Evaluation		Review previous PPE for lessons learned						
Stage 1: Evaluation Plan		✓						
Stage 2: Project Delivery				✓				
Stage 3: Initial PPE						✓		
Stage 4: Follow up PPE							✓	✓
A	NHS Improvement - Project Completion Report				✓			
B	Design Quality Indicator appraisal (DQI for Health)	Stage 3 Detailed design		Stage 4 Ready for Occupation		Stage 5 In Use		
C	Building Research Establishment Environmental Assessment Model (BREEAM)	Interim Certificate		Post Construction Assessment		Final Cert		
D	Project Gateway Review (Internal or External)	Gateway 3 Investment Decision	Gateway 4 Readiness for service	Gateway 5 Benefits Evaluation				
E	Building Information Modelling (BIM)	Data Exchange Construction Information Model	Data Exchange Operation & Maintenance Information Model	Data Exchange Post Occupation Validation Information & on-going operation & management				
F	NEC 3 Construction Contract (where applicable)			Post construction assessment				
G	Government Soft Landings (GSL) Environmental, Financial, Performance, Functionality & Effectiveness	GSL 4.0 Design	GSL 5.0 Build & Construction	GSL 6.0 Handover	GSL 7.0 POE.1	GSL 8.0 POE.2	GSL 9.0 POE.3	

1.8.9 Gateway Review Arrangements

All significant public sector projects are required to complete the Office of Government Commerce (OGC) process of detailed peer review and assessment at key stages or gateways.

The requirement to register a project for formal review is based upon an initial Risk Potential Assessment (RPA). Completion of an RPA results in a project being classified as Low Risk (scoring 30 points or less), Medium Risk (31 – 40 points) or High Risk (41 points or more). The RPA for this project is attached at Appendix 48; and demonstrates a score of 38 (Medium Risk) which means that a formal Gateway review is discretionary. However the Trust believes that the undertaking of the Gateway process is good practice for large capital schemes and will plan to undertake Gateways 4 and 5, either by an internal team or by external procurement.

1.8.10 Conclusion

This FBC is for the first stage reconfiguration of elements of the ICU currently located at LGH of UHL.

The need to move Level 3 ICU away from LGH was first identified in 2014 owing to the increasing risk of clinical sustainability of the service at that site, the risk continues to be managed through a series of mitigations, but remains a key risk for the Trust.

This FBC will support the delivery of a sustainable Level 3 ICU service across the Trust, and provides the next stage delivery of the Trust's long term Reconfiguration Programme to consolidate acute services on two sites. This consolidation will eliminate the duplication, sometimes triplication of services, which is an inefficient model of service delivery. Clinical resources can currently be spread too thinly making services operationally unstable.

The case outlines how the additional revenue costs as a function of these services moves will be mitigated to ensure that the Trust is not financially disadvantaged as a result of this development.

2 The Strategic Case

2.1 Structure and Content of the Document

The Full Business Case (FBC) has been prepared using the agreed standards and format for business cases, as set out in Department of Health guidance and HM Treasury Green Book.

The approved format is the Six Case Model, which comprises the following key components:

- The strategic case section. This sets out 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 most economically advantageous offer, which best meets the existing and future needs of the service and optimises value for money (VFM);
- The quality case section. This demonstrates that the organisation has considered the investment from a clinical quality, workforce, patient safety and patient experience perspective, and has engaged with key stakeholders for the benefit of patients, the public and the wider health community;
- The commercial case section. This sets out the content of the proposed procurement method;
- The financial case section. This confirms funding arrangements, affordability and the effect on the balance sheet of the organisation;
- The management case section. This details the plans for the successful delivery of the scheme to cost, time and quality.

2.2 Introduction

The Leicester, Leicestershire and Rutland (LLR) Sustainability and Transformation Partnership (STP) sets out the actions that are needed across the health and care system over the next five years in order to improve health outcomes for patients and ensure our services are safe and high quality, within the financial resources available. The STP identifies the essential need for University Hospitals of Leicester NHS Trust (hereafter referred to as “UHL” or “the Trust”) to consolidate onto two acute sites to deliver its clinical reconfiguration strategy, whilst enabling the disposal of the majority of the Leicester General Hospital (LGH) site which is directly linked to returning the Trust to financial balance.

The capital requirement to enable this consolidation is £366.7m. This formed the basis of UHL’s bid for capital from the 2017 Autumn Budget (Wave 2), which is now being resubmitted, and forms the basis of the bid for capital from Wave 4. The submission for Wave 4 capital is due to be made on due on 16th July 2018. The total capital requirement excludes the £30.8m which has been supported from the 2017 Spring Budget (Appendix 1 and 2) to allow Level 3 Intensive Care and all dependent services to be moved away from LGH, as detailed in this Business Case.

If the Trust is not successful in its bid for capital of £366.7 million, it will continue on the journey to move to two acute sites. The Trust will look to secure alternative resources and procurement routes as appropriate to deliver the clinical strategy and ensure the health economy has a

financially sustainable future; but it is recognised that this would need to be completed over a longer period of time.

This Full Business Case (FBC) supports the requirement of £30.8m for the first stage reconfiguration of elements of the Intensive Care Unit (ICU) currently located at LGH.

It proposes to transfer current Level 3 adult critical care activity, and associated dependent services, to the Leicester Royal Infirmary (LRI) and the Glenfield Hospital (GH), whilst retaining a reduced Level 2 service only at LGH.

This FBC relates to the following schemes required to deliver this:

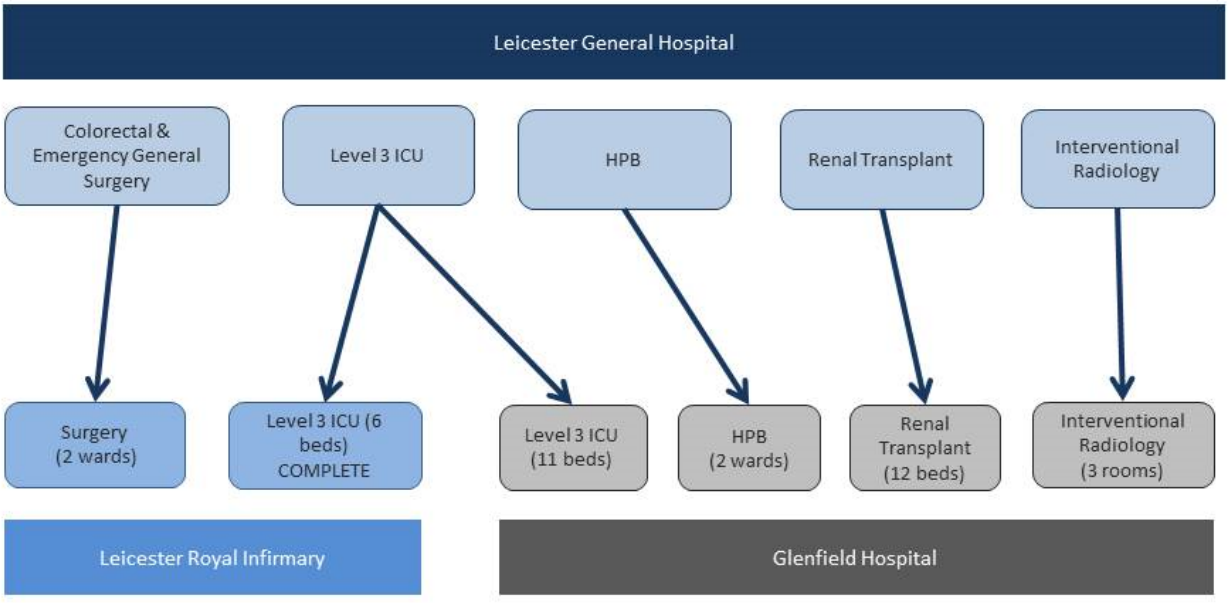
- The expansion of ICU at GH by 11 bed spaces (a net increase of 3 physical ICU beds across the three sites following the reduction at LGH);
- The refurbishment of space at GH for the development of interventional radiology facilities;
- The development of new wards at GH to support the transfer of Hepato Pancreato Biliary (HPB) and transplant services from LGH;
- The refurbishment of ward space at LRI to support the transfer of colorectal and emergency general surgery services from LGH.

The ICU at LRI was expanded by six beds in 2015 into the theatre recovery area from the Trust's internal Capital Resource Limit (CRL) as the first step in the programme to consolidate services; and is therefore excluded from this OBC.

This case represents the next stage within the Trust's overall Reconfiguration Programme and Estates Strategy. The move of vascular services from LRI to GH in May 2017 released clinical space at LRI to allow subsequent service moves to take place.

The scheme is a key enabler for the long term plan, but provides the solution to the risks identified in the Trust's ability to provide Level 3 ICU from all three acute sites on an on-going basis.

Figure 9 - Key service relocations



2.2.1 Commissioner Support from NHS England (NHSE) and Leicester, Leicestershire and Rutland (LLR) Clinical Commissioning Groups (CCG's)

This FBC is founded on the transfer of existing activity levels from the impacted services (ICU, HPB, transplant, colorectal, emergency general surgery) to their new sites. No assumption has been made in relation to any future expansion or growth of these services.

The long term reconfiguration solution captures assumptions in relation to the impact of demographic changes across all services and delivers the modelled, required acute bed numbers outlined in the STP. However, in the longer term reconfiguration solution, UHL will respond to the assumptions in relation to demographic changes captured in the STP. These will be incorporated in future business cases. The schemes have been validated with reference to the bed numbers upon which the revised Estates Strategy and Development Control Plan (DCP) have been based (Appendix 3 and 4)

This FBC is an integral part of the LLR STP which is supported by all health partners within LLR. Commissioner support for the OBC has been received from both NHSE and LLR CCGs, and is attached at Appendix 5 and 6. The FBC will be taken through commissioners' formal governance processes, for approval, during July 2018. Support provided for the OBC confirmed commissioners understanding that there is no planned increase in activity associated with this case or financial implications outside or normal commissioning arrangements.

The commissioners' letters of support will reflect NHSE guidance and incorporate the following:

- Confirmation of public consultation requirements;
- Commissioner view of how the proposed solution assists the health system in managing present and future issues;
- Commissioner and provider agreement of activity and finance levels which underlie the case;
- Confirmation that commissioners and providers are making assumptions on "reasonable" levels of growth in allocations / funding;
- Confirmation that providers have reviewed the provider savings assumed within the business case and believe that here is no misalignment with these and activity/income commissioning plans;
- Agreement of any additional funding which will be provided by commissioners to support the case or any savings due to them from it.

2.3 Organisation Overview

UHL is one of the biggest and busiest NHS Trusts in the country, serving the one million residents of Leicester, Leicestershire and Rutland – and increasingly specialist services to a much wider area. The Trust provides nationally and internationally-renowned specialist treatment and services in cardio-respiratory diseases, extracorporeal membrane oxygenation (ECMO), cancer, vascular and renal disorders to reach a further two to three million patients from the rest of the country.

UHL provides services from three sites the Leicester General (LGH), Glenfield Hospital (GH) and the Leicester Royal Infirmary (LRI) hospitals. The Trust works closely with partners at the University of Leicester and De Montfort University providing world-class teaching to nurture and

develop the next generation of doctors, nurses and other healthcare professionals, many of whom go on to spend their working lives with the Trust.

UHL continues to work with many different organisations throughout the world to push the boundaries of research and develop new surgical procedures for the benefit of our patients; with around 1,000 clinical trials taking place every year. The Trust is now home to a National Institute for Health Research (NIHR) Biomedical Research Centre which supports key research including lifestyle, diabetes, and cardio-respiratory diseases, and for the first time the Trust has been successfully designated as an NIHR Clinical Research Facility. UHL is extremely proud to have an Experimental Cancer Medicine Centre and the Hope Unit is an instrumental factor in delivering clinical trials of new cancer treatments, and is generously supported by the locally-based charity Hope Against Cancer.

The Trust is providing access to cutting edge genetic medicine for our patients by participating in the 100,000 Genomes Project. All of this means that thousands of UHL patients are amongst the first to try the latest medicines and techniques.

The heart centre at GH continues to lead the way in developing new and innovative research and techniques, such as Trans-Catheter Aortic Valve Insertion (TAVI) and the use of the sutureless valve in heart surgery. It has also become one of the world's busiest ECMO centres and the only hospital in the UK to provide mobile ECMO therapy for both adults and children.

UHL has one of the best vascular services nationally, with more patients surviving longer following an aneurysm repair. The move of the vascular service from the LRI to GH provided new state of the art facilities including a hybrid theatre, enabling the development of joint working practices with cardiac surgery and cardiology to treat patients with complex cardiovascular disease.

UHL is also proud to continue to have some of the lowest rates of hospital-acquired infections, such as C.difficile and Meticillin-Resistant Staphylococcus Aureus (MRSA), in the country.

2.3.1 Clinical Management

Clinical Management within the Trust is provided by seven Clinical Management Groups (CMGs). All seven CMGs are affected by the proposed development outlined within this FBC, they are:

- Intensive Care, Anaesthesia, Pain and Sleep (ITAPs);
- Clinical Support and Imaging (CSI);
- Emergency and Specialist Medicine (ESM);
- Musculoskeletal and Specialist Surgery (MSS);
- Renal, Respiratory, Cardiac and Vascular (RRCV);
- Women's and Children's (W&C);
- Cancer, Haematology, Urology, Gastroenterology and General Surgery (CHUGGs).

Each CMG is led by a triumvirate of Clinical Director, Head of Operations and Head of Nursing; with a structure below it of services led by specialty Heads of Service, General Managers and Matrons.

Our annual operating revenue in 2016/17 was £924.3m and in 2017/18 £963.5m. In 2016/17 UHL over achieved against its Cost Improvement Programme (CIP) of £35.0m through the following:

- Treating more patients via more productive theatres, outpatients and beds;
- Reducing the price paid for goods and services;
- Removing waste and eliminating unnecessary variation in our patients' pathways.

A CIP of £39.3m was delivered by the Trust in 2017/18.

Part A: the Case for Change

2.4 Clinical Drivers for Change

There is a widely recognised and well-articulated need to consolidate acute services in Leicester, which are currently spread across three sites. The current configuration is suboptimal in clinical, performance and financial terms. This is exemplified by the fact that ICU (and services that depend on ICU) are located on all three sites. The first step in the Reconfiguration Programme was delivered in May 2017 with the transfer of vascular services from LRI to GH; this entailed the development of a new hybrid theatre and establishment of a comprehensive integrated vascular, cardiology and cardiac surgery service providing the best possible care to our patients with cardiovascular disease. The scheme detailed in this OBC is the next key building block towards acute site consolidation and will bring significant clinical benefits for patients.

The Trust's five-year clinical strategy includes the need to deliver critical care services through the creation of two 'super ICUs' by 2022/23 located at LRI and GH, ensuring that UHL has the right number of Augmented and Critical Care Beds in the right locations. This will enable UHL to retain Intensive Care training accreditation, recruit and train staff, improve efficiency and sustainability of the services as well as respond to changing demands for the service.

UHL currently provides an adult ICU service on each of its three sites (LGH, LRI and GH). Triplication of services creates inefficiency and an unsustainable clinical position; the biggest risk being the lack of a suitably qualified workforce to maintain safe Level 3 ICU services across the three sites.

The continuing operational challenges faced by the provision of Level 3 ICU services at LGH include, fall into two key areas:

2.4.1 Workforce

- The reduced opportunities for critical care staff to gain adequate experience in providing care for the most ill patients has been affected by a reduction of Level 3 patients cared for at LGH;
- Changes in the way medical training for intensive care staff is structured has led to the removal of training designation status at the LGH unit and therefore the ability to place trainees at LGH;
- The retirement of experienced consultant grade staff from LGH;
- Recruitment to substantive posts at LGH has failed repeatedly as posts have become unattractive owing to the loss of training designation and the reduction in patient acuity;
- A national shortage of experienced critical care nursing and medical staff compounding recruitment problems.

A number of mitigations have been put in place by the ITAPS CMG to ensure the continued safe service provision at LGH during the development of this project. These include:

- Ensuring there is sufficient non-trainee middle grade medical cover in place to support safe provision of the Level 3 service;
- Changes in Consultant Anaesthetist job description;
- Appointment of internal locums to cover consultant vacancies;
- Consultants acting down on shifts to cover junior doctor rota deficits;
- Successful on-going recruitment process in a challenging market;
- The use of bank or agency staff for junior medical or nurse vacancies;
- On-going dialogue and engagement with clinicians over long-term strategic plans for intensive care;
- Cross CMG working to develop recruitment strategies for the future.

It must be noted that whilst these mitigations help to ensure the continued delivery of a safe service at LGH, the service remains unsustainable in the long term due to the uncertainty regarding the ability to deliver the mitigations beyond the lifetime of the project.

Once the move to 2 critical care units takes place the workforce experience for all staff will be enhanced. For Medical staff the move instantly creates a better of balance of senior staff who are no longer spread over 3 sites and which in turn gives trainees better access to their educators, a much better opportunity to experience enhanced supervision and therefore much more likely to develop their competencies and meet their educational needs. This is more attractive option for both Consultant, Middle Grade and Junior Doctors and will help support attraction and retention and enhance the experience of the trainees, who in turn are much more likely to want to come back and work at UHL as they progress through their career.

The same applies to Nursing, Allied Health Professionals and all of the staff groups working across critical care and surgical specialties. The consolidation of services and the better streaming of patients help to deliver a better workforce experience and allow for further development of the non-trainee medical grades and developing the role of advanced care practitioners in line with the existing education and training strategies. The UHL People Strategy and the UHL Workforce Strategy are currently being refreshed and the Medical Workforce Strategy reports to the UHL Executive Workforce Board on a regular basis on the aforementioned schemes. As a teaching hospital these strategies are intrinsically linked to the education needs for all professions and further detail can be found in section 4.7.2 and in the workforce plan which forms an appendix to this document.

2.4.2 Capacity and Activity

There is also a capacity gap in ICU provision across UHL, resulting in cancellations in elective procedures (see Table 32) reliant on Level 2 and 3 care. The future strategy for ICU units at LRI and GH in the future will be to consolidate care for Level 2 and 3 patients into the ‘super ICUs’. Aligned with this provision will be a robust cohort of beds for Level 1 care within specialties throughout the Trust, as well as critical care outreach services delivering a 24/7 service.

The first step in this journey is the move of Level 3 ICU and associated services dependent on Level 3 ICU from the LGH to the LRI and GH which will improve our ability to accommodate demand, reduce elective cancellations by separating emergency from elective work through the

move of day case activity from LRI and GH to LGH, and improve cancer performance in line with national drivers to achieve 62 day and 31 day metrics. Currently UHL consistently struggles to deliver 31 days in several tumour site groups in part due to the lack of ITU/HDU capacity.

This scheme allows for:

- A transfer of commissioned Level 3 and associated activity from LGH to GH. The relocation of services to this site allows for efficiency of flow through a larger physical footprint;
- The move of Level 3 and associated activity to LRI, creating a single site surgical emergency take, which delivers a more efficient patient pathway.

Once the developments identified above have been delivered, it will be possible to move forward incrementally, as funds permit, ultimately achieving the objective of two “ICU-dependent” acute sites in Leicester. This is the key to the Trust’s future clinical and financial sustainability and the achievement of key performance targets.

2.5 Background

The need to move Level 3 ICU away from LGH was first identified in 2014 owing to the increasing risk of clinical sustainability of the service as identified in section 2.4. At this stage, the project was split into discrete business cases, which were approved internally by the Trust in 2015.

This approach was supported at the time by the National Trust Development Authority (NTDA). Owing to the national lack of capital for NHS developments, external capital for this project has not been available to date.

UHL was then successful in its bid for funds for the move of Level 3 ICU away from LGH from the 2017 Spring Budget. Discussions with NHS Improvement (NHSI) and NHS England (NHSE) concluded that UHL needed to submit a new OBC and FBC for the whole £30.8m value of the scheme. The OBC was approved by NHSI Resource Committee on 17th April and by DH on xxth xxxx.

2.5.1 Timeline of Project Development

This FBC therefore reflects a “refresh” of the Full Business Cases approved by the Trust’s Board in December 2015; now updated with 2016/17 outturn as the baseline activity and financial year. The Models of care and Clinical Operational Policies have been reviewed and refreshed with clinical leads.

This FBC reflects a variant solution, compared to the approved FBCs, for the delivery of the beds required for HPB and Transplant at GH; the FBCs written in 2015 assumed the vacation of wards at GH to accommodate HPB services and the conversion of office accommodation to create a ward for Transplant. In 2015, capacity was expected to be created on the basis of beds being vacated due to a left shift of activity with the development of a programme called ‘Intensive Care Support’ which enhances the level of care available to patients in their own homes following an earlier discharge. Whilst this has improved quality of care for patients in their own homes, it has not resulted in a release of acute capacity. This element of the scheme for HPB and Transplant is now a new build ward solution. The new Transplant solution provides enhanced clinical adjacencies and better value for money compared to the original planned solution.

The timeline of decision making in relation to the development of the proposed reconfiguration is detailed in the table below:

Table 29 - Timeline of Decision Making

Date	Milestone
Nov 2014	**Confirmation of the Level of risk of sustainability of Level 3 ICU service at LGH.** Whilst there was a good quality and safe Level 3 ICU service at LGH, the Department of Critical Care Medicine (DCCM) had experienced medical staff recruitment and retention issues across all grades, which made it unviable to maintain the current level of critical care service in the future. This was been driven by: ➢ Reduced dependency required within the critical care patient population at LGH due to previous service moves at UHL. This restricted opportunities for critical care staff to maintain experience in providing care for the most critically ill patients and was a threat to the safety of the service in the near future; ➢ Due to the acuity of patients, the middle grade rota at the unit at LGH could no longer be filled with suitable 'trainee' posts. The rota was therefore being filled by higher staff grades at an increased cost; ➢ Recruitment to substantive consultant intensivist posts at LGH had been attempted on multiple occasions but had failed, largely due to the loss of training designation and the reduction in patient acuity. A national shortage of experienced critical care nursing and medical staff (coupled with retirement of several existing experienced consultant staff) compounded recruitment problems. Initial concern reflected that, if the Level 3 ICU beds were not moved, intensive care would be forced to stop at LGH past July 2016. This would have had the immediate impact of UHL's ability to undertake Level 3 ICU dependant surgery at LGH and as such, surgery would have been stopped. The impact would be the need for patients requiring such procedures to travel out of county to other providers. This would have had an adverse impact on UHL's quality of care for patients, reputation and revenue.
Feb 2015	An option appraisal review was held in February 2015 involving representatives from all specialties and support services affected by the ICU Reconfiguration. The purpose of this meeting was to agree the immediate configuration of services across the three sites which would enable Level 3 adult critical care to re-locate from LGH by December 2015. A set of over-arching principles were agreed at the meeting which will govern the remainder of the project: ➢ Any part of a service that is dependent on Level 3 adult critical care must be re-located to LRI or GH; ➢ If the above results in parts of a services remaining that are so small as to be destabilised then these parts must also move or have a robust interim solution; ➢ Any services at LRI and GH that do not require Level 3 adult critical care and can move to LGH to free up the estate footprint must consider moving.
Mar 2015	A presentation was made to the LLR Overview and Scrutiny Committees regarding the future of intensive care at UHL; support was given to proceed with the plan to consolidate Level 3 ICU beds at LRI and GH.
Jul 2015	The move of vascular services from LRI to GH was identified as a key enabler for the Intensive Care project as it vacated space at LRI. The vascular move, originally planned for **April 2016** created an interim cost pressure, for two months, particularly in relation to ITU and anaesthetic medical staffing rotas, until such point as Renal / HPB Services transfer to GH. At this stage the implementation of the Interim ICU project was assumed to take place in **July 2016**. The Trust Board then approved the Vascular Business Cases, supporting the developments from the Trust's CRL: ➢ Hybrid theatre; ➢ Vascular ward;

Date	Milestone
	➢ Vascular Studies Unit (VSU) and angiography. The aim of the vascular project was to create a cutting edge and comprehensive centre for cardio-vascular medicine and research on a single site at GH to transform the scope and quality of vascular service for both patients and staff; and support the Trust's ambition to be recognised as a Level One regional centre for complex endovascular services.
Aug 2015	The Trust Board approved the LRI ICU Expansion in support of the move of Level 3 ICU away from LGH, at a capital cost of £717k funded from Trust CRL. This case delivered the short term solutions for LRI, in converting vacated recovery space to a six bedded ICU facility. This provided an expansion of capacity at LRI to accommodate service moves from LGH. It also provided the solution at GH to mitigate the reduction in ICU beds whilst the interim ICU scheme construction took place through the conversion of six beds on Ward 34 to ICU bed spaces.
Aug 2015	The vascular construction commenced.
Dec 2015	The LRI interim ICU expansion completed, creating a 6 bed annex.
Dec 2015	The Trust Board approved the interim ICU Full Business Cases: ➢ ICU expansion at GH; ➢ Imaging enabling works at GH; ➢ LRI Beds – refurbishment of Wards 7 and 21; ➢ GH Beds – refurbishment of Wards 28 and 29 when vacated by efficiencies due to reduced length of stay and transfer of pathways to community settings. These business cases supported the transfer of Level 3 ICU and associated clinical services from LGH to GH and LRI. Hepatobiliary (HPB) and transplant to move to GH and colorectal and emergency general surgery to LRI. Planned Level 3 ICU activity associated with remaining services at LGH (orthopaedics, gynaecology, urology) would also be transferred to either LRI or GH and a retrieval service would be established for unplanned Level 3 patients at LGH.
Dec 2015	Access to capital resource was limited for the Trust with a number of competing priorities leading to a slowdown of vascular construction.
Apr 2016	Vascular construction recommenced funded from Trust CRL. Plans for the Interim ICU project were put on hold, due to lack of capital availability and inability to fund this from Trust CRL.
Aug 2016	The additional revenue consequences of the separation of vascular and ICU development, beyond the original 2 month period, outlined in both the vascular and interim ICU Business Cases were agreed by the Executive team.
Aug 2016	It was recognised, linked to the development of the STP, that the GH bed solution, of vacating Wards 28 and 29, to support the move of HPB from LGH was not deliverable. Plans were developed for the solution to be via the new build at GH of 2 wards.
Mar 2017	As part of the Spring Budget 2017 capital bid, a review of the solutions confirmed that Transplant should be delivered as an additional new build ward.
Apr 2017	A bid for STP capital funding was made from the Spring Budget 2017 for the Interim ICU scheme, with new build ward solution for GH included.
May 2017	The vascular service moved from LRI to GH.
Jul 2017	National support for £30.8m bid was confirmed by the Department of Health in their letter of 19th July 2017, as found at Appendix 1.
Aug 2017	A letter identifying how the capital would be accessed was received from NHS Improvement on 25th August, and can be found at Appendix 2. It was agreed that a single OBC, followed by FBC would be submitted in order to access this funding.
November 2017	OBC approved by UHL Trust and CCG Boards

Date	Milestone
April 2018	Support given by Rutland Adult Health and Scrutiny Panel to proceed without consultation based on safety and welfare reasons
April 2018	OBC approval by NHSI Resource Committee, subject to conditions being met in the FBC

2.6 Investment Objectives

Whilst providing a safe service at present, the LGH Department of Critical Care Medicine (DCCM) has experienced medical staff recruitment and retention issues across all grades, which make it unviable to maintain the current level of critical care service provision at LGH in the future.

The key investment objectives for this project, as outlined in the original Full Business Cases, are as follows:

- To provide a solution that maximises clinical quality and safety;
- To deliver, at the earliest possible opportunity, a sustainable Level 3 ICU service across the Trust;
- To deliver an ICU solution that facilitates recruitment and enables the delivery of high levels of teaching and training;
- To ensure that the quality of the patient environment and experience remains a priority;
- To provide a solution which fits with future Trust Reconfiguration Programme and is consistent with the Development Control Plan (DCP);
- To deliver a solution that ensures accessibility to services and maximises clinical adjacencies and efficiency.

Part B: The Strategic Context

2.7 Business Strategies

2.7.1 National Strategies, Programmes and Policies

Key national strategies, programmes and policies relevant to this project are summarised below:

Table 30 - National Strategies, Programmes and Policies

Component	Aims
Department of Health (DH) report, "Comprehensive Critical Care: a Review of Adult Critical Care Services" – 2000	The report recommends the establishment of adult critical care networks. (It was published in response to national concerns regarding critical care capacity, equity of access and quality of care).
National Adult Critical Care Stakeholder Forum document, "Quality Critical Care – Beyond Comprehensive Critical Care" - 2005	The document recommends that "critical care networks be retained, strengthened and fully developed in line with local priorities and needs".
National Imaging Board and DH, "Interventional Radiology - Guidance for Service Delivery" - 2010	The document provides a summary of the evidence base for how comprehensive Interventional Radiology (IR) services can contribute to the outcomes, safety and experience for patients who present with relevant emergency and planned care conditions. An effective well-resourced IR service can contribute to significant efficiencies in care pathways in planned and emergency care.
Operational Delivery Networks (ODN) established 1st April 2013	From the 1st April 2013 adult critical care services across NHS England have been required to be delivered through integrated Operational Delivery Networks (ODN) with services delivered across providers in a pre-determined geographical area.
Intensive Care Society Core Standards for ICUs 2013	These standards apply to all units capable of looking after Level 2 or Level 3 critically ill patients, whether they are called Intensive Care, Critical Care, or Hugh Dependency Unit and no distinction is made between them. The standards incorporate those for staffing (medical, nursing, therapy team, pharmacy and dieticians), operational, equipment and data collection.
NHS England Service Specification No. D16 Adult Critical Care - 2014	The Specification states that co-located Services – to be provided on the same site and to be immediately available 24/7: ➢ Competent resident medical practitioner with advanced airway skills (Anaesthetist / Intensive Care Medicine); ➢ General Internal Medicine; ➢ Endoscopy; ➢ Radiology: CT, Ultrasound, plain x-ray; ➢ Echocardiography / Electro Cardiogram (ECG); ➢ General Surgery for any site with unselected medical admissions; ➢ Access to Theatres; ➢ Transfusion Services; ➢ Essential haematology/biochemistry service and point of care service; ➢ Speciality Intensive Care Units must have their speciality specific surgical service co-located with other interdependent services e.g. vascular surgery with interventional vascular radiology, nephrology and interventional

Component	Aims
	cardiology; obstetrics with general surgery; ➢ Informatics support; ➢ Physiotherapy; ➢ Pharmacy; Medical Engineering Services.
Faculty of Intensive Care Medicine (FICM) and the Intensive Care Society, "Guidelines for the provision of intensive care services" - 2015	The guidelines include the following guidance pertinent to this OBC: "Interactions with other services" Intensive Care Medicine presents an interesting paradox. It owns few, if any, unique therapies or interventions; it has an impressive track record of negative clinical trials; and yet … there has been an inexorable improvement in case-mix adjusted mortality rates from critical illness over the years. Broad inspection of the research literature suggests that most gains are to be made from interventions which facilitate earlier diagnosis and treatment, minimise the harmful effects of organ support, enhance communication, and promote a proactive system-wide approach to the care of patients at risk of critical illness. The 'art' of intensive care therefore lies more in integrating multi-professional care and complex interventions over time, across locations and between teams, than in the delivery of any single treatment. Consequently, intensivists must be systems experts, both in terms of physiology and of healthcare delivery. Interaction with 'other services' starts with the multi-professional teams in the Intensive Care unit: doctors, nurses, advanced Critical Care practitioners, physiotherapists, dieticians, infection control and microbiology, and pharmacists; with further input by occupational therapy, speech and language therapy, and clinical psychology. The morning and evening rounds are key opportunities to draw together information about the patients, to establish daily goals and determine main risks and communication tasks, using a standardised data collection sheet or an electronic equivalent. Given the size of the ICU team, and the impact of staff rotations and shift-working, it helps cohesion and flattens hierarchies if the morning round starts with each member introducing themselves by name and rank, including the consultants. Interaction with microbiology is best conducted with relevant laboratory data available and at a consistent time each day. The appropriateness, dose, and duration of antimicrobial therapies may be reviewed, together with the ecology of the ICU, screening practices, and patterns of resistance. Ideally a senior member of the nursing staff should also be present. The timing of interactions with visiting medical or surgical teams will need to accommodate their other commitments. One approach is to establish, as a routine, a brief early morning case review with a trainee member of the visiting team (to determine dischargeability for example) which may then be followed in the middle of the day by consultant-to-consultant discussion, informed by available laboratory or imaging tests. Continuity of care between teams and over time is essential. Radiological investigations should be planned in discussion with the radiologist performing the procedure. Ideally the consultant intensivist should review imaging results directly with the radiologist rather than receiving the report at a later stage, particularly if interventional radiology is a possibility."
Getting It Right First Time (GIRFT) Programme National Specialty Report, "General Surgery" - 2015	This report provides a series of recommendations that offer opportunities enhance patient's experience of care, improve patient outcomes and reduce post-surgical complications, while delivering tangible savings to Trusts. The recommendations include suggestions that could reduce length of stay, cut readmissions and save costs in the procuring of supplies.
Lord Carter Report June 2015: "Operational	This review looked at productivity and efficiency in non-specialist acute hospitals using a series of metrics and benchmarks. The review concluded that there is significant unwarranted variation across all of the main resource areas, and no

Component	Aims
Productivity and Performance in English NHS acute hospitals: unwanted variation"	one hospital is good at everything. The report makes recommendations designed to tackle the variation and help Trusts improve their performance to match the best.
Sir Robert Naylor review March 2017: "NHS Property y and Estates: why the estate matters for patients.	This report calls for the NHS, through the STP process, to rapidly develop robust capital plans which are aligned with clinical strategies, maximise value for money (including land sales) and address backlog maintenance. It confirms that the NHS estate is one of the key enablers to change in the health system and directly contributes to the delivery of high quality healthcare to patients.

2.7.2 Key Regional Strategies

Joint Strategic Needs Assessment (JSNA) Leicester, Leicestershire and Rutland

A Joint Strategic Needs Assessment (JSNA) is a statutory requirement (Health and Social Care Act 2012) placed upon the Directors of Public Health, Adult and Children's Services in all local authorities to guide the commissioning of local heath, well-being and social care services. The JSNA provides a systematic method for reviewing the short and long term health and well-being needs of a local population. This JSNA is an important starting point for strategy development and commissioning decisions.

UHL predominantly provides services for the populations of Leicester, Leicestershire and Rutland - each have a JSNA last updated in 2015, to address the needs of the population and future demographic changes.

As people grow older, there is a higher prevalence of long term illness and disability. The number of people living with long term conditions will grow as a population ages. Furthermore, many people will have multiple conditions, meaning their care needs are more complex. From a health need perspective there is a marked variation in life expectancy across LLR with the main factors contributing to mortality being cardiovascular disease (CVD) and respiratory. Any plans for service improvement must respond to these challenges and make a significant contribution towards better outcomes.

Extracts from the Leicester City, Leicestershire and Rutland JSNAs are shown below:

Figure 10 - Leicester City JSNA extract

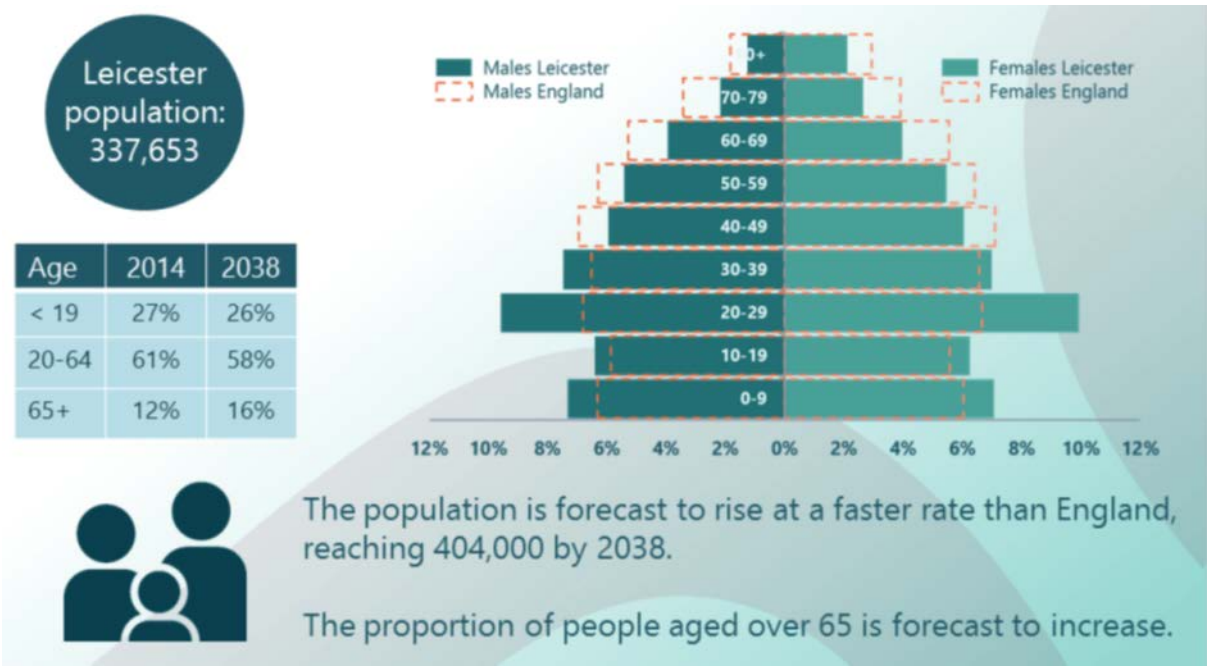


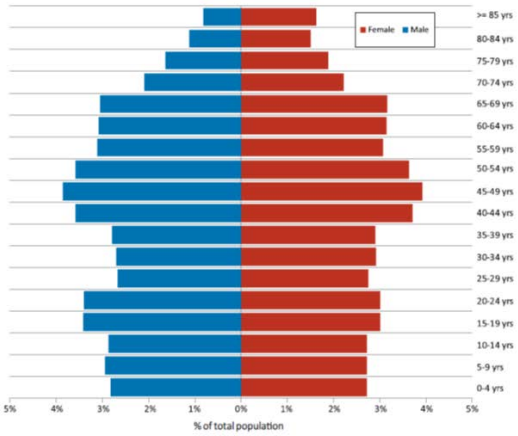
Figure 11 - Leicestershire JSNA extract

The 2015 JSNA Priorities

The most significant driver of health needs for the Leicestershire population is the growing older population.

In 2013, the total population for Leicestershire were an estimated 661,600 people. 126,100 people were estimated to be 65 years and over, and 33,400 were 85 years and over. 153,200 of the Leicestershire population were under 20 years of age.

Figure 5: Mid 2013 Population Estimates for Leicestershire



2013 population – 661,600 people
Over 85 years – 33,400
Over 65 years – 126,100
0-19 years – 153,200

Source: Office of National Statistics © Crown Copyright 2014

The population of Leicestershire is growing – between 2012 and 2037 (25 years) it has been projected that the total population of Leicestershire will grow by 15% to over 750,000. However, this growth is not uniform across the age groups with a projected increase of:

- 190% increase in people aged 85 years and over;
- 56% increase in people aged 65-84 years;
- 7% increase in children and young people aged 0-24 years; and
- A 2% decrease in the working age population (25-64 years).

Improving the health and wellbeing of working age adults:

- prevention in this population is essential for a healthy older population;
- continue to reduce premature mortality from the major causes of ill health;
- reduce inequalities in health across the social gradient;
- reduce the preventable risks to health through people's lifestyle choices; and
- maximising independence for those with long term and/ or complex needs.

Supporting the ageing population:

- early identification and support for people who are at risk of developing health and social care needs;
- more development of the evidence base around prevention for older people;
- supporting older carers;
- supporting people at the end of their life;
- supporting more people to look after themselves after illness or injury through reablement services; and
- planning for the future, including future housing needs, developing community assets, planning for emergencies.

Figure 12 - Rutland JSNA Extract

The population of Rutland as at the 2013 mid-year estimate was 37,600, comprising 19,200 males and 18,400 females.

Rutland is one of the most affluent counties in England; of 149 Upper Tier Local Authorities in 2010, Rutland ranked 148 (with 1 being the most deprived, and 149 being the least deprived) (Indices of Deprivation: 2010 by County Council). In the last three years of Health Profiles released by Public Health England (2013-15), Rutland has ranked first in the 10 best performing local authority districts for levels of deprivation. At a more granular level, there is variation across Rutland in levels of income deprivation. In 2010, when placed in a national context, while there were no wards that ranked in the two most deprived quintiles nationally, two wards were in the middle quintile – Uppingham and Oakham North West (see below).

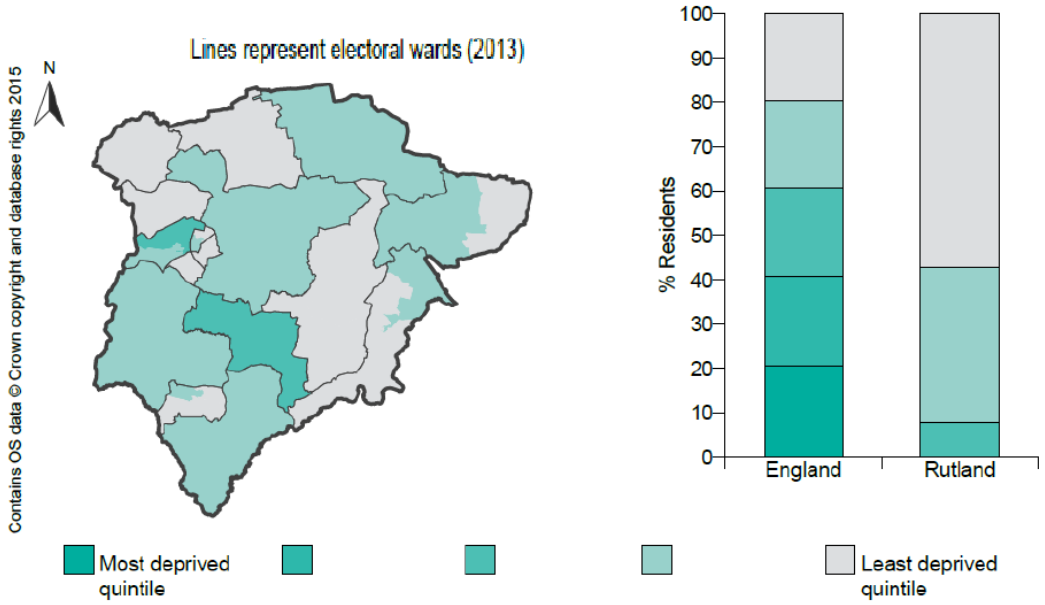


Figure 3 – Map and profile of Indices of Deprivation. Source: Rutland Health Profile - 2 June 2015, Public Health England

2.8 Health Economy Strategies

2.8.1 LLR Sustainability and Transformation Partnership

The LLR footprint forms a Sustainability and Transformation Partnership (STP) boundary. The LLR health partners commission and provide health and care services for over a million people in Leicester, Leicestershire and Rutland. Over the next five years, LLR health services will need to adapt and transform in order to ensure that they remain clinically and financially sustainable. The STP sets out the actions that will need to be taken to balance the pressures of continued growth in patient demand from an ageing and growing population, and a requirement to recover and maintain delivery against national access and quality standards. This is necessary at a time of historically low levels of financial growth in the NHS and substantial pressures on social care funding.

The financial challenge facing the NHS nationally over the next five years is well recognised, with 2019/20 set to be the most pressurised year where the NHS is currently set to have negative per person NHS funding growth. The local requirement set against this national backdrop is to make more rapid progress in the early years of the plan to move the provider sector back into financial surplus. This is going to be incredibly challenging.

The STP builds on the work of the Better Care Together programme, the plans of which were already well advanced and articulated in many areas, particularly around proposals for reconfiguring acute hospital services to address long standing issues around the condition of our premises and how they are utilised.

The current, three acute site configuration is an accident of history, not design, and is suboptimal in clinical, performance and financial terms, which has a direct impact on patient outcomes and experience. This results in duplication, sometimes triplication of services, which is an inefficient model. Clinical resources are therefore spread too thinly making services operationally unstable. Many planned, elective and outpatient services currently run alongside emergency services and as a result when emergency pressures increase, it is elective patients who suffer delays and last minute cancellations.

Over the last two decades there has been sustained under-investment in UHL's acute estate relative to other acute hospitals across the UK. There is a significant backlog maintenance requirement which will be reduced substantially through the consolidation of services onto two sites and a change of use for LGH.

