

Document Control Sheet

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Executive Summary

1.1 Introduction

The Luton & Dunstable University Hospital (L&D) is one of two sites operated by Bedfordshire Hospitals NHS Foundation Trust. This Outline Business Case (OBC) deals solely with the redevelopment planned for the L&D site.

The L&D is part of the Bedfordshire, Luton and Milton Keynes (BLMK) ICS, comprising four local authority areas. BLMK ICS has a combined population of circa 985,000. If recent population trends continue in the future, the total catchment will increase by nearly one quarter by 2050. Furthermore, BLMK falls within the Oxford-Cambridge Arc which, as a whole, is expected to provide for 1 million new homes by 2050. The ICS estimate that around 350,000 of these new homes could be within BLMK. The level of growth associated with the Arc could see the population increase by over 80%.

A substantial redevelopment of the L&D is required in order to address the poor quality of the current estate and to mitigate the clinical risks that this presents. This will support the hospital's strategic vision to become a major emergency centre; to provide flagship women's and children's services; to deliver a class leading elective centre; and to advance the commitment to training and teaching.

The hospital is driven to provide patient focused, efficient and sustainable services, but to continue to do this safely the organisation must radically improve the quality of the facilities in which care is delivered. This will allow the L&D to implement patient focussed care pathways, to maintain performance against national quality and service targets and, ultimately, to reduce the level of risk that the ageing estate presents. A substantial redevelopment of the current facilities is essential to ensure a high performing and sustainable hospital in the future, which allows the Trust to deliver safe and sustainable services for patients from the site.

The L&D is a high performing hospital being one of the most consistent performers against national targets, enjoying a long history of financial success and rated Good by the CQC. The Trust operates, however, from an ageing site dating back to the 1930s which requires refurbishment, with many facilities in need of immediate replacement in order to comply with current standards and maintain

performance ratings. A large proportion of the estate housing acute clinical services can no longer be effectively maintained and this presents daily risks. The condition of the estate and supporting infrastructure are key risks for the Trust, which impact patient care and negatively impact patient outcomes on a daily basis. The backlog maintenance programme for the Trust is currently £91m.

The overall quality across the existing estate is compromised by;

- Small clinical rooms. Many of the departments fail to comply, even partly, with Health Building Note (HBN) guidance with regards to the size of rooms and services within the rooms
- Suboptimal clinical adjacencies between departments, and external routes between buildings for some inpatients, babies and the bereaved.
- Poor circulation which leads to compromised flows of patients, staff, visitors, goods in and waste out
- Poor building structures with a number of modular and temporary buildings on site which are beyond the end of their useful life and thus challenging to effectively maintain, or to be used for development of services

Maintaining suboptimal facilities is an inefficient use of public funds, and directly contravenes the Health Infrastructure Plan (2019) and the Bedford Luton Milton Keynes (BLMK) Sustainability and Transformation Partnership (STP), as well as the learning from the Naylor (2017) and Carter (2016) reviews. The L&D aspires to be at the cutting edge of healthcare, providing care that is efficient, sustainable, safe and patient centred.

Ultimately the L&D estate requires rebuilding and bringing up to current standards. This will be phased over a number of years. The first phase in what will be an ongoing journey of development, will see a substantial improvement in the hospital estate to provide efficient, compliant and safe clinical accommodation for acute services by the end of 2023. This will reduce the backlog maintenance by £12m, with the potential to address a further £33m following the completion of phase 1 as described in this OBC.

1.2 Background to OBC development

The L&D developed a £150m OBC for a site redevelopment in 2015. This was approved by the Trust board in October 2015. Planning permission for the site redevelopment scheme was granted in April 2016, and a P21+ Contractor was appointed as the Trust progressed their FBC. The establishment of STPs in the spring of 2016 led to a decision by the Trust to suspend work on the scheme pending clarification on funding. The planning permission granted in 2016 expired in April 2019.

The Trust submitted an application for capital funding for the Acute Services Block (ASB), a major part of the 2015 site redevelopment proposal, through the BLMK STP in July 2018. Following the national wave of STP capital submissions in September 2017 and July 2018, the L&D were given an allocation of £99.5m in August 2019 to support the redevelopment of the hospital through the development of an ASB. The Trust re-established their programme management arrangements and re-engaged the Trust's design team to develop a RIBA stage 2 design to support an OBC.

Planning consultation was carried out in November 2019 and a planning submission was made on the 17th January 2020 to Luton Borough Council in line with the preferred option for the development of the site, as determined by the economic modelling. Planning consent for the whole site redevelopment was granted on the 25th March 2020.

The Trust met with colleagues from the regional and national team at NHSE/I and the DHSC on the 21st January 2020. The Trust gave a presentation drawing attention to key elements of the OBC. An alternative option for the capital scheme was presented: a 'do more' option in comparison to the proposal put forward in July 2018's STP capital bid. The 'do more' option included the ASB housing a new delivery suite, neonatal unit, critical care and theatre suite, as described in the STP bid, and a New Ward Block (NWB) for maternity services. This option gives further benefits and ultimately provides a stronger strategic fit and economic advantages. Funding requirements were presented at this stage which reflected a change in the capital

request. The Trust made a commitment to NHSE/I and DHSC, to submit an OBC in April 2020 complete with a RIBA stage 2 design which used the CIA model to evaluate the risks, benefits, costs and revenue implications of the preferred option.

From January to March 2020, further information regarding the OBC development was shared with NHSE/I and DHSC colleagues. The OBC development with its alternative preferred option gained support from the region. The proposed design was supported by an estates review led by the national estates team, which concluded that the design and costing work complied with current healthcare methodology and requirements. A commitment was made by the national capital and cash team to discuss the L&D's revised funding proposal with the Capital Development Committee (CDC). CDC met on the 30th March 2020.

Feedback from CDC was received on the 3rd April at the monthly progress review meeting with the Trust, NHSE/I and DHSC. The Trust were supported to progress the OBC to include both options for the redevelopment of the site; the STP capital wave 4b STP bid option, now costed in today's money at £118m, and the current preferred option as defined by the strategic and economic modelling presented in this OBC. The Trust require £150m of central funding to develop the preferred option, this includes £11.6m for the IT and pathology integration which supports the merger of the L&D and Bedford Hospital, as defined by the merger full business case, submitted in December 2019 and approved by NHSE/I. The merged organisation, Bedfordshire Hospitals NHS Foundation Trust, came into being on the 1st April 2020. The preferred option will see a substantial redevelopment of the L&D, providing a new ASB and adjoining NWB.

CDC have requested that the Trust describes in this OBC the opportunity to decrease the current cost plan, which the Trust indicated in January 2020 would be possible for the NWB, following detailed design work and soft market testing. This will be drawn out in the Economic case.

1.3 The STP Bid (July 2018)

The STP bid supported the redevelopment of the L&D site and included an allocation of £99.5m in the STP Wave 4b funding, for:

1. A new hospital building: the Acute Services Block (£87.9)

- a. Delivery Suite supporting 6,000 births
- b. Critical Care supporting combined level 2 and level 3 care
- c. Neonatal unit supporting level 3 care for the region
- d. Operating theatres including day surgery facilities

2. Capital to support the merger with Bedford Hospital (£11.6m)

- a. Digital integration costs
- b. Pathology integration costs

The bid was predicated on the assumption that the Trust would support the capital scheme with its own cash resources to fund the enabling and associated schemes. This included a new office block, allowing the demolition of the offices currently occupying the site of the proposed ASB, and a fly over link between the ASB and the existing maternity wards.

The scheme costs have been updated. The current cost estimate of external funding required, as of January 2020, is £118m including VAT, contingency, inflation and optimism bias. It is important to note that at the time the funding was approved, the Trust had already increased its estimate of these costs to £110m. The movement from £110m to £118m relates to two issues as follows:

1. Inflation (Q3 19 to Q2 21): £3.1m
2. Optimism Bias (move from £5m to £9.9m) as defined by the CIA model: £4.9m

- Total: £8.0m

The programme baseline is consistent with a timetable which fully incorporates an understanding of the current business case process and procurement approach. The optimism bias incorporates the current HMT guidance which specifies a more rigorous or standardised evaluation of optimism bias in comparison to the original STP bid.

1.4 The Preferred Option (Jan 2020)

Whilst the original scheme can be delivered for £118m of external funding, the business case process has allowed the Trust to re-visit its strategic requirements, investment objectives, critical success factors, and redevelopment options. The conclusion of this work is that, whilst the original option delivers the key scheme objectives, there is another option which gives a much improved and more functional scheme that has the additional benefit of unlocking the potential for further development of the remaining site. The preferred option is for development of the five storey ASB and a three storey NWB for maternity services. The NWB would allow the Trust to decant the existing maternity ward block, maximising clinical adjacencies across maternity and neonatal services.

The vacated maternity wards would provide short term, decant ward space to support a significant programme of backlog maintenance across the ageing estate. This provides an opportunity to further address the significant and high-risk backlog maintenance issues across the site, with an opportunity to further reduce backlog by £33m. This is 36% of the current £91m backlog problem at the hospital.

The summary of capital requirements including both options is set out below.

1.4.1 Capital requirements

The capital requirements presented below reflect those presented to NHSE/I and DHSC in January 2020, and subsequently presented at CDC at the end

of March 2020, to ensure consistency. Within the body of the economic and finance case, the capital costs are refined using current (as of March 2020) cost indices.

	July 18 STP Bid	April 19 STP Update	Dec 19 Merger FBC	Jan 20 Updated Cost Plan	Preferred Option including Maternity Wards
Funding Required	£99.5m	£110m	£110m	£118m	+£32m
Baseline Cost Index (PUBSEC)	3Q18 195	3Q19	3Q19	2Q21 250	2Q21 250
Optimism Bias	£5m			£9.9m	£3.1m
Build Programme	2.5 years	2.5 years	2.5 years	2.5 years	Within the 2.5 year programme
Target Start	Jul 19	May 20	Jan 21	Jan 21	Jan 21
Target Completion	Jan 22	Nov 22	Aug 23	Aug 23	Aug 23
Schedule of Accommodation	Delivery Suite, NICU, Critical Care, Theatres, Clinical support	Delivery Suite, NICU, Critical Care, Theatres, Clinical support	Delivery Suite, NICU, Critical Care, Theatres, Clinical support	Delivery Suite, NICU, Critical Care, Theatres, Clinical support	Delivery Suite, NICU, Critical Care, Theatres, Clinical support Maternity Wards

Table 1.1: Extract of funding requirements presented to NHSE/I, DHSC and HMT in January 2020

In January 2020, the cost of developing the preferred option including the maternity ward block, required £161m in support, and a commitment by the Trust to contribute funding, to reduce this figure to £150m. As of April 2020 and defined in this OBC, the Trust have reduced the central funding request to

£150m through a combination of value engineering and Trust contribution. This is reflected in the table below'

The total capital Trust requirement is for £150m. This is broken down as follows:

Scheme	July 18 STP Bid £	Apr 20 OBC Preferred Option £
IT Merger Enabling	8	8
Pathology Joint Venture	4	3.6
Acute Services Block	87.5	106.4
Ward Block	-	32.9
Lift core	-	3.3
Other enabling	-	14.4
Trust Contribution	-	-18.6
Funding Required	99.5	150.0

Table 1.2: July 2018 STP capital bid vs April 2020 OBC capital requirement

The Trust has spent its own cash in recent years preparing for a major redevelopment programme. This has included a £7.5m programme of electrical infrastructure upgrades, and a £17m energy centre scheme, due to complete in 2021. The Trust will now embark on a significant capital programme of Trust funded enabling schemes, over the next 3 years, to complete the enabling works package that supports the start of major construction on the hospital site.