Evidence indicates that patients, and particularly elderly patients, spend too long recovering in large acute hospitals and potentially deteriorating as a result, when they would be better served by rehabilitation services in their own home or in a community hospital. A "Home First" principle will be adopted where there is an integrated care offer for people living with frailty and complex needs. The focus will be to ensure that people can remain in their own homes. When this is not possible and they have to be treated in hospital, it will be ensured that their discharge is appropriately planned to enable them to get back into their home or community environment as soon as appropriate, with minimal risk of readmission.

The combination of providing care for patients closer to home and the consolidation of acute services onto two sites will allow a focus on growing the Trust's specialised, teaching and research portfolio.

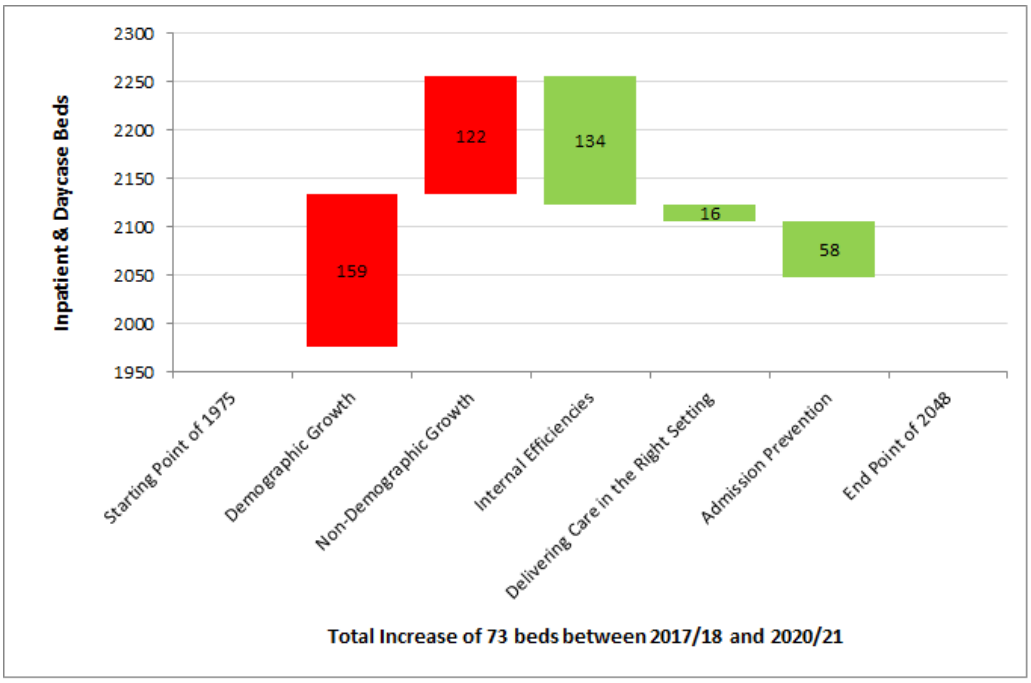
Through the Better Care Together and Better Care Fund programme progress has already been made on this, including the development of home based beds and integrated health and social care teams supporting patients in their home. This work will be continued through the proposals around integrated place based teams.

Although shifting the balance of care in the system is one of the important drivers behind the acute reconfiguration plans, they are also driven by two other factors.

- Clinical resources are spread too thinly, making services operationally unstable. By focussing resources on two sites, outcomes for patients can be improved through increased consultant presence and earlier regular senior clinical decision making;
- The Trust's financial recovery is directly linked to site consolidation. The "reconfiguration dividend" has been calculated at circa £25m per annum recurrent savings, which is the "structural" element of the current deficit.

In order to consider the impact of the above interventions and the associated planned efficiencies, work has been undertaken to understand the future acute bed capacity requirements. The following bed bridge, in Figure 12 describes the outcome of this modelling which will take acute beds from the current level of 1975 to 2048 by 2022/23. Growth between 2020/21 and 2022/23 will be mitigated by plans to improve efficiency and pathways, the detailed work describing the means by which this will be delivered are being developed as part of the production of the Pre-Consultation Business Case (PCBC) for the STP.

Figure 13 - Bed increases: 2017/18 and 2020/21



UHL anticipate increasing its existing bed base by 73 beds (4%), whilst negating the anticipated increase required to accommodate growth until 2022/23 (208 beds).

The UHL Estates Strategy and DCP have been updated to support the development of a robust estates and capital strategy across the STP area. This will support the STP and PCBC which will be finalised during 2018. These documents will help enable the demonstration of the fit of this scheme with the STP. The LLR Estates Strategy is due to be finalised and submitted during July 2018 and will be appended to this FBC at that point (Appendix 7)

2.8.2 Consolidation on to Two Sites

Leicester General Hospital

Subject to the formal public consultation, which is currently expected to take place early in 2019, the plan remains for emergency and specialist services to be moved to LRI and GH. The Leicester Diabetes Centre of Excellence (as well as some connected services) will remain at LGH and will continue to expand to become the pre-eminent diabetes research institute in the UK.

LGH will also continue to be home to other health and social care services. The Evington Centre will continue to provide community beds and it is likely that this will incorporate a stroke rehabilitation ward. Joint health and social care teams delivering services in people's homes will continue to have a base at the site. Leicester City CCG are also considering using a small portion of the LGH site as a centre for a primary care hub providing extended hours GP services and associated diagnostics.

Leicester Royal Infirmary

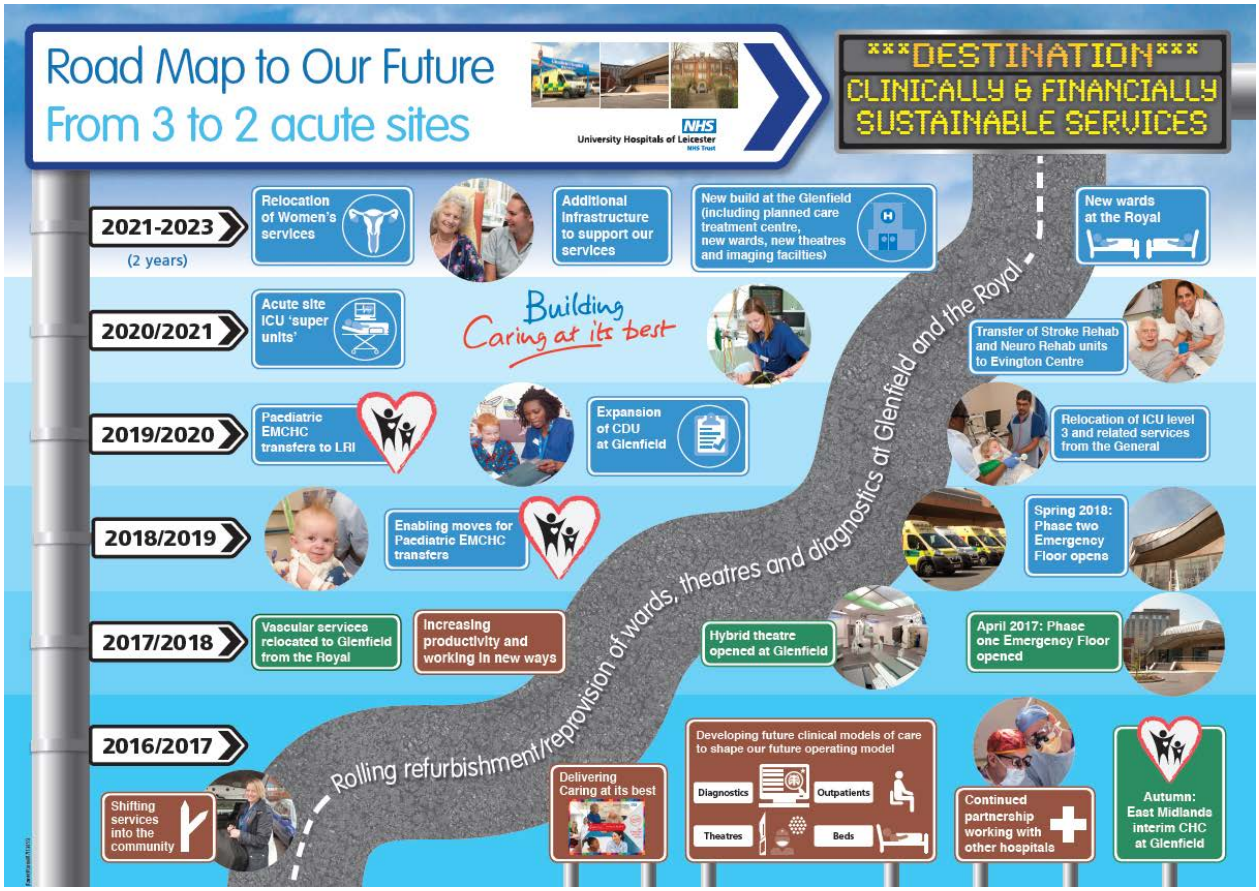
LRI will continue to be the primary site for emergency care. LRI will see a consolidation of maternity and gynaecology services, as well as the creation of a 'super ICU'. The paediatric element of the East Midlands Congenital Heart Centre (currently at GH) will move to LRI, as a result of the outcome of the national consultation process, as part of the vision to create a fully integrated children's hospital and in order to meet national standards, by March 2020

Glenfield Hospital

GH will grow as services move from both LGH and LRI. The relocation of vascular service from LRI was the first of these moves creating a complete cardiovascular centre. ICU, some surgical and renal services (including transplant) will move from LGH to GH into new build wards. GH will also see the creation of a 'super ICU'. The Trust also intends to build a new Elective Care Treatment Centre at GH which will offer outpatient and day case care with a stay of up to 23 hours.

The diagram below depicts our planned journey to deliver service reconfiguration:

Figure 14 - Planned Journey to Deliver Service Reconfiguration



Reconfiguration and Quality of Care

Through the Trust's Reconfiguration Programme, there will be a focus on emergency and specialist care at LRI and GH, whilst ensuring that appropriate clinical services are provided in the county's community hospitals, to offer care as close to home as possible. The patient is at the heart of reconfiguration, and through consolidation, improved patient experience and quality will be delivered by:

- Reducing unnecessary patient journeys;
- Improving clinical adjacencies so that support and diagnostic services are close to where they are needed, promoting closer team working and providing a better patient experience;
- Reducing delays to care by streamlining care pathways;
- Reduce cancellations by protecting our elective beds by separating out emergency and planned care. This will be done by creating a planned ambulatory care hub at the GH as well as re-distributing some of our services into the counties' community hospitals;
- Addressing the long standing mismatch between demand and capacity by making sure there is the right number of beds in medicine and the two new 'super ICUs'. This will have a knock on improvement for operating theatres as well as improving ability to deliver against the 62 and 31 day cancer performance metrics and the 18 week Referral To Treatment (RTT) standard;
- Improving the quality of the patient environment;

- The provision of a single site Maternity Hospital (subject to public consultation) which allows the creation of a comprehensive, safe, sustainable and effective service for the future through workforce changes and improved training, teaching, education and research;
- Providing services which are quicker, easier to navigate and of a higher quality; largely as a result of being able to focus on specialisms, improve processes and streaming, and because staff will no longer be spread across three main sites.

Operational Efficiencies

Ensuring the best use of resources is critical to delivering financial sustainability across the system by 2022/23. Many of the plans set out how services can be redesigned and the reconfiguration of acute and community hospitals make the best use of resources.

Lord Carter's 2015 report, Operational Productivity and Performance in English NHS acute Hospitals, found that there is significant unwarranted variation across all main resource areas. Through the Reconfiguration Programme UHL have plans to implement as many of the Carter and the 2017 Naylor Review recommendations as possible; using the Model Hospital to help identify where the opportunities for improved efficiency and reduced spend lie.

UHL Cost Improvement Programme delivery includes plans that are based on the Model Hospital, benchmarking, analytics and opportunities from national best practice such as Getting It Right First Time.

Five year Financial Gap

All of the health and social care organisations in LLR face financial challenge, as demand and demographic growth for services out-strip the increased resources available year on year.

While there is an expectation in the health sector that the funding available will rise by c. 2% each year, equating to an additional £200m over the time of the plan, predictions for the growth in both cost and demand range from 0.5% in some areas rising to 4.73% in more specialist areas of medicine, year on year.

The social care sector also faces similar challenges with demand in growth matched to a flat or reducing level of funding available to support social care services.

Without developing new ways of working the impact of increased demand creates a financial gap for health and social care as articulated in the November 2016 LLR STP over the five year timeframe of this plan of £399.3m. Of this healthcare accounts for £341.6m of the gap, whilst social care gap equals to £57.7m over the same timeframe.

The LLR system has been aware of this continuing demand/resource gap for some years and has developed a number of plans to mitigate this through the local transformation programme, Better Care Together. The revised STP plan builds on the earlier Better Care Together plan, which covered the period up to 2018-19.

Overall the impact of the growth on the system is primarily in acute and specialised services. Solutions will targeted through investment in community based services to deliver care in the most appropriate settings.

Solutions to close the gap are mapped into five STP strands of work: New Models of care, Service Configuration, Redesigned Pathways, Operational Efficiencies and Getting the Enablers Right. Savings plans for LLR Local Authorities and for specialised services are included within these solutions.

CIP schemes are in place to deliver c. £175m of the required savings as articulated in the November 2016 LLR STP.

The single largest scheme in LLR is the move from three to two acute sites for UHL. This deals with both quality and workforce issues created by the duplication of services over two or more sites. Once the reconfiguration is complete the directly attributable cost saving from this will be circa £25m each year.

2.8.3 UHL Clinical Vision and Reconfiguration Strategy

UHL's clinical strategy is focussed on delivering high-quality, patient centred services in the most appropriate setting with excellent clinical outcomes. There is a process of continual quality improvement for clinical outcomes, morbidity and mortality rates and other clinical indicators to ensure that the Trust remain the provider of choice for patients.

The OBC referenced the Trust's clinical strategy published in 2014, for the period 2013/14 to 2018/19. This has now been updated for the period 2018 to 2023, and the FBC has been refined to reflect this update, the updated Clinical Strategy is included at Appendix 8.

The clinical strategy is set in the context of the evolving, overarching LLR 5 year strategy, and as such it is designed to represent an appropriate secondary and tertiary care response that is consistent with the principles identified and the drive to optimise outcomes and enhance quality of life. The Clinical Strategy is currently being updated, with approval by the Trust Board planned for summer 2018. This revised strategy forms the basis, alongside the other key updated strategic documents (STP, DCP and Estates Strategy) of the FBC.

UHL's vision and clinical strategy will be achieved through delivery of its 5 strategic goals:

- To deliver safe, high quality, patient centred, efficient healthcare;
- To ensure it has the right people with the right skills in the right numbers in order to deliver the most effective care;
- To deliver high quality and relevant education and research;
- To develop more integrated care in partnership with others;
- To progress its strategic enablers.

The model of clinical practice will be to provide consultant delivered, rather than consultant led, patient care. It will create a sustainable workforce for the delivery of responsive multi-disciplinary clinical services seven days a week which meets the needs of patients and clinicians. It will seek and exploit opportunities for service integration across health and social care by removing the historical barriers to change. Training and education will play an integral part in ensuring staff have the right skills now and for the future. Training opportunities to support self-care in long-term condition management and carers will be explored.

The strategy reflects the changes in population demographics, outlined in the Local Authority JSNAs, placing the patient at the centre of service planning and design ensuring that holistic patient centred care remains at the heart of everything we do. For example services will be tailored to meet the challenges of a rising elderly population; ensuring integrated care is provided across primary, community and social care. The Trust will work with partners to develop the infrastructure and networks to offer expertise across the health community to ensure that care for the older person is as seamless as possible.

People are living longer, and the NHS's ability to treat and help to manage conditions that were previously life-threatening continues to improve. Alongside this, the NHS faces a potential funding

gap of around £30 billion by 2020/21 as articulated in the NHS Five Year Forward View meaning that the NHS will need to radically transform the way it has traditionally provided care to new and innovative models necessitating a significant shift in activity and resource from the hospital sector to the community. Across LLR this reflects a funding gap of £399.3m as articulated in the November 2016 LLR STP.

UHL will meet its funding gap by working collaboratively with its LLR Health and Social Care partners to re-design patient care pathways to ensure that they continue to provide high quality care, outcomes and patient experience whilst delivering value for money. The Trust has an on-going operating deficit, in part related to the current configuration of its clinical services, which do not optimise clinical adjacencies and patient pathways. UHL's reconfiguration strategy will optimise where and on which site its services are located as care pathways change to meet the financial challenge. The methodology supporting the future location of services will be clinically driven, evidence based, inclusive, open and transparent however will necessitate tough decisions for the health community if it is to meet the 'value for money' test.

The Trust is proactively responding to the national drive towards fewer regional centres of excellence for specialised services by ensuring its services deliver innovative, high quality patient care through robust Research and Development programmes which enable patients to benefit from leading edge developments in the care of specific conditions.

UHL will specifically seek to ensure it remains as a national centre of excellence for its work in Cardiac, Respiratory, Vascular, Renal, Cancer and Diabetes and significantly strengthen its portfolio of other key services to ensure they are sustainable in the future.

As a result of centralising and specialising services, UHL will improve quality, safety and the hospital experience for patients from the time they park their car to the moment they leave; UHL will be recognised for low mortality rates, for low waiting times, and for patients rating the care they receive as excellent.

UHL will save money by no longer supporting old, expensive and underutilised estate and will become more productive.

UHL's patients are at the heart of all the Trust does, and believes that 'Caring at its Best' is not just about the treatments and services provided, but about giving patients the best possible experience. That is why the Trust is proud to be part of the NHS and proud to be Leicester's Hospitals.

The Trust Strategic Objectives, now updated to 2018/19 are outlined below:

Figure 15 - Trust Strategic Objectives for 2018/19

The key focus during 2018/19 is articulated within the Trust's Quality Commitment:

Figure 16 - Trust Quality Commitment Statement

2.8.4 UHL and LLR Estates Strategies

The 2014 UHL Estates Strategy, incorporating Development Control Plans, and included in the OBC has now been updated to 2018, outlining the plan to move to 2 acute sites. The updated documents are attached at Appendix 5 and 6. The core principles of the Estate Strategy are based on it being both an enabler and a driver for change, supporting the delivery of current and future clinical services. The key objectives are outlined below:

- **Service performance** – a primary objective is to ensure that the Trust estate supports, underpins and enables optimum operational performance;
- **Quality of estate** – the Trust estate should be fit for purpose and functionally suitable and with appropriate and effective maintenance arrangements to meet the required standards;
- **Enhancing patient experience** – to support clinical delivery the Trust aims to privde state of the art facilities that enable clinicians to deliver treatment in a comfortable, caring, safe and uplifting environment, which enhances patient experience;
- **Effectiveness** – the estate will be utilised to its maximum and have appropriate measures in place to ensure business resilience and continuity;
- **Equality and diversity** – the Trust estate must provide facilities that are appropriate and respect the values of equality and diversity to patients, staff, visitors and others likely to visit or use Trust premises;
- **Health and safety** – the estate will provide a safe environment to high standards of Health and Safety and statutory compliance;

- **Environmental** – ensuring that our estate embraces the sustainability agenda and that the new developments and refurbishment projects employ sustainable methods and techniques, making use of low and renewable energy sources and improving the energy efficiency of the existing building stock where feasible;
- **Value for money** – ensuring that all estate and facilities provision offers the best value for money;
- **Partnerships and stakeholder** – working with our public sector partners and key stakeholders we will ensure we deliver a cohesive approach to strategic estate management through our investment and disinvestment programme;
- **Staff welfare** – the Trust will endeavour to provide, in all its estate provision, fit for purpose and cost-effective facilities and amenities for staff;
- **Capital receipts** – assets are retained or disposed of according to a plan that supports service delivery and enables business development opportunities, whilst also maximising cash receipts and thereby generating funds for investment.

The DCP is founded on the following development principles:

- Provision of clinically sustainable services;
- Delivery of financial sustainability and return on investment (ROI)
- Facilitation of flexibility of workforce
- Improved productivity and efficiency of estate
- Future proofed facilities

The DCP describes a five year programme over which the complete reconfiguration programme will be delivered and translates how the Trusts clinical strategy physically plays out the delivery of 2,048 beds on the 2 acute sites ensuring optimum clinical adjacencies, subject to consultation.

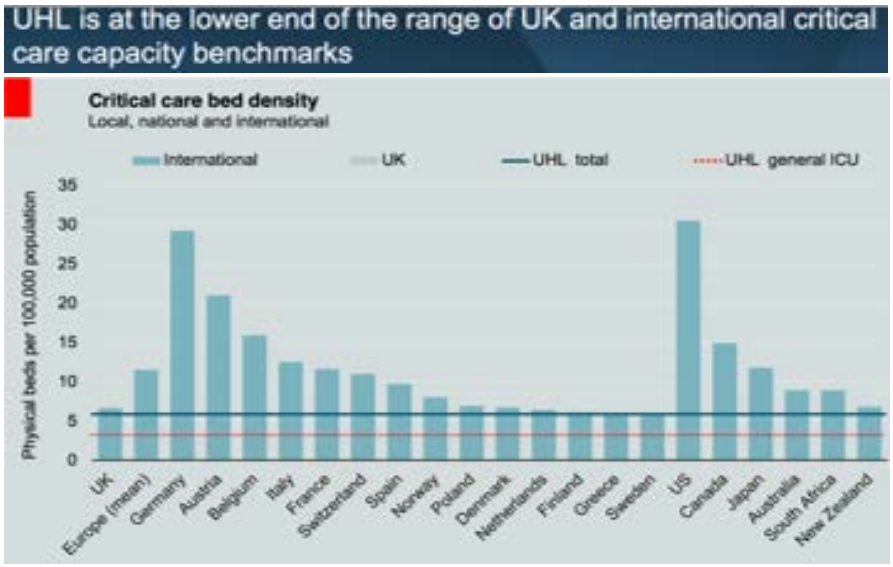
This would release a large amount of land that can be sold for housing development. This is an important feature of the Governments response to the Naylor Report (Jan 2018) – updating estates strategies and land disposal plans and maximising revenue savings. More detail relating to the land transactions is included in section 5.21 and Appendix 64.

Recognising that confirmation of funding will be subject to demonstration that this scheme is part of a robust estates and capital strategy across the STP area, the LLR STP is in the process of updating the 2015 LLR Estates Strategy. The updated version will be appended to the FBC when it is finalised in July 2018.

2.9 ICU Strategy

The Strategy for delivering ICU care at UHL supports both the national and local imperatives. There is a recognised move towards using critical care beds at an earlier stage in a patient's treatment. On an international level the UK has a low number of ICU beds compared to its population, and within the UK, UHL has a lower than average per capita provision of ICU beds.

Figure 17 - Critical Care UK and International Capacity Benchmarks



Independent analysis was commissioned from Bazian in 2014 to assess the current and future requirements for ICU and HDU beds in UHL, work that was subsequently been updated in 2016 by Capita Health using the Simul8 model, which has validated the recommendations.

The following recommendations were made by Bazian:

- Based on existing case mix of patients treated in UHL there are substantial benefits from merging smaller into larger units, where economies of scale can be achieved;
- There is a limit on what can be achieved practically – the movement of HDUs also requires the movement of specialities. The phasing of capital expenditure should also be considered;
- The merging of HDUs is recommended for quality and governance reasons, this could be undertaken in the medium term (1 to 5 years);
- If reconfiguration can be achieved in five years it is recommended that at least a 15% increase in capacity is planned for every 10 years. More precise predictions will depend on the effect of new interventions on length of stay.

UHL currently provides Level 3 adult critical care services at each of its three acute sites. This provision enables a range of specialities, which require a co-location with Level 3 critical care, to be delivered across all three sites.

The Trust's five year strategy for delivering critical care services is the creation of two 'super ICUs' GH and LRI. These will care for Level 2, 3, and 4 (ECMO) patients, staffed and delivered to the national core standards to ensure the highest quality care in the most appropriate environment. This will be supported by a robust tier of Level 1 care beds within specialties throughout the organisation which will, in turn, be supported by critical care outreach services delivering 24/7 care.

The Trust's ICU strategy also takes into consideration the revised core standards published by the National Society of Intensive Care Medicine (NSICM) in 2013. These were adapted by NHS England to develop their draft service specification for adult critical care facilities (D16). Adult critical care D16 has key 'dashboard' standards that provide commissioners with the opportunity to performance manage provider services to ensure that compliance with standards is achieved.

At present, the revised D16 is still in draft format and is not published on NHS England's website. NHS England has confirmed that until such time as the specification moves from draft status UHL is not expected to deliver against it. It is expected that in the future all critical care services within UHL, including satellite HDU areas, will be monitored against these standards as part of the annual contract.

2.9.1 Existing Arrangements

Current Activity and Demand

UHL currently provides Level 3 adult critical care services at each of its three acute sites. This provision enables a range of specialties, each requiring a co-location with Level 3 critical care to be delivered across all three acute sites.

GH

Currently GH Adult Intensive Care (AICU) admits approximately 1,600 patients per annum with approximately 75% of these being planned or unplanned cardiac surgery admissions. The majority of emergency admissions are from the cardiology, respiratory wards and vascular surgery (which moved to GH from LRI in May 2017). GH AICU is also a regional tertiary centre for severe acute respiratory failure (SARF) and extra-corporeal membrane oxygenation (ECMO) admissions.

LRI

The LRI unit admits nearly 1,400 patients per annum with approximately 80% of these being emergency/unplanned admissions. The emergency admissions come from three sources: the emergency department, from theatres and from the ward base at LRI. The majority of the planned cases consist of expedited major surgery for cancer patients.

LGH

The Department of Critical Care Medicine (DCCM) admits 900 patients per annum with approximately 60% of these planned surgical admissions. Emergency admissions come from general surgery, nephrology, urology, renal transplant and obstetrics and gynaecology. These come to the unit from general wards, nephrology wards and renal HDU but, in addition, LGH DCCM accepts tertiary referral Hepatobiliary patients from surrounding district general hospitals (DGHs).

The reconfiguration of services, associated with the removal of Level 3 ICU services from LGH (with HPB, and Renal Transplantation services being transferred to GH and colo-rectal and emergency general surgery to LRI) adjusts the ICU bed requirement on LRI and GH and the section below sets out how the numbers of physical spaces on each site has been determined to feed into the estates brief.

Table 30 below summarises the current physical and funded Level 3 and 2 bed numbers on each:

Table 31 - Current Physical and Funded Level 3 and 2 Bed Numbers

Site	Physical Bed Spaces	Funded Level 3 Bed Spaces
LRI	21, plus 6 annex.	19
GH	22	21
LGH	12	9
Total	55 plus 6 annex.	49

Table 31 below shows the number of elective cancelled operations in 2016/17 due to lack of ITU Beds:

Table 32 - Elective Cancellations 2016/17 due to Lack of Level 2 or 3 ITU beds (sourced from HISS data set)

	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Total
LRI	13	5	23	17	8	4	1	12	7	7	1	1	99
LGH	15	9	29	7	6	4	11	19	2	3	11	1	117
GH	7	1	3	1	0	1	0	6	1	8	3	2	33
Total	**35**	**15**	**55**	**25**	**14**	**9**	**12**	**37**	**10**	**18**	**15**	**4**	**249**

Table 32 below shows the current specialty use of Level 3 critical care at LGH, by bed day:

Table 33 - Current Specialty use of Level 3 Critical Care at LGH, by bed day (2016/17 data)

Specialty	Level 3 Bed Days (2016/17)	Service Site for Level 3 post interim ICU
Hepatobiliary	745	GH
General Surgery	179	LRI
Colorectal	170	LRI
Transplant	83	GH
Nephrology	267	GH
Orthopaedics	52	LRI
Urology	156	GH
Gynaecology	19	LRI
Obstetrics	39	LRI
Neurology	2	LRI
Total	**1,712**	

The Position Post Reconfiguration

An option appraisal review was held in February 2015 involving representatives from all specialties and support services affected by the ICU Reconfiguration. The purpose of this meeting was to agree the immediate configuration of services across the three sites which would enable Level 3 adult critical care to re-locate from LGH by December 2015.

A set of over-arching principles were agreed at the meeting which will govern the remainder of the project:

- Any part of a service that is dependent on Level 3 adult critical care must be re-located to LRI or GH;
- If the above results in parts of a services remaining that are so small as to be destabilised then these parts must also move or have a robust interim solution;
- Any services at LRI and GH that do not require Level 3 adult critical care and can move to LGH to free up the estate footprint must consider moving.

The table below shows the outcome of the option appraisal which concluded the future site locations of those services dependent on Level 3 care, as detailed below:

Table 34 - Future Site Locations of those Services Dependent on Level 3 care

Service 2016 / 17 data	Level 3 Bed days	Planned Patients	Unplanned Patients	Future Service Delivery
HPB	745	235	93	Inpatient and emergency service move to GH
Colorectal and General Surgery	349	80	127	Inpatient and emergency service move to LRI
Transplant	83	6	9	Inpatient and emergency service move to GH
Nephrology	267	8	31	Planned Level 3 patients admitted to GH. Retrieval service for Level 3 unplanned patients to GH.
Urology	156	33	21	Planned Level 3 patient's surgery to be undertaken at GH, which is the final future location for urology services. Retrieval service for unplanned Level 3 patient's to GH
Gynaecology	19		2	Planned Level 3 patient's surgery to be undertaken at LRI, where there is an existing gynaecology service. Retrieval service for unplanned Level 3 patients to LRI
Orthopaedics	52		13	Planned Level 3 patient's surgery to be undertaken at LRI, where the orthopaedic trauma service is located. Retrieval service for unplanned Level 3 patients to LRI
Obstetrics	39		14	High risk patients to be looked after by LRI maternity hospital. Retrieval service for unplanned Level 3 patients to LRI

Since the options appraisal was undertaken detailed work has now been carried out using Intensive Care National Audit and Research Centre (ICNARC) data for 2016/17. This was based on final assumed destinations of specific services and patients post reconfiguration of the ICU services.

To ensure this analysis is as robust as possible, two complementary investigations have been carried out to:

- Review overall bed days proposed on each site;
- Analyse the number of patients in beds on a daily basis;

Examining both figures has ensured that peaks in demand have been allowed for in terms of physical space deemed to be required.

Table 34 below summarises the demand for ICU bed spaces across UHL based on the revised reconfiguration associated with the removal of Level 3 ICU from LGH.

Table 35 - Current and Future Provision for ICU Bed Spaces across UHL

Site	Current provision of Physical Bed Spaces	Future Physical Bed Spaces
LRI	21, plus 6 annex.	21, plus 6 annex.
GH	22	33
LGH	12	4 (Level 2) plus 1 Level 3 for stabilisation
Total	**55 plus 6 annex.**	**58 plus 6 annex.**

The table below provides the summary of the data analysis undertaken reviewing total bed days and numbers of patients on a daily basis, for both scenarios pre and post reconfiguration. The detailed activity models are attached at Appendix 9 and 10.

Table 36 - Pre and post Reconfiguration ICU bed days and beds

ICU Activity	GH	LRI	LGH	Total
Bed days 2016/17 Baseline	7,466	6,261	3,890	17,617
Bed days post-reconfiguration	9,537	7,304	776	17,617
Beds required 1.5 standard deviations based on 12 months data	31.34	23.54	2.92	57.80
Physical bed post-reconfiguration	33	21 plus 6 annex	4	58 plus 6 annex

This shows how the future demand on ICU will be configured (based on 2016/17 levels) following the service moves and that this is aligned with the capacity that will be in place.

For services remaining at LGH, a retrieval service will be put in place for any unplanned patients requiring on-going Level 3 care beyond an initial four-hour stabilisation period.

Based on 2016/17 data the numbers of unplanned ICU Level 3 patients for each service who would require transfer from LGH to a Level 3 service at either LRI or GH is in Table 36 below:

Table 37 - Unplanned ICU Level 3 patients

Service	Patients requiring transfer to Level 3 site from LGH (16/17 data)
Orthopaedics	13
Urology	16
Gynaecology	2
Obstetrics	14
Neurology	0
Total	**45**

2.10 Surgical Services across LGH and LRI

2.10.1 Existing Arrangements

At present, LGH receives emergency ‘general’ gastro-intestinal surgery admissions (e.g. hernias, non-specific acute abdominal pain, abscesses etc.) as well as emergency HPB admissions (acute cholecystisis, acute pancreatitis, biliary colic, chronic pancreatitis and obstructive jaundice).

The LRI also receives emergency general surgery admissions, with the surgical emergency take split on a 1:1 basis between LRI and LGH. Elective work is carried out across all three sites, with elective patients who have a predicted length of stay of more than one day undertaken only at LRI and LGH. GH currently takes day case general surgery patients only. Utilisation data for 2016/17 is identified in Table 37 below:

Table 38 - Current Configuration of GI Surgery across LRI and LGH

		LGH		LRI		
		Colorectal	HPB	Emergency Surgery Ambulatory Care	Colorectal (CRC)	Gastro-esophageal (UPGI)
Wards	Elective ward bed occupancy (average)	6	9	n/a	6	4
	Emergency ward occupancy (average)	22	36	n/a	21	22
Theatres	Main Theatre sessions	7.5	10	1	9.5	9
	Ave. Weekly Emergency Theatre Cases	15	n/a	n/a	34	
	Day case theatre sessions per week	n/a	2	2	0.5	1
Critical Care	Elective Level 2 ICU bed days	153	622	n/a	143	179
	Emergency Level 2 ICU bed days	272	456	n/a	257	143
	Elective Level 3 bed days	83	91	n/a	130	285
	Emergency Level 3 bed days	263	529	n/a	259	213

Current Surgical Service provision at LGH

The colorectal department at LGH comprises of six surgeons and two specialist nurses. The colorectal department is one of the largest cancer services in the country providing laparoscopic and robotic cancer resections and localised resections such as transanal endoscopic microsurgery (TEMS) and transanal resection of tumour (TART) procedures.

In addition to their cancer work, the unit undertakes a range of minor surgical procedures such as haemorrhoidectomies, fistula-in-ano and sphincteromies. The general surgical component of the service includes hernias (laparoscopic and open) and a limited number of laparoscopic cholecystectomies, undertaken by three of the six surgeons. The unit undertakes a general surgical on-call rota covering a range of emergencies including perforation, hepatobiliary emergencies, obstruction, non-specific abdominal pain and cutaneous abscesses.

Hepatobiliary emergencies requiring intervention from the HPB team are transferred to the care of a HPB consultant. The unit undertakes lower Gastro-intestinal endoscopy including colonoscopy and flexible sigmoidoscopy as diagnostic, screening and therapeutic procedures. There are regular sessions with gynae-oncology for cancer resections or complex benign work.

Currently there are six surgical wards at LGH, for general surgery, colorectal, HPB and urology, some of which are shared between specialities. These are identified in Table 48 below:

Table 39 - Surgical Wards at LGH

LGH Surgery and Urology wards	Bed Base	Specialties
Ward G20 (was G23) Up to 23 hour care	20	General Surgery, colorectal, HPB, Urology and Gynaecology
Ward G 22	16	General surgery, colorectal, HPB
Ward G 26	25	Male urology

LGH Surgery and Urology wards	Bed Base	Specialties
Ward G 27	20	Female – general surgery, colorectal, HPB and urology
Ward G 28 (Surgical Assessment Unit (SAU))	25	General surgery, colorectal, HPB and Urology
Ward G 29 (Surgical Assessment Unit (SAU))	27	General surgery, colorectal, HPB and Urology
Total	**133**	

Bed modelling and occupancy reviews undertaken have analysed the spilt between specialties and the additional bed numbers that will be required at LRI and GH to accommodate the move of general surgery, colorectal and HPB away from LGH, together with the bed base to be retained at LGH to manage the urology workload. This is identified in Table 39 below:

Table 40 - Surgical Wards across UHL

Future Site	Service	Bed numbers (based on 1.5 Standard Deviations)*
LRI	General Surgery and colorectal	43
GH	HPB	55
LGH	Ward 20 – day case and 23 hour care	20
LGH	Urology	38 (mean)
Total		**156**

* 1.5 Standard Deviations have been used as this takes into account a level of variation away from the mean, for services moving to new facilities, and will be valid for 86% of days thereby minimising the occasions when there will be bed pressures

Current General Surgical provision at LRI

LRI surgical service consists of six upper GI surgeons and six colorectal surgeons. Maintaining two separate sites (LRI and LGH) for major inpatient activity results in some duplication of resources. In addition the surgical take is presently split across the two sites on an approximated 60% (LRI) and 40% (LGH) split which results in increased expenditure and delay in treatment across the two sites, particularly for patients first seen in the Emergency Department who are then transferred to LGH.

The Position Post Reconfiguration

The future proposed configuration locates colorectal and emergency general surgery from LGH to LRI and HPB to GH.

The reconfiguration of colorectal and general surgery to LRI will enable better pathways for emergency patients with prompt intervention for patients who require emergency surgical treatment. The move will allow for economies of scale with the improved use of middle-grade and junior doctor cover and provide new training opportunities. By ensuring prompt and efficient processing of emergency patients, more bed spaces will become available for elective cases, leading to fewer cancellations for cancer resections.

Demand and Capacity at LRI

The surgical service will occupy bed and theatre capacity vacated by the move of the vascular service to GH and the creation of the Emergency Floor and additional theatre capacity will be vacated by the transfer of day case work from LRI to LGH.

The following will ensure that there is sufficient theatre capacity to manage the general 'non-HPB' emergency surgical take moving to LRI:

- Release in emergency pressures from transfer of vascular to GH;
- Utilisation of day case theatre sessions to accommodate the increase in emergency procedures;
- Most of these procedures will be of lower acuity such as strangulated hernias, abscesses and laparoscopic appendectomies;
- Relocation of day case and short stays (less than 23-hour activity) from LRI to LGH.

Table 41 - Emergency Theatre Demands at LRI following reconfiguration

	Cases per week			Time per week (mins)		
	Max.	Min.	Ave.	Max.	Min.	Ave.
Current LRI	52	5	37	4,950	851	3,923
Without vascular surgery	43	4	34	3,702	817	3,431
General Surgery from LGH	23	2	15	2,363	161	1,226
Overall once LGH non-HPB has moved	66	6	49	6,065	978	4,657

Key issues to note include:

- The current average time per case at LRI is 100.1 minutes and at LGH 81.7;
- The increase in average theatre time at LRI prior to the vascular move to post the non-HPB move is 734 minutes, equivalent to three theatre lists. Discounting the loss of vascular it is five theatre lists per week;
- The transfer of day case and less than 23 hour stay cases and theatre lists to LGH will release up to 4.5 theatre lists per week.

Impact for Gynaecology

The majority of the Gynaecology and Gynae-oncology elective surgery will remain at LGH co-located with urology and maternity services However some surgery that requires colorectal surgical input and Level 3 ICU care will be transferred to the LRI site. Patients will be looked after on the General Surgical Wards. There will continue to be colorectal surgeon presence at LGH during the week to provide advice and assistance if unexpected general surgical complications are encountered during elective surgery.

2.11 Surgical Services Moving to GH

2.11.1 HPB

The Hepato-Pancreato-Biliary (HPB) multi-disciplinary team is a multi-professional group serving the populations of Leicester, Leicestershire, Rutland, Northampton, Peterborough and Kettering. The overall population served approximately 2.5 million. The unit in Leicester is a Level 1 Primary HPB Cancer service (as defined by the new HPB Cancer Measures). Services offered include laparoscopic/open surgical resections, ablation procedures, palliative bypasses, nuclear medicine treatment and percutaneous interventional procedures (such as transcatheter arterial embolisation (TACE), selective internal radiation therapy (SIRT) and portal vein embolisation). In addition the Leicester unit undertakes the majority of laparoscopic cholecystectomies (90%) and endoscopic retrograde cholangiopancreatography (ERCP) (90%) annually in addition to providing an emergency HPB service for bile duct injuries and liver trauma. Leicester HPB also has the largest series of total pancreatectomy and autologous islet cell transplantation in Europe.

The philosophy of the unit is “not just to meet but to surpass all standards in clinical care and research excellence”.

Existing Arrangements

The team is comprised of seven HPB Consultants, three Clinical Nurse Specialists, two Multi-Disciplinary Team (MDT) coordinators, a data analyst, clinical assistant and administration and support staff.

The work of the unit can broadly be divided into four main streams:

- Endoscopic work (ERCP and endoscopic ultrasound (EUS));
- Cancer and major resections;
- Major complex Biliary work;
- Laparoscopic Cholecystectomy and day case procedures.

40% of all emergency surgical admissions relate to biliary diseases. National recommendations from both the Association of Surgeons of Great Britain and Ireland (ASGBI) and recent NICE guidance have strongly recommended that biliary diseases are managed as a separate tier of emergency by appropriate surgeons.

Although biliary pathology is already streamed to LGH, some operations are not always undertaken in a timely fashion due to emergency theatre pressures at LGH.

The HPB service is continually refining and developing its service, to provide real patient improvements. Present initiatives include:

- Day case laparoscopic cholecystectomy;
- Enhanced recovery for post-operative patients;
- Expedited or “hot” gallbladder service;
- Enhanced ERCP service of out of area referrals;
- Multi-disciplinary chronic pancreatitis clinics;
- Emergency pancreatic cancer resection pathway;

- Prehabilitation preoperative clinics;
- Patient recovery coaches.

HPB Services at GH

The HPB surgeons are not on-call 24/7 at LGH currently because of a combined rota with the colorectal surgeons. Separating the emergency take into specialist services between LRI and GH will ensure the most appropriate surgeon manages the right patients. This will ensure there is timely input from specialists for patients in ED and support the delivery of 7-day service standards.

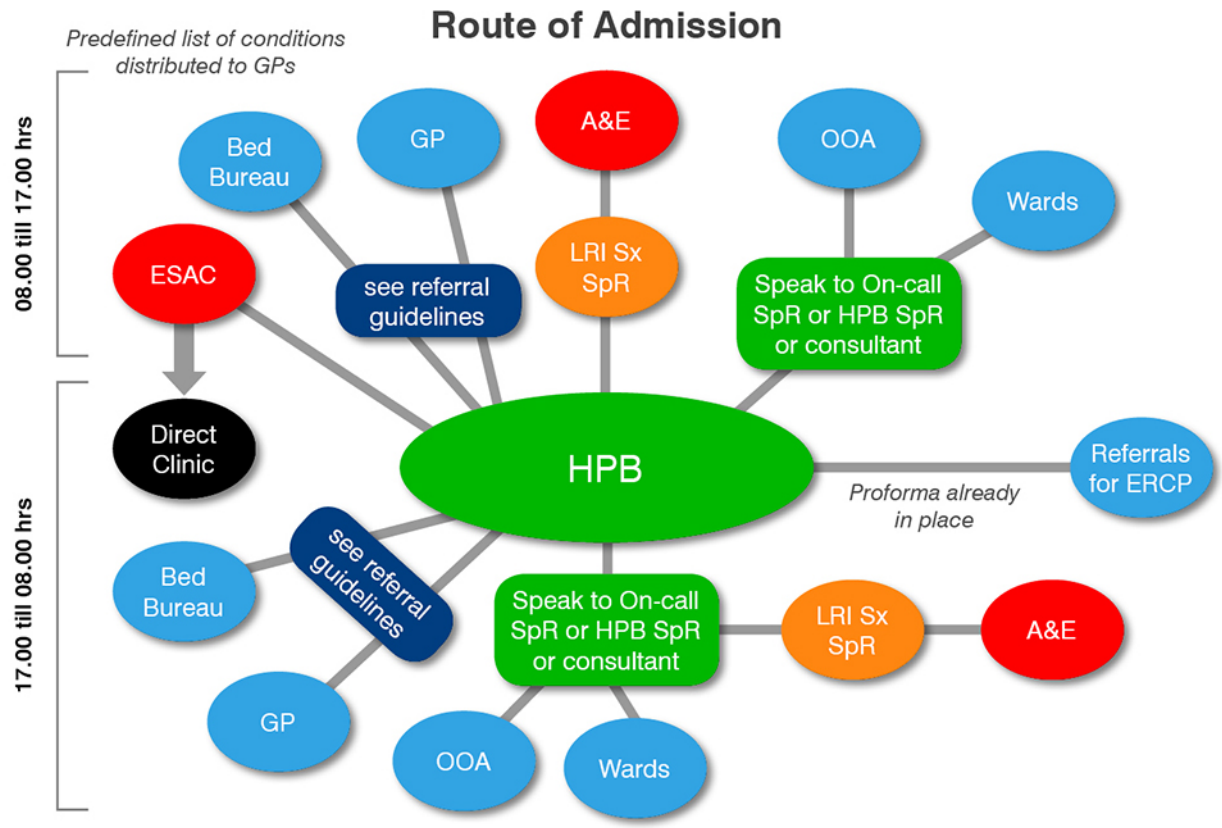
It will also deliver a reduced length of stay, reductions in readmissions and reduced activity for commissioning CCGs.

The HPB surgeons will undertake a 1:7 on-call service at GH managing all biliary diseases, which will account for 40% of the emergency surgical take.

The HPB Clinical Operational Policy includes the patient pathways that will be in place with the formation of a standalone HPB unit at GH, with the inclusion of admission criteria.

Although the inpatient and emergency service will relocates to GH, Outpatient and day case activity will remain at LGH. This will mean a change in the way of working in clinics; via the use of more all day clinics with two consultants running parallel clinics. Figure 17 identifies the source of patients to the HPB service:

Figure 18 - Route of Admission to HPB Service



*ESAC (Emergency Surgical Ambulatory Care)
**SpR Specialty Registrar

HPB Activity – Capacity Requirements

Theatre Capacity

HPB requires 13.5 weekly theatre sessions (incorporating evenings and weekend working). This excludes day case operating lists, which will continue to be based at LGH. The service requires access to an emergency 24-hour theatre (non-resident staffing from 20:00). There are ~~of~~ 2.1 cases per day on average.

Table 42 - HPB Activity Analysis

	Cases	Time Taken (mins)	Percentage
Overall activity	1,045	85,711	n/a
HPB surgical activity (per cons)	859	52,118	82.2% of all cases taking 60.8% of all theatre time
HPB surgery (filtered to HPB procedure type)	533	40,536	62% and 78% respectively of total cases and time undertaken by HPB surgeons.
Projected increase *	240	27,480	n/a
Projected HPB activity	733	70,180	n/a

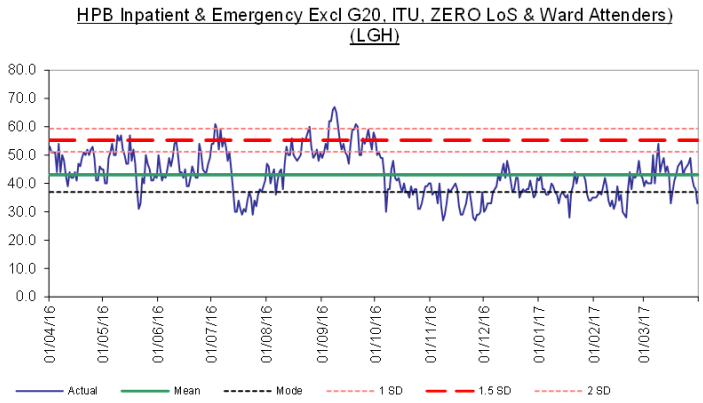
*800 laparoscopic cholecystectomies performed annually, 30% present as emergencies, 240 per annum.

*Average operation duration (from emergency data) 116 minutes.

Bed Capacity at GH

55 inpatient ward beds are required for emergency and elective patients, to deliver capacity at 1.5 Standard Deviations from the mean as identified in Figure 22 below.

Figure 19 - HPB Inpatient and Emergency (LGH)



Min	27
Max	67
Mean	43
Median	42
Mode	37
1 SD from Mean	51
1.5 SD from Mean	**55.3**
2 SD from Mean	59.3
85% LOS Method	50.7

Impact for Urology

It has recently been confirmed by the Trust that the location for urology services in the long term will be GH site. An interim solution will be put in place in advance of this with the relocation of Level 3 ICU services from LGH. Planned level 3 ICU urology patients will have their surgery at GH and be looked after, following discharge from ICU, on one of the new HPB wards. Unplanned level 3 patients will be transferred to GH by the retrievals service that will be in place.

2.11.2 Transplant Services

The renal transplant and nephrology service at UHL provides inpatient, outpatients and renal dialysis services for patients with kidney disease within the East Midlands Network covering Leicestershire and Rutland and the surrounding counties of Northamptonshire, Lincolnshire, Peterborough city and parts of Cambridgeshire. The service is based on an MDT approach, often with joint management between transplant and nephrology.

The components of the clinical services are:

- Inpatient care of patients with acute nephrology problems and patients with advanced CKD or end stage renal failure with inter-current illness or complications related to dialysis including vascular access problems;
- Inpatient care of patients undergoing renal transplantation (both live donor and deceased donor) and of renal transplant patients with inter-current illness or complications related to renal transplantation;
- Vascular access inpatient and day case surgery;
- Outpatient care of patients with renal disease (general nephrology, advanced chronic kidney disease, renal transplants, established kidney failure, specialist nephrology clinics (genetic renal obstetric, young adults, vasculitis)] and specialist surgical clinics (live kidney donor, endocrine);
- Specialist outpatient transplant care: including plasma exchange, kidney biopsies, rejection treatment, IV medication and dressing management;
- Nephrology and Transplant ambulatory care service (currently based on LGH Ward 10);
- Renal community teams providing pre-dialysis care, home dialysis care and End of Life Care;
- Haemodialysis at 11 sites across the East Midlands including the main unit at LGH (which has 29 stations);
- Peritoneal dialysis programme;
- Home haemodialysis programme;
- General surgery activity;
- Clinical research team.

The inpatient facilities at LGH consist of the areas identified in Table 52 below:

Table 43 - Inpatient Facilities at LGH

Ward	Beds	Description
17	14 including 2 en-suite side rooms)	Transplant ward
15A	7 plus 2	High dependency and 2 haemodialysis beds
15N	17	Female nephrology
10	18	Male Nephrology
Total	**58**	

This case moves the existing transplant beds from Ward 17 to GH and reduces the total number of Transplant beds from 14 to 12. There is a recognition that the resulting site spilt for transplant and

nephrology is only clinically sustainable over a short term period, not least because of the pressure this will place on small consultant workforce. The Trust is therefore developing separately the options to move nephrology to GH, at an early stage, at low cost. This will be subject to a separate business case.

The criticality of moving transplant first relates to its requirement, in accordance with the National Service Specification, to be co-located with both Level 3 ICU and also with access to a 24/7 emergency theatre.

The separation of the two services is highlighted as a risk and mitigations have been established to manage this risk. It is only the inpatient and emergency element of the transplant service which will move within project; day case and outpatient services will remain at LGH in the short term, with transplant outpatients being moved to GH as soon as practically possible.

The transplant service uses 7 theatre sessions per week. There has been fluctuation over the last three years in both living and deceased donor transplant numbers, as shown in Table 53 below:

Table 44 - Transplant Figures

Year	Living	Deceased	Total
2014/15	32	80	112
2015/16	21	71	92
2016/17	26	84	110
2017/18 (plan)			122

Table 45 - Transplant Activity 2016/17

Activity Type	Spells	Bed days	Average Length Of Stay
Inpatients	51	286	5.6
Emergencies	329	1,834	5.6

The co-location of renal transplant services with cardiology, cardiothoracic and vascular at GH brings synergies that will further enhance the outcome of renal patients with multiple co-morbidities.

Until the long term reconfiguration is delivered there will be a requirement for cross site working for both consultant and middle grade medical staff. The transplant surgeons and transplant nephrologists will provide all inpatient care at GH, but will continue to have a base at LGH where outpatient clinics, day case activity and MDT meetings will take place. The principle pressure will be to provide appropriate medical cover for both sites out of hours and at weekends. This will be managed from existing revenue resources.

2.11.3 Theatre Capacity at GH

The additional demand on theatre capacity at GH from the service moves is outlined in Table 55 below, together with the plans for how this will be met.

Table 46 - Demand for Theatre Capacity at GH

Service	Sessions required
HPB - emergency	Emergency theatre access (5 sessions required to create a emergency theatre

Service	Sessions required
	at GH with vascular exiting sessions)
HPB - elective	13.5 sessions (including evening and weekend working)
Transplant - emergency	emergency theatre access
Transplant - elective	7
Total	**25.5**

Table 56 below identifies that there is sufficient available capacity for the move of additional surgical activity to GH.

Table 47 - Available Theatre Capacity at GH

Theatre	Sessions
Theatre 6 – General Surgical day case activity to be relocated to LGH	10
Theatre 1 paediatric cardiac sessions – if UHL retains Children's congenital heart disease services (NHSE service review and consultation into congenital heart disease services currently ongoing), the Trust will relocate this service to LRI by July 2019. If the service is decommissioned these sessions will be vacated.	8
Extending theatre operating sessions, in line with the Trust's Operational Policy, to include three session days and six days elective operating.	8
Total	**26**

2.11.4 Interventional Radiology

The principal objectives of UHL's imaging services are to provide high-quality, safe, efficient and effective patient imaging at the right time and in the right place to facilitate timely decision-making and treatment planning throughout the patient journey.

Imaging services are provided across all three UHL sites, LRI, GH and LGH, and to all referrers and patient groups. The service aims to meet both national diagnostic waiting time targets and internal standards for inpatient and emergency imaging.

In essence, the objectives of the service are to:

- Improve patient experience by providing equality of access to the full range of diagnostics and interventions, ensuring that patients are receiving a high quality service, with access to the most modern techniques;
- Deliver high quality, safe, efficient and effective Imaging at the right time in the right place to facilitate timely decision making and treatment planning;
- Ensure the right level of accessibility to services and treatments offered in conjunction with other services;
- Work jointly with other services to optimise care and enhance the patient journey;
- Ensure patients are as safe as possible throughout each procedure working within national guidelines;
- Meet national guidelines and benchmarks;
- Best utilise the equipment resources available to offer a responsive and timely service;

- Provide emergency Interventional Radiology (IR) across all modalities 24 hours per day 365 days per year;
- Ensure a collaborative approach to patient pathways and outcomes;
- Develop and sustain the resilience of IR in terms of facilities and workforce;
- Support and enhance the academic components of the service, and development of the workforce;
- Employ and retain motivated (proud and happy), competent staff in a robust workforce plan, underpinned by robust design and escalation processes to provide internal and external support to maintain quality and speed of patient care;
- Assist in the Improvement mortality and morbidity rates for patients and improve survival rates following hospitalisation.

This FBC identifies the changes required within GH's imaging services in order to support the immediate clinical need to re-locate Level 3 adult critical care activity from LGH. It proposes the preferred option for investment in imaging services that will ensure optimal clinical outcomes while maintaining efficiency and value for money.

The benefits of this project will include:

- The co-location of additional capacity alongside the existing imaging department will allow for efficient flow of patients;
- The expansion of imaging will allow interventional procedures to be carried out for HPB and Renal Transplant;
- Critical adjacencies will be met to facilitate urgent response in case of emergencies;
- Effective use of resources, staffing and equipment;
- Provision of support services that provide the same quality and capacity as the current facilities in the right place at the right time;
- Essential adjacency of the IR suite to ICU Level 3 for patients undergoing Endoscopic retrograde cholangiopancreatography (ERCP);
- HPB co-location with Level 3 care is vital. Interventions by Gastro Intestinal (GI) radiologists are frequent for HPB patients;
- Avoidance of patient transfer to another site – which would be necessary if GH did not provide the requisite imaging services. Thus the investment will deliver safer patient pathways and an improved patient experience – the right care in the right location at the right time.

Due to the staggered nature of this reconfiguration, the IR departments will be required to provide services on all three sites in four locations. Each IR department has an essential requirement for daycase and recovery facilities. These areas require safe staffing at all times in order for the IR departments to operate. As the transfer of Urology and Nephrology is not associated with these planned service moves at this time, there is a requirement to provide IR services on GH and LGH simultaneously. In providing this the radiology department suffer inefficiencies in staffing provision in the short term.

There is also a need to dual run 2 departments and these need to be adequately stocked and all essential equipment to support the patients' intervention must be present. There can be no transfer

of equipment from LGH to GH for the interim period as both departments will be fully operational at the same time.

UHL Clinical Support and Imaging CMG Service Level Objectives 2016/17 and 2017/18

The UHL Clinical Support and Imaging CMG Service Level Objectives relevant to this OBC include:

Table 48 - Clinical and Imaging CMG Service Level Objectives

Trust objective	Service objective	CMG service initiative	Key Performance Indicator (KPI) / Outcome	Risks to achievement / interdependencies
Provide safe, high quality, patient centred health care	Identify existing gap and develop workforce plans / new models of working to deliver required standards	Develop and implement consistent 7-day working models	Delivery of 10 Keogh Standards, reduced incidents and complaints, increased uptake of 'Nerve Centre'	Financial affordability, ability to recruit to vacancies
Consolidate our status as provider of choice	Build on existing specialist expertise to develop international reputation, enhance research profile	Establish Forensic Imaging / Post Mortem CT service	Improve patient / carer experience and choice, increased market share, CIP delivery, increased research trials / income	Subject to agreement on funding by Councils, demand for a private patient service unknown
Provide safe, high quality, patient centred health care	Respond to increasing activity demands with sustainable solutions	Expand Imaging Consultant Workforce	Reduced waiting times, delivery of targets, Improved turnaround times, improved quality, reduced premium spend	Ability to recruit to vacancies in specialist areas, pace of demand outstrips recruitment

These objectives have provided an over-arching framework as developments within this OBC have been constructed and remain deliverable in the context of the overall ICU project.

UHL Imaging Services: Current Activity and Demand

Imaging services are provided across all three UHL sites and to all referrers and patient groups. Specialised imaging services are offered to all referrers and patient groups at the locations where the clinical services are based/in line with agreed patient pathways.

GP and out-patient activity for all modalities are provided on each site. The only restrictions are for examinations requiring specific machine specifications and/or clinical supervision. (These are normally aligned to the inpatient services provided on the site in question.)

Inpatient imaging services are provided on each site. They are supported by radiologists with specific specialist interests (e.g. cardiac radiologists based at GH, GI radiologists split between LRI and LGH).

Radiographic, nursing and support staffing is based upon machine opening hours and is dependent on:

- The complexity of procedures;
- The demand for individual modalities;

Imaging services are provided in all the main specialties at the Trust's Hospitals, for both adults and paediatrics, plus all sub-specialty services (including stress cardiac MR, vascular and renal interventional radiology and forensic Computerised Tomography (CT)). Services (except Breast Imaging and Nuclear Medicine) operate on a 24/7 basis depending on clinical urgency. IR has been provided on the GH site since the move of the vascular surgery service from LRI to GH in May 2017 but does not provide any surplus capacity to support interventional radiography for HPB and Renal Transplant.

UHL imaging medical equipment includes:

- 9 multi-detector CT scanners;
- 9 magnetic resonance scanners;
- 6 cardiac catheter rooms;
- 4 interventional radiology rooms;
- 3 fluoroscopy rooms;
- A Hybrid Theatre.

There are also ultrasound, plain film (both computed (CR) and digital (DR) radiography), nuclear medicine and general fluoroscopy equipment at all three sites. Equipment support and the replacement programme is covered by the Managed Equipment Service (MES), provided by Althea, until 2025/26.

Breast imaging supports screening and symptomatic services for Leicestershire. Mobile Positron Emission Tomography/Computed Tomography (PET-CT) facilities are provided under the Department of Health (DH) independent sector initiative.

UHL imaging services adhere to Royal College of Radiologists (RCR) guidance, ionising radiation legislation including Ionising Radiation (Medical Exposure) Regulations (IR(ME)R) and Ionising Radiation Regulations (IRR) regulations. The department has passed recent inspections from Health and Safety Executive (HSE) and Department of Health (DH) in the compliance of these regulations, and aspires towards UKAS accreditation.

Demand and Capacity Modelling for Current Activity and Demand

Models of care take into account factors including patient type, specialty and modality. A detailed piece of work was undertaken by the Imaging team to determine the future state of activity across all three sites at an early stage in the project. The following considerations were:

- Access to all imaging sites and services ensures that all patient types from all referrers and locations have equal access to imaging services;
- Patients range from the fully ambulant to the clinically unstable. Access for out-patients including GP referrals is readily available;
- UHL ensures that reception areas can cope with any peaks in demand for imaging;
- Easy access to the main entrance and/or patients/visitor car parking facilities is important. Where possible, inpatients approach the department through separate access and have appropriate waiting areas to accommodate both ambulant and bed patients;
- The need for 24 hour access (with appropriate security restriction at night);
- The design solution is sensitive to differing cultural and religious requirements of the population, especially in terms of maintaining privacy and dignity.

UHL Imaging Services: Future Activity and Demand

Detailed capacity and demand planning was undertaken at an early stage in this project to assess the impact of moving Level 3 reliant activity between sites (and particularly which activity requiring IR) would move to GH.

The provision of IR on GH is required to support the move of HPB and vascular access inpatient services. Each service has a different requirement in terms of IR due to the variance of procedures undertaken across specialities.

Monitoring will continue to ensure that activities are performed at the relevant sites so as to meet clinical and organisational waiting times (independent of specialty sites except where supervised scanning/procedures are performed). The capacity being provided through this OBC represents re-provision of existing capacity – the key change proposed is the site of the IR rooms. There is no proposed increase in overall IR provision.

The following facilities will be developed on the GH site:

- Three IR rooms;
- An Interventional Ultrasound Scanner (USS) Room.

In summary, two IR rooms relocate from LGH to GH, with one of the rooms receiving new equipment as part of the Managed Equipment Service (MES) and one room at GH relocating to the new IR department. At the point that all moves are complete and Urology and Nephrology have moved from LGH, the remaining IR room will transfer from LGH to GH.

The existing USS area will be extended to reflect the transfer of increased ultrasound inpatient capacity, and the fluoroscopy room will become an interventional USS room to support the transferring workloads with HPB.

Specialty-specific pathways have been developed for HPB, Urology, Renal and Vascular to support the changes set out in this FBC.

2.12 Main Benefits Criteria

In the context of the outlined service strategies, the Trust's strategic objectives and the proposals incorporated with the STP, the Specific Measurable Achievable Realistic Time (SMART) objectives for this project are detailed below, and are within the Benefits Realisation Plan attached at Appendix 11.

Satisfying the potential scope for this investment will deliver the following high-level strategic and operational benefits.

Table 49 - Investment Objectives and Benefits

Objectives		Measurement
A	To provide a solution that maximises clinical quality and safety.	Reduced DATIX incidents, associated with this group of patients, relating to serious harm

Objectives		Measurement
B	To deliver, at the earliest possible opportunity, a sustainable Level 3 ICU service across the Trust	Reduced elective cancellations Removal of risk for on-going provision of Level 3 service at LGH. 4 hour transfer time cross site for Level 3 patients.
C	To deliver an ICU solution that facilitates recruitment and enables the delivery of high levels of teaching and training.	Reduced staff turnover Reduced vacancy factors Reduced agency expenditure
D	To ensure that the quality of the patient environment and experience remains a priority	Increased single room provision Improved privacy and dignity Improved infection prevention.
E	To provide a solution which fits with future Trust reconfiguration plans and is consistency with the DCP	Timeline and sequencing of reconfiguration programme
F	To deliver a solution that ensures accessibility to services and maximises clinical adjacencies.	Delivers essential clinical adjacency and most of desirable.

The main 'dis-benefits' are as follows:

- Some separation of clinical service between two sites until the long term Reconfiguration Programme is complete;
- The requirement, for the duration of the full Reconfiguration Programme, of a retrieval service which ensures patients cared for at LGH requiring unplanned Level 3 ICU care can be safely transferred to GH or LRI.

2.13 Main Risks

The main business and service risks (design, build and operational over the lifespan of the scheme) associated with the scope for this project are shown below, together with their mitigations. Further details can be found within the full project risk register (Appendix 12).

Table 50 - Main Risks

Main Risk	Mitigation
Business Case	
Timescales are delayed to due to approval processes required for OBC and FBC	Business Cases will allow for the current programme and highlight how transitional costs and phasing will be managed
Estates	
Inability to undertake enabling works to allow schemes to deliver on time	Solutions for enabling moves have been identified and agreed. Communication plan with those impacted in place.
GH Wards - Design is derogated and does not meet NHS standards	Derogations agreed and approved by a number of key stakeholders, inc IP etc who have agreed space functionality and impact on patient quality
GH Wards - Concern re reliability of existing Asbestos information within existing building, leading to added expenditure required for surveying / removal of any asbestos that is present.	Review asbestos drawings. Full R&D survey to be undertaken at next stage.

Main Risk	Mitigation
GH Wards - Disruption to clinical activities caused by noise or vibration from construction works. Delay to programme and risk of late delivery	Detailed disruption management plan to be produced. Communications strategy to be agreed with teams operating in the affected area. Regular construction updates to be issued. MTX have confirmed adherence to restrictions set out in Glenfield Contractor Handbook.
GH Wards - Further restrictions to those agreed during the contract negotiations	If working hours need changing to reducing the impact the works have on the operations of the hospital additional costs and or programme implications may be incurred. Regular work planning meetings with MTX and Trust
IR Project - Asbestos survey to be completed when area vacated	Whilst an asbestos survey has been carried out, a further R&D survey will be required once the area has been emptied and access given for the survey.
IR Project - Early enabling works commencement	The main IR project cannot start until the new office accommodation and new med records store (Mansion house and the Snoezelen). The trust has undertaken extensive surveys to better understand the extent of the issues. Asbestos has been removed from the building in preparation for the main works
IR Project - Undertake full survey of project area	Whilst the area has been surveyed and as installed drawings referred to, a detailed services survey will be undertaken once occupation is given.
IR Project - Ensure works are sealed.	The project is an internal refurbishment adjacent to theatres and an existing X Ray dept. We will be consulting with the IP dept to install negative pressure fans with appropriate filters to assist with a dust management regime. More detailed business continuity plans have been developed – see Section 4.4
LRI Wards – the main risk is dust affecting adjacent clinical areas and public areas	The site boundary is clearly defined by the ward envelope and affords the opportunity to fully enclose the site, with entrance hoarding and keeping all perimeter windows closed during construction works. In addition, the contractor will deploy air scrubbers to filter dust in the environment and tac mats at the site access/egress point. The tender specification specifically required the contractor to allocate resource to clean and maintain the routes to and from the site location on a regular basis
LRI wards - Movement of materials and waste through public areas	The contract will restrict the times during which materials can be moved to site and waste can be moved from the site. All waste will be moved in sealed wheeled containers. Large items of materials will be moved in the early morning or late evening (after visiting hours) and will be accompanied by a banks man.

Main Risk	Mitigation
LRI Wards - Noise and vibration	The Trust Project Manager has extensive experience in delivering refurbishment projects in the heart of the building concerned. As a result, the following key mitigations will be established: • Regular and detailed communication with ward matrons/sisters and other stakeholders, highlighting noisy activities and when they will take place • Restriction of the times during which contractors can carry out noisy activities • Supply of ear plugs where necessary and appropriate • Elimination of unnecessary noise from the site, such as the use of music/radios and the use of radios to communicate rather than shouting when cabling pulling etc
Operational	
Managing ICU demand and capacity during the construction period	Construction period to avoid forecast surge period as far as possible, plans to maintain flow from ICU with GH services agreed and in place together with contingency arrangements for ICU beds.
Insufficient theatre capacity at GH & LRI to meet the demand requirements	Clinical input and sign off of assumptions. Detailed work under the Theatre Programme Board to support, areas highlighted for improvements in theatre utilisation and efficiency.
Workforce and OD	
Effective and sustainable medical cover across all sites for impacted services.	On-going workforce planning and rostering across all sites for all specialties with education and service leads. Plans being developed for the final model (full reconfiguration) with impact for interim solutions. Builds on work already commenced to move vascular from LRI to GH.
Finance	
Delivery of identified cash and non-cash releasing savings	Appropriate governance and sign up within the Trust, implementation plan and monitoring agreed with ownership and accountability in a place.
Communications	
Securing sufficient CMG & clinical engagement throughout the life of the project	Planning through programme for input required. Clinical input funded through project. Clinical Operational Policies owned by CMGs.

2.14 Constraints and Dependencies

The following outline the key constraints and dependencies associated with the delivery of this project and its component schemes.

- There will be multiple construction locations on GH site at the same time, with different constructors accessing the site simultaneously. This will require careful management for the associated workforce and deliveries to site to minimise the impact for staff and patients moving around the site on a daily basis;

- Multiple site compounds on GH at the same time will adversely impact on the provision and availability of parking for staff and potentially patients. There will be additional flexibility for staff in accessing both on-site and off-site car parks for GH, and the availability of on-site parking will be maximised as far as possible during the construction period. An additional 80 space temporary car park is being constructed to support a scheme which is being undertaken by Leicestershire Partnership Trust (LPT) on the GH site. We have negotiated the beneficial use of this site during the ICU construction period in exchange for granting a temporary licence for LPT to place it on our land.
- At various stages of construction there may be a requirement to find alternative hospital access points to support constructors' needs. These have been identified and a plan developed to manage the consequences;
- Construction work will take place both above and below live operational areas. A plan will be put in place to minimise disruption during working hours and monitor the situation with regard to impact on operational areas. Business continuity plans are summarised in Section 4.5
- There is a requirement to ensure access can be provided at all times, through the construction period, to the GH main entrance, mortuary and pharmacy. This will be managed by identifying alternative routes, limiting disruption duration and use of out of hours working;
- The central operating department at GH is directly above the IR construction site. Noise and impact of vibration will be minimised during the working day. The impact on theatres will be monitored and assessed, with alternative plans put in place if necessary;
- Access to the IR area is dependent on the successful decanting of offices and medical records within their new facilities in the Snoezelen building and Mansion House. Delays in either the enabling work or the decanting will delay the commencement of construction for IR;
- Major electrical shutdowns will be required to provide the required infrastructure. This will be managed at an appropriate time to minimise disruption to clinical services and staff, and there will be communication across he site to ensure awareness, impact and timescales;
- Existing electrical and mechanical services will require relocating to provide a clear site for ward installation. This will be managed to minimise downtime and as far as possible prevent loss of clinical activity. Ventilation plant will be replaced with new compliant equipment which can be pre-installed thus minimising downtime;
- The existing live ICU department is adjacent to construction area and the impact on this area for noise and vibration will be minimised
- Works required that will affect adjacent catheter department – these works will be planned in accordance with that department to minimise disruption
- Works required that will affect adjacent outpatients department – these works will be planned in accordance with that department to minimise disruption
- Requirement for the implementation of the outcome of the tender process for the new UHL decontamination service prior to the transfer of HPB to GH.
- Completion of programme of work to refurbish and improve LRI operating theatres prior to service moves;

3 The Economic Case

3.1 Introduction

This chapter describes the options for delivering improved critical care provision on the Glenfield Hospital (GH) and Leicester Royal Infirmary (LRI) sites in terms of their relative benefits and costs. It confirms the preferred options for each scheme after the detailed work in developing each option. The Economic Case reflects the overall option of closing level 3 critical care at the Leicester General Hospital (LGH) and transferring associated services to the other two acute sites, and a 'Do Nothing' option.

3.2 Overall Economic Position for Critical Care

As part of the OBC the Trust has reviewed its overall position in respect of transferring all services related to the provision of level 3 critical care services from the LGH to the LRI and the GH. A high level economic appraisal was carried out which compared a 'Do Nothing' scenario with respect to the critical care facilities at the LGH with a scenario which moves critical care beds and associated services from the LGH to the LRI and GH. Whilst other options were possible, the preferred option was seen as the only one that is consistent with the Trust's long-term financial and clinical strategy of re-providing all acute services at the LRI and GH sites.

The Business case is for the movement of Critical Care and related services off the LGH site to the GH and the LRI. A Do Nothing scenario has been modelled for these moves not taking place. As the relocation of critical care is the preferred option, the shortlisted options for the re-provision of critical care beds and ward beds and for providing IR at the GH have been assessed. A Do Nothing option for each of these elements has not been undertaken as this would be inconsistent with the specified preferred option of relocating Level 3 ICU and associated services.

3.2.1 Summary of the Overall OBC Appraisal

The overall OBC options appraisal is summarised as follows:

Table 51 - Combined ICU Project Scores

	Net Present Cost		Equivalent Annual Cost	
	Do Nothing	Relocation of ICU	Do Nothing	Relocation of ICU
GEM Generated NPC/ EAC £'000	1,877,164	1,575,107	70,789	59,398
Risk Adjustment NPC/EAC £'000	23,823	38,292	898	1,444
Risk Adjusted NPC/EAC £'000	**1,900,987**	**1,613,398**	**71,687**	**60,842**
Benefits score	298	793	298	793
Cost Per Benefit Point £'000	**6,390**	**2,036**	**241**	**77**

Based on cost per benefit points the relocation of ICU and associated services scores over 3 times more preferably than the Do Nothing scenario, and is therefore clearly the preferred option.

3.2.2 Changes since OBC

In reviewing the OBC, NHSI requested that the Trust highlight both cash releasing and non-cash releasing savings. The OBC focused on the net additional cost of each of the developments. Although there were savings identified from moving off the LGH site, these savings were offset by additional costs required to deliver the repatriated services on the other 2 sites. However as a result of the realignment of ICU capacity and the decoupling of HPB from the General Surgical take, potential savings have been identified. These can be summarised as follows:

Table 52 - Quantified Benefits

	Benefit £	Cash Releasing £	Non Cash Releasing £
HPB Efficiencies	514,000		514,000
Cancelled Day Case operations	100,000	100,000	
Cancelled Operations - Premium rate sessions	273,840	273,840	
Increased ECMO capacity	340,200	340,200	
Cost of ECMO Capacity (34 bed days)	(40,000)	(40,000)	
Savings from waiting list initiatives	2,312,000	2,312,000	
Savings on premium rate expenditure	250,000	250,000	
Reduction in assessment of additional estates costs	155,000	155,000	
Total	**3,905,040**	**3,391,040**	**514,000**

3.2.3 Confirmation of the preferred option as a result of the detailed design process

As a result of further work on the preferred options at OBC, capital costs have been revised to reflect this further detail. In summary the costs have changed as follows:

Table 53 - Capital cost changes from OBC to FBC

	OBC £'000	FBC £'000	Percentage Change
Glenfield Wards			
Exc VAT	15,118	14,608	-3.37%
Inc VAT	17,936	17,175	-4.24%
ICU			
Exc VAT	4,389	4,383	-0.14%
Inc VAT	5,171	5,075	-1.85%
Interventional Radiology			
Exc VAT	5,312	5,426	2.14%
Inc VAT	6,056	6,229	2.86%

LRI Wards			
Exc VAT	1,440	2,019	40.22%
Inc VAT	1,634	2,320	41.97%
Total			
Exc VAT	26,259	26,436	0.68%
Inc VAT	30,797	30,800	0.01%

Overall there is no material change in capital costs. However there are a number of changes within each scheme which are shown and explained in the tables below:

Table 54 – GH ward: Capital cost changes from OBC at scheme level

Glenfield Wards	OBC £	FBC £	% Change
Departmental Costs	10,062,386	10,519,043	4.54%
On Costs	503,119	726,691	44.44%
Works cost	10,565,505	11,245,733	6.44%
Provisional Location Adjustment	0	0	0.00%
Sub total	10,565,505	11,245,733	6.44%
Fees	1,407,232	1,616,263	14.85%
Non Works Cost	0	0	0.00%
Equipment Cost	1,267,861	477,155	-62.37%
Planning Contingency	849,467	784,943	-7.60%
Optimism Bias	1,028,575	484,343	-52.90%
Total (Excluding VAT)	15,118,640	14,608,438	-3.37%
Non recoverable VAT	2,818,076	2,566,729	-8.92%
Total Outturn	**17,936,716**	**17,175,167**	**-4.25%**

On costs

The on costs have increased as the works are now designed and priced; during the design period the scope of works was more fully defined and expanded. This accounts for the increase in cost.

Fees

As the overall project programme has been extended, the internal Trust fee has increased by £209,000 to account for internal resources being engaged for an increased period of time.

Equipment

The equipment schedule has been ratified and challenged, which has resulted in a reduction from the OBC level, as a significant amount of equipment will now be transferred as opposed to procured as new.

Table 55 - ICU: Capital cost changes from OBC at scheme level

ICU	OBC £	FBC £	% Change
Departmental Costs	2,670,302	2,885,557	8.06%
On Costs	133,515	125,000	-6.38%
Works cost	2,803,817	3,010,557	7.37%

Provisional Location Adjustment	0	0	0.00%
Sub total	2,803,817	3,010,557	7.37%
Fees	481,963	506,499	5.09%
Non Works Cost	0	0	0.00%
Equipment Cost	580,000	506,941	-12.60%
Planning Contingency	225,427	210,739	-6.52%
Optimism Bias	298,658	148,216	-50.37%
Total (Excluding VAT)	4,389,865	4,382,952	-0.16%
Non recoverable VAT	781,580	692,492	-11.40%
Total Outturn	**5,171,445**	**5,075,444**	**-1.86%**

Departmental Costs

The Departmental Costs have increased from OBC value as the Drager pendants are now incorporated in the main contract works as opposed to Equipment Costs.

On costs

The on costs within the OBC were a percentage allowance, this work has now been tendered, which has resulted in a small cost reduction.

Fees

As the overall project programme has been extended, the internal Trust fee has increased to account for internal resources being engaged for an increased period of time.

Equipment

Equipment costs have reduced as the Drager pendant cost is included as part of Departmental costs.

Table 56 - IR: Capital cost changes from OBC at scheme level

IR	OBC £	FBC £	% Change
Departmental Costs	2,393,191	2,912,220	21.69%
On Costs	1,214,319	651,691	-46.33%
Works cost	3,607,510	3,563,910	-1.21%
Provisional Location Adjustment	0		0.00%
Sub total	3,607,510	3,563,910	-1.21%
Fees	693,834	733,867	5.77%
Non Works Cost	0	0	0.00%
Equipment Cost	360,000	695,154	93.10%
Planning Contingency	290,044	249,474	-13.99%
Optimism Bias	361,452	183,484	-49.24%
Total (Excluding VAT)	5,312,840	5,425,890	2.13%
Non recoverable VAT	743,425	803,335	8.06%
Total Outturn	**6,056,265**	**6,229,225**	**2.86%**

Departmental Costs

The Mansion House and Snoezelen enabling works have been designed and tendered. The price following tender evaluation has been moved from on costs to Departmental Costs, which has resulted in the price increase.

On costs

The enabling works have been moved to Departmental Costs. Only the electrical infrastructure upgrade is now included in on costs.

Fees

As the overall project programme has been extended, the internal Trust fee has increased to account for internal resources being engaged for an increased period of time.

Equipment

The equipment schedule has now been finalised and includes the moveable racking and tugs required for the medical records store within the Snoezelen building.

Table 57 - LRI Wards: capital cost changes from OBC at scheme level

LRI Wards	OBC £	FBC £	% Change
Departmental Costs	874,308	1,403,995	60.58%
On Costs	43,715	0	-100.00%
Works cost	918,023	1,403,995	52.94%
Provisional Location Adjustment	0	0	0.00%
Sub total	918,023	1,403,995	52.94%
Fees	240,091	289,208	20.46%
Non Works Cost	0	0	0.00%
Equipment Cost	110,163	159,392	44.69%
Planning Contingency	73,809	98,280	33.15%
Optimism Bias	97,972	68,281	-30.31%
Total (Excluding VAT)	1,440,058	2,019,155	40.21%
Non recoverable VAT	194,092	300,603	54.88%
Total Outturn	**1,634,150**	**2,319,758**	**41.96%**

Fees

As the overall project programme has been extended, the internal Trust fee has increased to account for internal resources being engaged for an increased period of time.

3.2.4 Re-appraisal of Options

All schemes, except the Glenfield Ward scheme varied by less than 5% from the OBC. The NHSI checklist highlights that schemes where the capital cost increases by more than 5% need to be reappraised at FBC level. However the NHSI, in its approval of the OBC, indicated that each scheme needed to be reappraised; which has been undertaken. For the purposes of this

reappraisal, the changes in equipment costs have been assumed to be consistent across options where appropriate.

The appraisals also reflect the non-financial benefits highlighted in 3.2.2. They also allow for changes in lifecycle as a result of the changes in capital costs. The appraisals all reflect the revised assumptions on additional cash-releasing and non-cash releasing benefits.

The updated Generic Economic Models (GEM) are included in Appendices 13 to 17.

The results of the reappraisals for each option are as follows:

Table 58 - GH Wards re-appraisal

	Net Present Cost £'000		Equivalent Annual Cost £'000	
	Option 1	Option 2	Option 1	Option 2
GEM Generated NPC	419,436	431,039	15,817	16,255
Risk Adjustment	10,040	10,342	379	390
Risk Adjusted NPC	429,476	441,381	16,196	16,645
Benefits score	808	728	808	728
Cost Per Benefit Point	531.86	606.71	20.06	22.88

Option 1 remains the preferred option for the GH wards.

Table 59 - ICU Extension re-appraisal

	Net Present Cost £'000			**Equivalent Annual Cost £'000**		
	Option 1	**Option 2**	**Option 3**	**Option 1**	**Option 2**	**Option 3**
GEM Generated NPC	304,426	306,311	306,904	11,840	11,551	11,574
Risk Adjustment	4,111	4,432	4,459	155	167	168
Risk Adjusted NPC	308,537	310,743	311,363	11,635	11,718	11,742
Benefits score	740	700	840	740	700	840
Cost Per Benefit Point	**416.94**	**443.92**	**370.67**	**15.72**	**16.74**	**13,98**

Option 3 remains the preferred option for the ICU Extension.

Table 60 - IR re-appraisal

Appraisal Summary - ICU	**Net Present Cost £'000**			**Equivalent Annual Cost £'000**		
	Option A	**Option D1**	**Option D2**	**Option A**	**Option D1**	**Option D2**
GEM Generated EAC	626,540	621,535	622,383	23,627	23,438	23,470
Risk Adjustment	8,074	7,670	7,824	304	289	295
Risk Adjusted EAC	634,614	629,205	630,208	23,932	23,728	23,765
Benefits score	705	900	885	705	900	885
Cost Per Benefit Point	**900**	**699**	**712**	**33.95**	**26.36**	**26.85**

Option D1 remains the preferred option for Interventional Radiology.

Table 61 - LRI wards re-appraisal

NPC	**Option 1**	**Option 3**	**Option 5**	**Option 6**	**Option 9**
GEM Generated NPC £'000	817,487	817,487	817,487	817,487	816,327

Risk Adjustment £'000	15,488	15,488	15,488	15,488	16,189
Risk Adjusted NPC £'000	**832,975**	**832,975**	**932,975**	**832,975**	**832,516**
Benefits score	790	750	738	693	865
Cost Per Benefit Point	**1,054**	**1,111**	**1,129**	**1,203**	**962**

EAC	Option 1	Option 3	Option 5	Option 6	Option 9
GEM Generated EAC £'000	30,828	30,828	30,828	30,828	30,784
Risk Adjustment £'000	584	584	584	584	610
Risk Adjusted EAC £'000	**31,412**	**31,412**	**21,412**	**31,412**	**31,395**
Benefits score	790	750	738	693	865
Cost Per Benefit Point	**39.76**	**41.88**	**42,59**	**45.36**	**36.29**

Option 9 remains the preferred option for the LRI wards.

Further to advice from NHSI, the Do Nothing option has been reflected differently to how it was shown in the OBC; the loss of activity has been expressed as a cost of re-provision elsewhere as opposed to an income loss. The Trust has assumed that the lost activity can be repatriated at 80% of tariff. The impact on the Do Nothing option has been calculated assuming the following full year effect of activity loss.

Table 62 - Do Nothing - activity loss

Do Nothing / Business as usual	OBC £'000	FBC £'000
Income loss	25,372	
Savings	(9,480)	(9,480)
Cost of re-provision		20,298
Net Impact	15,982	10,818

The economic appraisal is summarised below:

Table 63 - Overall re-appraisal

	Net Present Cost		Equivalent Annual Cost	
	Do Nothing	Option 1	Do Nothing	Option 1
GEM Generated NPC/ EAC	1,769,459	1,488,371	66,727	56,127
Risk Adjustment	23,908	38,358	902	1,446
Risk Adjusted NPC/EAC	**1,793,366**	**1,526,729**	**67,629**	**57,574**
Benefits score	298	793	298	793
Cost Per Benefit Point	**6,028**	**1,926**	**227**	**73**

The changes in capital cost have a very small impact on the economic appraisal. The additional non-cash releasing benefits allowed for increase the differential between Option 1 and the Do Nothing option. This is offset by the change in methodology assumed in calculating the cost of the lost activity in the Do Nothing.

Following completion of the DH VFM template (Appendix 18) a Value for Money (VFM) ratio of 5.8 is achieved (discounted costs v. discounted benefits). This is reduced to a factor of 5.1 if reconfiguration does not take place.

4 Clinical Quality Case

4.1 Introduction

The Clinical Quality Case sets out how the proposed investment will improve the clinical quality of the Trust's services. It describes how the development will improve patient safety and experience by providing a clinically functional environment that facilitates efficient patient flows.

This case describes how the FBC is aligned to the Trust's clinical strategy to provide high quality services in a financially affordable and sustainable way. It also sets out how the investment will enable the Trust to support the delivery of a sustainable health economy in the future, strengthening the provision of emergency and elective care and providing care for the sickest patients.

The clinical leadership and engagement of clinicians has been fundamental through the life of the project to date and will continue through to the operational commissioning of the new facilities. They have supported the delivery of a design solution which satisfies national best practice guidance and standards, and improves the quality of the environment for patients, family and staff; whilst delivering a cost effective solution. The design solutions are detailed within this section.

4.2 Clinical strategy and Commissioning Intentions

As identified in the Strategic Case, the Trust's clinical reconfiguration strategy was first published in May 2014, for the period 2013/14 to 2018/19, and has now been updated to 2023. Our Vision is stated as "in the next 5 years, UHL will become a Trust that is internationally recognised for placing quality, safety and innovation at the centre of service provision. We will build on our strengths in specialised services, research and teaching and offer faster access to high quality care, develop our staff and improve patient experience, we call this…. "

…Caring at its best

UHL's clinical reconfiguration strategy is set in the context of the evolving, overarching LLR 5-year strategy, which is reflected in the LLR Sustainability and Transformation Partnership (STP). As such it is deigned to represent an appropriate secondary and tertiary care response that is consistent with the principles identified and the drive to optimise outcomes for patients and enhance quality of life. A number of strategic objectives underpin the vision:

- To deliver safe, high quality, patient-centred, efficient healthcare;
- To ensure that we have the right people with the right skills in the right numbers in order to deliver the most effective care;
- To deliver high quality and relevant education and research;
- To develop more integrated care in partnership with others;

- To progress our strategic enablers.

4.3 Clinical Sustainability

This project represents the next phase of the Trust's longer term Reconfiguration Programme to move to a two site acute Trust, as reflected within the LLR STP. Robust activity modelling has taken place to develop the 'acute bed bridge' which is informing the development of the revised DCP and UHL Estates Strategy, which have been finalised for the FBC submission.

The UHL 2018 Estates Strategy and DCP clearly and explicitly articulate the path, journey and timeline from where we are now to our final reconfigured state over the next 5 years.

The UHL Estates Strategy is a key component of the Trust's overall vision and represents the plans for future development and transformation of the estate in order to enhance the quality of the patient, visitor and staff experience. The strategy demonstrates the Trust's commitment to providing an estate that is:

- Functionally suitable for the delivery of high quality healthcare services;
- Located to provide the highest level of accessibility for patients, visitors and staff; that will be socially inclusive and Equality Act compliant;
- Designed and maintained to deliver a high quality clinical environment in spaces that are generic, flexible and future proofed;
- Well utilised, cost effective, life-cycled and both energy and environmentally friendly;
- Provides an inclusive environment i.e. one that can be used be everyone regardless of age, gender, and ethnicity.

The strategy tells the story about how the Trust intends to use buildings to change the way health care services are delivered, in particular the use of the estate in the delivery of the Trusts Clinical Strategy. A key foundation of the strategy is the reconfiguration programme and development Control Pans which will allow the Trust, subject to consultation, to transform the 3 acute sites and deliver the following benefits:

- Immediate schemes supporting service delivery;
- Revenue savings
- Reduction in outstanding backlog maintenance;
- Sustainable development;
- The disposal of part and re-use of the Leicester General Hospital site;
- Capital receipts.

4.4 Design and Build

4.4.1 Introduction

The Interim ICU FBC comprises:

- GH: 11 bed extension to ICU (net 3 bed increase across the 3 sites) – new build;
- GH: Additional 3 inpatient wards – new build;
- GH: Interventional Radiology suite – retained estate;

- LRI: Refurbishment to 3 existing inpatient wards.

The sections below outline both the individual elements of quality specific to each scheme and the more generic factors which are applicable collectively.

4.4.2 Overarching Principles informing the Design Brief

This section outlines the overarching principles which have influenced development of the design.

Clinical models of care and Operational Policies

Developing the clinical model of care is the first step in the identification of the design brief. The models of care which represent the four key components of the project (ICU expansion, Interventional Radiology (IR), wards at GH and wards at LRI) have been further developed by the clinical stakeholders for this FBC.