1.4.2 Affordability

The L&D is one of the best financially performing hospitals in the country, reporting a financial surplus in each of the last 19 years. The L&D reported a surplus of £13.0m in 2016/17 rising to £15.4m in 2017/18, £22.6m in 2018/19 and £12m in 2019/20. The Trust anticipates continuing with this financial robustness in 2020/21.

In the absence of a major capital scheme, the limitations of the estate and the maintenance required to maintain clinical services, has a

significant projected incremental impact on the Trust's financial position. The preferred option delivers financial benefits against the Trust's baseline that cannot be realised by any other option and the economic modelling demonstrates that this provides the best value for money solution with a benefit:cost ratio of 4.88 over the baseline.

The preferred option provides a more robust financial position for the Trust, with reduced costed risk, greater benefits financially and improved patient outcomes. The preferred option shows a significant long term improvement to the BAU financial position of Bedfordshire Hospitals NHSFT and delivers the financial trajectories for the merged organisation.

1.4.3 Programme

The table below reflects the current programme for business case development and approvals. A more detailed programme is included in the Management case.

	Q4 19/20	Q1 2021	Q2 20/21	Q3 20/21	Q4 20/21
OBC Trust Approval		22/04/20			
OBC External Approvals		April 2020			
Procurement		April 2020			
FBC development		April 2020			
Enabling works commence	Jan 2020				
Main works commence					Jan 21

Table 1.3: Business Case development programme

It is recognised that the global Covid-19 pandemic may have a significant impact on this project. At the time of writing, it is not yet understood what this impact will be. The redevelopment programme at the L&D, like many projects, has been impacted by the social distancing measures put in place. The Redevelopment Team and Trust Board have responded to the challenge by maintaining the

governance arrangements already in place, working remotely, and coordinating with multiple teams, across multiple companies, virtually. The effects of a global pandemic have been included only in the economic modelling under risk and assume a 6 month programme impact.

1.5 Conclusion

The Trust request central support and funding of £150m to progress the preferred option for the redevelopment of the L&D hospital site. The redevelopment will provide an Acute Services Block, and an adjoining New Ward Block. These assets will support appropriate and safe care facilities and clinical adjacencies, optimising care and operational efficiency. The redevelopment provides the hospital with a number of opportunities to address a major proportion of the backlog maintenance, thus mitigating major risks in the estate that currently exist. The £91m backlog will be reduced by £12m, with the potential to address a further £33m following the completion of phase 1 of the Trust's redevelopment. The Trust Board strongly support the proposal presented in this business case as one that provides the right strategic solution for the organisation and the community it serves, in the context of ongoing health demands.

Strategic Case Summary

The strategic case describes the urgent requirement to redevelop the Luton and Dunstable hospital (L&D). The Luton & Dunstable University Hospital NHS Foundation Trust, merged with the Bedford Hospital NHS Trust on the 1st April 2020, to form Bedfordshire Hospitals NHS Foundation Trust. This business case deals solely with the requirements of the L&D site.

The L&D is a high performing hospital being one of the most consistent performers against national targets, enjoying a long history of financial success and rated Good by the CQC. It operates however from an old and inefficient estate. The estate presents daily challenges to clinical outcomes and operational efficiency. Clinical services do not comply with current healthcare facility requirements and this presents a significant clinical risk. Current accommodation is not easily maintained and cannot be developed to support evolving clinical care requirements and patient demand.

As of March 2020, the backlog maintenance schedule on the L&D site was £91m, a significantly high figure for a District General Hospital.

The proposal to build an Acute Service Block (ASB) and an adjoining New Ward Block (NWB) would address key estates risks across the Trust. A significant amount of backlog would be removed (£12m). Acute facilities would be in compliant accommodation, thus supporting service resilience and improved energy performance. The healthcare environment would be much improved for patients, visitors and staff. The total capital support the Trust is requesting is £150m.

Construction is programmed to start on site in Spring 2021 and complete Winter 2023. The programme of approvals advised by NHSI/E is 3-4 months for the Outline Business Case (OBC) and 3-4 months for the Full Business Case (FBC). The FBC will be developed by the Trust from April 2020 and is due to be submitted in the Autumn of 2020. It is accepted by the Trust Board that the FBC will be developed at risk in terms of the programme of work and fees associated with the development.

The development will deliver triage and assessment facilities for maternity, a delivery suite and obstetric theatres, antenatal and postnatal maternity wards; a level 3 neonatal unit; a combined critical care unit; and a theatre suite, providing a new model of elective surgical care. The development will be supported by a number of Trust funded enabling schemes.