The Clinical Operational Policies underpin the clinical model of care and are, included in Appendix 19, 20, 21, 22 and 23. These detail the future delivery of the service and how they need to function relative to the space they will occupy. The operational policies have been used to:

- Assist all healthcare professionals involved in the provision of services and external contractors in the design of the facility to understand and interpret the future ways of working in the new environment;
- Identify and develop a comprehensive understanding of patient flow in and out of the department;
- Detail the flows of all stakeholders in to and out of the department;
- Describe the purpose and function of the accommodation required;
- Identify adjacencies and colocations required for the service delivery;
- Outline the requirements for business continuity;
- Outline any legislative and/or mandatory requirements for the delivery of the service e.g. relevant Health Building Notes (HBN), Health Technical Memoranda (HTM) recommendations;
- Contain the schedule of accommodation required within each respective project.

Front line clinical staff have been engaged in the design process since it was commenced. There has been a project team in place including senior clinical stakeholders: nursing, medical and allied health professionals from the individual services impacted by the project. The group has also had Infection Prevention (IP) and medical physics leads and where required other stakeholders from Health and Safety (H&S), Facilities, and Information Management and Technology (IM&T) have joined the group. This team has developed the Models of care and Operational Policies, from which the design layout has been developed.

A draft Equality Impact Assessment (Due Regard) is attached at Appendix 24. This has been updated to ensure we have captured where possible all measures to support those who may be impacted by the design. Examples of these will include hearing loops to reception desks, dementia friendly/visually impaired toilet signage, colour differential around door frames, handrails in corridors.

Infection Control

Infection prevention leads have been fully involved in the design process; there is some derogation from HBNs which has been ratified with their involvement and signed-off. The relevant standards applied include, but are not limited to HBN00-09 “Infection Control in the Built Environment”, HTM03-01 “Heating and Ventilation in Healthcare” and HTM04-01 “Safe Water in Healthcare”. The Derogation Schedules attached at Appendices 25 to 27 confirm the documents to which design standards have been developed.

Construction sites will be monitored throughout the programme from initial set-up to facility commissioning. Dust control, water testing and flushing regimes and Aspergillus risk assessments will all form part of contract agreements. Infection Prevention colleagues will be actively involved throughout the process.

A letter providing formal sign-off from the Lead Nurse Infection Prevention and Consultant Microbiologist/Lead Infection Prevention Doctor is attached at Appendix 28.

Quality of care and experience

Quality of care and the patient experience is an important aspect in the delivery of an improved patient environment in all parts of this project. For example:

The roof top position of the new ward development at GH provides patients, staff and visitors access to views over adjoining gardens. This has been taken into account throughout the design process by positioning patient areas in places that offer the best vista.

Through imaginative use of lighting and colours, patient and staff experience will be enhanced. This has been taken into account during the interior design development.

The new ICU location benefits from a large amount of natural lighting, both from large windows and roof lights. In addition, in areas where natural light is reduced, we will be adding display imaging light boxes which will provide high definition environmental enhancing images. Interior design for the unit will maximise the use of colours and wall art within the limited space available. The addition of a number of side rooms and an accessible toilet and wash shower facility will also be available for patients in the unit.

For the LRI Wards, whilst we can only conduct a light refurbishment of the areas, this will allow us to greatly enhance the ward environment from the current 1970s design; this includes decoration, lighting and improved privacy and dignity through the provision of en-suite bathrooms through the bed bays. Where appropriate, interior design for the wards will maximise the use of colours and wall art.

The IR Project will replace a 30 year old, outdated and non-compliant department at the LGH with a modern, fit for purpose department, compliant and promoting best working practices. The waiting reception will particularly promote an air of calm and wellbeing, through the use of good interior design and art works to reduce patient stress and anxiety. Work flow improvements will significantly improve both the staff and patient experience.

Patient Led Assessment of the Care Environment (PLACE)

PLACE is a patient-led system for the assessment of the quality of the patient environment. The assessments are undertaken each year and the results published to help drive improvements in the hospital environment.

The schemes will improve PLACE scores in the following ways:

- Decoration will be bright and co-ordinated;
- Lighting will be used to enhance the environment;
- Furniture will conform to infection prevention requirements i.e. open at the back so as not to collect dirt and made from wipeable material;
- Areas will be ventilated to ensure odours do not linger;
- Natural light will be maximised; this includes the provision of roof lights in the ICU extension;
- The provision of adequate storage will promote a tidy environment;
- The appropriate use of handrails in toilets and on corridors;
- Colour contrasting and signage will support a dementia-friendly environment;
- Designs will address privacy and dignity issues;
- Equipment will support patient orientation and a calming environment through the use of colour, large day and date clocks in patient bays and the provision of silent close bins.

The table below shows UHL's PLACE results for the last two years, in comparison with the national average.

Table 64 - UHL PLACE Results (2016 and 2017) Compared to the National Average

	Cleanliness (%)		Privacy and Dignity (%)		Condition and appearance (%)		Dementia (%)		Disability (%)	
Year	2016	2017	2016	2017	2016	2017	2016	2017	2016	2017
GH	95.89	98.69	83.45	78.60	87.42	89.69	75.37	77.42	80.62	87.85
LRI	87.46	97.49	73.48	77.43	79.66	87.93	57.22	74.36	63.57	84.82
LGH	91.5	98.20	73.30	79.48	73.79	86.48	62.43	72.7	62.86	84.29
Trust Average	**90.37**	**97.93**	**75.84**	**78.14**	**80.23**	**88.03**	**62.72**	**74.72**	**67.51**	**85.42**
National Average	98.06	98.40	84.16	83.70	93.37	94.00	75.28	76.70	80.62	82.60

Quality of the environment

The Trust is committed to ensuring that the best possible designs are delivered, within the constraints of the footprint and cost envelope, and as such will be undertaking formal reviews of the design in all capital projects to give assurance that this is the case. The new ward development has been subject to a Design Quality Indicator (DQI) review, a copy of which can be found in Appendix 29.

Safe Design

Safe design is imperative to the successful delivery and operation of all patient environments. This covers a number of important aspects including:

- Safety of the patient minimising risk in terms of infection control, movement around the clinical space, and environmental design to minimise slips, trips and falls;
- Personal safety to ensure risk of personal attack, loss of property etc. is minimised;
- Construction Design Management (CDM) which ensures minimised risk and optimised safety during the construction process;

- Safety in the working environment which optimises safety for staff in terms of ergonomics and health and safety.

All these safety aspects are being considered within the design process and undertaken via a joint approach between the Health and Safety Team, Infection Prevention, Security Staff, Clinical Staff and the Design Team. This will reflect patient, staff and goods flows within and between areas.

Access

During construction

The Trust recognises that the extensive work at GH requires careful consideration of the access arrangements during the construction and post construction period in terms of consistent way-finding and communications as there will be 3 no. construction sites, impacting on 3 no. elevations of the hospital.

During the period of the works, public access to the building will be maintained at all times and all entrances will remain open without additional restrictions. Movement of goods to Pharmacy Stores, collection of bodies from the Mortuary, and collection and delivery of waste from the Service Yard will continue as usual.

There will be protected access route to the East entrance with 2 of the 3 pedestrian routes to the main entrance remaining open at all times. Clear signage will be provided to re-assure pedestrians that they are following the appropriate route.

The closure of the internal road between East and Main Entrance (which forms part of the site compound for the ICU extension) will necessitate changes to the one way system for the period of the works so the exit road from the Main entrance will become 2-way.

Whilst the finer details of the plan will be finalised when a contractor is appointed, our experienced Capital Team have liaised with key stakeholders to devise a site operational plan, which maintains all access points during the construction process.

In addition to this, the Trust is actively engaged with De Montfort University, researching wayfinding within the healthcare environment. It is anticipated that we will be engaged with them on this project in order to maximise physical and intuitive wayfinding opportunities.

The construction site plan can be found in Appendix 30 and key issues are addressed in the individual projects in Section 4.5

Work to refurbish 3 no. wards at the LRI will present a challenge to our ability to separate the movement of goods and waste to and from the building site from public and patient activity. Mitigations to deal with this issue can be found in the Business Continuity Plan in 4.5.3

Post construction

Way-finding post construction has been accounted for within the Business Case, this if fairly minimal due to the fact that there will be no impact on the way finding for the ICU Extension and patients arriving to the IR facility will report to the existing Imaging Main Reception; way-finding will therefore be limited to internal departmental signage. The 3 new wards at GH will require additional signage across the site

“Blue light” access to the GH site will not change during or as a result of this development.

Security

The Trust employs a Local Security Management Specialist (LSMS) who has been consulted during the design process. The LSMS role is to deliver a safe and secure NHS environment which allows the delivery of high quality patient and clinical care. The LSMS has access to specialists including input from the Police Force as required. The LSMS has reviewed designs as part of our multi-disciplinary team at FBC. The work of the LSMS is overseen by NHS Protect (formerly known as the Counter Fraud and Security Management Service), whose remit is to help protect and secure the NHS, under Statutory Instrument 2002 No. 3009.

Fire Compliance

Fire code compliance is ensured through the development of the robust design. UHL has a directly employed Fire Advisor, who has worked with the design teams to ensure fire code compliance. The Fire Advisor has signed off detailed designs at FBC stage; please see Appendix 31.

IT systems

The unit will have all relevant Trust clinical IT systems fully integrated within each area. The Trust is incrementally moving towards a paperless IT system through the use of NerveCentre. This project will be developed to ensure contiguity with the systems on each site.

Hub rooms will serve the IT requirement for the area and will meet the new enhanced specification in relation to functionality and resilience.

Business Continuity

The purpose of this section is to define the transitional plan and operation requirements that will ensure the safe and effective delivery of a fully operational live hospital environment at the GH site and in the Balmoral Building of the LRI, during the course of construction works.

Business continuity planning is a vital component of developing the construction programme. It falls into two distinct elements:

- Planning for known business continuity issues (e.g. noise, access). These issues will be addressed through a risk management process and mitigated through planning, communication and a costed risk allowance;
- Planning for unforeseen eventuality such as severing a main electricity supply cable. These issues form part of UHL's emergency business continuity plans. The risk will be managed through thorough site surveys, planning and ensuring that business continuity plans are updated and understood with all clinical services at risk of disruption.

The principles underpinning the delivery of these objectives are as follows:

- Services to patients are not interrupted as a consequence of the construction;
- Safe quality clinical care is maintained throughout ensuring adherence to CQC and other quality and performance standards;
- Continuity in provision of emergency care 365 days per year, 24 hours per day 7 days a week;
- Other services and business functions in the area of construction continue as business as usual;
- ICU Business Case is delivered on time and within budget;
- An effective communications and engagement plan underpinning the plan provides relevant and up to date information for patients, staff and the public;

The Trust has made consideration of the complete site in ensuring business as usual activity at Glenfield during the construction period associated with these schemes. During this period there will be two significant new build site activities and one extensive internal refurbishment. These plans are fully articulated along with the high level plans outlined within the sections below for each individual scheme. In addition, appendix 30 contains a site plan of GH showing the location of site compounds and construction traffic movement. This enables the reader to understand the separation of the activities. A second plan details public access to the main entrance during the construction period; this includes the traffic management plan (Appendix 32)

The table below details risks identified and their mitigations:

Table 65 - Business Continuity Issues, Risks and Mitigations

	Issue	Area	Risk	Mitigation
Planned	**Access to hospital**	Entrances	Number of construction sites impacting on roads/entrances	Define public entrances and access routes through local signage
	Access of construction materials and workers	IR	Impact on Trust goods and staff using rear entrance. Risk associated with moving materials on the internal ramp	Establish a separate access route through the service yard which negates impact on other site users
	Access for deliveries to Pharmacy and collections from Mortuary	ICU	Construction activities block the rear access road preventing deliveries and collections to Pharmacy and Mortuary	Site compound selected to avoid impacting on rear service road, lifting operation to be planned to minimise disruption, during which time access will be gained through the internal hospital corridor
	Dust / Aspergillus	IR	Dust permeating adjacent departments	The work area is easily defined and can be segregated from the rest of the hospital and there will be sealed compartmentation to adjacent departments. A negative pressure will be maintained and dust suppression mats will be used at site access points. The ultrasound department and bone store will be relocated during the construction period
		GH Wards		Modular buildings involve significant off-site construction which will eliminate many dust generating activities. The construction site will be on the roof, which will limit the impact on adjacent areas, this will be managed by dust suppressing mats at site access points and the temporary closure of opening windows as/when necessary
		ICU		The work area is easily defined and can be segregated from the rest of the hospital. All activities will be strictly controlled. Use of double polythene, dust proof screens and Takmats will be installed along hoarded areas, entrances and temporary openings. Breaking out of concrete will be undertaken using water tank suppression. Waste will be double bagged and transferred in sealed cages. Filing and sanding will be carried out using dust extraction methods to control dust at source. Air Cubes will be deployed throughout works, providing another layer of control. Air quality tests will be undertaken following completion of high risk activities such as demolition and strip out, installation of dry lining, partitions and ceilings, and filing sanding in order to confirm air purity in adjacent live areas before commencing following activities. Restricted areas will be clearly communicated to all employees during their induction to avoid dust transfer and will be monitored on a daily basis.

	Noise	IR	Noise disruption to adjacent departments, particularly the operating theatres above	Regular communications with department Working out of hours during 1st fix of mechanical services
		GH Wards	Noise disruption to adjacent departments, particularly wards 24, 25 and 26 below	Off-site construction will limit noise creating activities. On-site noisy activities will be minimised using noise attenuation, planning the activity around critical times, establishing a robust stoppage policy and daily communications with adjacent clinical teams regarding site activities
		ICU	Noise disruption to adjacent departments and the existing ICU which will be live during the construction process	The contractor will make use of noise attenuation panels and all equipment on site will have sound suppressing devices installed. There will be daily liaison with clinical teams so that they are aware of the noise creating activities and wherever possible, these will be planned around critical points of the day
	Isolation of Services	All	Isolation of services such as electricity and water may have a knock on effect to adjacent departments	Prior to any planned isolations, a thorough site survey will be undertaken – this will establish isolation points and the impact on adjacent departments. Any issues will be addressed through co-ordinated planning and where necessary, any out of hours working
	Decanting wards/bays	GH Wards	Subject to risk assessment there may be a requirement to temporarily decant clinical areas whilst lifting the transfer frame and modular units into position	The clinical teams have been engaged and are open to a phased decant during the lifting operation. This would involve patients moving to the day room for short periods on a bay by bay basis. The impact of this will be greater if the works occur during the peak winter period. There is commitment to revisit this plan once the FBC is approved and we are able to see where this activity sits on the programme
Unplanned	**Flood**	IR	Experience gained during our emergency floor scheme suggests there are occasional unplanned releases of water. The IR scheme is on the ground floor and therefore the impact would be limited to adjacent departments	Thorough surveys prior to works will establish vulnerable water systems, isolation points and whether existing valves are operational
		GH Wards	Low risk due to works being external to the building	All works are external to the building, i.e. on the roof which is capable of dealing with the release of water.
		ICU	Risk of water leaking from existing services within the site boundary	This is limited to a small area known as Bay C. Works to strip out of existing services will be subject to a permit to work and will require comprehensive isolation and drain down before demolition commences
	Loss of water/power	**All**	Risk of loss of power or water to adjacent departments during the construction process	Any works affecting services outside the construction area will be subject to a permit to work. Areas of work will be surveyed to identify any services at risk during the works. Risk assessments and Method Statements will be required to detail the protection and mitigations to avoid accidental damage

All departments have well established Business Continuity Plans in place and prior to commencement of this extensive site development the Trust will hold a series of Business Continuity Workshops lead by the Trust Emergency Planning Lead. This will enable the Clinical Management Group (CMG) to review and update their procedures and ensure staff are familiar with them.

4.5 Scheme Design Development

4.5.1 ICU Extension - GH

Clinical models of care and Operational Policies

ICU operates 24 hours a day, 7 days a week and provides continuous care for Critical Care Level 2 and 3 patients. The additional 11 bed extension will provide the capacity to support the specialities (HPB and renal transplant) relocating from the LGH. The new facility has been designed to fully integrate with, and enhance, the existing environment. The defined requirement is to ensure the provision of care is seamless throughout the environment whilst providing additional functionality to improve patient experience and staff efficiency.

Design Solution

The facilities comprise of a new build extension to the front of the current Glenfield hospital main building. This extends the current ICU (Bay B) from the current configuration of 5 beds (including 2 side rooms) to 16 beds which include 4 isolation rooms (adding 11 physical bed spaces in total). This takes the Glenfield ICU to 33 beds (net 3 bed increase across the 3 sites) of which 11 will consist of 7 side rooms and 4 isolation rooms. The new extension will also have a dedicated nurse base, sluice, sister's office and accessible shower and WC. It will meet the HTM compliance standards for medical gases and the provision of Isolated Power Services (IPS) and Uninterrupted Power Supply (UPS) electrical supply.

Due to the specialist and complex nature of the ICU environment, the needs of the patient and staff are particularly paramount and this is reflected within the design, examples include:

- Design maximises natural light, from large external windows and use of skylights;
- Environment enhancing features have been incorporated including soothing light box images above patient beds;
- Four dedicated isolation rooms to meet IP requirements;
- The use of finishes within the unit will play an important role in ensuring a safe and clean environment, whilst creating a soothing natural ambience
    - Extensive wall protection throughout
    - High quality compact laminate for nurses stations and working surfaces

The additional bed provision consists of both a bay area and a number of isolation rooms, supporting infection prevention and patient privacy. To support management of the increased capacity a bespoke nurse base has been designed, with input from the clinical team, to allow clear visibility of beds from a central area.

The nurse base includes built-in controlled drug storage and smart storage solutions allowing clutter free clinical space. There is also a specific imaging review area. Other design features, such as separation of storage facilities for specialised and generic equipment and consumables, enhanced beverage and patient meal prep area and installation of a shower room are incorporated. The extension allows for maximum natural light to help improve the experience of patients, visitors and staff.

The ICU extension offers excellent visibility of beds; the central nurses' station has a maximum height of 135cm; allowing for good visibility over it. The 11 beds within the open bay are all visible from the nurse base and from each bed space, allowing excellent visibility for staff.

The three new side rooms will have large glass windows, incorporating smart glass for privacy, and again are all visible from the nurse base.

Each of the groups below has been engaged during the ICU Extension development process and some examples of how their input has changed the design are identified here:

Patient Partner representatives
Whilst the very acute nature of this area does not allow for much patient focussed design, patient partners have been involved throughout the detailed design process and have also been a core member of the Project Board

Privacy and Dignity Lead
The Privacy and Dignity lead for ICU sas engaged in design process and a focus given to dedicated side rooms and their availability, also inputting to the inclusion of an assisted shower and toilet in the unit; this facility is a “first” for our ICU

Health & Safety Officers
The Health and Safety Officer for ICU has been involved in the design process and any initial concerns have been addressed through the process; they were particularly supportive on the use of dedicated overhead hoists for patient movement, which have been incorporated above all bed spaces. The unit will also benefit from access control and CCTV surveillance

Fire Officer
All statutory requirements were addressed throughout the design period and reflected within the Fire Strategy Plan as approved by the Fire Officer.

Infection Prevention
The estates embedded Senior Infection Prevention Nurse has been involved in the design development from the outset and all issues and concerns have been addressed and the design signed-off at this level. The positioning of fixed items within bedded areas, kitchens and dirty utilities has been directed by the IP Nurse and reflected within the design. On-going design detail with regards to position of hand sanitizers, dani-centres, soap etc. will be decided on site during the commissioning stage at the request of the IP Nurse and clinical representatives.

Facilities Management
Improved kitchen facilities have been provided to serve the entire ICU department and there is improved dirty utility provision.

Privacy and Dignity

Privacy and dignity of patients is a cornerstone of UHL Trust values. The Trust’s Privacy and Dignity (P&D) lead nurses are fully engaged in the design process. The P&D lead nurse has reviewed plans as part of the FBC process, which will take account of national guidance, including HBNs, PLACE criteria and DH consumerism.

Workflow and Logistics

The preferred location for the new build extension has optimum adjacencies for logistical flows. Adjacency with the current ICU on GH site offers easy access to amenities and service departments required for efficient operational running.

Access will be via existing lifts and stairwells providing excellent access to the department. The ICU has a dedicated entrance and visitor waiting areas.

Adaptability

The unit is a specialised facility and is designed to ensure seamless integration with the existing unit. This first phase of expansion will include an additional 11 beds, as part of this, 3 of these beds are to allow for future changes in activity and demand. This expansion is the first part of a programme to increase the size of the unit in line with the Trust's long term Reconfiguration Programme. The design for this extension is aligned with the GH Development Control Plan (DCP) and future plans for the further development of ICU at GH.

Patient Space Standards

The primary focus of the ICU extension is the provision of 11 additional beds. Constraints of available space has resulted in derogation from HBN guidance, however this still constitutes an increase above the existing spacing within the current ICU. Existing bed spaces in the GH ICU are 19.35m²; the new spaces are 20.0m² - 23.9m² as compared with the HBN requirement of 25.0m².

The current unit is configured with three bays totalling 22 beds which include 7 side rooms (approx. 31.8%).

The proposed expanded unit with three bays totalling 33 beds will include 10 side rooms (approx. 30.3%). This configuration will add three side rooms to be used flexibly for the services already at Glenfield and with the additional services moving to Glenfield

The project delivers 4 (of the 10) side rooms with gowning lobbies within the unit; these 4 side rooms have been designed with isolation room ventilation in accordance with HBN 04-01 Supplement 1 as Positive Pressure Ventilated (PPV) lobby isolation rooms offering source and protective isolation.

This configuration has always worked well with the clinical team, with enough side rooms for the isolation of patients either at risk from infection, or those with a confirmed or suspected infection. The service also isolates any patient admitted from the community or another hospital into a side room (unknown risk of infection). The open bays are utilised for patients pre-screened in the Out Patients Departments prior to admission / surgery, or those patients screened on admission to an AICU side room and shown to be clear of infection.

In addition, during the surge of winter pressures and out breaks of influenza, the service has made it usual practice to cohort patients with the same infection in Bay C (4 beds in a bay and 2 side rooms). Standard Operational Policies are in place for this and it allows the service to utilise staff more efficiently and to care for patients and their families more effectively. The service has not experienced any difficulties or cross infections, indeed infection prevention practice is made more stringent. Bay C in its current configuration will be unchanged by the expansion of Bay B and will still be available to cohort patients if required.

Staffing configuration

The current configuration of AICU, with the mix of side rooms and beds in 3 bays, allows for patients to be bedded according to their dependency and their condition and infection status. Nurses are allocated to care for those patients according to their level of knowledge, skills and experience. At any one time there is a mix of patients who have a range of needs, care and interventions, some urgent and intensive, some during phases of their recovery. The service also has a mix of medical and nursing staff, at different levels of capability, competency and skills.

In open bays, staff can communicate easily, observe each other and view several patients at any given time. This allows staff to support one another at any time but particularly if a patient's

condition changes as can happen rapidly in ICU. It also allows staff to check medications without losing sight of their patient or to ask nearby staff to assist with care or manual handling tasks. Staff can work in two's or three's to allow staff to leave their patient to speak to relatives, to collect supplies from store rooms or to take their allocated breaks. Staff can also supervise more junior staff and provide support when needed.

In side rooms, staff have to stay with their patient, they cannot move to check drugs with the nurse in the next bed space, all tasks that need more than one person means that the nurse has to go to the door to the room and ask for assistance, whether for the mundane or the urgent tasks. Communication and support is limited by the walls and confinement of the room and the day can be long and even lonely. Nurses can be trained to develop skills and undertake a huge range of activities, it is more difficult to get used to working long shifts in side rooms. Staffing levels and skill mix have to take account of the number of patients in side rooms, the increased support needed within the room and the reduced support for staff either side. Windows and visibility is crucially important and the expansion plans indicate the size of the windows and the type of glazing.

Bed spaces and Drager pendants

The existing bed spaces are a variety of sizes, the smallest being 19.35m². The current configuration allows for any patient to be cared for in any of the 22 bed spaces available. There are no spaces that are noted to be too small for any / all treatment to be provided, including ECMO and for chest re-openings, resuscitation etc.

The proposed bed spaces are 3-4m² larger on average; there is further space around each bed space and increased storage facilities within the design.

Several companies were considered when we sought design solutions to the ICU pendants, two were asked to visit the site, provide detailed plans and a provisional idea of costs. Drager was the preferred company for a number of reasons:

- The service already has an existing Drager pendant system in place for many years and it has worked well, required little upkeep and has been robust in use.
- Having the new system and old system from the same company gives the service flexibility in the use of their equipment and allows the service to set up bed spaces similarly for ease of use.
- The service was invited to go to the Drager facility in Germany to utilise their design workshop. A team consisting of an ICU Consultant Intensivist, the ICU Matron, two Senior Sisters, two Deputy Sisters, a Technician and the UK Drager Company Representative all travelled to Lubeck to tour the facility and to design and challenge the design over three consecutive days. The area of the bed space was marked using tall boards on wheels in order to design within the tolerances of the plans.
- The design solutions, the quality of the product, and the efficiency of the German company, were all considered to be second to none by the Glenfield team, and gave the team great confidence that the design was right for the service and will be fit for purpose. This with the team's experience to date of the Drager company and the promise of installation, on-going support and servicing makes it an ideal choice

Derogations

All derogations have been approved by the clinical leads for project and the Trust's Lead Infection Prevention Doctor, David Jenkins, and are outlined in the schedule of derogations.

The Estates embedded Senior Trust Infection Prevention Nurse has been fully engaged in the design process to date and has advised on various items to include hand wash facilities throughout the unit with the addition of surgical scrub sinks for use in emergency situations, which have all been approved.

Each isolation room is provided with its own separate supply air handling unit and externally mounted extract fan with flue. There is derogation from HBN as these rooms are not provided with en-suite facilities, as patients are bed bound.

The areas are subject to derogations and examples are detailed below:

Table 66 - ICU Extension Key Derogations

HBN/HTM	Standard Description	Derogation Comment	Trust agreement or comment
HBN 00-09 Clause 3.0 **Examples of Design Principle Infection Control in the Built Environment**	Hands free operation of taps, WC flushing	The scheme does not have hands free systems. Elbow operated taps are provided as per Trust Policy	All WC and clinical handwash are operated manually
HTM 03-01 Clause 6.18 **Specialised ventilation for Healthcare Premises**	A fire control panel should be mounted at the entrance of the area that the ventilation serves. Access to the panel should be restricted to the fire officer and include independent on/off controls and an indication of the supply/extract systems	Fire control panel not provided at the entrance of the area. Control of the air handling plant is via the BMS and control panel located within the roof top plantroom. A fire mimic panel is provided at the Nurse Base	
HBN 04-01 - Supplement 1 **Isolation Facilities for Infectious patients in acute settings**	Requirement that any new build or major reconfiguration should have as a minimum 50% single bed rooms		Due to space restrictions we have been unable to achieve 50% however we have been able to make a significant improvement to the existing facility by incorporating 4 Isolation Rooms
HBN 04-02 Clause 4.14 **Critical Care Units 2013**	The bed space should be a minimum of 25.5m²	Isolation rooms 23 and 24 are 23.4m². Bed bays 25 - 28 are 21.0m². Bed bays 16 -21 are 21.7m²	The existing bed spaces within the current ICU are 20.4m² so the new unit provides an improvement on the current standards across many of the beds
HBN 04 -02 Critical Care Units 2013 **Example Schedule of Accommodation**	The staff base is larger than the 19.0m² recommended	The staff base also includes areas of storage	

HTM 05-02 Clause 5.78, 6.84 & 6.84 **Guidance in support of functional provisions for healthcare premises**	In critical care areas, the HVAC systems should be designed so that they continue to operate in a fire emergency. The shut-down of these systems should eb on the instruction of the fire-and-rescue service and should be controlled from remote panels located either at the department entrance or adjacent to the main fire-alarm indicator panel	The current site-wide strategy is to shut off the air handling plant under fire conditions. The design includes a fire alarm interface to the BMS Panel to control the air handling plant. The design also includes smoke detectors mounted within air boxes within each of the main supply air ducts from each of the air handling units which may be used to specifically shut down the individual air handling unit if smoke is detected within the duct. This future proofs the system in case of a change in the site wide strategy	

Access

The ICU construction site is located between the East Entrance and Main Entrance to the hospital. Whilst it will not require the closure of either entrance, there will be a requirement to close the access road for the duration of the project. In order to facilitate this, the existing one-way system will be suspended and a two-way system introduced, with access from the Northern end of the site

Impact of clinical adjacencies in the scheme design

The proposed location of the ICU benefits from all the adjacencies that the current unit has, as follows:

Table 67 - Clinical Adjacencies ICU Extension GH

Criteria	Clinical Adjacency	Delivered in scheme
Essential	Operating Theatres	✓
Important	Imaging	✓
Desirable	Wards	✓

The new 16 bed area (Bay B) is accessed through the current ICU and as such shares key facilities such as visitor waiting rooms, staff base, staff changing facilities and stores with the existing unit. The new facility will create improved patient kitchen facilities that will serve the extension and existing unit, bespoke design nurse station with multi-functional use for drugs preparation, the review of diagnostic imaging and additional storage. There is also the addition of a quiet retreat room, for use by staff and visitors, along with increased nurse handover room.

Internal Adjacencies

As the new unit is part of the existing ICU it shares excellent internal adjacencies with theatres, diagnostic imaging and medical wards and is easily accessible off all main public thoroughfares.

Business Continuity

The location of the build will impact on normal access routes to main reception. A solution has been identified which diverts traffic to the alternate side of the main entrance, with 2-way traffic allowed for the duration of the project and with robust traffic management procedures in place.

Two key issues of working close to the live ICU area will be dust and noise. The key to successful management will be close collaboration with clinical and IP staff and robust communication strategies between all stakeholders. Appropriate dust suppression and noise mitigation strategies will be utilised.

Other pro-active plans will be employed around the suppression of noise and dust throughout the construction process - these include board piling (silent piling), which will mitigate the sound from the piling process, external windows adjacent to the site will be closed and additional ventilation added to other elevations, acoustic isolation devices will be fitted throughout the unit. All equipment on site will be requested to have sound supressing devices installed. Also, there will be dedicated site access form outside of the building to the work area preventing the need to access clinical space. A clear escalation policy of who can stop works if and when disturbances occur will be provided.

During building works to develop the AICU, the main unit will close five physical bed spaces (three beds and two side rooms in Bay B).

It is proposed that to mitigate this reduction the service utilise four PACU beds that were put in place during the vascular development (two PACU spaces for vascular and two for HPB) to provide future proofing for the HPB move. There will then be a net loss of one ICU bed during the construction period.

UHL is currently developing its winter plan for 2018/19; in relation to the opening of extra capacity to support increased emergency pressures during this period. The proposed solution at GH puts in place plans for an additional 28 bedded ward and 4 ICU beds.

The extra winter capacity required for ICU beds has been considered together with the loss of beds during the construction period. There are a number of options for the creation of an additional 9 ICU beds at GH; the actual solution implemented will be based on the level of pressures and surge experienced and the staffing levels needed across all 3 sites:

1) Use of 4 PACU beds for ICU Level 2

2) Use of 8 beds on ward 34 (cardiac), previously upgraded to accommodate ICU patients.

3) Use of satellite Level 2 beds in service areas to accommodate ICU Level 2 patients

4) Use of 2 PICU beds, which can be isolated from the rest of the ward.

The additional beds will be utilised flexibly in the same way as the main unit; however, we would avoid admitting level 3 or unstable level 2 patients in these areas if at all possible. The areas will be run clinically as if within the walls of the existing unit (i.e. it is part of Critical Care). It will therefore be subject to the same philosophy, principles of care and access as the main unit.

4.5.2 New Build Ward Development - GH

Clinical models of care and Operational Policies

HPB Elective Ward – the operational service requirements for this ward are as a generic inpatient base ward with the ability to provide pre and post-operative care to patients undergoing surgery or receiving treatment for HPB conditions.

The ward will operate 24 hours a day 7 days a week with a full clinical and support staffing complement. Each bed bay will have full services including oxygen, vacuum and nurse call, emergency call, power and data which will allow full utilisation of each bed space and for areas to be used flexibly to ensure same sex compliance. A co-location of two side rooms with the nurses' base allows for close monitoring of sick patients and these rooms, together with two of the multi bed bays, provide an option for the provision of continuous bedside monitoring.

Each multi-bed bay includes the provision of a small nurse base area allowing for dedicated bay nursing. A Retreat Room has been positioned centrally between the two HPB wards as a shared resource.

HPB Emergency Ward – this will provide generic inpatient beds operating 24 hours a day 7 days a week. In addition to the inpatient bed area there is an emergency admissions/Triage facility. The model allows for the separation of flows of emergency and elective patients and their carers/visitors with the provision of separate entrances, waiting areas & toilet provision.

Renal Transplant Ward – this will provide a 12 bedded pre and post-operative inpatient environment with an adjacent minor procedures suite and waiting area. The ward will operate 24 hours a day 7 days a week with a full clinical and support staffing complement. Each bed bay will have full services including oxygen, vacuum and nurse call, emergency call, power and data which will allow full utilisation of each and every bed space and for areas to be used flexibly to ensure same sex compliance. The ward has an HTM compliant clean room which will be used for minor procedures for both in-patient and ward attenders. There is an adjacent waiting area for ward attenders.

Design Solution

Three new build wards will be built on the roof of the Glenfield Hospital main building directly above existing ward areas. Whilst this will be the development of a 3rd floor it offers optimum clinical adjacencies for surgical services at the heart of the acute site - this was an integral part of the Options Appraisal process.

The wards will be constructed via modern methods of modular construction offering an innovative alternative to a traditional construction solution. The system is an off-site produced, steel framed facility that comprises a concrete floor and a high level of internal finishes, representative of a traditional construction method. This approach is highly customisable throughout the design period, ensuring the end user has no restrictions on layout within the limitations of the footprint below, internal appearance (plasterboard and plastered walls) and external treatments. The 'feel' of the environment was an important factor when considering the modular solution – it is believed that concrete floor and plastered walls will provide the feeling of a traditional building.

Benefits of this method include:

- The construction of modular units in an off-site factory environment provides many advantages over traditional on site construction, these include reduction in waste, construction cost and environmental impact, consistent quality control and avoidance of risk, such as delays due to weather etc.

- The majority of the external build is constructed within a controlled factory environment the need therefore to work at heights has been eliminated to some degree until the modules are delivered to site. Craning them on to the roof takes a relatively short period of time but will

required a detailed and well communicated Lifting Strategy which will be developed during the detailed design phase through to Stage 4.

- As the buildings are constructed off-site, on site works can therefore run simultaneously with the factory construction. Ground-works and utilities can be prepared in readiness for the buildings arrival. These events procured in tandem allow for a much quicker delivery which can be up to half the time of a traditional solution resulting in a quicker project timeline, less disruption to a 'live' hospital environment, cost reduction.

- Because the majority of the building is manufactured within a factory environment and all works are consolidated to one area of the site reductions in vehicle movements in comparison to traditional are realised – this is particularly important for this site as there will be other construction activity taking place at the same time.

The final design layouts at 1:50 and 1:20 (Appendices 51 and 52) reflect the Clinical Operational Policies and Models of Care which meet the needs of patients, staff and visitors. The design also reflects the requirements and recommendations of external stakeholders who will need to access the ward either to deliver direct patient care or to service the area.

Each of the groups below has been engaged with during the development process and some examples of how their input has changed the design are identified here:

Patient Partner representatives

Throughout the detailed design process patient representation has been a key component of the output. The 1:200 design incorporated patient comments in relation to certain aspects of the design. These were taken on board and the design adapted. At the detailed design further comments were made and again included, as the clinical team felt they were valid:

- Ability to access information easily within the ward area e.g. menu racks at each bedside, clear forms of communication media/signage
- Entertainment/Information points in waiting areas – TV's, Digital information displays will be provided
- Clear signage both within the wider site and within the ward areas must be clear and relevant – a signage programme will be undertaken as a package across the Programme adhering to both NHS and existing Glenfield Hospital guidelines

Privacy and Dignity Lead

The design was revised within the Renal Transplant Ward to ensure changed patients are kept separated from unchanged patients in the Reception Area, and a private room has been provided for 'gowned' patients awaiting transport to theatre. There are no observation windows into bedded areas other than in doors.

Health & Safety Officers

They were satisfied with design overall and felt that all H&S measures for design layout had been addressed

- Security in terms of CCTV surveillance, door access control has been identified and approved by clinical team
- Involvement in the specific construction activities will be sought when the design development reached that stage

Fire Officer
Mandatory requirements were addressed throughout the design period and reflected within the Fire Strategy Plan.

Infection Prevention
The estates embedded Senior Infection Prevention Nurse has been involved in the design development from the outset and all issues and concerns have been addressed and the design signed-off at this level. Positioning of fixed items within bedded areas, kitchens, dirty utilities and clean utilities has been directed by the IP Nurse and reflected within the design. On-going design detail with regards to the positioning of hand sanitizers, dani-centres, soap etc. will be decided on site during the commissioning stage at the request of the IP Nurse and clinical representatives. All finishes and lighting schedules will require IP sign-off when the design process reaches that stage.

The Trust Lead Infection Prevention Microbiologist did raise concerns with regards to the lack of Isolation Rooms within the new facilities, to ensure the wards are suitably future proofed.

As part of the wider reconfiguration programme HPB will relocate into alternative facilities to form clinical adjacencies with other services relocating to the Glenfield site. This would then allow Nephrology to relocate into 2 of the new wards to provide a dedicated renal unit in one place (with transplant). The vulnerability of nephrology patients to infection and the demographics of the patient group mean they frequently come into contact with multi drug resistant organisms.

The Infection Prevention Microbiologist and Lead Infection Prevention Nurse strongly recommended that a proportion of isolation rooms be incorporated into the design at this stage. A meeting took place on 20th December 2017 where this issue was debated and with support from the Trust Chief Nurse (DIPaC) it was agreed that 2 isolation rooms would be provided within existing single rooms within the Transplant ward. The 1:200 and the 1:20 layouts for this area now reflect this change from OBC design stage.

Each room within each ward area at this stage of the design process was discussed in detail using a multi-disciplinary approach within the design team meetings. The IP Nurse was an integral part of these meetings. Following this the plans were assessed by the IP Nurse together with the Consultant Microbiologist and Infection Prevention Lead Nurse and approved from an IP perspective. During the next phase of detailed design this approach will continue with regards to finishes, sanitary ware and all other fixtures and fittings.

Pharmacy
Advised on the position and specification of drugs cabinets

Physiotherapy & Occupational Therapy
Subsequent to a request to provide sufficient and appropriate storage facilities for equipment, the store room was enlarged, and an additional stairwell will offer area with less traffic for Physiotherapy exercise.

Dietetics
Dieticians provided advice on specific kitchen appliances e.g. fridge numbers and size, within the HPB Wards specific to the needs of the patient group.

Facilities Management
An increased size of disposal hold has now been included and the team advised on meal delivery process and the arrangement and specification of kitchen appliances.

Privacy and Dignity

The design layout for all of the 3 ward areas takes into account Privacy and Dignity (P&D) best practice guidelines. All bays and side rooms have en-suite facilities; each bay has an internal day space negating the need for a shared dayroom thus ensuring same sex compliance.

The Trust lead Nurse for P&D has informed design layout as identified previously and recommendations are supported by the HPB and Renal Transplant Nursing Teams.

The design does not provide an additional toilet in the multi-bed bays over and above the ensuite facility. This is described as an added convenience within the HBN 04-01Para 5.10

During the design process several compromises had to be reached. One of which was the inclusion of the 2nd WC. The impact of that was the loss of the 3.6m bed spacing, loss of the window (which would be floor to ceiling), loss of the integral day spaces therefore needing the inclusion of 2 external Day Rooms (one male one female). Clinical staff agreed that in considering the overall patient experience for the majority of the time it would be better to not have the 2nd WC and manage the potential scenario of a second, third or fourth patient needing the toilet by utilising an empty single room or another multi-bed bay of the same sex. This would be a marked improvement on current facilities where the WC to patient ratios is much less.

Workflow and Logistics

The preferred location for the new build ward development has optimum adjacencies for logistical flows. The centrally located wards will offer easy access to amenities and services required for efficient operational running. This was a key factor considered during the clinical option appraisal process and vertical adjacencies to Theatres, ICU and Endoscopy services were considered to be very favourable to both the HPB and Renal Transplant services. This location is an improvement compared to their current position at the LGH which has a long transfer distance to Imaging and Theatres.

An additional two new lifts and stair well will provide dedicated access to the new wards. Since the new lifts are adjacent to an existing lift core, they improve access in the central area of the hospital site supporting improved flow at a busy junction in the building.

Adaptability

Design is based on the need to ensure flexibility to meet the future needs of the health service. Generic ward areas have been designed where possible whilst ensuring the clinical operational policies can be delivered, and there will be an element of flexibility to adapt the space as needed with the minimum of works. The addition of increased single rooms and/or isolation facilities may be required in the future. On a day to day basis ward accommodation will be able to flex to meet the sex mix of the patient cohort supported by en-suite facilities and integral patient day spaces within the multi-bed bays.

The HPB wards, as part of the Trusts wider reconfiguration programme, will eventually become Nephrology wards and as such consideration has been given to the mechanical future proofing of the areas with regards to plumbing for bedside dialysis. The infrastructure will be developed as part of the design to ensure the Reverse Osmosis (RO) Plant has room for expansion and the pipe-work and drainage will be in-place to run the system in the future. Changes to the internal configuration will be subject to a future business case which will deliver requirements specific to the needs of the Nephrology patient.

The HPB Elective ward has 28 in-patient beds and the HPB Emergency ward has 24 in-patient beds and an adjacent Triage/Admission Unit. There would be capacity if the admissions unit were removed to incorporate additional beds up to 28 should this be required in the future. In order to facilitate the future transition to 28 beds, service connections such as those for medical gases, will be provided in order to minimise future costs and disruption.

Patient Space Standards

HBN recommendations have been adhered to wherever possible and delivered as part of the final design solution. Clear identification of associated derogations have been identified and signed-off by Infection Prevention, Medical & Nursing Clinical Leads and Estates representatives (Appendix 54).

The estates department embedded Senior Infection Prevention Nurse has been fully engaged in the design process and has advised on best practice with regards to bed spacing, multiple bed bay sizes and sink positions in relation to other objects.

The 2 HPB Wards and Renal Transplant Ward 1:200 designs have achieved compliance with bed spacing and this has continued throughout the detailed design through to 1:50. Inpatient bed spacing is 3.6m mid bedhead -to- mid bedhead, fully achieving HBN compliance.

The Renal Transplant Ward continues to have 4 single rooms but as previously discussed, 2 are now Isolation Rooms which again are HBN compliant.

Further guidance relating to infection prevention has been reflected in the layouts with regard to the approved Schedule of Accommodation at 1:50 design detail; provision and content of en-suites, number and position of hand wash basins, floor finishes, kitchen layouts, skirting, wall protection, disposal hold size and location.

Within the elective HPB ward there will be four high-visibility beds; one in each of the side rooms directly adjacent to the nurse base and two flexible beds within the bed bays opposite the nurse base. These beds will utilise continuous bedside monitoring, via the use of portable monitors. In terms of the wider visibility agenda in terms of slips, trips and falls Nurse Bases have been provided within the multi-bed bays to support surveillance of patients.

Derogations

The Wards are subject to various derogations from both HBN and HTM recommendations and policies. All derogations have been signed-off by the relevant stakeholders and approved through the governance processes adopted for the internal approval of this Business case. The derogations have been justified and mitigated where possible.

The most significant derogations are detailed below:

Table 68 - GH Wards Key Derogations

HBN/HTM	Standard Description	Derogation Comment	Trust agreement /comment
HBN 04-01: Adult In-patient facilities Supplement 1	Dept of Health Policy all new builds or major reconfigurations will have a minimum of 50% Side Rooms	Operational Policies, Schedule of Accommodation and detailed design delivers av. 30% single rooms	Clinical representatives, Infection Prevention representatives, Chief Nurse, Deputy Medical Director, Project Board, Trust Board - have all been party to discussion and agree that for this service relocation 30% single rooms is appropriate and acceptable
HBN 04-01: Adult In-patient facilities	Guidance suggests an Interview Room is required for every 8 beds	There is 1 Retreat/Interview Room servicing 2 wards. There are 7 additional private areas that can be used for this purpose if required. Clinical staff will manage this operationally.	Clinical representatives wanted as much of the available footprint for active clinical care delivery as possible and felt that the available alternative areas that can be used were more than appropriate for this function
HBN 04-01: Adult In-patient facilities	Guidance suggest there should be 1 Clean Utility for every 24 beds	There will be 2 Clean Utilities servicing 52 beds	Clinical representative, IP representatives agreed that this was operationally acceptable for the activity within the specific areas
HTM 02-01: Part A	Medical gas pipeline systems part A: Design, installation, validation and verification	Medical gas outlet provision will be as the Architects C-sheets which have been developed through user meeting. In instances, this differs from the outlet provision in HTM: No Medical Air at bed heads	Clinical representation agreed that Medical Air was not required for the specialty of patients. Reconfiguration Board - agreed that future specialties that would inhabit the wards do not require Medical Air at the bed head

Single Rooms

The derogation regarding the provision of 30% single rooms not 50% is described in more detail.