Case for Change Summary Chart

Spending Objectives	To provide a safe environment to care for patients by the end of 2023
Existing Arrangements	<p>Maternity:</p> <ul style="list-style-type: none"> ▪ Poor clinical adjacencies. Patients have to travel beyond the maternity building by an external route to get to imaging, main theatres and critical care ▪ Bereaved Mothers birthing/recovering next to well Mothers and new babies. Route for deceased babies to the mortuary is via public corridors and external public footpaths. ▪ Women in labour in undersized birthing rooms without en-suite facilities, temperature control or appropriate ventilation. Not all rooms are large enough to house essential medical equipment. ▪ Lack of capacity to support women birthing outside the Delivery Suite ▪ Lack of theatre capacity. Anaesthetic rooms used for clinical procedures when the two operating theatres are being utilised ▪ Undersized, inefficient, non-compliant clinical accommodation ▪ Poor facilities for staff and patients. ▪ Poor privacy and dignity for patients. ▪ Poor storage, with equipment and supplies kept in corridors ▪ Poor support accommodation for multi-disciplinary team working ▪ Poor facilities for trainees, which has been raised by the Deanery. <p>Critical Care:</p> <ul style="list-style-type: none"> ▪ Poor clinical adjacencies. Level 1 (ITU) and level 2 (HDU) wards in different locations and on different floors. This challenges space efficiencies and workforce in an area which is hard to recruit to. ▪ Lack of level 1 and level 2 capacity to support future demand and current business need. ▪ Poor side room provision and challenges isolating patients ▪ Lack of space around the bedside to support equipment and staffing ▪ Very poor infrastructure, particularly in terms of ventilation and IT. ▪ Undersized, inefficient, non-compliant clinical accommodation. ▪ Poor facilities for staff and patients. ▪ Poor privacy and dignity for patients. ▪ Poor storage, equipment and supplies in corridors ▪ Poor support accommodation for multi-disciplinary team working ▪ Poor facilities for trainees, which has been raised by the Deanery. <p>NICU:</p> <ul style="list-style-type: none"> ▪ Poor clinical adjacencies. Patients have to travel beyond the NICU building by an external route to get to imaging ▪ Lack of Level 3 neonatal capacity to support in-utero and ex-utero transfers. ▪ Lack of space around the cot side to support equipment and staffing. Postnatal Mothers on beds cannot come down to NICU to see their baby ▪ Undersized, inefficient, non-compliant clinical accommodation ▪ Poor facilities for staff and patients. ▪ Poor privacy and dignity for patients. ▪ Poor storage, equipment and supplies in corridors ▪ Poor support accommodation for multi-disciplinary team working ▪ Poor facilities for trainees, which has been raised by the Deanery. <p>Theatres:</p> <ul style="list-style-type: none"> ▪ 4 old temporary theatres (theatres A-D) now non-compliant and difficult to maintain. Maintenance requires twin theatres to be taken out of service which challenges BAU. ▪ Very poor infrastructure, particularly in terms of M&E and IT. ▪ Undersized, inefficient, non-compliant clinical accommodation ▪ Poor facilities for staff and patients. ▪ Poor privacy and dignity for patients. ▪ Poor storage, equipment and supplies in corridors ▪ Poor support accommodation for multi-disciplinary team working

Spending Objectives	To provide a safe environment to care for patients by the end of 2023
Business Need	<ul style="list-style-type: none"> ▪ To provide modern, efficient, compliant and safe clinical accommodation for acute services delivery ▪ To ensure the hospital's infrastructure aligns with current and future clinical service strategies ▪ To proactively maintain assets and reduce backlog maintenance ▪ To replace infrastructure which is no longer cost-effective to maintain
Potential Scope	<p>Core</p> <ul style="list-style-type: none"> ▪ To provide new hospital estate for acute services - Maternity, NICU, Critical Care, Theatres <p>Desirable</p> <ul style="list-style-type: none"> ▪ To provide new hospital estate for the Emergency Department <p>Optional</p> <ul style="list-style-type: none"> ▪ To address the lack of patient waiting areas across the site
Benefits	<p>Benefits can be broken down into two categories;</p> <ul style="list-style-type: none"> ▪ Clinical <ul style="list-style-type: none"> - Supports the BLMK STP - Achieve quality and safety standards ▪ Financial <ul style="list-style-type: none"> - Cash releasing work force efficiency savings through colocation of processes and teams <p>The following groups will benefit from the proposed development;</p> <ul style="list-style-type: none"> ▪ Patients ▪ Staff ▪ Visitors ▪ Health Community
Risks	<p>Risks for the proposed development can be grouped into business and service risks. Key risks include:</p> <p>1. Business risks</p> <ul style="list-style-type: none"> ▪ Workforce ▪ Culture <p>The buildings in essence are the 'wrapper' that sits around process management and service delivery. The workforce and the organisational culture will drive the success of the development. A culture and change management workstream will be essential to drive successful implementation.</p> <p>2. Service risks</p> <ul style="list-style-type: none"> ▪ Programme ▪ Budget <p>Managing the programme will be crucial to ensuring the project delivers the critical success factors for the scheme on time and within the cost envelope. A failure to manage the budget at every stage of the development will require the organisation to review the scope of the scheme, which will ultimately jeopardise the scheme benefits.</p>
Constraints	<ul style="list-style-type: none"> ▪ Maintaining clinical services 24/7 throughout build and commissioning ▪ Ensuring infrastructure resilience ▪ Ensuring that car parking is maximised throughout the programme and that congestion is minimised ▪ Affordability ▪ Ensuring that the concerns of local residents are satisfied
Dependencies	<ul style="list-style-type: none"> ▪ Delivery of critical enabling schemes against the programme. ▪ Approvals (internal and external) ▪ Central Funding of £150m to support the redevelopment

Table 2.1: The case for change summary

2.1 Introduction

This strategic case describes the context and case for change for the proposed investment in clinical infrastructure at the L&D. This case describes a substantial redevelopment of the hospital in order to improve the poor quality of the current estate and the clinical risks this presents. This is a key corporate objective for the Trust in 2019/20 and a priority for the BLMK Integrated Care System (ICS)¹.