Justification for derogation

New recommended hospital design includes increased single room accommodation (50% in England, 50% Wales and 100% Scotland) but there is scant and ambiguous evidence relating to the impact on patient safety and staff & patient experiences. NHS Policy states that 50% single rooms should be provided in new build facilities.

The clinical operational policies developed by the clinical services did not request 50% single rooms the design therefore reflects the requested 30%.

Through the OBC process the Trust has had a number of discussions with NHSE and NHSI with regard to this derogation and has since ratified this decision in order to be confident that in this scenario 30% single rooms is not detrimental to the specialties involved.

This Business Case does not attempt to trawl deeply through the available evidence but based on a broad view of the evidence available has drawn its own conclusions as to what would serve its population best in the confines of cost, space availability and clinical staffing whilst improving the quality of the environment based on current accommodation.

On the 12th February 2018 a meeting took place at the Glenfield Hospital which comprised of representatives from the Trust (Reconfiguration, Capital Projects, Infection Prevention, and Clinicians), NHSI, NHSI Quality, NHSE Strategic Estates and the Project Assurance Unit. Derogations pertaining to the wards internal environment were discussed and debated. In particular lack of single room provision and 1 WC per multi-bed bay as per guidance and policy.

The Trust has been very clear that the single room provision was a considerable increase on the current facilities and articulated the issues that were felt to justify a 30% delivery.

With regards to the multi bed bays only having 1 WC, the Trust were asked to articulate through operational means how was this going to be managed. Whilst the only true mitigation for a scenario where all patients within a multi-bed bay needed to use the WC at the same time, is to have 100% single rooms, the operational approach would continue as it does now throughout the Trust by use of WC's within alternate bays of same sex or vacant single rooms.

Current Facilities

Until the 1960's most patients entering NHS hospitals were cared for in Nightingale Wards. Since then new builds have experimented with an array of configurations which include a varying degree of single rooms to 4-6 bedded bays; which is reflected across UHL.

Current facilities for HPB and Renal Transplant at the LGH range from "Nightingale Wards" to 6 bedded facilities in open bays (meaning no doors). There are very few ensuite facilities within bays and limited availability within single rooms. Showers and WC's are external to bedded areas and therefore pose constant breaches to same sex guidelines.

The current Renal Transplant Ward (14 beds) consists of 3 x 4 open bedded bays and 2 single rooms. This constitutes current single room provision of 14% against a future provision of 33% (4 single rooms in 12 bedded ward) 2 of which will be fully compliant isolation rooms.

It is difficult to ascertain the specific current facilities for HPB as they share wards with General Surgery and Urology. However across the wards utilised by HPB there are a range of single sex nightingale facilities and mixed sex wards with 6 bedded bays. Single room allocation constitutes 12% across the piece against a future 29% in the 28 bed ward and 33%in the 24 bed ward.

The proportion of single rooms for this scheme has essentially been driven by the limitations of building on retained estate, the ability to nurse a larger proportion of side rooms, cost, the long term Reconfiguration Programme and quality improvement on current facilities.

50% single room option

Retrospectively an alternative option was considered for these wards as a variation to Option 2 (New Build Ground Floor 2 storey build) to increase single room provision from 30% to 50%, this was based on an additional requirement of 800m^2. The outcome of this was a 34% increase on

the capital cost of the preferred option; and additional revenue cost above the preferred option of £483,000.

In addition the non-financial appraisal for this option was considered; with the outcome that the cost per benefit point was 8.7% more than the preferred option.

Staffing Levels

The Trust has also sighted the inability to ensure safe staffing levels if the number of single rooms increases. As stated, evidence is subjective with regards to the need to increase staffing as a result of increasing the number of single rooms. Literature suggests that by working differently the number of staff on the ward needs to increase initially until new ways of working have been embedded. However UHL clinical staff involved in this service relocation feels strongly that the change in practice required, in just moving from a low number of single rooms to 30% and to having multi-bed bays with doors, will be challenging notwithstanding the Trusts current position with regards to the high level of nursing vacancies. Staff relocating to the new facilities have been asked about the concept of increased single room and enclosed bay provision and the feedback was mixed.

Infection rates

There are a number of studies that show that moving to increased single rooms does not have an effect on the incidence of all hospital acquired infections e.g. Darley et al 2018 and Maki et al 1982. These are not however definitive studies and don't apply to all hospital acquired infections in particular noro-virus.

The number of single rooms is increased significantly compared to the estate that currently houses the speciality which will have significant positive impact on their abilities to isolate patients with known or suspected infections.

The provision of isolation facilities in the renal transplant ward is an improvement on the current provision and will allow for protective isolation if required (which they currently don't have the facility to do) as well as source isolation of patients with respiratory and extensively drug resistant organisms.

Head of Nursing as DIPaC has recognised and supported not adhering to policy in this instance based on the inability to safely staff the areas and the increased pressure of nursing vacancies, requirements of the specialties relocating and the impact of the future Reconfiguration Programme.

Outcome

Given concerns about the affordability of the scheme; an additional cost pressure of nearly £500,000 per annum, and the additional capital requirement of £6 million, the 50% single rooms cannot be afforded, and the Trust has re-confirmed that the preferred solution represents a significant quality improvement on the current facilities. This decision has been ratified by the Trust.

Access

The GH Wards construction site is located between the West side of the hospital. Parking restrictions will be introduced on the West side internal road to allow maintenance of vehicular access for the delivery of goods to the Pharmacy and collections from the Mortuary. This will impact upon only 8 parking spaces, which can be adequately absorbed across the site. Activities relating to the main lift of the modules will be predominantly done "out of hours", however, times

when access will not be available, will be co-ordinated with Pharmacy and Pathology Services where internal access will be arranged using different drop off and pick up points

Impact of clinical adjacencies in the scheme design

External adjacencies for the specialties relocating into the new build ward have been divided into 3 components: essential, important and desirable. The key external adjacencies for both departments are detailed in the table below.

Table 69 - Clinical Adjacencies New Build Wards GH

Criteria	Clinical Adjacency	Delivered in Scheme
Essential	There is a critical co-dependency between HPB and Interventional Radiology and Endoscopy	✓
	Clinical support services	✓
	Operating theatres and adult ICU	✓
Important	Medical review occasionally needed	✓
Desirable	Pathology useful for frozen histology intra-operatively, currently achieved with pathology off site.	Off-site

Internal Adjacencies

The internal adjacencies within RT and HPB in-patient facilities are similar, reflecting a standard generic ward, and have been identified and achieved within the design of the wards.

Logical adjacencies within the ward footprint will promote efficiency of care delivery and have been incorporated into the design. The 2 HPB wards will function as a total unit and as such will share various functions e.g. Kitchen, retreat room, staff room. These facilities have been positioned centrally between the 2 wards for ease of access for staff. Dirty and Clean utilities have also been positioned at strategic points to reduce footfall. The 4 bedded bays will have areas where Nurses can sit and work both negating the need to find space at the nurse bases and promoting bay nursing which was specifically promoted by nursing members of the design team.

The Renal Transplant Ward will be hosting both inpatient facilities and an out-patient/ward attender procedures facility. They are co-located on the same ward. They have been specifically designed with the logical patient flow i.e. procedures area, admission with direct access to theatre waiting areas and reception at the ward entrance and in-patient facilities deeper into the clinical environment.

All 3 wards will be supported by a new stair well and 2 new lifts. These are additional to the existing facilities and will provide access to all floors below the development.

Business Continuity

A Business Continuity Plan will refer to and include a range of services and business functions at the GH that will need to be maintained throughout the construction period for the 3 New Build Wards. The plan is in the process of development and will encompass the following elements; clinical direct patient care during construction, clinical non-direct patient care during construction and other internal/external impacts during construction.

Due to the nature and location of this construction project, there will be an on-going impact of this activity on external access routes such as for pharmacy deliveries and mortuary access. Access will be maintained via an internal road and the identification of the location of the site compound

will ensure business as usual can be maintained, whilst providing adjacencies to the construction site.

Blue Light access must be maintained throughout with loss of car-parking spaces at a minimum – this will be achieved by a robust traffic management plan.

It is recognised that there will be some disruption to ward based activity during the lifting operations to locate the building modules and a decant phasing programme will be developed in conjunction with the affected areas and communicated widely across the site. Through discussions with the Principal Designer, it has been established that the critical phase during which temporary relocation of occupants below may be required will be whilst the steel framework is being lifted onto the roof. Once the framework is in place, the concrete floors will be poured which will effectively establish a crash deck negating the need to vacate space below, whilst the building modules are craned into place. Further discussions regarding placement of the steels are under way to eliminate the risk associated with this. Lifting the beams at a height just above the parapet wall, will mitigate this risk. If however, this mitigation cannot be signed off by the H&S team, short duration of evacuation in the space immediately below the operation has been agreed with the clinical team. In such circumstances, the lifting plan will reflect the time taken to evacuate and re-populate the areas between lifts.

For works which may have a detrimental impact, out-of-hours and weekend working will be employed. Allowance has been made within the works cost to support this.

A clear and robust Escalation Policy will accompany the programme identifying specific members of staff who have the authority to suspend construction works. A clear understanding of impact on cost and programme will be considered within the policy.

The Business Continuity plan will be developed in conjunction with the affected stakeholders, Estates and Facilities, UHL Communication Team and the construction contractor. Once agreed this will be shared with the wider community.

4.5.3 General Surgery Wards - LRI

Design Solution

The development comprises of the minor refurbishment of 3 existing clinical wards with an improvement in facilities provided. This includes improvements to en-suite facilities by adding these to the existing 6 bed bays and where possible enhanced side rooms with en-suites. We will also be adding glass doors to bays for improved privacy and dignity and to enable bays to be isolated for IP reasons. Bay specific touch down nursing stations will be provided. New decoration and lighting throughout these areas will deliver a contemporary environment with improvements for both patients and staff, with the inclusion of wall art to enhance the overall ambience. A new day clinic area will provide a reception, waiting area, ultrasound and clinic rooms.

The needs of patients, staff and visitors were fundamental to the success of the design and future operational functionality. The key objective is to develop a functional clinical area for patients and ward attenders within the bounds of a minor refurbishment scheme. As such staff engagement has been vital to establish the priority areas that could be addressed. As stated we have looked at making alteration to the ward bathroom facilities and this has been supported by the patient partner and IP as a priority for improvement.

Privacy and Dignity

Within the existing medical wards there are identified privacy and dignity issues, which are being addressed through the refurbishment. The primary improvement is the addition of en-suite bathrooms for 6 bed or 4 bed bays.

The senior nursing staff for the department have been fully engaged in the design process and have advised on best practice with regards to optimising privacy and dignity in the retained estate wards, including consideration of bed spacing, hand wash provision and single rooms.

Workflow and Logistics

The preferred location for the wards is to occupy 3 existing clinical wards within the Balmoral building at the LRI, vacated by the newly delivered Emergency Floor project. This has optimum adjacencies for logistical flows over and above other options. It will be adjacent to the current general surgery wards and with vertical adjacency to Theatres on site.

This option uses existing wards so access will be to use the existing lifts and stairwells. In order to further enhance the patient and visitor journey, the Trust will refurbish the lift lobby and corridors used to access these wards. This work will be funded from the Trust's Capital Resources Limits (CRL).

Adaptability

This project uses existing medical wards and all of the improvements being made will greatly improve the ward area. These wards are a standard ward template will be easily used and adapted in the future for use by other specialties if required.

Patient Space Standards

The refurbishment of the existing estate, which dates from the 1980's, compromises the ability to be compliant with current HBN and HTM standards. However, the scheme will significantly improve the environment for both patients and staff and will address key privacy and dignity issues. Similar ward refurbishments carried out in recent years have realised significant benefits to improve staff and patient experience. Patients benefit from a cleaner, brighter environment. Task lighting over the bed allows patients to read and carry out hobbies. The use of silent close bins and sliding doors helps to create a quieter environment.

A ward refurbishment also greatly improves staff morale and improves sickness performance. This also helps with recruitment and retention of staff and ultimately enhances patient experience.

Derogations

Due to the nature of the refurbishment on these wards, the vast majority of the space will not comply to modern HBN/HTM standards, therefore a formal derogation schedule has not been produced. However, in Appendix 45 the Schedule of Accommodation, notes and comments against HBN/HTM have been made against each room space, showing where improvements have been possible e.g. the creation of en-suite showers and w/c's on each bed bay

The Estates embedded Senior Trust Infection Prevention Nurse has been fully engaged in the design process to date and his advice has been incorporated into the design.

Access

The construction site is located on Levels 5 (Wards 15 and 16) and 6 (Ward 21) of the Balmoral Building. The construction team will use existing facilities for office space and toilets within Wards 15/16 to avoid the need to set up site cabins. Once this area has been refurbished, then the team will move up to Ward 21 and again use existing facilities.

Work to refurbish the 3 wards at the LRI will present a challenge to our ability to separate the movement of goods and waste to and from the building site from public and patient activity.

This will be achieved by:

- Restricting the movement of goods and materials to and from site to "out of hours" period
- Sequencing the work so that the work on Ward 21 is not happening at the same time as that on Wards 15 and 16

Impact of Clinical Adjacencies in the Scheme Design

External adjacencies are adjacencies that the general surgery wards have to other departments/areas in the hospital; essentially what would the department be ideally located next to. The key external adjacencies for the wards are detailed in the following table.

Table 70 - Clinical Adjacencies New Build Wards LRI

Criteria	Clinical Adjacency	Delivered in scheme
Essential	Adult anaesthesia	✓
	Adult ITU	✓
	Operating Theatres	✓
	Clinical support services	✓
	On site medical cover	✓
Important		
Desirable	Cancer / oncology services	✓
	Medicine – Emergency Department and gastroenterology	✓
	Urology	Remains at LGH

Internal Adjacencies

The internal adjacencies within the ward are already created as part of the existing ward template, and this project will not be making any significant changes to that layout. The ward already houses both clinical and support space to include staff areas, kitchens, day space etc. The internal movement of ward 8 up to ward 15 forms a single floor surgical assessment area and greatly improves the clinical adjacencies for the service. The wards are located within Balmoral building which also houses the main theatre department and diagnostic imaging with good access to the emergency department and other specialist services

Business Continuity

The Contractor will have vacant possession of the 3 wards impacted. Restrictions will be made on the movement of materials and working hours in order to minimise the impact on the hospitals operational activities and to maintain the comfort of patients in adjoining clinical areas.

Dust control will be a key issue as the site is embedded in active clinical space. The site boundary is clearly defined by the ward envelope and affords the opportunity to fully enclose the site, with entrance hoarding and keeping all perimeter windows closed during construction works. In addition, the contractor will deploy air scrubbers to filter dust in the environment and tac mats at the site access/egress point. The tender specification specifically required the contractor to allocate resource to clean and maintain the routes to and from the site location on a regular basis. Adherence to the dust control measures will be monitored by the Project Manager and the estates embedded Infection Prevention Nurse.

Noise and vibration has the potential to disrupt surrounding clinical areas. The Trust Project Manager has extensive experience in delivering refurbishment projects in the heart of the building concerned. As a result, the following key mitigations will be established:

- Regular and detailed communication with ward matrons/sisters and other stakeholders, highlighting noisy activities and when they will take place
- Restriction of the times during which contractors can carry out noisy activities
- Supply of ear plugs where necessary and appropriate
- Elimination of unnecessary noise from the site, such as the use of music/radios and the use of radios to communicate rather than shouting when cabling pulling etc

Isolation of services such as water and electric will be local to ward and therefore not impacting upon surrounding areas. However, backlog maintenance work is underway to identify, test and replace where necessary, isolation valves ahead of construction commencing. This will negate any disruption or additional cost caused by the failure of local isolation valves.

4.5.4 Interventional Radiology (IR) GH

Clinical models of care and Operational Policies

The IR service is provided 24 hours a day 7 days a week, with teams on-call out of hours in emergency situations. The requirement is to ensure seamless patient flow and a positive experience for IR patients and the families and carers.

The design and layout for IR has taken into account the necessity to address the requirements for privacy and dignity for patients within the area. Each bed space has a solid partition and a curtained area to the front, natural light is provided directly adjacent to some bed spaces.

The team involved have reflected and learnt for previous experiences of imaging developments and refurbishments; this has influenced the requirements and functional content for this facility;

- Consent & pre-assessment space;
- Patient changing and waiting area, separating make and female areas;
- Treatment and diagnostic procedural IR rooms;
- Recovery and handover within the area, allowing separation of male and female patients;
- Nursing stations, ensuring visibility of patients within bedded areas;
- Day case provision separating male and female patients and with en-suite provision;
- Appropriate clinical support areas; including clean and dirty utility, offices, storage, staff changing and rest areas and hot reporting hubs.

Design Solution

A new IR department located adjacent to the existing X-ray department will support the HPB and transplant services moving from LGH to GH.

Interventional Radiology procedures are invasive and the patients' requiring interventions are often sick, stressed and overwhelmed by their illness. For these reasons the design of the new IR suite must reflect the needs of the patients' and help support their intervention and journey. Patients are often sedated or could have their procedures under general anaesthetic.

The IR service is provided 24 hours/7 days a week and teams will be called in out of normal working hours to perform emergency procedures.

The needs of patients, staff and visitors will be fundamental to the success of the design and future operational functionality. It will also ensure patient flow and a positive patient experience for IR patients, their families and carers. This design solution also future proofs the IR service and capacity. The refurbishment will help IR overcome current operational difficulties by creating an environment that is fit for purpose.

The design layout for IR has taken into account the necessity to address delivering privacy and dignity requirements for patients within the area. Bed Bays are located within the reception and recovery areas and within the day case unit. Each bed space has a solid partition and a curtained area to the front. Some bed spaces have windows at the head end of the patient which were felt to be important to provide natural light to facilitate recovery and well-being. These will all be obscured to ensure that there is no visibility from outside the department.

Outpatient changing rooms are single sex with dedicated en-suite facilities. Visibility of the patient and the routes the patients will take through the department have been discussed and assessed to ensure that the patient is supported from a privacy and dignity viewpoint at all times. The plans have been signed off by the Trust lead Nurse for P&D, following discussion and presentation. The CMG patient partners have also been involved in the sign off and have had opportunity to comment on the plans. The patient journey through the department will be further supported by operational policies for the staff to follow.

The teams have reflected and learnt from past experiences of Imaging refurbishments and new builds, and used this to support and drive decisions and solutions for an improved patient experience.

Each of the groups below has been engaged with during the IR development process and some examples of how their input has changed the design are identified here:

Patient Partner representatives

Throughout the detailed design process patient representation has been a key component of the output. The 1:100 design incorporated patient comments in relation to certain aspects of the design. These were considered and the design adapted. At the detailed design further comments were made and again incorporated.

Ability to access information easily within the ward area e.g. menu racks at each bedside, clear forms of communication media/signage

The inclusion of clear signage both within the wider site and within the ward areas; a signage programme will be undertaken as a package across the programme adhering to both NHS and existing Glenfield Hospital

Privacy and Dignity Lead
The design has been revised within the waiting area seating to adjust line of sight issues and amended access has been provided into the outpatients changing facility area to manage line of sight.

Health & Safety Officers
The Health and Safety Officers were satisfied with design overall and felt that all H&S measures for design layout had been addressed. Security in terms of CCTV surveillance, door access control has been identified and approved by clinical team

Fire Officer
Mandatory requirements have been addressed throughout the design period and reflected within the Fire Strategy Plan. Specific issues addressed include:

- An increased size of fire escape exit route
- Bed transition through the department has been reviewed by the Fire Officer including consideration of the corridor width within the proposed IR department. After a site review, the Fire Officer was happy to accept the reduced exit width and provided the following comments:
- The pillars are 'existing' and it is obviously not feasible to move them due to the theatres located above; consequently the pinch points are acceptable as they are minimal within a straight line.
- There were concerns over the right angled left hand turn at the ramp end of the scheme due to the position of the pillar on the inside of the corner however; the tracking clearly shows that the bed will transit around the corner also taking into account that the bed is regularly moved by only two persons and not the four as identified within the HBN; there is also the potential (if need be) for increasing the width on this turn by taking back the wall where the riser/service cupboards are located.
- The entry corridor width was reviewed (not part of the scheme) and it was agreed that we that the current rails would be replaced with units that fit right back to the wall in order to fully maximize the width.
- There is a restriction on a maximum of three beds at any one time due to staffing numbers and this will aid the evacuation of the beds in an emergency. If due to unforeseen circumstances, the escape widths have to be narrowed the issue will be revisited with the consideration that patient trolleys only will be used.

Infection Prevention
The estates embedded Senior Infection Prevention Nurse has been involved in the design development from the outset and all issues/concerns had been addressed and the design signed-off at this level. Positioning of fixed items within bedded areas, kitchens, dirty utilities and clean utilities has been directed by the IP Nurse and reflected within the design. On-going design detail with regards to position of hand sanitizers, dani-centres, soap and so on will be decided on site during the commissioning stage at the request of the IP Nurse and clinical representatives.

Facilities Management
Inclusion of an increased size of disposal hold and advice received on the meal delivery process and arrangement and specification of kitchen appliances

Workflow and Logistics

The facility will provide the following functional areas for in-patients and out-patients –

- consent and pre-assessment
- patient changing and waiting areas – same sex compliant
- treatment and diagnostic procedural IR rooms
- recovery and hand over within the facility - same sex compliant
- nursing stations and visibility of patients within bedded areas
- day case provision for IR procedures with en-suite and a beverage bay- same sex compliant
- Support areas - clean and dirty utilities, office space, storage (general and sterile), staff change and rest areas, hot reporting hubs.

The design of the IR facility will enhance patient flows through the department, facilitating an efficient clinical model.

The design ensures that the new and existing departments link and flow together, and although separate areas, collaborative working between the teams is made available and practical.

The preferred location for the IR optimises adjacencies for logistical flows over and above other the options that were considered. The IR Department will be central to the core of the GH therefore offering easy access to all amenities and service departments.

Adaptability

The work comprises three IR rooms – two of which will be furnished to meet the requirements of the services moving to the GH; the third will be utilised for other purposes until the completion of the whole reconfiguration programme when the third room will be required.

On a day to day basis, accommodation will be able to flex to meet same sex compliance of the patient cohort and this can be supported by operational policy and local safe standards for interventional procedures (loc SSIPs).

The design of the rooms internally with their adjacencies within the space, have been carefully considered with the workflow and patient journey in mind. The staffing provision and availability has also been taken into account to ensure efficient and effective working.

Areas are both multi-purpose and functional to allow flexibility and patient comfort at all times.

The current IR plans show 3 IR rooms of which 2 will be put into use on completion of the project with the third being available for when nephrology move to Glenfield. In the event that further expansion is required then the existing Domestics department could be moved, and the space used for a fourth IR machine.

Patient Space Standards

HBN recommendations have been delivered as part of the final design solution, wherever possible. Clear identification of associated derogations at this stage are identified in the Derogation Schedule.

The Estates embedded Infection prevention Nurse has been fully engaged in the design process and has advised on best practice with regards to optimised bed spacing, which has been achieved.

Guidance relating to Infection Prevention has been reflected within the layout as part of the detailed design process. This has covered en-suites, hand wash basins, floor finishes, etc.

Derogations

The areas are subject to various derogations from both HBN and HTM recommendations and policies, primarily due the department being an internal refurbishment. All of those noted have been signed-off by the relevant stakeholders, including the Chief Nurse for IP. Derogation schedules can be seen at Appendix 28. The derogations have been justified and mitigated where possible.

The 3 most significant derogations are detailed below:

Table 71 - Interventional Radiology Key Derogations

HBN/HTM	Standard Description	Derogation Comment	Trust agreement /comment
HBN 06: Ceiling heights: (Volume 1 – Facilities for Diagnostic Imaging and Intervention Radiology (2001) -	Figure 004, Page 154 - Diagram shows a required 3100mm ceiling height.	Proposal currently shows a proposed 2700mm ceiling height due to existing building constraints	A minimum of 2650mm clear has been confirmed by Siemens.
HBN00-04: Figure 17 (clause 3.19)	Asks for a minimum of 2150mm clear (excluding the zone for any handrails or wall protection).	The current proposal shows a corridor clear width of 2150mm including the zone allocated for wall protection	It is anticipated that a max of 20 no ambulant patients will pass down the corridor per day mainly on trolley's The department have carried out a risk assessment and are writing operational policies to mitigate this issue
HBN00-03: 2	Number store rooms required at 16m² each	Due to available area we are only able to provide 1 no. store room at 12.5m²	Storage will be provided in the IR rooms to compensate

Access

The IR construction site is located to the North side of the hospital. In order to separate the access to the site from the normal Staff and Goods Entrance, a new temporary site access point will be created through the waste holding yard. The entrance to this yard has good adjacencies to the site compound and can easily accommodate the movement of materials to the site, along with the collection of waste from the Service Yard

Impact of Clinical Adjacencies in the Scheme Design

External adjacencies are divided into 3 components, essential, important and desirable. The key external adjacencies for IR are detailed in the following table:

Table 72 - Clinical Adjacencies IR GH

Criteria	Clinical Adjacency	Delivered in scheme
Essential	High user and critical areas – Renal and HPB wards other Imaging	✓
Important	ICU and assessment units. Endoscopy	✓
Desirable	Outpatients	✓

Internal Adjacencies

The internal adjacencies are influenced by the IR patient flow. The adjacencies are complex as more than one group of patients from differing sources will be accessing the department at one time - inpatients, outpatients and daycase patients, but have been achieved through the design, and further supported by operational policy.

Out patients will be kept separate from in-patients. Time will be taken to ensure that patient information and appointment letters are appropriate and informative to ensure ease of access and use for patients and their families and carers. Signage and way marking will be discussed with the patient representatives.

Business Continuity

The interventional Radiology project will be located on the ground floor of a two storey part of the hospital, with the main X-Ray Dept its nearest ground floor adjacency and the main operating theatres being located directly above. During the construction phase of the works the work area shall be physically segregated from the rest of the hospital using sound attenuated boarding to reduce the noise transition, control dust and odours and provide a physical security barrier. A negative pressurization system shall be applied to additionally control the dust generated, this will be done in conjunction with the IP team advice. An existing fire escape shall be used for all main works access and egress, with the fire escape leading directly into a gated service yard. The principle will be to separate the project work activity from all staff, patients and visitors.

During the works a number of service isolations will need to be made which will significantly impact on the X-Ray Dept and the operating theatres above. These will be managed by the use of detailed communication and co-ordination and allowance has been made for weekend working and other out of hours working. Additionally noise and vibration are recognised as a significant problems particularly to the operating theatres, Initial discussions have already started to best manage and mitigate the disturbance impact, including re-programming some elements of the works and out of hours works.

As part of enabling works, a new medical records storage department will be formed in the Snoezelen building and the Mansion House is additionally being refurbished as part of enabling works to allow the office staff to re-locate from the proposed IR construction area to the Mansion House. This allows for a clean and empty area for the contractors to take over and refurbish.

In consultation with the operational theatre manager, the theatres have suggested moving some operations to other theatres in the hospital and possibly transferring some elective procedures to the LRI for short periods.

The ultrasound department and the bone store lie within the work area and arrangements have been made to transfer these two departments temporarily to alternative locations and to return at the end of the construction activity.

The overarching principle will be to promote a good neighbourly working practice, with those who are likely to be impacted by the works.

4.6 Leadership and Stakeholder Engagement

4.6.1 Clinical Leadership

Clinical leadership is key to the successful delivery of the project objectives:

- The Deputy Medical Director is one of the joint Senior Responsible Officers (SRO) for this project, and has been involved since the inception of the project. He has worked with clinical leads across services in the development and agreement of the models of care and clinical operational policies which support this project;
- Clinical leadership from within the Clinical Management Groups has been critical, and the following have been key to this in both the development of models of care, clinical operational polices and input to and sign off of design solutions that meet the brief and deliver both a clinical and cost effectiveness solution for the provision of patient care:
- Intensive Care, Theatres, Anaesthetics, Pain and Sleep (ITAPS) – Clinical Director, Head of Service for ICU, Head of Service for Theatres;
- Cancer, Haematology, Urology, Gastroenterology and General Surgery (CHUGGS) – Clinical Director;
- Renal, Respiratory, Cardiac and Vascular (RRCV) – Clinical Director, Head of Service for Transplant and Head of Service for Nephrology;
- Women & Children's (W&C) – Head of Service for Gynaecology.

4.6.2 Stakeholder Engagement

Stakeholder engagement is a vital part of the project in order to ensure that all needs are met through the delivery of the project. The following engagement has happened to date:

- **Healthwatch -** a local Healthwatch representative has been an important member of the ICU Project Board to date with the ability to gather and represent the views of the public in shaping the future delivery of services;
- **Patient Partners** - the Trust has a network of Patient Partners who work with the CMGs in the future development of services. The lead for the Patient Partners is a key member of the Project Board and is also one of the Patient Partners supporting the ITAPS CMG. Following a recent expansion of Patient Partners team within the Trust, we now have named individuals who will work support the project and the individual impacted services in ensuring patients' views and suggestions are captured; and an appropriate and relevant communication plan is in place. A session has been held during January 2018 bringing together CMG Patient Partners, Estates Project Managers and Clinical Service leads to review the detailed plans for the new facilities and walk through the patient pathways. A number of actions were agreed:
  - Input to the Car Parking Strategy to be developed as part of the wider reconfiguration plans
  - Input to the development of a Patient Entertainment Strategy for the Trust
  - Confirmation of the wider Patient Communications to be undertaken as part of the Communications Plan
  - A review of the signage changes to be made to the GH site as part of the project
  - Re-establishing linkage with Healthwatch following the outcome of the tender process in Leicester City and Leicestershire.

  - A review with estates and clinical colleagues of access to CT scanning by ICU patients.
  - Presentation to the wider Trust Patient Partner group.

- **Commissioners** - there is representation from Leicester City CCG, as the lead commissioner for UHL, and NHSE Specialised Commissioners on the ICU Project Board for both the interim ICU case, but also the planning for the longer term solution for ICU at GH and LRI. Commissioners will evidence their support of this project by signing off the OBC and the FBC;
- **Overview and Scrutiny Committee (OSC)** - UHL Senior Managers presented the case for change for ICU, with regard to the on-going provision of Level 3 ICU at LGH, to the Overview and Scrutiny Committees in March 2015. The OSCs were asked to note the operational and safety issues facing ICU services across UHL. The outcome was that the OSCs supported the need to reconfigure the services urgently. The Trust also presented at Rutland Adult Health and Scrutiny Committee in April 2018 where support was also provided.
- **Staff engagement** - Sessions were set up during February at LGH site for all impacted and interested staff to attend across all CMGs. The detailed plans for the new facilities will be available for staff to see and they will have an opportunity to ask any questions they have of clinical managers and project managers working on the schemes. These sessions will be followed up by similar events at both LRI and GH sites and if successful will be repeated as the project progresses.
- **Estates and facilities management (FM)** - Leads from the Estates and Facilities management team have been fully engaged in the project with regards to the impact on the GH and LRI of the moves from an estates, infrastructure and FM perspective. They have also taken account of the impact on the LGH of parts of the site that will be closed but will still need estates input – e.g. water testing for Legionella.
- **Internal clinical support services** - engagement has been undertaken and is on-going across a range of clinical support services impacted by the transfer of services from LGH to GH and LRI to ensure that the implications and impact for them have been considered and taken into account. The services consulted include the below:
  - Pharmacy
  - Speech and language therapy
  - Dietetics
  - Physiotherapy
  - Occupational Therapy
  - Pathology
  - Blood Transfusion services

4.6.3 Consultation

This project was initiated in 2014 when the risk of clinical sustainability of a Level 3 ICU service at the LGH became apparent. At that time, the OSC were consulted on, and supported, the clinical imperative to move the service. Mitigations were put in place to ensure continuing safety of the service at the LGH, recognising the fact that there is a reliance on staff goodwill to continue to cover the site. This has been possible since the staff can see the intention to move the service through this project. (See Strategic case) .The availability of capital since this date has hindered

progress, but the priority to move this service remains as important as ever. This intention has been published in our five year plan since 2014.

4.7 Workforce

Workforce planning is a critical component of any project plan. The approach to workforce development planning has been aligned to the "UHL Way" framework which is a Trust wide methodology that aims to support the way UHL manages change in a consistent and sustainable way. This incorporates approaches across three components, namely "Better Engagement", "Better Teams" and "Better Change". This ensures that we utilise Organisational Development (OD) input appropriately and has been recognised as a key element of the success criteria. Resources have been identified to support this change not only for the interim project but the longer term approach to delivering Intensive Care across UHL. This framework has a high profile within the Trust and is supported by the Chief Executive; the methodology and language is all pervasive in terms of the management of change, leadership development and the inclusion of the UHL workforce planning methodology, which is based upon the 6 steps model originally developed by Skills for Health.

Responding to lessons learnt from our Emergency Floor and Vascular department moves, it has been acknowledged that the more staff are involved and engaged in the management of change and large scale projects, the higher the likelihood that these projects will be successful. This means assessing and responding appropriately in terms of communication and engagement with managers and staff; and investing the time, energy and resources to utilise proven techniques such as "cultural audits", offering leadership support and team development, but also enacting any bespoke interventions or events that may enhance staff and therefore patient experience. Ultimately this means creating an environment that takes staff through change in a supportive way, to highlight potential benefits and to influence hearts and minds. Research shows that the more engaged staff are the greater the chance of success and the ability to maximise the benefits of this project and generally developing a culture of 'being in it together', whilst minimising the potential negative impact from things like increased turnover, low morale caused by uncertainty.

4.7.1 Workforce and Organisational Development

Creating ownership and engagement in change across the workforce is an essential part of the reconfiguration change programme. Maximising opportunities for staff to work together effectively, providing training and coaching throughout the process can ensure that new ways of working are realised, current problems are addressed and people are supported through this transition.

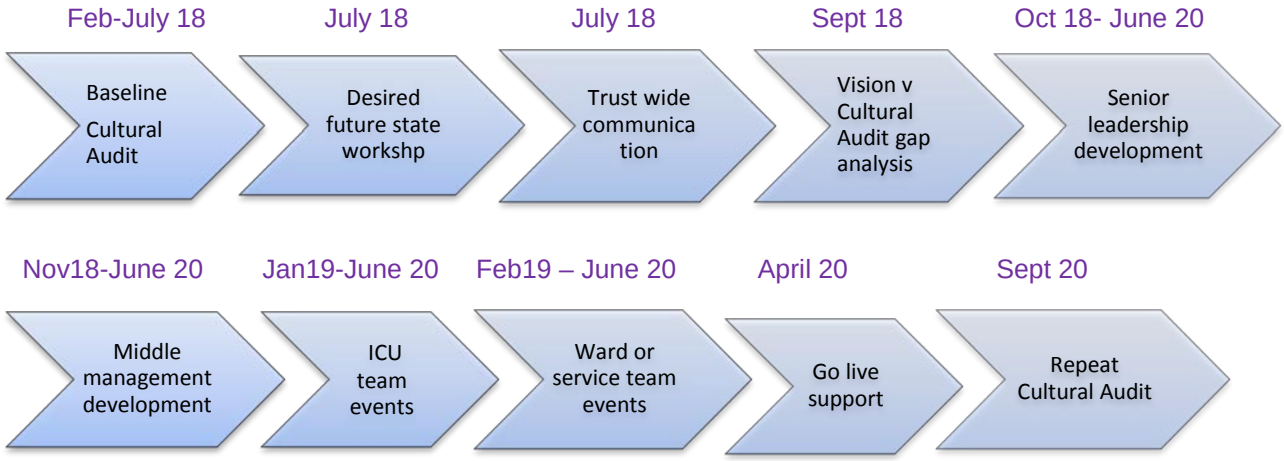
The "UHL Way" framework will help to ensure the change is managed in a consistent and sustainable way. The "UHL Way" consists of three components, namely "Better Engagement", "Better Teams" and "Better Change".

The Trust has also invested in dedicated OD support to provide bespoke training and support required to deliver the change programme not only for the interim project but the longer term reconfiguration of services across UHL. This early investment enables time to assess and impact on organisational culture which is a significant driver for successful change programmes. There will be a strong emphasis on staff engagement and involvement to influence hearts and minds and create a culture

of 'being in it together'. Team development and coaching will be required as staff may be joining new or already established teams. Many staff will be moving to a different hospital with new systems, processes and ways of working they are not familiar with, training and orientation will be needed. The formation of new service teams provides an opportunity to explore new ways of working and innovative approaches to service delivery and care. The Organisational Development Plan is included at Appendix 33.

Communication to staff needs to be handled sensitively, consistently, timely and effectively. Staff involvement in identifying communication methods and messages is essential in order to reduce conflict and increase ownership of change. There is awareness of ensuring all Trust staff are included as the impact of these changes will be seen Trust wide.

Organisational development and preparation for this scale of change requires careful planning and sequencing of OD interventions. UHL staff have already experienced delays and cancellations to reconfiguration projects in the past which impacts on their readiness for change. Delays to the overall project timescales will have a destabilising effect as momentum for change develops. This 10 step OD plan details the stages and timescales involved:



Developing the Workforce, Education and Training Plans

The key drivers for the workforce development plans in the interim ICU business case are three fold.

1. Develop and support the current ICU workforce (in particular the medical workforce)

2. Education and Training to develop a sustainable workforce development pathway

3. Supporting the UHL and LLR workforce strategies, developed to support the Better Care Together programme and the STP across LLR

The primary focus is developing a sustainable multi professional workforce to support the intensive care workforce and to address the key concerns about medical staffing in particular. This is intrinsically linked to the education and training experience. To ensure better recruitment and retention the working experience for junior doctors was highlighted as a priority to enhance the training and education for Medics and to create an environment that supports and develops doctors in training. Moving to a 2 site model will greatly enhance this and will in turn develop and maintain a training ground for our future Consultants and for future trainees to get the most appropriate training and development required to support the service moving forwards.

Some of the on-going workforce challenges will be addressed by this project. For example, the removal of training designation status at LGH is a key driver of this project and highlighted the need to address the training requirements and experience for junior doctors as well as the impact on a wider range of staff. Recruitment to the LGH after losing its training designation has become less attractive and a national shortage of experienced critical care nursing and medical staff compounds the difficulty in recruiting and retaining staff. Maintaining a sustainable workforce across three sites accentuates workforce supply issues and hinders the ability to develop safe and high quality workforce support, particularly at nights and at weekends and stretches an already acknowledged deficit in terms of registered staff for Medical, Nursing and Therapeutic staff. Any move to consolidating services has a positive impact in terms of sustainable future workforce supply and workable rosters.

In line with the key drivers for the project, the provision and consolidation of staffing across two sites is a considerable qualitative and quantitative benefit from a staffing perspective, in particular from a Medical and Diagnostic standpoint, and ultimately supports workforce efficiencies across all disciplines. Some of the greatest challenges are supporting the interim arrangements however, which means that some of the benefits will not be realised until the long term critical care model is fully implemented at the end of the whole reconfiguration programme. On-going development of the workforce plans has given the opportunity to develop innovation and support new ways of working and there has been a particular focus on training and education which in turn supports enhanced attraction and retention. New build and refurbished clinical environments will also aid recruitment and retention and will continue to be monitored by staff surveys and professional surveys internally and externally.

As part of the wider UHL Medical Workforce Strategy a range of initiatives are regularly reported to the Executive Workforce Board and led by the Medical Education leads within the Trust. The Medical Workforce has a focus on the training programmes to support junior doctors in training but also in developing alternative solutions where relevant, such as the Staff Grade role were appropriate and the development of Physician Associate and Advanced Clinical Practitioners where they provide clinical support whilst also taking the pressure of filling Medical gaps which is an issue for many specialties across UHL. Although Critical Care is the central element of this change these plan impact on a range of surgical specialties and the key interdependencies with the range of services that require critical care support have a wide ranging impact on medics at all grades. In more detail in the workforce plan are more detailed explanations of the work that has been shared between leading clinicians and medical staffing experts within the Trust to ensure that the full range of specialties are able to maintain safe and sustainable rotas, across all levels and all sites both during the day and out of hours.

In line with the business case principles that were developed by UHL in 2015 there is an explicit need that, as a teaching hospital the impact on undergraduate and postgraduate education is considered at each stage to maintain and, where possible, enhance the quality of training provided and learning experience of all trainees. Junior doctors and nursing and midwifery training is regulated by GMC, NMC and Health Education England Midlands and East (HEEME). The potential impact of business cases on the learning environment was duly considered to ensure that any changes comply with recognised education standards from regulators. Similarly all undergraduate student training (medical, nursing, therapist etc) continues to meet the contractual requirements of the Learning Development Agreement with HEEME and our partner Universities.

The third driver is ensuring the UHL workforce strategy, including the ICU workforce and the other services impacted by this change, are aligned with the wider LLR workforce strategy. The LLR Workforce Strategy is currently being refreshed and was originally developed in 2015 as part of the

Better Care Together programme across LLR. Driven by the overarching LLR Clinical Strategy and aligning with the Five Year Forward View (5YFV - DH Oct 2014) the critical foundation of this strategy is the move from three to two sites. The LLR Workforce Strategy focussed on the key work streams that supported working closer to home, developing integrated community services and prevention and to support the wider impact on UHL for beds and activity but supported on two main sites rather than three. As part of the on-going review of the Better Care Together programme across LLR the workforce strategy will be continually refined to reflect the news models of care and the places of care. The workforce plans are closely aligned with the number and location of acute beds, including ITU explicitly, which in turn will influence our conversation with local education providers to develop and maintain appropriate training and supply routes both for the undergraduate and postgraduate workforces.

4.7.2 Interim ICU Workforce Plan

The workforce plan is an on-going piece of work which supports the triangulation with both capacity and demand and revenue assumptions. The availability of the workforce and the sustainability of solutions have been considered by the clinical service leads involved. There is a focus on medical workforce; this reflects the criticality and complexity in delivering the best solution for service delivery taking into account the interdependencies between services which exist. All disciplines impacted; including nursing, radiology, pharmacy, therapy and the medical workforce have been included in the planning and are considered in much more detail in the detailed workforce planning appendix.

In conjunction with finance and utilising intelligence in relation to activity, the workforce plans have been developed to reflect the required staffing to support a safe and sustainable workforce model. This has required an in-depth look at all staff groups and particularly medical staffing across a range of surgical specialties alongside the theatre and specialist ICU workforces. The complex interdependency of services that require Intensive Care at all levels has required plans at a medical rota level that have included Consultant, Middle and Junior grade doctors to ensure operational and educational quality and sustainability is maintained. This has included analysis of cover over 7 days, including nights and weekends, and applying safer staffing guidelines to the nursing, diagnostics and other support services.

As outlined earlier, the interim nature of this project creates some temporary inefficiency but these challenges are more than offset by the desired end state. There is no doubt that a two site model is beneficial for a whole range of specialist workforce groups and this project is a significant stepping stone to achieve a healthy workforce balance operationally and educationally, reducing spend on premium staffing and an ultimately a more efficient workforce model moving forwards.

The Workforce plan is included in Appendix 34. The revenue impact of the workforce plan is included in the Finance Case.

4.8 Learning and Continuous Improvement

The role of the leadership team is pivotal in engaging with, delivering and sustaining the required change and behaviours. It is essential to identify, consolidate and ‘live the way’ from an early point in the project lifecycle and then hold everyone to account right through and post project with clear guidance, training, direction and consequences to enable a consistent and transparent culture to operate.

To support this transition the Trust has the use of in-house development programmes, a clear capability framework and on-going OD support.

5 The Commercial Case

5.1 Introduction

This section of the FBC outlines the procurement methodology and resulting tender returns in relation to the preferred options outlined in the economic case.

This case outlines the provision of construction works to deliver the transfer of Level 3 ICU beds and dependant clinical services from the LGH to the LRI and GH sites.