The redevelopment of the L&D will support the Trust's strategic vision to become a major emergency centre; to provide flagship women's and children's services; to deliver a class leading elective centre; and to advance the commitment to training and teaching. The hospital is driven to provide patient focused, efficient and sustainable services, but to continue to do this safely the organisation must radically improve the quality of the facilities through which care is delivered. The redevelopment proposal will allow the L&D to change the way in which care is delivered, maintain performance against national quality and service targets, and lower the risks to services at the site. This is essential to ensure a high performing and sustainable hospital in the future, which allows the Trust to deliver safe, sustainable services for patients from the L&D site.

Planning for this investment has taken place over a number of years. Following review of a number of options, a Strategic Outline Case (SOC) was approved by the Trust Board in October 2014. An OBC for a significant redevelopment programme was developed in 2015. This was approved by the Trust Board in October 2015. Work was suspended following the move towards capital funding through STPs. More recently, the Trust has prepared a business case to support a merger with

Bedford Hospital NHS Trust (BHT) in December 2018. The strategic context for both the capital investment and merger is aligned. Securing this capital funding for the L&D site is a core priority for the 2019 BLMK ICS Single Operating Plan.

This business case sets out the requirement to redevelop the L&D to provide the following accommodation;

- Delivery suite and maternity wards
- Critical Care unit
- Neonatal unit
- Operating Theatres
- Office Accommodation
- Car Parking

2.2 National Context

2.2.1 The Health Infrastructure Plan, 2019

The Health Infrastructure Plan of October 2019 highlights the clear interdependency between estates and patient care. Well-designed facilities can speed up recovery, ensure patients are appropriately treated and that medication is provided on time. In contrast, poor quality facilities can lead to poor quality of patient care affecting patient safety, increasing waiting times and leading to inefficient working practices for staff. The plan highlights the significant unmet demand for capital in the system, with the value of NHS backlog maintenance up 37% between 2014-15 and 2017-18. The highest risk category- significant- is the fastest growing.

¹The Bedfordshire, Luton and Milton Keynes Sustainability & Transformation Partnership (STP) became an Integrated Care System (ICS) in 2018

2.2.2 The Naylor Review, 2017

The Naylor review (2017) examined the future estate required to deliver the Five Year Forward View, highlighting that it cannot be delivered without investment in the NHS estate. In the Government response to the Naylor review, a clear vision was identified for future NHS estate provision. This is reiterated in the Health Infrastructure Plan of 2019. Objectives include:

- Provision of modern estate equal to delivering the Government vision for health and social care
- Ensuring infrastructure aligns with current and future clinical service strategies
- Proactively maintaining assets and reducing backlog maintenance
- Replacing infrastructure which is no longer cost-effective to maintain

Naylor recommends that any improvements to the NHS estate are considered in parallel with the underlying demand for care. The increasing demand on the NHS is well documented, with clear recognition that this is a time of great challenge to delivery of healthcare in the UK. The UK population continues to grow and age, leading to increasing numbers of frail, elderly patients and a greater incidence of chronic disease that requires different patterns of care. As the population grows and ages, there are innovations in medicine transforming what is possible and with the public expecting higher standards of care, safety, quality and access to be achieved. Affordable healthcare continues to present a challenge. Continued improvements in patient care and experience will require further efficiencies through redesign of system pathways but more importantly, a step change in the way that healthcare is delivered through multi partner collaboration.

2.2.3 The Carter Report, 2016

The Carter report published in February 2016 highlighted unwarranted variation in estates and facilities running costs per area (£/m²). The report also suggested a significant opportunity for Trusts to achieve cost efficiencies by reducing their energy consumption which would also help to mitigate against the effects of climate change through improved energy efficiency. The 2019 NHS Long Term Plan reiterates a commitment to reducing

waste and improving efficiency. The plan includes improving the quality and productivity of NHS buildings and reducing NHS carbon footprint levels by improving energy efficiency and smart energy management.

2.2.4 Climate Change Act, 2008

The UK Government introduced the Climate Change Act with a target to cut carbon emissions by at least 80% by 2050, with a minimum reduction of 26% by 2020 across the UK. As the health sector is the largest public sector emitter of carbon emissions, the NHS and Trusts have a legislated responsibility to meet these targets.

2.2.5 NHS Carbon Reduction Strategy

The NHS Carbon Reduction Strategy for England sets an ambition for the NHS to help drive change towards a low carbon society. The strategy shows the scale of reduction in carbon required for the NHS to progress towards the Climate Change Act requirements and recommends key actions for the NHS to become a leading sustainable and low carbon organisation.

NHS buildings and estates are very significant and visible consumers of energy and generators of carbon emissions. To reduce carbon emissions by 2050, the NHS will need to put carbon management at the core of its thinking. When building new hospital estate, sustainable buildings with less energy intensive processes will be key and a change in staff behaviour will be fundamental.

2.2.6 Clinical Strategy

a. Women's and Children's services

In February 2016, the report 'Better Births, Improving outcomes of maternity services in England', set out the Five Year Forward View for NHS maternity care. This report of the National Maternity Review highlighted several challenges facing maternity and neonatal services, namely capacity, environment, patient experience and workforce. It recommended implementation of recommendations in maternity services and a dedicated review of neonatal services.