5.2 Scope

The construction works associated with this OBC fall into 4 discreet projects, which have been outlined throughout this case:

- GH: 11 bed extension to ICU - new build;
- GH: 3 additional wards (two HPB and one Transplant ward) - new build;
- GH: Interventional Radiology (IR) - refurbishment of retained estate including enabling works to relocate current occupants;
- LRI: General Surgical beds - alteration and refurbishment of 3 existing wards.

The schemes at the GH include an element of infrastructure relating to electrical supply and medical oxygen. The infrastructure at the LRI can support the moves of the wards into the existing estate with no adaptation needed.

5.3 Procurement Strategy and Implementation Timescales

5.3.1 Procurement Strategy

The procurement options considered by the Trust were detailed in the OBC and the Trust can confirm that there have been no material changes to the procurement strategy outlined in the OBC.

The procurement route was approved by the Capital Monitoring & Investment Committee (CMIC) and Trust Reconfiguration Project Board.

The procurement process was overseen and approved by the Trust procurement team who confirmed that it complied with legal requirements.

In order to achieve price certainty, the schemes relating to IR, ICU Extension and LRI Wards have been tendered. Prices are predicated on a 1st October 2018 start.

The table below details the procurement option used and the rationale for the choice in relation to each scheme.

Table 73 - Preferred Procurement Options for Each Scheme

Scheme	Procurement Route	Reason for Selection
GH: 11 bed extension to ICU	Traditional tender	This scheme was tendered in 2015 but due to the amount of time past and changes in design the project was fully retendered
GH: New build Modular Wards	Selection of a contractor from the 'Shared Business Service' framework.	Design and build by a specialist bespoke modular contractor will deliver Value For Money (VFM) and can be achieved to our timescales.
GH: Interventional Radiology (IR)	Traditional tender	Previously (2015) worked up to Guaranteed Maximum Price (GMP) under a previous framework with Interserve Construction*. Competitive tender will now achieve best VFM.
LRI: General Surgery Ward	Traditional tender to local Small and Medium Enterprises	This method of procurement enabled us to build on lessons learned during 5 most recent ward refurbishments and deliver VFM through repeatable design and procurement.

** Previous major capital projects delivered by the Trust were procured utilising UHL's bespoke lot2 framework, which was awarded to Interserve Construction following an OJEU tender. This framework has now expired.*

In deciding to opt for a mixed procurement strategy the Trust took account of the different stages of the design and procurement that each project was at.

The minor refurbishment and makeover of three wards at the LRI mirrored previous works undertaken on this site; reflecting procurement using Small and Medium-Sized Enterprises (SMEs) who have previously tendered for similar work will provide a value for money solution with minimal overheads. Realistically there are no economies to be gained by batching this scheme with those at GH.

The GH ICU extension and interventional radiology schemes were traditionally tendered and are being procured separately for the reasons outlined below:

- The ICU extension, when developed in 2015, was not procured through the Lot 2 contract at the time due to the contractor's capacity;
- Different design teams developed each scheme;
- Combining the two schemes will make it too large for our local SME's to deliver. Value for money may be compromised as the market will comprise larger contractors only;
- By the separation of the contracts the risk associated with programme, cost and delivery is spread.
- The application of contractor discounts, if more than one package of works is won by the same contractor, is an option being explored

As the GH new build wards are of a modular construction, it is considered appropriate to use a specialist contractor such as MTX Contracts Ltd. This form of construction has numerous benefits in relation to cost and time:

- Erection of the transfer structure can be carried out on-site whilst the modular units are being constructed off-site at the same time

- Reduction in on-site activity, shortening programme and reducing site disruption
- Modules are constructed in factory conditions, reducing waste and improving quality of the finished product
- Reduced impact on the local city environment and infrastructure, due to fewer site deliveries, etc

P22 Procurement

The Trust's preferred supplier, through the P22 construction framework, was not in place at commencement of the design and business case process. Given the various stages the Trust was at with the individual elements of the business case, it is considered that alternatives to P22 will serve us best at this juncture.

Whilst the delivery of the modular wards could have been procured through the P22 framework, we believe that this would be more cumbersome and costly, due to working through a PSCP rather than directly with a supplier of modular buildings.

Use of Framework Agreements

In order to procure the installation of high quality modular wards at GH, the Trust reviewed both frameworks which were available. These were the Shared Business Service Framework (SBS) and the London Housing Communities (LHC) new modular buildings framework.

The Trust investigated the merits of each framework and confirmed that the contract fee payable is 1% of the contract value under both frameworks. Both frameworks offer the same flexibility in terms of the construction contract type and the Trust has decided to appoint on the SBS framework because it is well established and the Trust has had positive experience in its use.

Based upon the Trust's previous experience of delivering large complex modular build schemes with MTX, they were appointed in order to develop the detailed designs. Having achieved a GMP which has been signed off by our Cost Advisors, it is the intention to place the work with MTX subject to approval of the FBC.

MTX Contracts Limited will be appointed from the Shared Business Services framework ref SBS/16/JS/PZS/9094. Details of the framework and evidence of our eligibility to use it are provided in Appendix 26.

5.3.2 Procurement Process

Due to numerous factors the Trust opted for a mixed procurement strategy. This was articulated in detail in the approved OBC and is summarised in 5.3.1 of this document.

The new build ward development is being procured using the SBS framework agreement. The Trust has reached a GMP with MTX.

This section describes the procurement process applied to the following schemes:

- ICU extension GH
- IR development and enabling work GH
- Wards refurbishment LRI

The business case was split into 5 projects that were individually tendered:

- ICU extension GH

- IR GH
- IR enabling - Mansion House offices
- IR enabling - Snoezelen medical records
- Refurbishment of 3 wards LRI

All schemes were tendered using the Due North Procurement Portal

The procurement process was in accordance with the Public Contracts Regulations 2015

Selection of contractors

The list of contractors invited to tender for these schemes was drawn from the Trust approved contractor list. They were all known to the trust and in most cases have successfully completed work for the Trust before. All have extensive experience in delivering schemes within healthcare premises.

Contractors were selected for each scheme on their proven track record for delivering schemes of a similar value or level of complexity.

Details of the number of tender returns are contained in the table below:

Table 74 - tender returns for each scheme

Scheme	Number of contractors	Number of tender returns
ICU extension	6	3
IR GH	6	3
Mansion House offices	6	4
Snoozelen medical records	6	4
LRI wards	5	5

Tender evaluation process

Tenders were evaluated and scored against quality (70%) and cost (30%) The table below provides details of the scoring criteria:

Table 75 - Tender Evaluation Criteria

Item	Element	weighting
	Financial	
A	Financial performance and status of the company - Contractor is to provide 3 years of accounts electronically (email to the EA) during the tender period.	Pass / Fail
	Tendered Price	
B	Tendered Price	30.00%
	Quality	

C	Provide a detailed tender method statement – outlining how you intend to approach the works. Your response should consider: Traffic Management, Buildability and Site Constraints	15.00%
D	Programme – detailed programme to be provided that complies with the dates as noted in the Employer's Requirements	12.50%
E	Management Structure – provide an organogram and CV's of key staff to be employed on the project, including experience working within the health sector	12.50%
F	Compliance with the tender and contract conditions – Acceptance of Schedule of Amendments, Statement of Compliance with the Employer's Requirements, Lack of Tender Qualifications	12.50%
G	Supply Chain – provide details of proposed supply chain, highlighting use of local labour/businesses	10.00%
H	Health & Safety – provide details of your organisation's health and safety representative for the works and outline how the project is controlled from a health and safety perspective in line with the CDM Regulations. Identify and discuss the mitigation of three risks that you consider to be fundamental to the safe completion of the project. Your response to this question must be specific to the works and must not consist of a copy of the health and safety policy	7.50%

For each scheme a short list of 2 or 3 contractors was created. These contractors were invited in for interview where the trust and design team could discuss the returns, seek clarifications and discuss any issues raised by the contractor.

At the end of the evaluation process, the Trust appointment cost advisor submitted a detailed tender evaluation report with a recommendation of which contractor should be appointed.

The full tender reports can be found in Appendix 35.

Prior to making any recommendations to the Trust Executive a Dunn and Bradstreet (D&B) report was obtained for all shortlisted contractors. These were analysed by the Trust finance lead and the Trust appointed cost advisor to support recommendations made to Trust Executive.

The D&B reports can be found in Appendix 36.

5.3.3 Equipment Procurement Strategy

The Trust has adopted an approach whereby relevant equipment will be transferred between sites with the service moves, in order to minimise additional costs associated with the purchase of equipment. The fully costed equipment schedules for each scheme are included at Appendix xx

Within this case there are specific elements which require separate consideration:

ICU Extension GH

The equipment for the Level 3 ICU unit is complex and expensive. The equipment strategy reflects this, and as part of this project a number of Level 3 ICU beds at the LGH will be closed and the associated equipment will be transferred with these beds to the GH. New equipment will be procured for the remaining beds, documented within the full equipment schedule in the FBC. The new ICU beds at the GH will benefit from new medical pendants and full patient monitoring;

New Build Wards GH

A detailed equipment schedule has been developed to support the FBC. From early discussions with key stakeholders it is apparent that a mixed economy of transfer and new equipment is required due to the change in the way these wards will function and the relocation of existing wards. This schedule has been finalised and costed.

IR GH

The IR room equipment replacement schedule has been reviewed with the Managed Equipment Service (MES) supplier to align with the development of the new IR rooms at GH. The proposed solution is to bring forward the replacement of one LGH room to the GH and to defer the replacement of another at the LGH. An additional ultrasound will be added to the contract, for provision at the GH. The finance case incorporates the financial consequences of the revised phasing. Departmental general equipment to be procured will be documented within a full equipment schedule in the FBC.

General Surgery Wards LRI

As the 3 wards at the LRI will be transferred (2 wards from LGH and 1 ward relocating within the LRI), the majority of equipment will be transferred. A few items of equipment may be required to ensure the area is clinically functional before occupation. This is detailed and costed in the equipment schedule.

An allowance for all the equipment highlighted above is made for in this OBC as part of the economic case as follows:

Table 76 - Summary of Costed Equipment Schedules

Description	IR	ICU	New Wards	LRI Wards	Total
Equipment Schedule – Main Scheme	£250,943	£460,842	£308,551	£93,146	£1,298,025
Equipment Schedule - Mansion House	£20,105	N/A	N/A	N/A	£20,105
Equipment Schedule - Snoezelen	£164,438	N/A	N/A	N/A	£164,438
Equipment Schedule - Other Costs	£15,000	N/A	N/A	N/A	£15,000
IT Equipment	£244,688	£46,099	£168,604	£66,246	£525,637
TOTAL	**£695,154**	**£506,941**	**£477,155**	**£159,392**	**£1,838,642**

5.3.4 Milestones for Implementation

It is anticipated that the milestones for implementation will be agreed for each scheme with the service provider. These will be as follows:

Table 77 – Milestones for Implementation

Milestone Activity	ICU Extension GH	New Build Wards GH	IR GH	Ward Refurb LRI

Planning Approval	Submitted and received	Submitted and received	n/a	n/a
Tender procurement construction works (7 weeks process)	March 2018	n/a	March 2018	March 2018
GMP received from Construction Partner	n/a	February 2018	n/a	n/a
FBC submitted to NHSI	July 2018	July 2018	July 2018	July 2018
NHSI FBC Approval	September 2018	September 2018	September 2018	September 2018
Award enabling works contract (IR Only)	n/a	n/a	September 2018	n/a
Commencement of enabling works (IR Only)	n/a	n/a	October 2018	n/a
Completion of Enabling Works (IR Only)	n/a	n/a	December 2018	n/a
Operational commissioning and go live of enabling works	n/a	n/a	December 2018	n/a
Award Construction Contracts	September 2018	September 2018	September 2018	September 2018
Commencement of construction	October 2018	October 2018	January 2019	October 2018
Construction complete	July 2019	December 2019	September 2019	July 2019
Operational commissioning	August 2019	January 2020	October 2019	August 2019
Transfer of service and go live	April 2020	April 2020	April 2020	April 2020

5.4 Personnel

The workforce and organisational development teams within UHL HR service developed plans early in 2018 to proactively manage the Management of Change (MoC) which the transfer of services between sites will necessitate. All services and individuals affected are captured by Service Line Reporting and Electronic Staff Record (ESR) data. Intelligence captured will include the number of staff and implications for travel and parking for example. Data will be analysed at an individual level to progress the detailed work necessary across staff groups.

5.5 Subject Matter for Procurement

This FBC details the case for the transfer of the Level 3 Intensive Care beds (ICU) and dependant services from the Leicester General Hospital to the Glenfield Hospital. The Estates solution will provide the assurance that the key milestones in the planning of the capital development have been achieved whilst utilising the appropriate guidance. This is inclusive of engagement and liaison with the respective stakeholders. The estates components of the case will ultimately focus on the capital investment and works required to enable the movement of Level 3 ICU beds and dependent services from the LGH to the GH and the LRI.

5.5.1 ICU Extension - Glenfield Hospital

The ICU detailed design was started in 2015; it was developed as part of an internally Trust approved FBC and taken to detailed design and tender stage. At that point the project was put on hold due to lack of capital funding. Since that time the architect and structural engineer have ceased trading. The Trust has now engaged a new design team, which has undertaken a full review of the original designs; which combined with some changes in guidance, had led to the detailed designs being redeveloped. These have been finalised and tendered for the FBC.

The key objective of the design is to develop an ICU extension adjacent to the existing ICU department; this will extend the current ICU department by an additional 11 beds. The requirements are as follows:

- Enhancement of the privacy and dignity of patients where applicable in this type of unit, recognising the need for staff supervision and line of sight;
- Facilities for locating and summoning other staff quickly in an emergency are to be located in key areas, taking into account departmental guidance and requirements;
- Standardisation of the bed areas within the department (as far as possible, without compromising on the individual bed functionality). Bed area standardisation can ensure familiarity of the layout and location of key items of equipment thereby reducing the potential for clinical incidents as a consequence of staff not being aware of the location of equipment;
- There must be adequate design and operational measures to prevent and contain the spread of infection. Clinical hand wash sinks and alcohol hand sanitizer points placed as per Infection Prevention Control and relevant DH standards and guidance;
- The design will provide the benefit of the addition of three isolation rooms;
- The area will aid the movement of patients to and from the bed;
- The area will benefit from as much natural light as possible, with the addition of sky light into the area to improve the quality of the environment;
- An environment that enhances communication across the multi-disciplinary team;
- The area will benefit from an accessible Shower and WC.

As outlined in the economic case, the preferred location for the ICU department is a new build area that allows the direct expansion of the current ICU Bay B and increases the size of existing unit. The project design team referenced Health Building Note (HBN) 04-02 ‘Critical Care Units’ (Department of Health, 2013), applying the recommended room sizes. This resulted in a proposed Net Internal Floor Area of 1066.35 m2. The DH standards and guidance in this HBN have been utilised and applied where possible, along with others that are deemed applicable, including Health Technical Memoranda (HTMs) and Activity DataBase (ADB) room data sheets where available. Due to some restrictions on space, there may be some constraints in terms of achieving full compliance with the HBN. Where compliance is not possible, derogations will be detailed by the contractor and approved by the Trust.

Design Quality

A design quality review is devised to help stakeholders set targets and track design quality at all key stages of a building’s development from Briefing through Design and Handover to Occupation. It plays a fundamental role in contributing to the improved design, long term functionality and sustainability of building projects

When the ICU extension was designed to FBC level in 2015, the formal process of Design Quality Indicator (DQI) was not undertaken, and there is no perceived added advantage at this stage of completing this assessment for these elements of the project.

In conjunction with the NHSE Projects Appraisal Unit (PAU) it was decided to carry out AEDET (Lite) to ensure the design process was reviewed. The AEDET report is attached in Appendix 47

The output of the AEDET report has supported the wealth of evidence that demonstrates the positive impact that the environment can have on patient's recovery. The Trust remains confident the design of these facilities will offer a high quality environment which will have a positive impact on clinical outcomes e.g. well-being, recovery rates and reduced infection rates, improved patient flow and enhanced privacy and dignity.

5.5.2 New Build Wards – Glenfield Hospital

The design solution for the preferred option for the HPB and Renal Transplant services involves three new build wards to be developed on the roof of the Glenfield Hospital. This location within the Glenfield site offers optimum clinical and service adjacencies whilst ensuring that it doesn't impact on the development area identified in the future years of the Trusts wider reconfiguration programme.

Thorough feasibility studies have been undertaken by structural engineers to determine the ease of deliverability to construct in this area and this has been confirmed as achievable. Whilst the wards will be a new build construction, the design footprint is constrained by the existing building below. HBN guidance has changed in the intervening years and there will be a challenge to accommodate the HBN recommendations within the space available. The Project Team has worked closely with Trust clinical colleagues and has met with the NHSI Quality Team and has ensured that the final design delivers safe and effective patient care.

The building will be constructed using modern methods of construction offering an innovative alternative to a traditional construction solution. The system is an off-site produced, steel framed solution that comprises a concrete floor and a high standard of internal finishes, representative of a traditional construction method. It offers a 60 year life span, comparable to traditional build. This construction method provides the ability to manipulate the internal layout to ensure it provides full clinical functionality in line with the operational policies.

This method has been widely researched by the technical estates department, executive members of the Trust and patient partner representatives. Senior members of the Capital Projects Team have visited Northwick Park hospital where solutions of this nature are in operation. They were particularly impressed with the quality of the building and the positive feedback received from both clinical and estates staff. The DQI process identified opportunities for stakeholders to visit a comparable MTX development – this will be arranged in coming weeks to fit around clinical diaries.

The new build wards comprise of:

- Renal Transplant: A 12 bedded Renal Transplant Unit; fully HTM compliant to provide dialysis services in order to deliver safe and effective care of patients pre and post Renal Transplant surgery. The original scope in 2015 identified the need for 10 Transplant Beds, however this has increased to align with the bed bridge, articulated in the LLR STP. The ward will include 4 single rooms 2 of which will be Isolation Rooms within the bed complement – a late additional to the design brief at the request of the Infection prevention Lead Microbiologist and the Infection Prevention Lead Nurse.

- HPB: 2 inpatient wards comprising of:
    - 1 x 28 bed ward to provide care for pre and post elective surgical patients;
    - 1 x 24 bed ward with an adjacent admissions/triage area to accommodate emergency admissions and ward attenders.

The Glenfield site predominantly accommodates Cardio-Respiratory services. The current admissions area (the Clinical Decisions Unit) does not have the capacity or appropriate staff skill base to assess and triage HPB specialty patients. For this reason, in the interim term, the service will accommodate this function within an emergency admissions area adjacent to the inpatient ward until the Reconfiguration Programme has been fully delivered. The intention in the longer term is to develop a discreet Surgical Assessment Unit facility at the GH.

Design Quality

A design quality review is devised to help stakeholders set targets and track design quality at all key stages of a building's development from Briefing through Design and Handover to Occupation. It plays a fundamental role in contributing to the improved design, long term functionality and sustainability of building projects

A Mid Design DQI assessment has been undertaken for the 3 new build wards at GH.
The Trust together with the DQI Assessor decided that owing to the speed of the design development phase the Pre-concept Design Stage Assessment would not add any value at this point. The DQI Report is attached at Appendix 29.

The session was well attended by a range of stakeholders which included: clinicians, nurses, Infection Prevention Nurse, estates and provided the group the opportunity to review the models of care against the design and also to draw together and further consider the additional functions that will use or access the facilities to ensure that all relevant aspects have been considered as per the stakeholders requirements.

The main concern raised during the session was that of the amount of natural light that would be achievable within the multi-bed bays. There are some constraints of the modular construction process on the amount and size of windows that can be designed into the facility. The pace of the design process has resulted in elements that would normally be undertaken sequentially being undertaken in parallel. For example, the final approach to structure development was only verified 2 weeks prior to GMP submission. This resulted in layouts not having the correct number of windows; as noted at the DQI session. Further work has now been undertaken with the design team to ensure all approaches to introducing natural daylight have been considered. To ensure we can adequately introduce sufficient daylight into the development the Trust has requested as many windows as possible, floor to ceiling windows in all patient break-out areas and the use of skylights with a high acoustic rating in bays with limited windows. The final 1:20's now reflect the number of windows.

The final 2 stages within the DQI process will be undertaken at the appropriate times within the programme:

- Stage 4 - Ready for Occupation
- Stage 5 - In Use

5.5.3 Interventional Radiology (IR) – Glenfield Hospital

The scope and designs for the IR project were initially developed in 2015 with a GMP produced in 2016. The scope and designs have been reviewed and evaluated by the clinical and estates team to confirm functionality. A small number of minor changes to the internal layout have been made, including improvements relating to privacy and dignity, which are reflected in the layout drawing. The IR rooms are generic and designs have been developed to accommodate the requirements of all equipment manufacturers. In the last two years equipment innovations have related to software developments and have not impacted on spatial requirements.

The GMP agreed in 2015 for the provision of the IR scheme is no longer valid as the framework expired 12 months ago. The original GMP has been used as a benchmark when evaluating the tender returns, from the traditional procurement route, and the construction company who provided the original GMP were invited to tender. Although their tendered price was circa £100k less than the original GMP, their tender came second on cost and quality in their tender evaluation.

To support the inpatient and outpatient services moving from LGH, the following imaging services are required on the GH site:

- 3 Interventional Radiology rooms (one of the IR rooms will initially be mothballed until the remainder of the service can move across to the GH at the end of the reconfiguration programme);
- 1 Interventional Ultrasound scanning room with waiting and recovery spaces for in-patients and outpatient procedures
- A daycase unit for IR patients (4 beds) - same sex compliant
- Patient waiting and change facilities - same sex compliant
- A full patient recovery area - same sex compliant
- Hot reporting and office space
- Associated required facilities for the IR suite – clean and dirty utilities, beverage bay, staff areas for change/rest, storage and patient consent and consultation

No additional imaging capacity is being delivered through the project; the capacity is being relocated as detailed below:

- LGH Room 12 moves to GH once all acute and in-patient nephrology and urology has moved off site at the LGH. The space has been created within the new IR suite at GH for this room to be transferred as and when required. At the point of transfer, depending on the age of the equipment at that time, a decision can be made as whether to transfer or replace in the new IR GH suite.
- LGH Room 9 moves to GH as part of the existing MES contract. This room will be 9 years old at the time of moving in Summer 2019 and therefore will be replaced as new at the GH site rather than transferred. The replacement cycle is 10 years and the small additional unitary cost for early replacement has been factored into the MES scheme and costings for this project.
- GH Room 3 is relocated on site into the new IR area, as part of the existing MES contract. This room is 10 years old (2018) and will be decommissioned and the new room replaced within the new suite as the most cost effective option. This room has the correct specification to match the intended workload.

- GH Room 3 will then become an Interventional US room, and used for non-fluoroscopic procedures to absorb HPB workflow

Design Quality

A design quality review is devised to help stakeholders set targets and track design quality at all key stages of a building's development from Briefing through Design and Handover to Occupation. It plays a fundamental role in contributing to the improved design, long term functionality and sustainability of building projects

When the IR rooms were designed to FBC level in 2015, the formal process of Design Quality Indicator (DQI) was not undertaken, and there is no perceived added advantage at this stage of completing this assessment for these elements of the project.

In conjunction with the NHSE Projects Assurance Unit (PAU) it was decided to carry out AEDET (Lite) process for both of these schemes to ensure the design process was reviewed. The AEDET report is attached in Appendix 48.

The output of the AEDET report has supported the wealth of evidence that demonstrates the positive impact that the environment can have on patient's recovery. The Trust remains confident the design of these facilities will offer a high quality environment which will have a positive impact on clinical outcomes e.g. well-being, recovery rates and reduced infection rates, improved patient flow and enhanced privacy and dignity.

Enabling

The design solution detailed in the preferred option is the refurbishment of an area adjacent to the existing imaging department and a medical records space. A key element of the project will be the timely relocation of the services currently occupying this space as follows:

Medical Records:

This area is the main medical records library on the GH site. The department has capacity to store 80,000 sets of patient notes, which will need to be relocated. Following a review of the Glenfield site to determine what existing non-clinical space on site could be converted to provide space, a currently empty building (known as "Snoezelen") was identified as being suitable. This is accessible on the site and has the capacity to accommodate the medical records. A specialist racking company has reviewed the building and provided costs to provide storage to relocate the medical records and build the racking required to house the notes. The building does require some refurbishment to ensure the area is fit for purpose to house medical records;

In confirming this as the preferred solution for medical records the Trust considered alternative options for the re-provision of this facility including:

- Early digitisation of all patients notes on the site – this option did not align with the IT programme of delivery, with a need for this to be fully implemented for the commencement of construction;
- Contracting for the off-site storage of medical records – the timescale is deliverable, but there would be an additional revenue cost of £427,000 for the retrieval of notes in and out of hours.

Office Accommodation

A number of offices and on call rooms are displaced by the proposed IR suite, and therefore require relocation. Following a review of the Glenfield site to determine what existing accommodation could be converted to provide space; Mansion House (a vacant building) was identified as being suitable. The building was formerly office accommodation but requires a level of refurbishment to ensure the area is fit for purpose as modern offices.

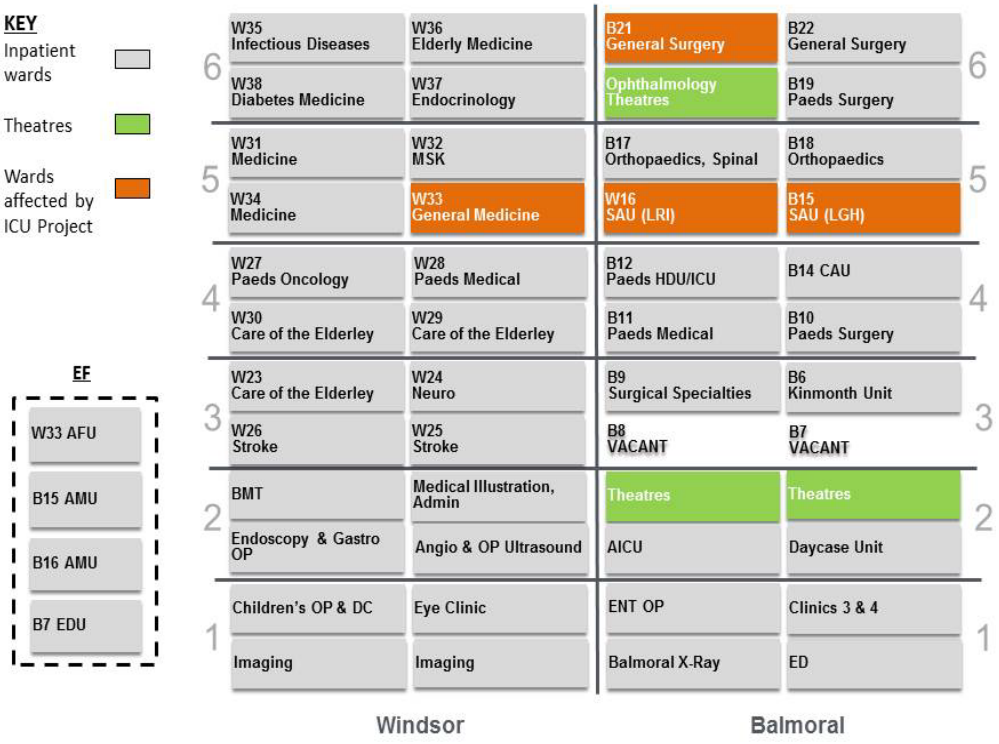
5.5.4 General Surgery Wards – LRI

In 2015, this project was only considered at a very high level, with a number of potential wards being identified as potential locations but with no detailed Schedules of Accommodation (SOA) developed. The preferred option (as detailed in the Economic Case) is to relocate two general surgery wards from the LGH in the following sequence:

- LRI Surgical Assessment Unit Ward 8 (SAU) moves to LRI Ward 15;
- LGH Surgical Assessment Unit (SAU) moves to LRI Ward 16, this allows the formation of an integrated SAU unit with ward 15;
- LRI Ward 21(Medicine) moves to LRI Ward 33 to allow LGH Surgical Ward to move to LRI Ward 21;
- LRI elective surgery wards are co-located on wards 21 and 22 (existing surgical ward).

The LRI wards 15, 16 and 21 will be subject to refurbishment and minor alteration. This is detailed in the following diagram:

Figure 20 - Balmoral and Windsor Stacking Diagram, LRI



These wards were built in 1970's, each with an internal floor area circa 685 m². The scope of this project will not fundamentally alter the layout and infrastructure of these wards, but will deliver a refurbishment which will allow a significant improvement in the ward environment.

The development comprises of the minor refurbishment of 3 existing clinical wards which includes improvements to en-suite facilities by adding these to the existing six bed bays and where possible enhanced side rooms with en-suites. We will also be adding glass doors to bays for improved privacy and dignity and bay specific touch down nursing stations. New decoration and lighting throughout these areas will deliver a contemporary environment with improvements for both patients and staff, with the inclusion of wall art to enhance the overall look. A new day clinic area will provide a reception, waiting area, ultrasound and clinic rooms.

A design quality review is devised to help stakeholders set targets and track design quality at all key stages of a building's development from Briefing through Design and Handover to Occupation. It plays a fundamental role in contributing to the improved design, long term functionality and sustainability of building projects

While the principles of the DQI will be strived for, it will be very difficult to address the requirements due to the minor refurbishment scope of the ward refurbishment at the LRI. Nonetheless, patient flow will be enhanced, as will privacy and dignity and the patient environment.

5.6 1:50 Drawings

The preferred option for each scheme has been fully developed as part of the design and tender process. 1:50 drawings for each scheme are included in Appendix 49, 50, 51 and 53.

1:20 drawings are included at Appendix 52 for the GH new ward scheme.

5.7 Schedule of Accommodation (SoA)

To enable designs and 1:200 plans to be produced, a Schedule of Accommodation (SoA) for each separate scheme was developed, through engagement with the CMG to confirm the required functional content. An iterative approach was adopted with the clinical and management teams to deliver a finalised schedule. The LRI wards refurbishment has a more limited scope with a like-for-like transfer of wards and as such a detailed schedule of accommodation has not been produced. The clinical requirements and functional content for this area, with particular reference to the triage facility, has been developed by the design team with stakeholders.

Schedules of accommodation for each scheme are included in Appendix 45, 46, 47, 18, and 49.

5.8 Design Quality Review

DQI is devised to help stakeholders set targets and track design quality at all key stages of a building's development from Briefing through Design and Handover to Occupation. It plays a fundamental role in contributing to the improved design, long term functionality and sustainability of building projects

When the IR rooms and the ICU extension were designed to FBC level in 2015, the formal process of Design Quality Indicator (DQI) was not undertaken, and there is no perceived added advantage at this stage of completing this assessment for these elements of the project.

In conjunction with the NHSE Projects Appraisal Unit (PAU) it was decided to carry out AEDET (Lite) process for both of these schemes to ensure the design process was reviewed. The AEDET reports are attached at Appendix 47 and 48.

The output of the AEDET report has supported the wealth of evidence that demonstrates the positive impact that the environment can have on patient's recovery. The Trust remains confident the design of these facilities will offer a high quality environment which will have a positive impact on clinical outcomes e.g. well-being, recovery rates and reduced infection rates, improved patient flow and enhanced privacy and dignity.

While the principles of the DQI will be strived for, it will be very difficult to address the requirements due to the minor refurbishment scope of the ward refurbishment at the LRI. None the less, patient flow will be enhanced, as will privacy and dignity and the patient environment.

A Mid Design DQI assessment has been undertaken for the 3 new build wards at GH.
The Trust together with the DQI Assessor decided that owing to the speed of the design development phase the Pre-concept Design Stage Assessment would not add any value at this point. The DQI Report is attached at Appendix 29.

The session was well attended by a range of stakeholders which included: clinicians, nurses, Infection Prevention Nurse, estates and provided the group the opportunity to review the models of care against the design and also to draw together and further consider the additional functions that will use or access the facilities to ensure that all relevant aspects have been considered as per the stakeholders requirements.

The main concern raised during the session was that of the amount of natural light that would be achievable within the multi-bed bays. There are some constraints of the modular construction process on the amount and size of windows that can be designed into the facility. The pace of the design process has resulted in elements that would normally be undertaken sequentially being undertaken in parallel. For example, the final approach to structure development was only verified

2 weeks prior to GMP submission. This resulted in layouts not having the correct number of windows; as noted at the DQI session. Further work has now been undertaken with the design team to ensure all approaches to introducing natural daylight have been considered. To ensure we can adequately introduce sufficient daylight into the development the Trust has requested as many windows as possible, floor to ceiling windows in all patient break-out areas and the use of skylights with a high acoustic rating in bays with limited windows. The final 1:20's now reflect the number of windows.

The final 2 stages within the DQI process will be undertaken at the appropriate times within the programme:

- Stage 4 - Ready for Occupation
- Stage 5 - In Use

5.9 Mandatory Government Construction Strategy

This project has been developed in line with the Government construction strategy. This includes:

- Early engagement with the supply chain; engagement of the supply chain has helped up to develop designs which are buildable, cost effective and which account for site constraints;
- Use of Building Information Modelling (BIM) level 2; the wards at GH and the IR development are designed using a fully co-ordinated 3-D model, with a level of interrogation approaching BIM Level 2. This is only limited by the supply chain who are working towards BIM compliance. A copy of the BIM Execution Plan for the GH Modular Wards can be found in Appendix 62.
- Soft landings; the Trust recognises that the application of soft landings is key to the delivery of a building that meets the users expectations, delivers performance for the long term and contributes to a reduction in life cycle costs. To this end, the Trust has fully integrated the hard and soft FM operational teams into the design process. Our experience is that this has helped to address many issues including:
    - Apply lessons learned from previous schemes to inform buildability, usability and manageability
    - Use our Operational Estates Team to provide a technical design reality check
    - Include FM staff and contractors in design and construction reviews
    - Provide building operational technical guides for users
    - Develop co-ordinated moving in plans
    - Carry out regular multi-disciplinary walkabouts to spot any emerging issues
    - Safe access to carry out maintenance to plant and equipment
    - Sufficient FM facilities such as waste disposal, linen storage and patient food handling
    - Finishes which are maintainable and have longevity, eg flooring, worktops, wall protection
    - Buildings that can be performance measured by the installation of appropriate metering
    - Carry out formal post occupation (POE) reviews after 12 months
    - Continue to monitor the building for 2 years post defect period to inform the final performance review

5.10 Government Consumerism Requirements

Our design solutions will, wherever possible, comply with consumerism requirements. These include:

- Achieving high levels of privacy and dignity;
- Creating gender specific day spaces;
- Good use of natural light;
- Use of high quality materials to reduce life cycle costs;
- Provision of single sex wash facilities.

The table below outlines at a high level the delivery of each scheme against the criteria; with further detail being provided in the Clinical Quality Case. It should be noted that there is greater opportunity for the delivery of these criteria in new build schemes as opposed to retained estate, due to spatial restraints.

Table 78 - Delivery of Consumerism

Consumerism Requirement	ICU GH	GH Ward	IR GH	LRI Ward
Acceptable levels of privacy and dignity at all times	✓	✓	✓	✓
Gender specific day rooms	n/a	✓	n/a	n/a
High specification fabric and finishes	✓	✓	✓	✓
Natural light	✓	✓	✓	✓
Minimised discomfort from solar gain	✓	✓	✓	✓
Dedicated storage space to support high standards of housekeeping and user safety	✓	✓	✓	✓
Dedicated storage for waste awaiting periodic removal	✓	✓	✓	✓
Inpatient configurations of >50% single en-suite	×	×	n/a	×
Bed bays with separate en-suite WC and shower facilities with 3.6 meter bed centres	n/a	✓	n/a	×
Single sex washing and toilet facilities	✓	✓	✓	✓
Safe and accessible storage of belongings including cash	✓	✓	✓	✓
Immediate patient access to call points for summoning assistance	✓	✓	✓	✓
Patient control of personal ambient environmental temperatures	×	×	×	×
Lighting at bed head conducive to reading and close work	✓	✓	n/a	✓
Patient bedside communication and entertainment systems	×	×	×	×
Elimination of mixed sex accommodation	×	✓	✓	✓

5.11 Compliance with HBN / HTM

Specific details for each scheme in relation to compliance and derogations can be found in the Clinical Quality Case.

Whenever possible, the schemes will comply with Building Regulations, European Standards, British Standards and Codes of Practice, guidance on the design and construction of primary care and general medical facilities. Much of this is contained in a series of DH publications and guidance documents primarily written for the NHS, including but not limited to the following:

- Health Building Notes (HBNs);
- Health Technical Memoranda (HTMs).

None of the derogations adversely impact upon achievement of the target BREEAM rating

The NHS Constitution commits the NHS to provide services in a clean and safe environment that is fit for purpose and based on national best practice. The HBN and HTMs provide national best practice for the design and layout of facilities. For this project, key titles among many that will be relevant include:

- HBN 00-01 General Design Guidance for Health Care Buildings;
- HBN 00-09 Infection Control;
- HBN 04-02 Critical Care Units;
- HBN 06 Diagnostic Imaging;
- HTM 03-01 Ventilation, 2006.

The design development of this scheme has endeavoured to be delivered within these guidance documents however as the scheme is developed within a limited footprint and also involves some refurbishment, some recommendations made by the DH guidance will not be achievable – these will be noted as derogations. The Trust will systematically review and, where required, approve each derogation before it is implemented.

The derogation schedules are included in Appendix 25, 26 and 27.

Owing to the fact that the LRI Wards project is entirely refurbishment of wards built in the 1970's, the probability is that the vast majority of areas will not be compliant with modern HBN/HTMs. The Trust will, wherever cost and feasibility allows, greatly improve the environment from its current condition. For this reason there will be no formal derogation schedule for this project.

When designing the IR, the DH Health Building Note (HBN 6) for Diagnostic Imaging has been referred to and the respective room sizes applied, resulting in a Net Internal Floor Area of 899.50m2. The HBN will be utilised and applied where possible (while recognising that it has not been updated recently). The preferred solution for the IR department is refurbishment of an area of the existing estate; adjacent to the main Imaging department therefore there are some constraints in terms of achieving full compliance with the HBN. The derogations are detailed in Appendix 22, 23 and 24, which have been signed off by the clinical team.

5.12 BREEAM (Building Research Establishment Environmental Assessment Method)

The Trust appointed BREEAM assessor carried out pre-assessments on all four projects to determine the available target level of classification at OBC stage and our focus was to achieve BREEAM 2014 Very Good.

However, following review of the OBC, the NHSE confirmed the ratings should be Excellent for the GH Wards, Very Good for ICU Extension and Good for IR and the LRI Wards. Recognising this, the Trust is currently reviewing additional credits in order to achieve the Excellent rating for the GH Wards. We have carried out a pre-assessment of the LRI Wards Refurbishment which suggests that Good is achievable, however as the project is under £2m build costs and therefore does not require a breeam assessment, the Trust has taken a view that spending circa £15k to achieve the accreditation is not necessary. We still intend to achieve Very Good for the IR refurbishments, which is a betterment to the minimum requirement set by the DoH.

The projects are now in the interim design stage and following a 'confirm and challenge' exercise with the design / construction team, evidence is currently being collated by our BREEAM assessor in preparation for submission to the BRE for approval and subsequent issue of the Interim Design Certification.

Table 79 - BREEAM Interim Design Assessments

Scheme	BREEAM Rating
ICU extension	Very Good
Interventional radiology	Very Good
Additional wards GH	Excellent

The BREEAM interim design assessment report can be found at Appendix 59.

5.13 DH Energy and Sustainability

The Trust will endeavour to implement environmentally sustainable facilities across all of its activities and processes with a strong focus on clinically led service redesign. The Trust has a Sustainability Management Plan (see Appendix 60), the key elements of which are described below.

5.13.1 Innovation

UHL is planning an ambitious reconfiguration programme over the next 7 years, with movement of services, refurbishment of existing buildings, the provision of new buildings, and the replacement of medical equipment. Arising from this is a huge opportunity for our commitments on sustainability and our carbon emission reductions to become a reality. Given that all buildings and equipment have a "carbon footprint", the Trust will utilise the various standards and guidance, to set minimum standards for building and equipment performance, looking to demonstrate improvements on these with robust life cycle analysis related to financial investment and carbon emissions.

The Trust's Estates and Capital Project team has invested in a number of energy saving measures in recent years, including LED lighting in circulation areas and variable speed controllers on

heating, ventilation and air conditioning (HVAC) motors. Such initiatives have resulted in a gradual decrease in energy consumption.

The teams will continue to take the following into consideration:

- Ensure that built environments are designed to encourage sustainability, including meeting Trust and national CO2 reduction targets, and to promote wellness and resilience to Climate Change in all aspects of their operation;
- Clear sustainability targets will be set for new building projects and these will be monitored following commissioning;
- Ensure that all staff, including temporary and agency workers, are aware of the Trust's commitment to sustainability and how this is influenced by the built environment;
- Estates and Procurement teams will work together to ensure that all design and building contractors are aware of the Trust's sustainability objectives and targets. Contractors will be required to demonstrate a commitment to sustainability within their own operations (i.e. by holding ISO14001 certification) and will be challenged to identify innovative and cost-effective solutions to enable the Trust to go beyond its Sustainable Development Management Plan (SDMP) targets;
- All decisions about design and build of Trust facilities must be explicit about how they encourage a broader approach to sustainability including transport, delivery of services and community engagement;
- All major building projects will be subject to a BREEAM assessment to ensure that sustainability considerations are incorporated into planning and design decisions from the outset. As a minimum, major projects will be required to achieve a BREEAM rating of "excellent";
- Climate change resilience and adaptation will be core factors in the planning and design of Trust estate;
- Estates will seek to engage both staff and external stakeholders in all major future planning activities.

GH New Build Wards

Energy use and CO_2 emissions pose a significant impact on today's built environment, therefore, buildings are required to minimise these impacts through Lean, Clean and Green design. The proposed extension will therefore be designed to achieve and where possible exceed the minimum standards of Part L: Conservation of Fuel and Power by using this methodology.

In order to achieve this reduction in Energy and CO_2 emissions, the following energy hierarchy has been followed:

- Be Lean – Optimise the building fabric and architectural design to reduce energy demand.
- Be Clean – Supply energy at source, whilst burning fuel to maximise distribution efficiency.
- Be Green – Use renewable and low zero carbon technologies to maximise the site energy production with minimal Fossil Fuels being burnt.

A lean optimisation review has taken place and has identified that the following lean proposals are appropriate:

- LED Lighting;
- Improved Building Fabric;
- Lighting Control;

- Daylighting Control;
- High Efficiency Plant;
- Heat Recovery on Ventilation Systems via plate heat exchangers or thermal wheel.

These provide additional energy and CO_2 savings prior to Low and Zero Carbon (LZC) Technologies being considered.

In order to establish the most appropriate Clean and Green technologies, a renewables/LZC assessment has been considered, to establish the most appropriate technologies for the development considering;

- Ground Source Heat Pumps – as the proposed development is at roof level with no external ground are available without compromising future developments this option has been discounted.
- Air Source Heat Pumps – air source heat pumps are a viable option for the provision of space heating via ceiling cassette units or air heating via dx coils in the air handling plant. As primary services are available from existing site systems already served by renewable energy the use of air source heat pumps has been discounted.
- Solar Thermal Hot Water – as the domestic hot water load is limited to the ward extension the utilisation of solar hot water heating would require the installation of dedicated plant in addition to the existing central plant which is already connected to the CHP system.
- Photovoltaics – the use of photovoltaic panels is a proven technology which can deliver CO_2 reductions and will be considered if necessary to achieve the BREEAM credits.

Interventional Radiology

Energy use and CO_2 emissions pose a significant impact on today's built environment, therefore, buildings are required to minimise these impacts through Lean, Clean and Green design. The proposed extension will therefore be designed to achieve and where possible exceed the minimum standards of Part L: Conservation of Fuel and Power by using this methodology.

In order to achieve this reduction in Energy and CO_2 emissions, the energy hierarchy outlined above has been followed.

5.13.2 Improving Building Services and Fabric

The proven benefits of improving the technical efficiency of heating plant, lighting fittings and ventilation plant will be exploited, along with improvements on controls, and metering to ensure efficiency gains are sustained. The opportunity to refurbish the building fabric and to procure new building stock will enable stringent air tightness, and insulation values to be embedded in the specifications, along with innovations of layouts and natural light and ventilation flows.

5.13.3 Life Cycle Costing: Procurement of Capital and Revenue Projects

This will be introduced at all levels of procurement, not only on major projects. Over the term of this plan, we intend that this will have become a crucial part of assessing the efficiency of equipment and buildings and the related cost/carbon impact. While the concept of life cycle costing is generally accepted as a common-sense approach to adopt, these measures will be integrated into the purchasing mechanisms for both capital and revenue items.