In response to Better Births, NHS England commissioned the Neonatal Critical Care Review (NCCR). The findings from the review have been developed into an action plan for Neonatal Services. The NHS Long Term Plan has committed to new investment over the next 5 years to meet the action plan.

The 3 key commitments for neonatal care in the Long Term Plan are:

1. Developing neonatal capacity: redesigning and expanding neonatal critical care services to further enhance safety, effectiveness and the experience of families, to improve neonatal capacity and triage within expert maternity and neonatal centres.
2. Further developing the expert neonatal workforce required: extra neonatal nurses and expanded roles for some allied health professionals to support clinical care.
3. Enhancing the experience of families through care coordinators and investment in improved parental accommodation.

Additionally, in 2017, the Maternity Transformation Programme published 'Implementing Better Births - key deliverables for Local Maternity Systems,' which included;

1. Improved choice and personalisation of maternity services so that all women are able to make choices about their care
2. Safer care, access to the right care in the right place, reduce rates of stillbirth, neonatal death, maternal death and brain injury
3. Supporting and developing the workforce and embedding a culture of multi-professional working with the infrastructure to share information

In terms of infrastructure, this guidance builds on and enhances the health building notes (HBNs) for maternity care and neonatal services which were published in 2013.

b. Surgery

[Get It Right First Time \(GIRFT\), 2012](#)

GIRFT is an NHS improvement programme designed to improve the quality of care within the

NHS by reducing unwarranted variations and by sharing best practice. There are a number of opportunities whereby the design of the estate can ensure patients are appropriately treated, that medication is provided on time and recovery can be sped up.

c. Critical Care

Critical care systems reflect the medical and surgical services that they support. This landscape is being significantly modified by developments in these services both internationally and locally.

[Comprehensive Critical Care \(CCC\), DH, 2000](#)

CCC introduced the concept of 'critical care without walls' to respond to the needs of critically ill patients throughout a hospital. The report recommended more critical care beds and the development of teams and skills to prevent unnecessary transfer between beds and between hospitals.

[Critical Futures: A report on the first wave survey, 2017](#)

Critical Futures followed the CCC report. It is a long-term project commissioned through the Faculty of Intensive Care Medicine. It's aim is to directly take forward a suite of work streams that analyse and respond to anticipated changes and pressures on critical care and related services. It has recognised that many acutely ill medical patients not admitted to critical care have a higher mortality than those who are admitted. Capacity, environment and staffing remain key blocks to improvement. Of the 12 recommendations in the report, a number relate to workforce, in terms of training, education and staffing, and a significant proportion relate to service configuration and service provision.

[Guidelines for the Provision of Intensive Care Services \(GPICS\), second edition, 2019](#)

This reference source supports the planning and delivery of Intensive Care Services in the UK in terms of workforce, environment, capacity and management. This GPICS provides the latest evidence to support service redesign and whilst it encourages compliance with health building notes (HBNs), the guidance supersedes them.

2.3 Regional Context

The 2019 NHS Long Term Plan articulates the importance of empowering Sustainability and Transformation Plans (STPs)/ Integrated Care Systems (ICS) to lead in local healthcare provision. The Naylor review highlights the importance of estate strategy to support delivery of these regional plans.

The L&D is part of the Bedfordshire, Luton and Milton Keynes (BLMK) ICS, comprising four local authority areas within the footprint illustrated in figure 3.1. BLMK ICS has a combined population of circa 985,000 which is projected to grow to 1,081,000 by 2035 based on current trends. Key demographic projections by 2035 include the doubling of the over 85 year old population and higher than average growth of the number of adults aged 65 and over and young people aged 10-19 years old. If recent population trends continue in the future, the total catchment will

increase by nearly one quarter by 2050.

Furthermore BLMK falls within the Oxford-Cambridge Arc which, as a whole, is expected to provide for 1 million new homes by 2050. The ICS estimate that around 350,000 of the million new homes could be within BLMK, a near doubling of homes in BLMK over the next 30 years. The level of growth associated with the Arc could see the population increase by over 80%. Under the Arc aspirations, the number of children and young people could increase by nearly two thirds, the working age population by over 80% and the population aged over 65 by over 120%.

Increasing demand on secondary healthcare across BLMK is significant, with approximately 10% more people every year projected to attend A&E departments across the footprint. The development of the Arc will have further significant effects on this demand.



Figure 2.1: BLMK ICS local authorities

2.3.1 Alignment with the BLMK ICS Longer Term Plan (2019-2024) for Wellbeing and Health

In October 2019, the BLMK ICS Long Term Plan set out the ambition for collaboration between NHS organisations in Bedfordshire and Milton Keynes. The ICS has five key priorities, two of which are pertinent to the redevelopment of the L&D site;

1. A focus on wider determinants of wellbeing and health with action on reducing the carbon footprint
2. The merger of Bedford and Luton hospitals to create more efficient and resilient secondary care

Securing capital funding for the L&D site to support the platform for a merged organisation is a core priority for the 2019 BLMK ICS Single Operating Plan.

2.3.2 Support from the BLMK STP

The BLMK STP fully support the redevelopment plans for the L&D which align to the ICS single operating plan published in 2019. The OBC was formally endorsed by the ICS following a presentation by the Trust on the 15th April 2020. Please see appendix 1 for letter of endorsement

2.4 The Local Context

2.4.1 Organisation overview - Bedfordshire Hospitals NHS Foundation Trust (BHT)

The Luton & Dunstable University Hospital NHS Foundation Trust and Bedford Hospital NHS Trust merged on the 1st April 2020 to create Bedfordshire Hospitals NHS Foundation Trust.

Each hospital will continue to be successful, with strong support and regard from the local community and a reputation for delivering excellent services.

The hospitals have a long track record of working together and in partnership with their respective host Clinical Commissioning Groups (CCGs), Luton CCG and Bedfordshire CCG. The merged organisation provides 94% of Luton CCG's emergency work, and 78% of Bedfordshire CCG's emergency work.

The L&D provides acute and specialist healthcare services for over 300,000 people in Luton, Central Bedfordshire and other parts of Bedfordshire and Hertfordshire. The L&D employs over 4,000 people and, as such, is the second largest employer in the Luton Area. It has a turnover of approximately £364m per year. The L&D consistently delivers all key performance targets and has been a national leader in delivering performance against the emergency care standards, having met the 4 hour target every single week since February 2011.

BHT is a DGH, serving a population of approximately 270,000 across Bedfordshire and the surrounding areas (with a 900,000 catchment for vascular services). Its core local authority populations are Bedford Borough (160,000) and Central Bedfordshire (260,000). The Trust employs over 2,500 members of staff, making it the largest local employer in Bedford, with a current turnover of approximately £225m per year.

2.4.2 The L&D Site

The L&D has been a single entity since its inception. The hospital moved to its current location in 1938, almost equidistant between Luton and Dunstable. Although the site is 10 acres in size it is bordered on all sides by housing, which makes it, in essence, a land-locked site.

The L&D serves a diverse population in Luton, Bedfordshire Borough and parts of Buckinghamshire and Hertfordshire. The Trust has a registered catchment population of approximately 320,000 people. Some of the hospital's more specialist services serve a population of circa 1 million. The geography of the catchment is varied; there are semi-rural and affluent areas to the north and south of the patch, with large populations located in Luton and Bedford. There are high levels of deprivation and ethnic diversity. In recent years Luton has experienced substantial immigration from Eastern Europe (both EU and non-EU countries).

This has significantly changed the demographic composition and ethnic complexion of the town with over 55% of the population being of black and ethnic minority or non-British white origin.

The local health economy is under financial pressure as Commissioners struggle to fund the future needs of the population. The L&D generates 48% of its income from Luton Clinical Commissioning Group (CCG) - its lead Commissioner, 25% from Bedfordshire CCG and 7% from Herts Valley CCG with the rest from the NHS Commissioning Board / Local Area Team, NCAs and other small contracts. Both Bedfordshire CCG and Luton CCG continue to experience financial challenges. In part this has been caused by acknowledged underfunding. Significant population growth is expected over the next 15 years. This will add a further level of strain to an already overloaded system.

As a medium sized district general hospital with 724 adult inpatient beds, the L&D provides a comprehensive range of general medical and acute surgical services. In addition to developing high standards in the delivery of general and acute services, the L&D has developed a number of specialist services including tertiary Bariatric services and a Level 3 Neonatal service. The L&D is an extremely busy acute hospital which strives to offer the very best clinical care to its patients. The demand for the services offered by the hospital has grown significantly over the years.

There have been a number of developments on the site since it was opened. The first redevelopment in 1962 saw the construction of the Medical Block and

a new Emergency Department. This was followed in the late 1970s with the construction of the Surgical Block, and in 2003 with the development of the St Marys wing. Alongside these major schemes, the hospital has grown in an ad-hoc manner over the years. However, this has led to many clinical adjacencies being significantly compromised and has led to operational inefficiencies.

Recognising the lack of clinical space on the L&D hospital site and the requirement to offer hospital services closer to patient's homes, a number of attempts have been made to re-design clinical pathways. In recent years, phlebotomy, dermatology, sexual health, musculoskeletal services, orthopaedic outpatients and fracture clinic, and a number of consultant clinics have been moved to a community setting. Space freed up at the L&D has been rapidly developed to expand the acute service provision but has done little to mitigate against the clinical risk that the ageing estate presents.

The L&D continue to try to improve and expand the estate but, given the scale of the problem, this has been challenging, often piecemeal, and has not gone far enough to ensure a safe, sustainable and efficient estate. The estate and much of the infrastructure is now beyond its current limits and, as a consequence, the hospital's estate is now beyond its capacity in many areas allowing no flexibility and no scope to expand. Furthermore, the facilities do not comply with current functional requirements. A sizable investment is needed urgently in order to ensure the hospital is fit for purpose now and in the future.

2.4.3 The L&D Performance Highlights 2018/19

	L&D
Catchment population	320,000
Acute and critical care beds	724
A&E attendances during 2018/19	144,045
	(101,059 A&E; 42,986 UGP-led)
Emergency Admissions during 2018/19	37,947
Births (deliveries attended by hospital doctors or midwives) in 2018/19	5,278
Total staff employed average 2018/19	4,145
Staff Survey score on recommending hospital as a place to work (compared to national average score 3.76)	3.88
Turnover £m	364
Carter productivity cost per WAU (position in national quartiles)	Top 25%
NHSI Single Oversight Framework performance segment (1 is maximum autonomy, 4 is special measures)	Segment 1
CQC	Good

Table 2.2: L&D Performance Highlights 2018/19

2.4.4 L&D Partners

Main Partners	L&D
Commissioners	Luton CCG, Bedfordshire CCG*
Councils	Luton Borough Council, Central Beds Council
Ambulance Provider	East of England Ambulance Service (EEAST)
Trauma network	East of England Trauma Network
Neonatal Intensive Care	East of England (EoE) Neonatal Operational Delivery Network (ODN)
Critical Care	East of England Critical Care Operational Delivery Network
Education & Training	Health Education East
Workforce Partnership	BLMK Local Workforce Action Board
Community Provider	CCS
Mental Health Provider	ELFT

Table 2.3: L&D Partners

2.4.5 Population

Luton has significant health challenges as described in the Luton Public Health Report (2015). 22% of children in Luton live in poverty, life expectancy is lower than the average in England, and coronary heart disease contributes to the largest proportion of inequality followed by circulatory disease. 23.7% of children are classified obese (compared to 19% nationally). The rate of alcohol related admissions to hospital was 684 per 100,000 of the population, worse than the average for England. The Black and Minority Ethnic (BME) population are more likely to have less healthy births and suffer from increased risk of complications before and during birth. Patient attendance by ethnicity shows that there is 24-27%

of BME attendance across emergency, inpatient and outpatient services. For maternity and healthy babies there is between 39-48% BME attendances. For the workforce BME representation is 37-39%.