5.14 Resilience to Hazards

In planning the design for the construction projects associated with this FBC, consideration has been given of the advice in HBN 00-07 (Planning for a Resilient Healthcare Estate).

This will include ensuring resilience to:

- Electrical supplies - using standby generation, Combined Heat and Power (CHP) and uninterruptable power supply facilities where appropriate;
- Water supplies - using dual storage capacity;
- Medical Oxygen - creating a secondary Vacuum Insulated Evaporator (VIE) linked to a ring main distribution;
- Design of an additional duel fuel boiler linked to the existing low temperature hot water distribution system.

5.15 Travel Plan

These developments take account of requirements under the Trust approved 'Green Travel Plan' – see Appendix 61.

Prior to the ICU related services moving from LGH, the EMCHC will move to the LRI - this will substantially off-set any additional traffic and parking requirement at GH. In addition, the Trust has recently completed an expansion of the staff car parking facility and will continue to increase the provision as part of business as usual activity.

The GH site is well served by public transport, including the Hospital Hopper bus service which is available to staff and public. At the time of writing, the Trust has received Planning Permission covering the Business Case activity and none of the Planning Conditions require additional parking or updates to the Travel Plan.

5.16 Planning Permission

5.16.1 ICU GH

The Trust received planning permission for the extension to the ICU on 3rd November 2015, against Application reference 20151522. This is attached as Appendix 62.

The following conditions were imposed, and the Trust has confidence these will be met:

- The development shall be begun within three years from the date of this permission (To comply with Section 91 of the Town and Country Planning Act 1990.);
- The external elevations shall be constructed in facing bricks to match those existing. (In the interests of visual amenity, and in accordance with Core Strategy policy CS3.);
- This consent shall relate to the plans received by the City Council as local planning authority with the planning application and amended plans received on 25th August 2015 unless otherwise submitted to and approved by the City Council as local planning authority. (For the avoidance of doubt).

The Trust will need to ensure a start on site by late November 2018, under this planning approval. If FBC approval is received by October 2018 this timescale can then be delivered. In order to prevent any delays in delivering the construction works post approval, the Trust will resubmit the planning application in August 2018. Based on discussions held with the local planning office, it is not anticipated that this will be an issue.

5.16.2 New Wards GH

The Trust submitted a planning application on 10th November 2017. The Trust has since received planning permission for the new build wards on 12th January 2018, against Application Reference 20172366. This is attached at Appendix 63.

The following conditions were imposed, and the Trust will meet the requirements:

1. The development shall be begun within 3 years from the date of the permission
2. Before the development is begun, the materials to be used on all external elevations and roofs shall be submitted to and approved by the City Council as local planning authority.
3. The plant units shall not become operational until details of the attenuation to control noise from the plant proposed part of the scheme has been submitted to and approved in writing by the City Council.
4. The development shall be constructed in accordance with the outcomes of the BREEAM report in order to achieve the 'Very Good' rating demonstrated by that report.

All parties involved in the delivery of the required activities are aware of their responsibilities within the planning approval.

All other aspects of the proposed schemes will not require planning or change of use consent.

5.17 Potential for Risk Transfer

The general principle is that risks should be managed by the most appropriate partner in the construction process ensuring that the responsibility is placed on the designated partner with the ability to control and insure against that risk.

An assessment of how the associated risks might be apportioned between the Trust, the professional design team and the construction company has been carried out for each aspect of the project.

Due to our mixed procurement strategy the degree of risk transfer will vary. For example, the new build wards will be procured through a design and build contract which places much more of the risk with the contractor. Where traditional tender is used the Trust will employ the design team and thus bear a greater proportion of the responsibility if problems occur. We are confident that risk is appropriately placed to achieve best value for money and appropriate management of risk.

The Risk Registers included at Appendix 12 confirm the risk owners within each scheme.

5.18 Proposed Charging Mechanisms

The Trust will make payments in accordance with the valuation periods prescribed in the contracts. Prior to payment our external cost advisor will certify each invoice having ensured that it is valid and reflects the relevant valuation.

5.19 Proposed Contract Lengths

The length of each construction contract will reflect the construction programme and the prescribed defects period as shown in the following table:

Table 80 - Construction Programme

Milestone Activity	ICU Extension GH	New Build Wards GH	IR GH	Ward Refurb LRI
Award Construction Contracts	September 2018	September 2018	September 2018	September 2018
Commencement of construction	October 2018	October 2018	January 2019	October 2018
Construction complete	July 2019	December 2019	September 2019	July 2019
Operational Commissioning	August 2019	January 2020	October 2019	August 2019
Transfer of service and go live	April 2020	April 2020	April 2020	April 2020

5.20 Proposed Key Contractual Clauses

Standard construction contracts will be used. Any Z Clauses in NEC contracts will be created so as not to unnecessarily increase cost or dilute value for money (VFM).

5.21 Land Transactions

This ICU OBC is the first step in delivering the LLR STP Estates Strategy. The reconfiguration of clinical services described in our STP will release the majority of land at the LGH for housing, helping to align with recommendations arising from the Naylor Report. In addition the Trust has identified surplus land at the GH which can be disposed of during 2018. The UHL property team are working with Simon Corben, Director of NHS Estates Efficiency and Productivity Division, to achieve a best value disposal of this land.

The table below identifies the land and outlines its value and the estimated number of housing units which could be built on the land.

Table 81 - Land Sale Estimated Values

Location	Area (acres)	Estimated value (£)	Estimated housing units
GH (the paddock)	11.03	4.2m	154
LGH	44	22.0m	608

This is detailed in greater detail in Appendix 64.

6 The Financial Case

6.1 Introduction

The Financial Case examines the affordability of the preferred options and sets out the financial implications for the Trust in terms of capital expenditure and cash flow, the income and expenditure account and borrowing. The purpose of this section is to set out the forecast financial implications of the preferred options as set out in the Economic Case and the proposed procurement method as described in the Commercial Case.

The Trust was formed in April 2000 and achieved its financial targets for the first 12 years. Audited financial results for 2011/12 and 2012/13, show that the Trust made a surplus of £88k and £91k respectively. 2013/14 however was a challenging year both operationally and financially and the Trust reported a deficit for the first time since the organisation was formed. In 2014/15 there was a £40.6 million deficit against a plan of £40.7 million, and in 2015/16 the Trust delivered its planned deficit of £34.1 million, and in 2016/17 there was a deficit of £27.2m against a plan of £8.3m. In 2017/18 the Trust delivered a £34.5m deficit for the year against the planned deficit of £26.7m. The Trust has a planned deficit position of £29.9m for 2018/19.

The financial position of this FBC shows how the Trust will mitigate the additional costs outlined within the case with savings, which will ensure that the Trust is not financially disadvantaged as a result of this development. The recurrent additional cost will be offset by savings from reconfiguration when the LGH closes and its associated infrastructure costs removed , the development thereby delivering a surplus position overall.

6.2 Capital Costs

The capital costs of the preferred option total £30.79 million. The table below summarises the total costs:

Table 82 - Summary of Capital Costs

Total	Cost exc VAT £	VAT £	Total £
Departmental Costs	17,720,815	3,243,914	20,964,728
On Costs	1,503,381	269,340	1,772,721
Works cost	19,224,196	3,513,253	22,737,449
Provisional Location Adjustment	0	0	0
Sub total	19,224,196	3,513,253	22,737,449
Fees	3,145,838	75,794	3,221,632
Non Works Cost	0	0	0
Equipment Cost	1,838,642	367,728	2,206,370
Planning Contingency	1,343,435	245,495	1,588,931
Optimism Bias	884,324	160,889	1,045,212
Total Outturn	**26,436,434**	**4,363,160**	**30,799,594**

The elemental cost plans for each of the schemes have been reviewed by the Trust's VAT advisers (EY) who have advised of the level of VAT reclaimable for each scheme. Where it is proposed that the Trust enter into a Design and Build arrangement VAT on fees has been allowed for with only a level of reclaim consistent with other costs of the scheme

6.2.1 Financing

The Trust has assumed the scheme will be funded through the provision of Public Dividend Capital as advised by NHSI in January 2018. The capital investment is assumed to take place from 2018/19 to 2019/20. It requires this to be funded through PDC in 2018/19 and 2019/20.

6.3 Income and Expenditure

6.3.1 Summary

The financial position of this OBC shows a breakeven position until the Trust reconfigures on to two sites, when there is a further saving from the non-recurrent costs invested.

The projected impact on the Trust's income and expenditure (I&E) position is summarised in the table below:

Table 83 - Financial Position of the FBC

Impact on Income and Expenditure	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25 to 2079/80
	£'000	£'000	£'000	£'000	£'000	£'000	£'000
ICU	0	91	632	632	632	7	365
IR	0	174	634	634	634	294	16,438
Glenfield Beds	0	42	(207)	(207)	(207)	(657)	(36,769)
LRI Beds	0	56	(1,982)	(1,982)	(1,982)	(2,536)	(142,016)
Total Additional Operating Costs	**0**	**364**	**(924)**	**(924)**	**(924)**	**(2,893)**	**(161,983)**
Income			(342)	(342)	(342)	(342)	(19,152)
Consultants	0	1	(769)	(769)	(769)	(1,002)	(56,127)
Mid Grades	0	35	423	423	423	0	0
Nursing	0	79	(1,283)	(1,283)	(1,283)	(2,196)	(122,961)
Scientific and Technical	0	141	400	400	400	0	0
Facilities Management	0	26	610	610	610	610	34,185
Non Pay	0	81	37	37	37	37	2,072
Total Additional Operating Costs	**0**	**364**	**(924)**	**(924)**	**(924)**	**(2,893)**	**(161,983)**
Capital Charges							
Depreciation	0	0	421	421	421	421	23966
Interest	0	0	0	0	0	0	
Return on Assets	364	588	443	431	416	402	25,137

Total Capital Charges	**364**	**588**	**864**	**852**	**837**	**823**	**49,103**
Total Impact on I&E	**364**	**952**	**(60)**	**(72)**	**(87)**	**(2,070)**	**(112,880)**

The scheme delivers a payback of 6 years when applying the DH VFM model. The I & E position for the interim period is marginally positive and therefore a failure to deliver efficiencies and savings identified would potentially risk putting the Trust into deficit position. A mitigation against this will be the potential for converting non cash releasing benefits into real savings particularly in respect of HPB and colo-rectal.

Operational Costs can be analysed by cost areas in the following way

Table 84 - Operational Costs Analysed by Cost Areas

Impact on Income and Expenditure	**2019/20 £'000**	**2020/21 £'000**	**2021/22 £'000**	**2022/23 £'000**	**2023/24 £'000**	**2024/25 to 2079/80**
Income		(342)	(342)	(342)	(342)	(19,152)
Consultants	1	(769)	(769)	(769)	(1,002)	(56,127)
Mid Grades	35	423	423	423	0	0
Nursing	79	(1,283)	(1,283)	(1,283)	(2,196)	(122,961)
Scientific and Technical	141	400	400	400	0	0
Facilities Management	26	610	610	610	610	34,185
Non Pay	81	37	37	37	37	2,072
Total Additional Operating Costs	**364**	**(924)**	**(924)**	**(924)**	**(2,893)**	**(161,983)**

It should be noted that the costs outlined above reflect the Agenda for Change pay structure pre 2018/19 pay award. It is expected that the impact of the new pay rates will be cost neutral as operating costs are assumed to reduce, and there may therefore be some benefit.

An analysis of changes in costs is provided in 6.3.2. However key assumptions in deriving the above summary are as follows:

- The cost of capital for capital charges and for discounting purposes is assumed to be 3.5%;
- Costs are at current prices;
- Included in the capital costs are resources which meet the project requirements for implementation;
- Allowance has been made for early appointment of additional staff to enable the service continuity (normally a month before service commencement, but 6 months for interventional staff;
- Allowance for non-recurrent costs in relation to moving equipment and furniture and temporary refrigeration costs;
- New facilities are assumed to be operational from 1 April 2020.

6.3.2 Methodology

The additional costs have been based on the proposed service reconfigurations reflecting restructured services and rotas. The workforce costs have been through an internal confirm and

challenge process at Executive level and they have been identified as legitimate increases in costs as a result of the reconfiguration. All these costs are deemed to be transitional costs incurred until the Trust consolidates on to two sites. The costs reflect posts at mid-point or current incremental levels, with appropriate on costs and enhancements. Middle grade Doctors have been assumed to have an average cost of £70,000 per annum (based on average current cost).

A key assumption is that the Trust is able to recruit staff. If there is any difficulty in recruiting and there is a requirement for recruiting at premium rates this would create an additional cost pressure. Currently the full year effect of the FBC in workforce terms is £1.647 million; a 50% premium cost in relation to failure to recruit could be as much as £823,000 per annum.

Since this case is predicated on a lift and shift of activity and no growth, no additional income has been assumed as a result of increasing critical care capacity.

6.3.3 Workforce

The capital investment will provide a sustainable physical solution for the location of ICU beds and related services at the GH and LRI. The workforce costs relate to additional core training (CT) level, middle grade doctors and consultant costs required at the GH and the LRI, additional emergency theatre capacity and additional Interventional Radiology resource spread over three sites, as opposed to the current 2 site service for general surgery and transplant. There is also a requirement for additional staff to support an enhanced retrieval service to transfer any patient at LGH requiring Level 3 ICU support to either the LRI or GH.

Offsetting this is an assumption that the Trust can reduce waiting list initiative costs as a result of delivering more efficient use of operating theatre resource. This will be facilitated by the separation of elective and emergency activity and the opportunity the project provides to deliver more effective scheduling and job plan timetabling. These savings do not have an impact on workforce numbers as they are currently being delivered through overtime and additional hours at premium pay rates.

The table below details the changes in costs which have been assessed as being necessary to deliver the scheme.

Table 85 - Workforce Costs

	WTE	2018/19 £'000	2019/20 £'000	2020/21 £'000	2021/22 £'000	2022/23 £'000	2023/24 £'000
Glenfield Critical Care							
Consultants	1.00	0	10	117	117	117	0
Mid Grades	5.00	0	30	360	360	360	0
Nursing	4.00	0	16	188	188	188	40
Total Critical Care	**10.00**	**0**	**55**	**665**	**665**	**665**	**40**
Interventional Radiology							
Consultants	0.50	0	14	81	81	81	0
Scientific and Technical / Nursing	7.96	0	130	259	259	259	0
Total Interventional Radiology	**8.46**	**0**	**144**	**340**	**340**	**340**	
Glenfield Wards							
Consultants	(2.35)	0	(24)	(340)	(340)	(340)	(357)
Nursing Theatres	10.13	0	24	(177)	(177)	(177)	(469)
Scientific and Technical	5.10	0	12	141	141	141	0

	WTE	2018/19 £'000	2019/20 £'000	2020/21 £'000	2021/22 £'000	2022/23 £'000	2023/24 £'000
Total Glenfield Wards	**12.88**	**0**	**12**	**(376)**	**(376)**	**(376)**	**(826)**
LRI Wards							
Consultants	0.15	0	2	(610)	(610)	(610)	(628)
Core Training Doctors	1.00	0	5	63	63	63	0
Nursing	14.01	0	39	(1,310)	(1,310)	(1,310)	(1,783)
Total LRI Wards	**15.16**	**0**	**46**	**(1,857)**	**(1,857)**	**(1,857)**	**(2,411)**

ICU Extension GH

There is a requirement for 10 additional consultant Planned Activities (PAs) resulting from the inefficiency of overseeing a smaller unit at the LGH and to support the retrieval service that needs to be enhanced to cover the additional transfers from the LGH to the GH and LRI ICUs. In addition to the additional PAs there is a need for two Clinical fellows to support the retrieval service.

From a medical perspective anaesthetics have run successful recruitment campaigns internationally and these links will be used to recruit to the additional vacancies for trainees.

As a result of the overall reconfiguration of ICU there is requirement for additional critical care nursing to support the isolated HDU particularly at the LRI. HDU staffing has been assumed to be 1 staff to 2 beds, with an allowance being made for additional staff to cover any absences from the ward as a result of patient movements.

These costs will be negated once the overall Reconfiguration Programme is complete and acute services move off the LGH.

Interventional Radiology

The capital investment will provide a sustainable physical solution for the provision of IR services at GH while still retaining a presence on the LGH site.

The workforce costs relate to additional consultant and radiography staff required at GH and LRI.

The cost of additional radiography staff has been based on the future workforce model that will be in place across GH and LGH following the Level 3 ICU Reconfiguration.

The CSI CMG has recently had success with International recruitment of Italian Radiographers and such resource will be used to meet the radiographer requirements of this OBC. The Trust has allowed for recruitment to posts 6 months before the service starts to support extended training needs for staff recruited to interventional radiology.

There is some risk in the recruitment of nursing staff for interventional radiology as these posts can be challenging to recruit to.

Clinical Support Services

The capital investment will allow for the transfer of HPB and renal transplant to the Glenfield site. As a result of this, additional costs will be incurred whilst the Trust is still running some acute services from three sites, particularly whilst there remains a need for Surgical Assessment Units on all three sites. The changes in workforce are described below:

Pharmacy

Pharmacy dispensary costs will increase as a result of the need to maintain dispensary opening hours at LGH whilst transferring workload to the other two sites. The staff associated with the beds relocating from LGH will need to move to LRI or GH to support the increased workload on these two sites, leading to a shortfall in the staff remaining to support the LGH dispensary. As the LGH dispensary already operates on minimal staffing i.e. a single pharmacist at any one time, the same number of staff will be required to support the LGH dispensary even though the workload has dropped. The workload in the dispensaries at GH and LRI is already of a level that they cannot absorb the additional workload without staff transferring.

The Pharmacy department has sought to minimise cost implications and has reviewed and proposed changes in its ways of working as a result. The additional workforce required is as follows:

- 1.0 WTE band 5 technician;
- 0.5 WTE band 7 pharmacist;
- 1.0 WTE band 8a pharmacist (0.5 WTE renal and 0.5 WTE dispensary);
- £20k (non-recurrent) non-pay costs.

There are no recruitment challenges envisaged for the pharmacy posts.

Dietietics

There is a requirement for additional dietetic support as a result of the changes in configuration of clinical services:

- 0.1 WTE band 6 dietician is linked to general surgery moves as the colorectal dietician will now cover emergency and elective inpatient surgery at the LRI and outpatients including pre assessment clinics at the LGH;
- 0.1 WTE band 7 dietician is linked to HPB. The HPB dietician will now cover emergency and elective inpatient surgery at the GH and outpatients including pre assessment clinics at the LGH;
- 0.1 WTE band 7 dietician and 0.1 WTE band 6 dietician is linked to renal services. Currently renal dieticians work across the LGH and Loughborough Hospital site. A three site model is proposed. A transplant dietician will be needed at the Glenfield several times a week to help manage unstable inpatients.

There are no recruitment challenges envisaged for the dietetics posts.

Ward Staffing

The proposed ward configuration at each of the three sites to accommodate the proposed service changes increases the bed base across the three sites by 15, with a change in configuration which increases the total number of wards by one. As a result of this, there are additional ward manager costs and particularly ward nursing costs at night, where minimum levels of staffing are required. The increase is staffing has been allowed for within the LRI beds costs.

Anaesthetic Consultants

As part of the vascular development, additional anaesthetic PAs were allowed for to support the temporary position until other critical care services moved from the LGH. The critical care service move will allow the Trust to save this non recurrent cost.

Theatre Staffing

Additional theatre staff have been identified to support the emergency theatre at the Glenfield supporting the additional HPB and transplant work.

LRI and GH Wards

Key to the removal of Level Three patients to the LRI and GH sites is the implementation of a robust workforce plan to directly support the case mix of patients at all three sites and provide a safe level of care appropriate to the acuity of patients.

Overall, the plan aims to:

- Ensure the appropriate supply and skill mix of staff to service a revised model of care described within the operational policies;
- Ensure an appropriate supply and skill mix of staff to support a short term change in the physical location of General Surgery wards and Gynaecology beds for Level 3 patients;
- Ensure an appropriate supply and skill mix of staff to support the splitting of HPB, General Surgery and Urology beds through a different configuration at the LRI, LGH and GH sites;
- Provide an opportunity for repatriation of General Surgery from Specialist Surgery to prevent outliers.

The service changes have created a number of new and revised models of care and physical location of beds required to ensure the safety of Level 3 patients until such time as all staff are consolidated onto a two-site model of working.

The move of General Surgery Level three patients from LGH to LRI has created the requirement for additional staffing at the LRI site which is summarised in the table below.

Table 86 - Additional Staffing Following Move of General Surgery L3 Patients from LGH

Band	Current	Proposed	Change	Average Salary £'000	Additional Cost £'000
7	6.00	6.00	0.00	45	0
6	13.41	15.00	1.59	42	66
5	83.75	91.98	8.23	35	285
4	2.00	5.00	3.00	29	86
3	2.92	1.00	(1.92)	25	(48)
2	63.41	69.56	6.15	23	142
1	11.92	8.80	(3.12)	18	(57)
Ward Clerk	7.40	8.00	0.60	22	13
Total	**190.81**	**205.34**	**14.53**		**488**

Ward 21 – Elective Colorectal based on 22 beds, with 1:3 Nurse to bed ratio (NTBR), 60/40 Skill mix split of qualified to unqualified, which mirrors the nurse to bed ratio on ward 22 at the LGH. We know that the acuity on ward 22 is high and the NTBR does not match the acuity of patients on the ward.

Ward 16 – Emergency Surgical Assessment Unit, 22 beds including a chaired triage area. Staffing is modelled on the existing SAU at the LRI; nurse staffing levels at 1:66 NTBR with a 60/40 split of qualified to unqualified. The SAU's at LGH are currently on 1:45 nurse to bed ratio, however, we will be reducing assessment beds across the CMG from 82 beds to 76 beds which will lead to a higher throughput across the beds.

HPB – These currently have a high demand on level 3 beds and are a high user of the Surgical Acute Care Unit (SACU) beds at the LGH. The SACU at the LGH will close and 4 SACU beds will be integrated into the elective 28 bed HPB ward at the GH. There will be a separate emergency 24 bed HPB admissions ward which will be staffed at 1:14 NTBR with a 60/40 skill mix split of qualified to unqualified. This ward will take direct HPB admissions from GPs, ED and tertiary out of county referrals.

Urology Male/Female Emergency and elective needs in total 39 beds which will remain at the LGH with the following breakdown:

- Male Urology : 25 beds;
- Female Urology: 14 beds.

Ward 20 – In order to create theatre capacity at the LRI and GH, daycase and 23 hour stay will be consolidated at LGH (from LRI and GH), onto LGH Ward 20 which has 16 beds. No additional efficiencies have been assumed in terms of these beds. If day cases currently undertaken at GH move to LGH then the staff costs included in the breast care budget to staff the surgical day case bay on Ward 24 at GH should be repatriated to CHUGGS.

Medical Workforce

One additional Core Trainee (CT) has been identified to ensure fully compliant rotas. As Junior Doctors provide out of hours cover across various specialties, the transfer of colorectal, HPB and transplant services will have an impact on junior medical staff cover in surgery, urology, nephrology and cardio-thoracic surgery. All the junior doctors' rotas in these specialties have been reviewed and new draft rota templates developed. The net additional requirement is for one further core level post to provide adequate out of hours cover for HPB, breast surgery, vascular and transplant patients at GH site, whilst maintaining adequate training provision.

Theatre Staff

The move of General Surgery to the LRI from the LGH requires 4.5 additional emergency theatre sessions per week. The appropriate staffing and skill mix has been modelled for theatre practitioners delivering scrub, recovery, operating department (ODP) and support worker functions within the theatre setting.

6.3.4 Benefits Identified and Delivery

Since the submission of the OBC the Trust has identified a number of benefits which are summarised as follows:

Table 87 - Additional Efficiencies

Benefit	£'000 per annum
HPB/Colo Rectal Reductions in ALOS (Non Cash releasing)	514
ECMO	302

Day Case Rates	100
Reduced cancellations due to lack of CCU bed	274
Additional Theatre efficiencies	2,312
Savings on Premium rates	250

HPB Efficiencies - The specialty has developed changes in clinical pathways which will be possible through the management of HPB patients solely by HPB doctors on the Glenfield site. The changes will ensure that emergency patients are dealt with less conservatively and more promptly delivering better outcomes for patients, reducing re-admissions and pressure on beds. By unifying the colorectal service the Trust has assumed it can improve lengths of stay to that currently being delivered by the best performing site. This releases capacity or repatriates activity that will otherwise be lost due to lack of capacity. This has been assumed to be non-cash releasing as additional activity may be required to deliver the financial improvement.

Cancelled Day Case operations – Day cases will be transferred to the LGH site In the transitional period. As the emergency and medical beds will not be on the LGH site, the service will be protected. Currently the Trust is losing income which it will be able to manage better as a result of the development. Day cases are estimated to be circa £100k of the total income loss to the private sector.

Cancelled Operations – The Trust cancelled 249 operations in 2017/18 as a result of the lack of availability of an ICU bed (Level 2 or 3). Based on a Saturday theatre session costing £2,445 and assuming 50% of operations can be brought back into existing weekday lists and that each operation takes one session, circa £200,000 could be saved.

Additional ICU capacity for ECMO patients – The Trust appointed an additional ECMO consultant in 2017, this appointment could bring in further work depending on demand and capacity, the development would allow the Trust to manage a further 4 patients per year of non NHSE activity with a total increase in income of £340,200 based on a 7 day stay plus 2 off ECMO at £6,300 daily tariff. This is slightly offset by the additional nursing costs required.

Premium Rates – The Trust has carried out an exercise examining the expenditure on agency and premium rates as a result of vacancies and sickness absence**.** The current cost is high particularly in surgical wards. The Trust has modelled what the potential reduction in spend is as a result of better ward environment and co-location of services. Reducing current spend of affected areas to 6.5% of budget (where current expenditure is over that percentage) but offsetting this by potential increases in very low spending areas, gives a potential saving of £334,000. Recognising that the this can't be completely reduced the CMG has agreed a cost reduction of £250,000.

Theatre Efficiencies - The development allows for the creation of a consolidated day case centre at LGH as a step towards the Treatment Centre that will be built at the Glenfield Hospital as part of the Trust's reconfiguration plans. In order to release theatre capacity at both GH and LRI for the transfer of inpatient services from LGH, day case activity currently undertaken on these sites will be moved to LGH to create a consolidated day case unit. This is in advance of the longer term solution for these services which will be within the purpose built treatment centre facility at GH.

Work has been undertaken with the Trust by Four Eyes to establish the level of efficiency opportunity that could be obtained by improved use of theatre sessions - starts and finishes on time and reduced cancellations.

Some transformation to support achievement of the efficiency can be delivered now, but there is further opportunity linked to the reconfiguration plans – interim and then final – as this provides the opportunity to undertake the day case work currently undertaken on combined lists with inpatients, separately and on a ring-fenced basis, delivering the most cost and clinically effective pathway for this population of patients.

The table below details the efficiency opportunities that have been confirmed by Four Eyes, that can be attributed to the transformation that is deliverable as a function of the service moves associated with the Interim ICU Business Case.

Table 88 - Theatre Efficiency Opportunity

	Weekday Capacity	Potential for Transfer	Cases completed on Weekends	Number of cases absorbed onto weekday lists	ACPL	Number of Lists	Cost per list £	Saving £
ENT	473	473	216	216	2.34	92	2,445	225,692
General Surgery	725	725	942	725	2	363	2,445	886,313
Gynaecology	583	583	463	463	2.89	160	2,445	391,708
Max Fax	329	329	192	192	2.78	69	2,445	168,863
Ophthalmology	555			0	3.83	0	2,445	0
Plastics	521	521	72	72	2.51	29	2,445	70,135
T&O	935			0	1.97	0	2,445	0
Urology	1005	1005	715	715	3.07	233	2,445	569,438
Total	**5126**	**3636**	**2600**	**2383**		**946**		**2,312,149**

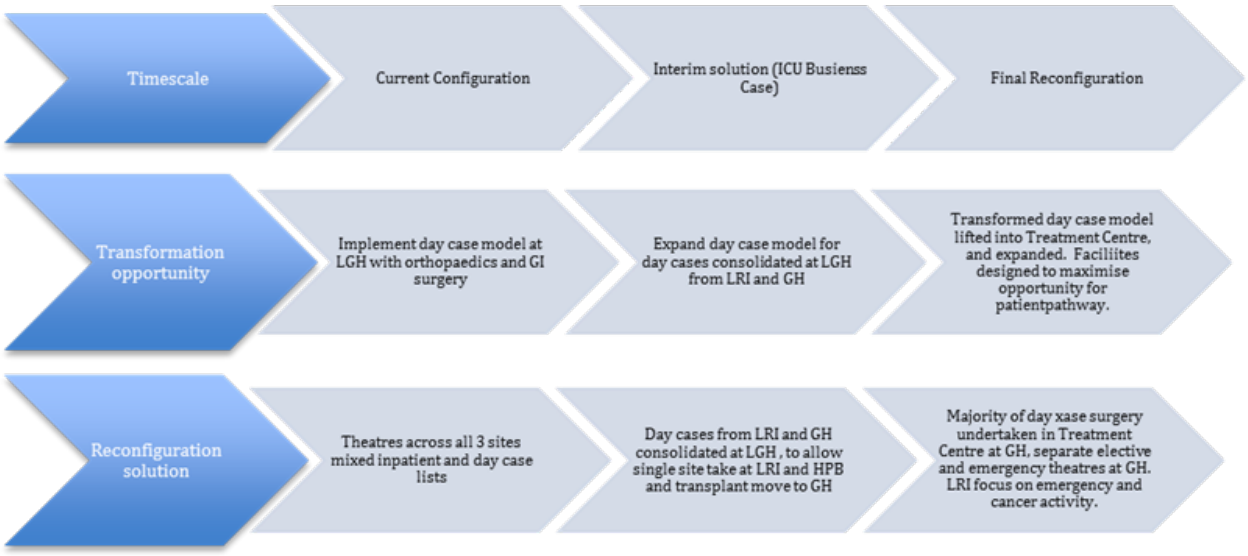
Although there are opportunities in Ophthalmology and Trauma and Orthopaedics (T&O) these can be delivered without the need to reconfigure services, as they are currently predominantly one site services.

The programme to develop the day surgery model will be undertaken in 3 reconfiguration stages (current, interim and final).

1) Current - Orthopaedics and GI surgery at LGH
2) Interim – when the interim ICU service moves take place a day case unit will be further consolidated at LGH to include in addition general surgery, max fax, ENT & plastic surgery
3) Final - the development of the PACH supports the delivery of a day case service for the majority of adult services; with a facility designed to support the transformed patient pathway

This is portrayed in the diagram below.

Figure 21 - Theatre transformation



The focus of work to transform the provision of these services, within each stage, will consider:

1) Effective pre-operative assessment
2) Anaesthetic management to maximize recovery
3) Efficient day surgery processes that are protocol driven

The Trust is confident that additional activity and the efficiencies associated with concentrating planned activity at the LGH site will support the delivery of required savings to manage the affordability of the critical care scheme.

The programme of work will be lead through the Theatre Programme Board within the Trust – which has dedicated Project Management support, transformation lead from within the theatres service and nominated clinical and managerial leads from each of the CMGs.

An indicative high level programme for delivery is below:

Table 89 - Transformation Programme

Milestone	Date
Stage 1 – now (Orthopaedics & GI at LGH)	

Milestone	Date
Planning completed	August 2018
Implementation plan	October 2018
Implemented	December 2018
Evaluation	March 2019
Revision	May 2019
Stage 2 – delivery of interim ICU project	
Planning	July 2019
Implementation plan for Stage 2	October 2019
Implemented	April 2020

A more detailed Programme of work will be developed via the Theatre Programme Board, reporting to the Trust Reconfiguration Programme Board.

6.3.5 FM Costs

The Trust has reviewed the FM costs associated with each development in respect of addition services to the new areas and savings on areas from which services have moved. This is summarised as follows:

Table 90 - FM Costs

Scheme	Additional Costs £'000	Savings £'000	Net Position £'000
ICU	309	0	309
Glenfield Wards	839	(794)	45
Interventional Radiology	418	(161)	257
LRI Wards	543	(543)	0
Total	**2,109**	**(1,499)**	**610**

6.3.6 Capital Related Revenue Costs

The other major cost element is the capital costs. The capital itself has been assumed to be funded through Public Dividend Capital (PDC). The revenue consequences represent the interest on the loan provided and depreciation. It has been assumed that refurbishment costs do not add to the value of the existing asset and depreciation has been assumed on the new build construction costs and equipment. An average asset life of 40 years has been assumed for buildings and 15 years for equipment. The 15 years for equipment allows for the fact that some equipment will reflect the fabric of the building and include fixtures and fittings which will have a longer asset life than medical equipment.

The table below shows the basis of the capital charges calculation:

Table 91 - Capital Charge Impact of Scheme (ICSL)

Capital Charge Summary	2018/19	2019/20	2020/21	2021/22	2022/23
	£'000	£'000	£'000	£'000	£'000
Opening Net Book Value	0	20,822	12,592	12,531	12,110
Capital Expenditure	20,822	9,978	0	0	0
Impairments		(17,637)			
Depreciation	0	(210)	(421)	(421)	(421)
Closing Net Book Value	**20,822**	**12,952**	**12,531**	**12,110**	**11,689**
Depreciation	0	210	421	421	421
ROA	364	585	436	424	409
Total Capital Charges	**364**	**795**	**857**	**845**	**830**

6.4 Accounting Treatment

The capital expenditure on this scheme will be accounted for on the Trust's balance sheet, the scheme being Treasury funded capital. The Trust has assumed and impairment (as referenced in section 6.5) to reflect the nature of the expenditure and the likely valuation based on Modern Equivalent Asset (MEA) methodology.

The FB Forms (Appendix 65, 66, 67 and 68) show the costs are at current prices allowing for any inflation in the construction period. The costs are shown this way rather than base the works costs at the current PUBSEC indices. These indices have not been updated for the NHS Capital costing purposes for a number of years and therefore are out of date. The costs defined reflect the tender prices submitted

The Trust has assumed a level of VAT as advised by its VAT advisers (EY)

6.5 Impact on Trust Income, Cash Flow and Balance Sheet

An impairment of £17.6 million has been assumed, relating to the cost of refurbishment (which is unlikely to add to value) and some new build costs. The impairment of the new build element has been based on the level of impairment provided on the Trust's Emergency Floor scheme. This figure will be accounted for in the Trust's Income and Expenditure Account but will not impact on the Trust's financial performance as it is treated as an adjustment to the reported financial performance of the Trust.

Table 92 - Impact on the Trust's Cash Flow

Cash Flow	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24
	£'000	£'000	£'000	£'000	£'000	£'000

PDC	20,822	9,978				
Capital Expenditure	(20,822)	(9,978)				
ROA	(364)	(588)	(443)	(431)	(416)	(402)
Operational costs	0	(364)	924	924	924	2,893
Total	**(364)**	**(952)**	**481**	**493**	**508**	**2,491**
Cumulative Cash -flow	**(364)**	**(1,366)**	**(835)**	**(342)**	**166**	**2,656**

6.5.1 Long Term Financial Model (LTFM)

The current five year LTFM which reflects the detail of the Financial Strategy approved by the Trust Board in November 2017 is constructed in a way which aggregates this development as part of the general site rationalisation service development. The Financial Strategy is included at Appendix 69.

The assumptions regarding this service development are consistent with the overall assumptions in relation to the site reconfiguration.

As shown above, the case identifies additional operating costs of circa £364k in 2019/20, before a reduction in operating costs in the following year.

6.5.2 Structural Deficit

There are costs currently incurred at the LGH which will transfer to the other sites. They are saved at the LGH but incurred elsewhere. These are summarised as follows:

Table 93 - Summary LGH savings

Summary LGH Savings	£'000
IR	61
Ward Nursing	4,034
Anaesthetic Junior Doctors	560
ICU	1,134
FM	795
Total	**6,584**

This does not include a significant part of the Medical costs as they are currently not accounted for on a site by site basis. Of these costs the FM costs of £795,000 are included in the Trust's calculation in respect of its structural deficit.

6.5.3 Triangulation of Activity, Finance and Workforce

Elements of the triangulation are reflected in the following table:

Table 94 - Triangulation

Triangulation	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24
Average WTE [1]	0	4.67	61.55	61.55	61.55	(2.33)

[1] WTEs and Pay costs include an estimated 12.07 WTE additional Estates and Facilities management staff costing £292,000 per annum. This is part of the additional £610,000 Estates and Facilities cost.

Year End WTE	0	61.55	61.55	61.55	61.55	(2.33)
Change in income	0	0	(342)	(342)	(342)	(342)
Change in activity	0	0	54 ECMO days	54 ECMO days	54 ECMO days	54 ECMO days
Additional Pay £'000	0	622	(938)	(938)	(938)	(2,906)
Additional non pay £'000	0	(258)	355	355	355	355
Capital Charges £'000	364	588	864	852	837	823

6.5.4 Capital Affordability

The scheme is assumed to be funded through PDC.

7 The Management Case

7.1 Introduction

The management case details the project management and governance arrangements that UHL has put in place to support the delivery of this project. It sets out the following arrangements:

- Project management;
- Project plan;
- Change management;
- Business continuity;
- Benefits realisation;
- Risk management.

The project will be managed using PRINCE2 compliant methodology and project management tools such as Gantt charting and critical path analysis.

Project direction and management will be determined by the Project Board.

The costs associated with Project Management and Trust fees concerning the delivery of this project are displayed within the OBC Capital Cost forms (Appendix 41, 42, 43 and 44).

7.1.1 Premises Assurance Model

The NHS Premises Assurance Model (PAM) is a management tool that provides NHS organisations with a way of assessing how safely and efficiently they run their estate and facilities services.

It is a basis for:

- Allowing NHS healthcare providers to assure Boards, patients, commissioners and regulators on the safety and suitability of estates and facilities where NHS healthcare is provided;
- Providing a nationally consistent approach to evaluation NHS estates and facilities performance against a common set of questions and metrics;
- Prioritising investment decisions to raise standards in the most advantageous way.

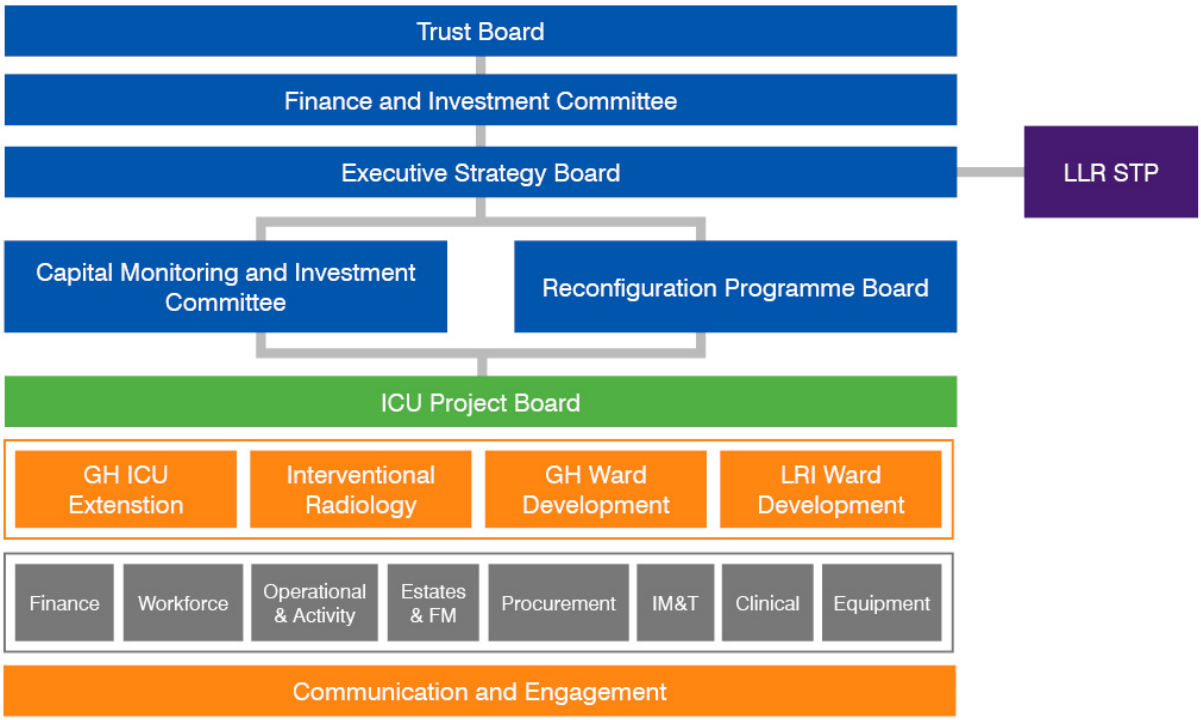
The PAM supports Boards, clinical leaders and Directors of Finance to make more informed decisions on the development of their estate and facilities services. It also provides important information to commissioners for use during the commissioning process and regulators in identifying risks.

The Trust has completed a PAM for this financial year, which was approved at Trust Board on 28th July 2017. This is attached at Appendix 70.

7.2 Project Management Arrangements

Project Governance arrangements have been established to reflect national best practice guidance and the Trust's own Capital Governance Framework, as shown in the diagram below:

Figure 22 - Trust Capital Governance Framework



7.2.1 The ICU Project Board

The project reports to the ICU Project Board. Key roles and responsibilities include:

- Responsibility for delivering the project within the parameters set within the OBC;
- Providing high level direction on stakeholder involvement and monitoring project level management of stakeholders;
- Providing the strategic direction for the project;
- Management and escalation of risk;
- Ensure continuing commitment of stakeholder support;
- Key stage decisions;
- Progress monitoring;
- Budgetary control and management;
- Change control procedures;

The key Project Board roles and responsibilities are outlined below.

Table 95 - Project Board Roles and Responsibilities

Role	Name	Responsibilities
Senior Responsible Officer	John Jameson, Deputy Medical Director and Debra Mitchell, Integrated Services Programme Lead (Joint SROs)	Responsibility to the Reconfiguration Board for delivery of the project to meet their terms of reference. Chair of the Project Board.

Role	Name	Responsibilities
Project Manager	Sue Nattrass	Day to day responsibility for the development of the project, within the delegated role permitted by Project Board, including delivery of the business cases and stakeholder management.
Estates Lead - ICU Extension	Leigh Gates	Responsible for delivering the design solution upon receipt of suitable project brief and offering Estates expertise to the project. Responsible for reporting to the project board and delivery of the build stage
Estates Lead - Interventional Radiology	Tim Oliver	
Estates Lead - GH Ward Development	Debra Green	
Estates Lead - LRI Ward Refurbishment	Leigh Gates	
Project Clinical Lead	Chris Allsager	Overall clinical responsibility for models of care produced and structures determined suitable for inclusion within relevant business cases. Also responsible for offering clinical challenge to models put forward.
Clinical Lead - ICU Extension	Rakesh Vaja	Responsibility for ensuring that the design process reflects clinical needs and requirements within this OBC.
Clinical Lead - Interventional Radiology	Claire Maxim / Cathy Lea	
Clinical Lead - GH Ward Development	Giuseppe Garcea	
Clinical Lead - LRI Ward Refurbishment	Giuseppe Garcea	
Public and Patient Involvement (PPI) representative	Martin Caple	Is a member of the Project Board as the lead PPI representative working with the Project Manager to ensure PPI is integral to the project.
Finance Lead	Tim Pearce	Responsible for translating plans into cost and benefits and maintaining financial challenge around assumptions. Responsible for reporting to the Project Board.
Workforce Lead	Richard Ansell	Responsible for developing and challenging workforce plans and assumptions and providing strategic workforce context. Responsible for reporting to the Project Board.
Organisational Development (OD) Lead	Bina Kotecha	Responsible for developing and delivery the project's OD strategy. Responsible for reporting to the Project Board.
Procurement Lead	David Streets	Responsible for developing and leading on procurement methodology. Responsible for reporting to the Project Board.

Regular progress reports are submitted to the UHL Reconfiguration Board for review and then onward reporting and management to the UHL Executive Strategy Board.

The project will subsequently move towards the creation of an operational commissioning team or teams. This will be constructed of suitable management and clinical representatives to allow the production of detailed implementation plan to operationally deliver the ICU Level 3 project. The team/s will operate within the existing governance of the project.

The end stage of the project will result in the completion, handover and commissioning of the new facilities. The Project Board is responsible for providing assurance that the project has been delivered in terms of product, quality and budget in line with the business case.

Senior Responsible Officers

The SRO role for the project is undertaken jointly between a management (Debra Mitchell) and a clinical lead (John Jameson), who have previously worked closely together.

Debra Mitchell has experience as a leader in a range of roles across commissioning and provider organisations; including substantial service operational management. She has experience of delivering complex change in conjunction with clinical teams and across organisational boundaries and the management of large capital schemes. Most recently Debra was SRO for the successful transfer of vascular services from LRI to GH in May 2017.

Debra has worked closely with John Jameson in the management of the Planned Care Division in UHL as Divisional manager & Clinical Director.

John is a Consultant surgeon in UHL, and has held clinical management roles since 2001; previously being Clinical Director for the CHUGGs CMG, and currently Deputy Medical director for the Trust since 2015. John is also Royal College of Surgeons of England Critical Care Tutor responsible for the delivery, quality assurance and revision of the National Care of the Critically Ill Surgical Patient Course which is a requirement for surgical trainees to complete prior to application to higher surgical training.

John was clinical lead for the organisation in the successful implementation of the “straight to test” pathway for patients suspected of having colorectal cancer, the implementation of surgical triage in Leicester. He is also the UHL lead for the National Learning from Deaths framework and for the Deteriorating Adult Patient. John is NHS Resolution Lead Clinical Assessor for Clinical Assessment Visits.

Estates Capital Projects Team

There is a collective 150 number of years’ experience of delivering capital projects within the Capital Team which covers contracts such as P21, P21+, P22, NEC, JCT etc.

7.2.2 The UHL Reconfiguration Programme Board

This group is a designated committee appointed by the Executive Strategy Board (ESB) to which it reports. The Reconfiguration Programme Board’s responsibilities include:

- Overall responsibility for the delivery of UHL’s Reconfiguration Programme;
- Ensuring that developments are consistent with the Trust’s strategic direction and Better Care Together / STP plans.

7.2.3 The Executive Strategy Board (ESB)

This group is a designated committee appointed by the Trust Board to which it reports. ESB’s responsibilities include:

- Advising the Trust Board on formulating strategy for the organisation;
- Ensuring accountability by holding Board members to account for the delivery of the strategy and through seeking assurance that all systems of control are robust and reliable;
- To lead the Trust executively, in accordance with its values, to deliver its vision and, in doing so, help shape a positive culture for the UHL.

7.2.4 The Finance and Investment Committee (FIC)

This group is a designated committee appointed by the Trust Board, with responsibilities which include:

- Ensuring that strong financial governance and control is adhered to in business case preparation;
- Ensuring that capital and revenue implications of all business cases are fully understood;
- Ensuring that business cases represent best value for the Trust.

7.2.5 Project Work-streams

A number of work-streams have been set up to take responsibility for driving the key objectives and to report back to the Project Board on a regular basis. Key roles and responsibilities will include:

- Day to day responsibility for the delivery of the project to meet the parameters described within the business case;
- Provision of appropriate reports on status to the Project Manager;
- Management of risks and issues, and escalation of appropriate matters for executive direction/ approval;
- Providing working groups with detailed briefs;
- Monitoring, co-ordinating and controlling the work of the working groups;
- Drawing together the outputs of the working groups;
- Ensure continuing commitment of stakeholders, both internal and external.

7.2.6 Project Team

The members of the Project Team have a significant range of skills and experience to support all stages of this project from procurement through to operational and operational commissioning of service moves.

The budget for the Project team is outlined below:

Table 96 - Project Team Budget (Internal UHL)

Role	£'000s
Head of Capital Projects	16.5
Estates Project Managers	265.8
Capital Projects Managers	162.5
Capital Projects Officers	92.4
Building Commissioning Manager	78.3
Reconfiguration Project Manager	131.5
Workforce lead	61.0
Financial adviser	105.7
Clinical support	134.4
OD specialist	101.6
Procurement Lead	0.0

IT Project manager	111.8
Admin support	51.1
Other	56.2
Total	1,358.8

7.3 Project Plan

The project will be managed in accordance with the principles of PRINCE2 methodology. The project manager will be supported by UHL's capital projects team and external specialists / consultants as required.

7.3.1 Project Programme

The Project Programme is intended to deliver the project by Spring 2020. The milestones for the whole ICU redevelopment programme are set out below. The Trust currently has high level construction plans for each scheme, attached at Appendix 71:

Table 97 - Project Programme

Milestone Activity	ICU Extension GH	New Build Wards GH	IR GH	Ward Refurb LRI
Planning Approval	Submitted and received	Submitted and received	n/a	n/a
Tender procurement construction works (7 weeks process)	March 2018	n/a	March 2018	March 2018
GMP received from Construction Partner	n/a	February 2018	n/a	n/a
FBC submitted to NHSI	July 2018	July 2018	July 2018	July 2018
NHSI FBC Approval	September 2018	September 2018	September 2018	September 2018
Award enabling works contract (IR Only)	n/a	n/a	September 2018	n/a
Commencement of enabling works (IR Only)	n/a	n/a	October 2018	n/a
Completion of Enabling Works (IR Only)	n/a	n/a	December 2018	n/a
Operational commissioning and go live of enabling works	n/a	n/a	December 2018	n/a
Award Construction Contracts	September 2018	September 2018	September 2018	September 2018
Commencement of construction	October 2018	October 2018	January 2019	October 2018
Construction complete	July 2019	December 2019	September 2019	July 2019
Operational commissioning	August 2019	January 2020	October 2019	August 2019
Transfer of service and go live	April 2020	April 2020	April 2020	April 2020

7.3.2 Contract Management Plan

Each construction component will have a cost advisor and contract administrator appointed.

7.4 Use of Special Advisers

Special advisers have been used in a timely and cost-effective manner in accordance with HM Treasury Guidance. The use of special advisers for each scheme is outlined in the tables below. In addition Rider Levett Bucknall (RLB) is acting as Project Management Office (PMO) for estates through the Business Case process across the project:

Table 98 - Special Advisers: ICU Extension GH

Specialist Area	Adviser
Financial	Sedgwick Igoe and Associates LTD
Technical (Architect)	Chadwick Design Ltd.
Technical (Mechanical and Electrical)	Sutcliffe Consulting Engineers Ltd.
Technical (Structure Engineering)	Chadwick Design Ltd.
Healthcare Planning	Capita Health
Cost advisor	Rider Levett Bucknall
Principal Designer	Chadwick Design Ltd
BREEAM	Gleeds
VAT Advisor	Ernst & Young

Table 99 - Special Advisers: IR GH

Specialist Area	Adviser
Financial	Sedgwick Igoe and Associates Ltd.
Technical (Architect)	CPMG
Technical (Mechanical and Electrical)	Pick Everard
Technical (Structure Engineering)	Curtins
Cost advisor	Rider Levett Bucknall
Principal Designer	Pick Everard
BREEAM	Gleeds
VAT Advisor	Ernst & Young

Table 100 - Special Advisers: New Build Wards GH

Specialist Area	Adviser
Financial	Sedgwick Igoe and Associates Ltd.
Building/Construction Supplier	MTX
Technical (Architect)	MTX/IBI
Technical (M&E)	MTX/DSR

Specialist Area	Adviser
Technical (Structure Engineering)	Rossi Long
Principal Designer	Spring & Co
DQI	Jim Chapman
Cost advisor	Rider Levett Bucknall (RLB)
Water Management Consultant	HYDROP ECS
BREEAM	Gleeds
VAT Advisor	Ernst & Young

Table 101 - Special Advisers: Ward Refurbishment LRI

Specialist Area	Adviser
Financial	Sedgwick Igoe and Associates Ltd.
Technical (Architect)	Chadwick Design Ltd.
Cost advisor	Rider Levett Bucknall
BREEAM	Gleeds
VAT Advisor	Ernst & Young

7.5 Outline Arrangements for Change and Contract Management

Change management associated with the project will be managed through the Project Board, under the chairmanship of the Senior Responsible Owner (SRO). Day to day change management issues will be discussed at the project workstream level and any resultant contract and/or cost changes will need to be approved by the Project Board.

The Trust has introduced a new Change Management process – see Appendix 72 – to promote consistency and deter changes outside of the governance structure of each project. This will impact upon all business cases where there is a need to:

- Change assumptions in an approved business case;
- Change costs impacting the capital plan;
- Change the reconfiguration delivery programme;
- Change scope which impacts upon another project.

This process will require any changes detailed above to be authorised by the Project Board, followed by the Reconfiguration Board.

From a workforce perspective, UHL has a Management of Change Policy (Dec 2015) that provides the framework for managing organisational or service changes which impact on established roles and/or staff numbers. The policy has two main aims which are:-

- To help ensure that the Trust undertakes the management of change in a manner which is compliant with its statutory and contractual obligations;

- To provide transparency in relation to the processes for managing change to help ensure that the staff affected are dealt with equally and fairly.

This policy is available on the UHL Insite page and is regularly reviewed in partnership with staff side colleagues and is maintained by the Human Resources team at UHL. A HR plan (Appendix 73) has developed which outlines the process and timescales to be followed in delivering the service moves; this is aligned with both the workforce plan and the Organisational Development plan. In addition the Transitional Plan (Appendix 74) will be developed as the project progresses.

The purpose of this plan is to outline the tasks required to deliver the service moves from construction through to the service moves. It currently includes high level tasks and milestones to be delivered through the process. Its detailed development and delivery will be overseen by the Project Board.

7.6 Outline Arrangements for Benefits Realisation

The delivery of benefits will be managed through the Project Board.

The Benefits Realisation Plan is provided in Appendix 11 and includes detailed plans for each benefit covering the following:

- A description of the benefit;
- The baseline and target measure of the benefit;
- A summary of how the benefit will be achieved;
- Details of the timescale over which the benefit will be achieved;
- Identification of the lead directors responsible for delivering benefits.

Some of the key benefits to be realised are:

- Reduced length of stay;
- Reduced elective cancellations due to lack of ICU bed;
- Improved PLACE scores;
- Improved infection prevention.
- Improved theatre utilisation

These are aligned with the cash and non-cash releasing benefits that have been outlined in more detail in section 6.3.4.

7.7 Outline Arrangements for Risk Management

7.7.1 Introduction

The Project Board has undertaken a risk assessment to identify the major areas of risk and highlighted the controls currently in place, or to be put in place, to mitigate the risks.

The Trust monitors the risks that may affect the delivery of the project. Project risks are managed through the risk register (Appendix 12). This is a live document and as such will be amended as the project progresses. The project workstreams will monitor the risk and actions and will collectively review alterations to ensure a consistent approach. The risk register is also reviewed

periodically at the Project Board, with the highest rated risks escalated to the Reconfiguration Board.

7.7.2 Risk Management Strategy

UHL's approach to risk management, in accordance with its Board Assurance Framework, the Capital Investment Manual and HM Treasury Green Book, is designed to ensure that the risks and issues are identified, assessed and mitigation plans developed in a risk management plan. All risks have a responsible owner identified.

The risk management approach for the programme is in accordance with PRINCE2 methodology.

Work stream leads have undertaken an initial identification and assessment of the risks to the project across the following themes:

- Estates;
- Finance;
- Equipment;
- Operational
- Workforce;
- IM&T.

The project team has then reviewed each risk to provide a consensus scoring.

This details who is responsible for the management of risks and the required counter measures, as required.

7.8 Outline Arrangements for Post Project Evaluation

The arrangements for Post Project Evaluation have been established in accordance with best practice. The Trust is committed to ensuring that a thorough and robust Post Project Evaluation is undertaken at key stages in the process to ensure positive lessons can be learned from the project that can inform processes and future projects undertaken.

The diagram below outlines the framework and timescales that will be adopted in the undertaking of PPE associated with this project, the more detailed Evaluation Plan is included at Appendix 75.

Figure 23- Framework for delivering Post Project Evaluation

Post Project Evaluation: Framework for Delivery								
NHS Standard project & business case planning		FBC	Construction Phase	Post Project Evaluation Stage				
					← PER →			
				POE		PIR		
				3 month	6 month	1 year	2 year	5 year
Post Project Evaluation		Review previous PPE for lessons learned						
Stage 1: Evaluation Plan		✓						
Stage 2: Project Delivery				✓				
Stage 3: Initial PPE						✓		
Stage 4: Follow up PPE							✓	✓
A	**NHS Improvement - Project Completion Report**				✓			
B	**Design Quality Indicator appraisal** (DQI for Health)	**Stage 3** Detailed design		**Stage 4** Ready for Occupation		**Stage 5** In Use		
C	**Building Research Establishment Environmental Assessment Model** (BREEAM)	Interim Certificate		Post Construction Assessment		Final Cert		
D	**Project Gateway Review** (Internal or External)	**Gateway 3** Investment Decision	**Gateway 4** Readiness for service	**Gateway 5** Benefits Evaluation				
E	**Building Information Modelling** (BIM)	**Data Exchange** Construction Information Model	**Data Exchange** Operation & Maintenance Information Model	**Data Exchange** Post Occupation Validation Information & on-going operation & management				
F	**NEC 3 Construction Contract** (where applicable)			Post construction assessment				
G	**Government Soft Landings** (GSL) Environmental, Financial, Performance, Functionality & Effectiveness	**GSL 4.0** Design	**GSL 5.0** Build & Construction	**GSL 6.0** Handover	**GSL 7.0** POE .1	**GSL 8.0** POE .2	**GSL 9.0** POE .3	

7.8.1 Post-Occupancy Evaluation

Post-Occupancy Evaluation (POE) is the process of obtaining feedback on a building's performance once in use. POE is valuable, particularly in healthcare environments, where poor building performance will impact on running costs, occupant well-being and business efficiency.

Post-Occupancy Evaluation will:

- Highlight any immediate teething problems that can be addressed and solved;
- Identify any gaps in communication and understanding that impact on the building operation;
- Provide lessons that can be used to improve design and procurement on future projects;
- Act as a benchmarking aid to compare across projects and over time.

The POE for this project will be procured through Stage 5 DQI, BREEAM Post construction assessment and certification, BIM and Government Soft Landings.

7.8.2 Post Implementation Review (PIR)

This review will ascertain whether the anticipated benefits have been delivered and will take place 12 months following the delivery of the project and will be monitored on an annual basis is subsequent years.

The Trust will undertake a Gateway 5 Benefits Review. This will be undertaken either by a nominated internal team or will be procured externally.

7.8.3 Project Evaluation Reviews (PERs)

Within UHL, PERs have recently been undertaken for both the Emergency Floor Project and the relocation of vascular services. Key learning from these projects, which is being applied within this project, is detailed below.

The Emergency Floor review was undertaken by the Trust's Internal Auditors PWC through a series of interviews.

The process adopted within the vascular project was one of a SurveyMonkey questionnaire, which was sent to a wide range of stakeholders of the project. The questionnaire covered a number of themes, which had been identified within the process for the EF project:

- Delivery enabling plans;
- Clear scope;
- Governance-enabling decision making;
- Smart financing;
- Agile change control;
- High performing teams.

This was followed up by a workshop, which considered key factors that had arisen in more detail. A report with key actions and lessons learned was submitted to both the Reconfiguration Board and Executive Strategy Board.

They key actions are listed below:

- Governance enabling decision making - The vision should remain consistent and documentation should be of sufficient quality to detail the project memory including decisions taken, sign off of plans and changes made throughout the project;
- Delivery enabling plans - The Reconfiguration Programme Board should ensure that account is taken of the phasing of Reconfiguration projects and there is explicit and comprehensive understanding and planning for the resource demand across schemes;
- Clear scope - Stakeholder engagement should be mapped early in the project to ensure the right input is secured at the right time;
- Smart financing - A scheme of delegation is now in place to support financial management by Project Boards. The budget structure will be agreed in advance and there will be a transparent process of reporting costs throughout the lifetime of the project;
- Agile control plans:
  - Clinical operational and standard operating policies are critical in developing an understanding and documenting how a new facility will work in detail. These documents should be of a quality to enable this and should have sign off from all impacted and the Project Board. There should be an iterative process of review, validation and update throughout the lifetime of the project;
  - There should be implementation of formal checkpoints throughout the project development where designs are re-circulated and signed off by an agreed group;

- High performing teams:
  - Ensure there is Organisational Development and support to a project during its earliest stages in the development of Clinical Operational Policies and Business Cases;
  - Ensure that project planning includes appropriate resource / time for Operational Managers and this is acknowledged and agreed by Senior Managers;
  - Ensure a two way feedback mechanism is in place between project members and their wider teams. Include a checkpoint at the end of Project Board meetings which confirms the key points / issues for onward communication with wider teams.

This project will include the above actions within its management process.

A similar process of PER will be undertaken for this project with the adoption of questionnaires and workshops with key stakeholders.

7.9 Risk Potential Assessment

All significant public sector projects are required to complete the Office of Government Commerce (OGC) process of detailed peer review and assessment at key stages or gateways.

The requirement to register a project for formal review is based upon an initial Risk Potential Assessment (RPA). Completion of an RPA results in a project being classified as Low Risk (scoring 30 points or less), Medium Risk (31 – 40 points) or High Risk (41 points or more). The RPA for this project is attached at Appendix 76; and demonstrates a score of 38 (Medium Risk) which means that a formal Gateway review is discretionary. However the Trust believes that the undertaking of the Gateway process is good practice for large capital schemes and will plan to undertake both Gateways 4 and 5, either by an internal team or by external procurement.

7.10 Contingency Plans

In the event that this project fails, the Trust will continue with the delivery of services at LGH and review the risk mitigations currently in place to assess their on-going delivery, and further mitigations which may need to be established to maintain service delivery at LGH in the longer term. If the Level 3 ICU service provision cannot be sustained the Trust will need to consider actions which reduce services at this site accordingly.

Appendices

Appendix 1.	Letter from DH confirming National support for UHL's £30.8m Capital bid
Appendix 2.	Letter from NHSI confirming Business Case process for accessing Capital
Appendix 3.	Letter of support from NHSE Commissioner (OBC)
Appendix 4.	Letter of support from LLR CCG Commissioners (OBC)
Appendix 5.	2018 UHL Estates Strategy
Appendix 6.	Development Control Plan
Appendix 7.	2018 LLR Estates Strategy
Appendix 8.	UHL 2018 Clinical Strategy
Appendix 9.	Activity Model – ICU
Appendix 10.	Activity Model – Surgery
Appendix 11.	Benefits Realisation Plan
Appendix 12.	Risk Register
Appendix 13.	Generic Economic Model (GEM) – Overall
Appendix 14.	Generic Economic Model (GEM) – ICU Expansion GH
Appendix 15.	Generic Economic Model (GEM) – Interventional Radiology GH
Appendix 16.	Generic Economic Model (GEM) – Additional Beds GH
Appendix 17.	Generic Economic Model (GEM) – Additional Beds LRI
Appendix 18.	Value for Money Template
Appendix 19.	Clinical Operational Policy - ICU
Appendix 20.	Clinical Operational Policy – Interventional Radiology
Appendix 21.	Clinical Operational Policy – HPB
Appendix 22.	Clinical Operational Policy – Transplant
Appendix 23.	Clinical Operational Policy – General Surgery

Appendix 24. Due Regard

Appendix 25. Derogation schedule – ICU Expansion GH

Appendix 26. Derogation schedule – Additional Beds GH

Appendix 27. Derogation schedule – Interventional Radiology GH

Appendix 28. Consultant Microbiologist letter of support

Appendix 29. DQI report

Appendix 30. Construction Site Plan GH

Appendix 31 Fire Officer sign off

Appendix 32 Traffic Management Plan

Appendix 33. Organisational Development Plan

Appendix 34. Workforce Plan

Appendix 35. Tender Evaluation Reports (Commercial in Confidence)

Appendix 36. Dunn & Bradstreet Reports (Commercial in Confidence)

Appendix 37. Costed Equipment Schedule - ICU Expansion

Appendix 38. Costed Equipment Schedule - Interventional Radiology GH

Appendix 39. Costed Equipment Schedule - Additional Beds GH

Appendix 40. Costed Equipment Schedule - Additional Beds LRI

Appendix 41. Schedules of Accommodation – ICU Expansion GH

Appendix 42. Schedules of Accommodation – Interventional Radiology GH

Appendix 43. Schedules of Accommodation – Additional Beds GH (HPB)

Appendix 44. Schedules of Accommodation – Additional Beds GH (Transplant)

Appendix 45. Schedules of Accommodation – Additional Beds LRI

Appendix 46. SBS Framework

Appendix 47. AEDET – ICU Expansion

Appendix 48. AEDET – Interventional Radiology

Appendix 49. 1:50 drawing – ICU Expansion GH

Appendix 50. 1:50 drawing – Interventional Radiology GH

Appendix 51. 1:50 drawing – Additional Beds GH

Appendix 52. 1:20 drawing – Additional Beds GH

Appendix 53. 1:50 drawing – Additional Beds LRI

Appendix 54. Signed Drawing – ICU Expansion GH

Appendix 55. Signed Drawing – Interventional Radiology GH

Appendix 56. Signed Drawing – Additional Beds GH

Appendix 57. Signed Drawing – Additional Beds GH

Appendix 58. BIM

Appendix 59. BREEAM Report

Appendix 60. Sustainability Management Plan

Appendix 61. 2013 Travel Plan

Appendix 62. Planning Permission – ICU Expansion

Appendix 63. Planning Permission – New Wards GH

Appendix 64. Land transactions

Appendix 65. FB forms – ICU Expansion GH

Appendix 66. FB forms – Interventional Radiology GH

Appendix 67. FB forms – Additional beds GH

Appendix 68. FB forms – Additional beds LRI

Appendix 69. 5 year financial strategy

Appendix 70. Premises Assurance Model (PAM)

Appendix 71. Master Programme

Appendix 72. Change Control Process

Appendix 73. HR Plan

Appendix 74. Transitional Plan

Appendix 75 PPE Plan

Appendix 76. Risk Potential Assessment

University Hospitals of Leicester NHS
NHS Trust

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UHL Strategic Reconfiguration Business Cases

Name of Business Case:	Relocation of Level 3 ICU and associated services off the LGH Full Business Case (FBC)
Forum:	Finance & Investment Committee – 28th June 2018
Checklist Completed by:	Sue Nattrass, Senior Project Manager Reconfiguration
Project SRO:	John Jameson, Deputy Medical Director Debra Mitchell, Integrated Services Programme Lead

Background	The need to move Level 3 ICU away from LGH was first identified in 2014 owing to the increasing risk to clinical sustainability of the service. At this stage, the project was split into discrete business cases, which were approved internally by the Trust in 2015. This case was approved with a capital cost of £16.47m, an acknowledged interim operating cost pressure of £2.25m, (of the £2.25m, £2.05m was non-recurrent whilst acute services remain at the LGH); with an additional £640k of capital charges (see section 2.4.1). Owing to the national lack of capital for NHS developments, external capital for this project has not been available to date. The only component of this development that has been undertaken is the expansion of 6 ICU beds at the LRI into the Theatre Recovery area. This was funded through the Trust's internal Capital Resources Limit (CRL) in 2015. UHL was successful in its bid for funds for the move of Level 3 ICU off the LGH from the 2017 Spring Budget. The total cost of this bid was £30.8m. The capital ask since the 2015 case has increased as the GH wards (previously assumed to be within retained estate) are now new build wards, since the original assumptions (based on left shift) which vacated wards at the GH have not come to fruition. Discussions with NHS Improvement (NHSI) and NHS England (NHSE) have concluded that in order to access the capital, UHL needs to submit a new OBC and FBC for the whole £30.8m value of the scheme. Lessons learned from the EF review of Phase 1 and the Vascular project are being intrinsically built into the project management of this project. The Outline Business Case (OBC) was approved by FIC on 26th October 2017, UHL Trust Board on 4th November 2017 and NHSI Resource Committee on 17th April 2018, and DHSC on xx. This case is being discussed at EPB on the 26th June; and FIC on the 28th June 2018. Any issues that arise from EPB will be raised verbally at FIC. Appendices are available upon request. In approving the OBC, NHSI submitted a series of conditions for the Trust to meet in developing the FBC. These conditions, together with the reference of where they are met in the FBC are attached at **Appendix 1** to this checklist.

Confirm Commissioner support:	The Project Board includes a representative from the both the LLR CCGs and NHSE. The OBC was presented and approved at the CCG Boards on November 14th, and the FBC will be presented at their Boards on 10th July 2018, it will also be taken through the NHSE formal governance process to secure full support.
Confirm Stakeholder support:	Support was secured from the OSCs in 2015 in relation to the clinical need for the relocation of ICU Level 3 from LGH site. A Healthwatch representative has been a member of the Project Board from its inception until this Summer, and we now have robust Patient Partner input into the Project via the Project Board and at service level within the CMGs. Support was secured from Rutland Adult Health and Scrutiny Panel on 5th April 2018.

		Business Case Reference
What is the purpose of this project?	The purpose of the project is to move Level 3 ICU services off the LGH site, along with specialties which are reliant on Level 3 beds (General Surgery, HPB and Renal Transplant), and associated clinical support services (Interventional Radiology).	2.2
Why is it being carried out?	This is the next stage in the creation of 2 acute sites. The Trust's five-year clinical strategy is to deliver Critical Care services through the creation of two 'super' Adult Critical Care hubs located at the LRI and GH; and the separation of planned and emergency care. UHL currently provides an adult ICU service on each of its three sites. This triplication of services creates inefficiency and an unsustainable clinical position; the biggest risk being the lack of a suitably qualified workforce to maintain safe Level 3 ICU services across the three sites.	2.4

What are the key assumptions in this business case?	This is lift and shift of the existing Level 3 ICU activity, and the dependent services, from LGH to LRI and GH. No increase in activity has been assumed. The net increase in ICU beds is 3; 2 of which remain at LGH as part of the HDU supporting the remaining activity on that site. The business case does not fund the staffing associated with additional ICU beds. General surgical and HPB patient pathways are improved by the implementation of a single site general surgical take and HPB. Additional workforce has been assumed in order to sustain surgery remaining at the LGH – e.g. the LGH surgical assessment unit needs to remain to support urology. Most additional revenue costs are incurred until reconfiguration takes place at which point they will be saved.	2.2.1 2.4.2 2.9.1

What are the Benefits?		**How will it be measured?**	**Business Case Reference**
To the patient	To provide a solution that maximises clinical quality and safety.	Reduced DATIX incidents, associated with this group of patients, relating to serious harm	2.12
	To deliver, at the earliest possible opportunity, a sustainable Level 3 ICU service across the Trust	Reduced elective cancellations Removal of risk for on-going provision of Level 3 service at LGH. 4 hour transfer time cross site for Level 3 patients.	2.12
	To ensure that the quality of the patient environment and experience remains a priority	Increased single room provision Improved privacy and dignity Improved infection prevention. PLACE assessment	2.12
To UHL	Alignment with the 5 year plan, supporting the move of services off LGH in line with our clinical strategy and is consistency with the DCP	Timeline and sequencing of reconfiguration programme	2.4
	To deliver a solution that ensures accessibility to services and maximises clinical adjacencies.	Delivers essential clinical adjacency	2.12

What are the Benefits?		How will it be measured?	Business Case Reference
	To deliver an ICU solution that facilitates recruitment and enables the delivery of high levels of teaching and training.	Reduced staff turnover Reduced vacancy factors Reduced agency expenditure	2.12
To LLR	The next step in the delivery of the reconfiguration programme as part of the STP – which will see the move of acute services off the LGH.	Timeline and sequencing of the STP Land disposal of the LGH Removal of the UHL Structural deficit (c.£25m)	2.8

		Business Case Reference
What is the solution?	There are four elements to the design as follows: • GH: Level 3 ICU beds– new build extension to the existing ICU (Bay B) • GH: HPB and Renal Transplant beds at – modular build wards to be provided as a second floor above existing wards 24, 25, 26 and 27 • GH: Interventional Radiology– provision of 3 IR Rooms and 1 ultrasound facility, including enabling works to relocate medical records, office space and on-call rooms • LRI: General Surgery beds– refurbishment of wards 15, 16 and 21 (to be vacated as part of Emergency Floor Phase 2) In addition to the above, there is an infrastructure work stream which will provide additional heating capacity, electrical supply capacity and medical oxygen ringmain across all elements of work at Glenfield Hospital.	4.4 4.5 5.2

What options have been considered?	The Do Nothing option of retaining Level 3 ICU at LGH has been assessed against the option to relocate it to LRI and GH. The Do Nothing option assesses the impact of UHL losing the activity that is dependent on level 3 ICU at the LGH in the event that the ICU becomes unsustainable. For each of the 4 schemes within the project option appraisal on the design solutions have been undertaken to identify the preferred solutions.	Economic Section 3
Are there any material deviations to recommended standards?	2 of the schemes relate to the refurbishment of retained estate which create derogation to national recommendations e.g. HBNs. The 2 new build options have derogation due to space constraints principally: • Bed spaces – ICU bed spaces of 20m^2 to 23m^2 as opposed to 25m^2 recommended bed spaces. • Percentages of single rooms – 30% as opposed to 50% recommendation These derogations are supported by the Chief Nurse and the clinical teams, who then presented the derogations to the NHSI quality team at a meeting on the 31st October, who confirmed their support of the assumptions. Once detailed design is completed a full list of derogations from HBNs and HTMs will be included in the FBC.	4.5 5.11 Appendices 26, 27, 28

How will it be implemented?	GH: ICU Extension – this will be achieved by a first floor new build on land between the main and east entrances. To facilitate this Bay B will be closed. Some re-provision of offices and storage will be necessary. GH: Modular Wards - this will be achieved by building over the roof of wards 24, 25, 26 and 27. This solution gives excellent clinical adjacencies and minimises impact on existing clinical services. GH: IR – this will be achieved by altering existing estate to accommodate the new facilities. Key enabling works are the relocation of Medical Records and offices into Mansion House and the Snoezelen building. Doctor's on-call rooms will be relocated to a suitable location such as the Staff Residencies. LRI: General Surgery Beds– the relocation of 2 general surgery wards from LGH to LRI will be achieved through the following ward moves: • LRI Ward 8 moves to LRI Ward 15 (vacated by the EF Phase 2 project) • LGH Ward moves to LRI Ward 16 (vacated by the EF Phase 2 project), this allows the formation of 2 surgical wards supported by an SAU • LRI Ward 21 moves to LRI Ward 33 (vacated by the EF Phase 2 project) to allow LGH Ward to move to LRI Ward 21 • LRI Wards 15, 16 and 21 will be subject to refurbishment and minor alteration Infrastructure associated with the GH wards involves the replacement and extension of electrical switchgear in Substations 1 and 2, the installation of a new boiler in the main boiler house and the installation of a new oxygen ringmain, supplied from a second source, thus greatly enhancing the resilience of the oxygen supply to GH	4.5
Are there any key dependencies ?	**Internal to UHL**: The completion of the Emergency Floor Phase 2 project released wards 15 and 16 at the LRI which are required for General Surgery. The completion of the transfer of East Midlands Congenital Heart Children's service (EMCHC) will release theatre capacity at GH for this move. The move is also dependent on the scope decontamination solution having been implemented at GH: this is subject to a separate Business Case.	2.14
	External to UHL: Planning Permission has been obtained for the HPB and Renal Transplant beds at GH and the ICU extension.	5.16
	External to UHL: NHSE and CCG approval for the FBC.	2.2.1

	External to UHL: NHSI and DH approval of the FBC and confirmation of the capital loan are required prior to construction commencing.	2.5
When will it be completed?	• OBC approval at Trust Board: Nov 17 • OBC approval at NHSI: April 2018 • Planning permission received: Jan 18 • FBC approval at Trust Board: July 18 • FBC approval at NHSI: Sept 18 • Commencement of Enabling Works: Oct 18 • Completion of Enabling Works: Dec 18 • Commencement of Main Construction: Oct 18 • Completion of Main Construction: Operational Commissioning & Go Live: April 2020	2.5 7.3
How much will it cost?	Total capital cost of project is £30.8m. This is broken down as follows: • GH: Level 3 ICU beds at - £5,075m • GH: HPB and Renal Transplant beds - £17,175m • GH: Interventional Radiology- £ £6,229m • LRI: General Surgery beds - £ £2,320m	6.2 Appendices 69, 70, 71, 72

Will it be affordable?	The original cases were approved in 2015 with an acknowledged interim operating cost pressure of £2.25m (of which £2.05m was non recurrent whilst acute services remain at the LGH); with an additional £640k of capital charges. In the OBC the additional operating costs increased to £3.6 million per annum once the services have transferred until the all acute services move off the LGH. The main variation from original FBCs being the increased cost of FM with 3 new wards (as opposed to using vacated existing wards). At this time the Trust confirmed that it was confident that it would be able to deliver additional efficiencies of a maximum of 0.4% to offset the additional cost of the Critical Care scheme. NHSI, in approving the OBC, placed a condition for FBC that the project should deliver a break-even or better financial return and a positive Return on Investment and that the revenue consequences of the scheme must be manageable within existing resources. The DHSC subsequently requested that this be evidenced prior to their approval of the OBC. Further work was undertaken to quantify the benefits of the realignment of ICU activity, the decoupling of HPB from the General Surgical take and the opportunity from consolidating day case activity at LGH. This was submitted to NHSI, for DHSC on 18th May 2018 & this detail is now incorporated in the FBC. The benefits are summarised below: **Benefit** / **£'000 per annum** HPB/Colo Rectal Reductions in ALOS (Non Cash releasing) — 514 ECMO — 302 Day Case Rates — 100 Reduced cancellations due to lack of CCU bed — 274 Additional Theatre efficiencies — 2,312 Savings on Premium rates — 250 Following completion of the DH VFM template a Value for Money ratio of 5.8 is achieved (discounted costs v. discounted benefits). £1.971m cost is then released from non-recurrent additional costs that have been invested as part of the interim moves (vascular and ICU) when the final 2 acute site configuration is delivered.	6.3

How will the project contribute to deficit reduction?	This forms the next step in the Reconfiguration Programme that, once complete, will eliminate the structural deficit of c. £25m.	6.3
How have patients been involved?	From inception of the project to Summer 2017 there has been consistent attendance at the Project Board by a Healthwatch representative, there is now a Patient Partner on the Board. The HPB and renal patients have been consulted on the first stage of the ward designs and patient engagement will be undertaken during detailed design stages.	4.6.2
What external assurance has been obtained?	We have been successful in obtaining funding against a bid made to DH as part of the LLR STP capital announced in the Spring 2017 budget. This is subject to Business Case approval; we have had confirmation that the initial bid was considered as equivalent to a Strategic Outline Case, which has been approved. A Gateway Review was undertaken in July 2015 which resulted in a Delivery Confidence Assessment of Amber. A Gateway Risk Potential Assessment has been completed which resulted in a score of 38 (Medium Risk), which means that a formal Gateway review is discretionary. Discussion with the SROs has concluded that a further Healthcheck review is unlikely to add material value at this stage. There have been on-going discussions with NHSI and NHSE and PAU regarding this issue who are supportive of our approach.	2.5 7.9

Risks (scoring over 15)		**Mitigations**	**RAG**	**Business Case Reference**
Operational	There is a risk associated with managing ICU demand during the construction period as 4 ICU beds will be closed on the GH site as Bay B is expanded	Construction programme to avoid surge period as far as possible. Recovery beds used to mitigate loss of capacity. Plans to maintain flow from ICU with GH services during construction agreed & in place.	16	7.7 Appendix 12

Risks (scoring over 15)		Mitigations	RAG	Business Case Reference
	There is a risk that there is insufficient theatre capacity at Glenfield and LRI to meet the demand requirements of emergency and elective pathways once all service moves are completed.	Review & update demand & capacity baseline & assumptions; with clinical input & sign of. Detailed work in relation to emergency theatre capacity at LRI as a result of the service moves. Theatre Programme Board developing programme for improving theatre utilisation, Four Eyes highlighting areas where improvements should be prioritised.	15	7.7 Appendix 12
	There is a risk that mothballed wards at LRI are used for capacity pressures	Communications plan with operational and duty management teams. Detailed operational commissioning plan Plan for additional medical bed capacity agreed.	15	7.7 Appendix 12
Project Delivery	Timescales are delayed due to approval processes required for OBC and FBC	Discussions with NHSI re management and production of business cases	16	7.7 Appendix 12
Finance	There is risk that the Trust is unable to deliver plans to mitigate the additional revenue cost of £3.6 million.	Governance, ownership & accountability agreed within the Trust	20	7.7 Appendix 12

Risks (scoring over 15)		Mitigations	RAG	Business Case Reference
Workforce	There is a risk that effective and sustainable Medical cover across all sites will not be provided, in particular the knock-on impact of the move on Surgical Specialties	On-going workforce planning and rostering across all sites and all grades, including service and education leads across all effected specialties. Plans for the final model plus predicting potential impact for any interim solutions building on work already undertaken as part of the Vascular move. Agreement at all levels to be obtained in writing.	16	7.7 Appendix 12
Comms & Engagement	Significant demands made on CMGs simultaneously impacting on ability to support development of Business Cases	Developed communications plan: meetings will be held as necessary, not routine / regular	16	7.7 Appendix 12
Estates	Inability to undertake enabling works to allow schemes to deliver on time	Solutions for Enabling moves have been identified and agreed - Snoezelen Building and Mansion House - once scoped and costed approval of funding to be sought	15	7.7 Appendix 12
	Inability to deliver the Estates aspects of the OBC/FBC within the required timescales	PM's assigned to Projects, Appointment of RLB to PMO the process	15	7.7 Appendix 12

Risks (scoring over 15)		Mitigations	RAG	Business Case Reference
	Lack of information / engagement from I.T.	Liz Simons has committed to providing high level information via Steve Wenlock to enable estimated costing for OBC	15	7.7 Appendix 12

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	Condition	**FBC Reference**
	DHSC/HMT Funding Conditions	
1	NEW – April 23 The project should deliver a break-even or better financial return and a positive Return on Investment. The revenue consequences of the scheme must be manageable within existing resources.	Finance case – 6.3
	Strategic Case	
2	The NHS Trust will need to provide an updated Trust & STP Estates Strategy approved by the Board at the FBC stage. Confirmation of funding will be subject to demonstration that each scheme is part of a robust estates and capital strategy across the STP area. It is expected that the plans will be looking to maximise the opportunities to generate receipts from surplus land, along with a clear delivery plan.	Strategic Case - 2.8.1 Strategic Case - 2.8.4 Clinical Quality Case - 4.3 LLR STP Estates Strategy will be available mid-July.
3	Further information will be required to understand the consequences for this project if the remaining STP plans are not progressed.	Strategic Case - 2.2
4	The OBC outlines the Business Continuity arrangements to be put in place though the construction phase of this project. The detailed plans to be fully articulated at FBC stage.	Clinical Quality Case 4.42 4.51 to 4.54
5	The FBC should demonstrate the triangulation of demand and capacity modelling, workforce strategy & financial assumptions.	Finance Case – 6.4.3
6	NEW – 23rd April The FBC should be supported by updated letters of commissioner support from commissioners, specialised	Strategic Case - 2.2.1

	commissioning & the STP.	
	Clinical Case	
7	NEW – 23rd April An updated clinical strategy will need to be provided to support the FBC.	Strategic Case - 2.8.3
8	Further information will be required to establish how the workforce plans map to the existing Trust and STP workforce strategies; and delivery of the model of care being designed through this programme of work;	Clinical Quality Case - 4.7.2
9	The NHS Trust will need to ensure that it has up to date Operational Policies and Plans in place which cover both the transitional arrangements required for this project and the fully merged service. These are expected to be further refined as part of the preparation for the FBC.	Clinical Quality Case - 4.4.2, 4.5.2
10	The NHS Trust will need to provide plans to show that the preferred designs are future proofed to ensure the new facilities are able to cope with future changes in activity and demand; reflecting predicted changes in the local population demographics and the health profile.	Clinical Quality Case - 4.5.1 to 4.5.4. Sections on Adaptability
11	One of the investment objectives for this project is the improvement of training opportunities to attract new staff. We would request that the NHS Trust has an approved training policy in place which demonstrates how it proposes to achieve this;	Strategic Case - 2.4.1 Clinical Quality Case - 4.7.2, 4.8
12	Equality Impact Assessments will need to be updated as part of the development of the FBC	Clinical Quality Case - 4.4.2 App 21
	Economic Case	
13	NEW – April 23rd The economic case should be fully refreshed at FBC with final capital and revenue costs. This should include final tendered costs, refined life-cycle costs, a costed equipment schedule and quantified cash and non-cash releasing benefits.	Economic Case

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14	NEW – April 23rd A positive ROI should be delivered and included in an updated VFM return	Economic Case VFM Template (App xx)
15	The Trust is required to quantify cash and non-cash releasing benefits at FBC stage and include them in the economic appraisal. These should be underpinned by detailed project plans for delivery and fully mitigate the adverse revenue consequences of the project.	Finance (6.3.4) & Economic Case
	Commercial Case	
16	NEW – April 23rd The Trust should achieve a BREEAM excellent for new wards, a minimum for very good for the ICU beds and a minimum good standard for the two refurbishments. THIS has been confirmed by the NHSE PAU.	Commercial case 5.12
17	The NHS Trust should confirm that guidance relating to Infection Prevention has been reflected within the layout.	Clinical Quality case - 4.4.2, 4.5.1 to 4.5.4
18	The NHS Trust should confirm that designs for each project are fully developed at the FBC stage, and an approved project delivery programme provided.	Commercial Case – 5.6 & 5.19
19	The Trust should sign off any design derogations proposed and the Trust's Fire Advisor should sign off retailed designs at FBC stage.	Commercial Case -5.11 Clinical Quality Case – 4.51 to 4.54
20	The NHS Trust is required to produce a fully costed equipment schedule as part of the FBC;	Commercial Case - 5.3.2
	NEW – April 23rd **The NHS PAU review recommended that the Trust should:**	
21	• *Review the adverse effects for the works on existing accommodation during the build / refurbishment*	Clinical Quality Case - 4.42, 4.51 to 4.54

	programme	
22	• *Consider the benefits of pre-construction / modular build*	Commercial Case - 5.3.1
23	• *Confirm the cost benefits of using the London Housing Communities framework (MTX are on this framework) as opposed to the DH Procure 22 framework which for off-site modular construction solutions is believed to be more cumbersome and costly due to having to work through a PSCP and not directly with the supplier of modular buildings.*	Commercial case - 5.3.1
24	• *Confirm the proportion of the LGH site it intends to dispose of and rationale for this proportion and not the whole site*	Commercial Case - 5.21
25	• *For the GH ICU project, review the space derogation and provide evidence of the work carried out. This must be mitigated and owned by the Head of ICU and Health and Safety at the Trust.*	Clinical quality – 4.5.1
26	• *For the GH IR project, the challenges regarding privacy and dignity and security of vulnerable patients should be reviewed. In addition the concerns over design derogation including restricted widths of corridors that impact on fire safety and evacuation should be addressed.*	Clinical Quality Case - 4.5.4
27	• *Review its plans for the on-site storage of hardcopy patient records, as it may be more cost effective to store patient records off-site or digitise and dispose of hardcopy.*	Commercial case - 5.5.3
28	• *Ensure that the nursing, infection control and H&S managers produce operational policies for managing the accommodation and staff training on the proposed new wards at GH and LRI prior to opening. This also applies to the ICU project.*	Management case

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	Financial Case	
29	NEW – April 23 The financial case should be refreshed to include final costs and benefits and include general/specific cost/price inflation	Finance Case
30	New – April 23 The asset valuation and impairment should be supported by a professional valuation at FBC	Finance Case. This needs to be undertaken when the asset is in place.
31	The NHS Trust should seek advice on the treatment of VAT for these projects. Evidence of this advice should be provided as part of the FBC	Finance case – 6.2
32	As part of the approval for the funding of this project, the NHS Trust is required to demonstrate that this project does not adversely affect the overall financial position of the NHS Trust, as part of the approval for the funding of this project. In the FBC the NHS Trust should identify cost efficiencies/cash releasing benefits required to enable the NHS Trust to deliver at least a a breakeven position on this project	Finance case - 6.6
	Management Case	
33	The NHS Trust is required to produce a Change Management Plan which includes how the workforce and environmental changes will be effectively managed	Management Case 7.5
34	The Trust is required to incorporate the Organisational Development plan within the FBC	Clinical Quality Case 4.7
35	The arrangements for post implementation review (PIR), post occupancy evaluation (POE) and project evaluation review (PER) need to be further developed at the FBC stage	Management Case 7.8
36	**Further condition from Resource Committee 17th April** Trust capacity to a) deliver the considerable number of actions for FBC and b) deliver the project itself. The Committee wanted more detail on the SRO, project management and governance arrangements to be included in the FBC.	Management Case

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Friday, 15 June 2018