2.4.6 L&D Historical financial performance

L&D is one of the best financially performing Trusts in the country, reporting a financial surplus in each of the last 19 years. The L&D reported a surplus of £13.0m in 2016/17 rising to £15.4m 2017/18, £22.6m in 2018/19 and £12.0m in 2019/20. The Trust anticipates continuing with this financial robustness going forward. A summary of the Trust's historical performance is presented in the table 2.4.

Luton & Dunstable University Hospital	17/18 Outturn £m	18/19 Outturn £m	19/20 Outturn £m
Net surplus/(deficit)	15.4	22.6	12.0

Table 2.4: L&D three year historical performance and forecast outturn

2.4.7 Financial Context in Luton and Bedfordshire

Resident location	Cost to NHSE	Distance from target allocation	Additional funding if funding matched closest peer
Bedfordshire	£1,157	2.6%	£18.5m
Luton	£1,160	3.7%	£28.0m
Average funding across the NHS	£1,239	N/A	N/A

Table 2.5: Average NHSE allocation for residents across the NHS

If both CCGs were funded to the level of their closest peers this would have provided a combined additional revenue funding for the CCGs of circa £50m.

2.5 Estates Strategy

A key strategic driver across the NHS is to turn healthcare estates from liabilities into assets. In many Trusts this can be achieved by site reconfigurations which often release capital to re-invest. This is not an option for the L&D owing to its single site status and the fact that many buildings are already at or beyond their capacity.

Development of the Trust's infrastructure is crucial to safely maintain the hospital site and deliver safe services. Additionally, an expansion of the current infrastructure is required in order to cope with the increased demand for energy as services grow.

2.5.1 The Estate

The condition of many of the buildings makes effective cleaning and the delivery of suitable infection control measures extremely challenging. The cost of maintaining the required standards in the old buildings is significant. Despite the best efforts of the Facilities Management team, the site looks shabby and untidy. As a result, the patient and staff experience is negatively impacted and the overall working environment is not conducive to the delivery of high quality care. The negative effect of the estate on the patients overall feeling of wellbeing is often commented upon by patient groups and Governors, as well as being identified more formally within national patient and staff surveys. The quality of the environment throughout the hospital is poor in many areas. Some departments have been recently renovated but this has the unfortunate effect in making the older parts of the hospital appear even worse.

2.5.2 Current Estate Issues

The overall quality across the existing estate is compromised by:

- Small clinical rooms - many of the departments fail to comply with Health Building Note (HBN) guidance with regards to the size of rooms relative to the function carried out within them, making areas cramped and potentially unsafe

- Poor storage capacity within clinical areas
- Suboptimal clinical adjacencies and external routes between buildings
- Poor circulation which leads to compromised flows of patients, staff, visitors, goods in and waste out
- Poor building structures with a number of modular and temporary buildings on site, which are old and challenging to maintain or to develop to support new or enhanced services

The hospital regularly experiences infrastructure and /or general estate failures. Over the last few years these incidents have included a loss of mains power for 2 days, a loss of heating to half the wards and departments for a week during mid-winter, and a number of other major failures, such as drain and sewerage problems, leaking roofs, ventilation plant failures and out of service lifts between four floors of the maternity block. Not only do such failures cost a great deal to remedy, but they also have far reaching effects on patient care and, at times, patient safety along with staff morale and operational efficiency.

The cost of running the L&D hospital site is sub optimal due to the challenges of maintaining an ageing heating and ventilation system; the use of portable heating and air conditioning units; and poor insulation of buildings. The hospital is a long way off achieving targets to reduce carbon emissions.

2.5.3 Backlog Maintenance and 6 Facet Survey (2020)

A full six facet survey was carried out in March 2018 which identified many concerns for the hospital and provided a baseline for generating a number of priorities for this scheme. A follow up desktop exercise was completed in March 2020. The estimated total investment to bring the Trust estate up to a satisfactory condition as per NHS Estate code has been assessed to be £91m. The majority of this cost is driven by statutory compliance and remedial works. The breakdown of the estimated investment is shown below.

Building	£11,425,680
M&E	£14,731,854
Statutory	£17,720,856
Fire Safety	£2,503,199
Backlog Total Cost	£46,381,589

Table 2.6: 6 Face Survey- Total remedial work required for the building, M&E, statutory and fire elements

Building	£5,750,608
M&E	£6,684,373
Statutory	£0
Fire Safety	£0
Backlog Total Cost	£12,434,981

Table 2.7: 6 Facet Survey- Condition future planning costs for future maintenance works (5 years)

Total combined cost	£58,816,570
Total combined cost with on costs*	£90,577,518

*contingency, fees, prelims, profit, VAT

Table 2.8: 6- Facet Survey Total combined cost

Significant investment is required in the areas of:

- External building fabric;
- Existing water distribution systems to protect against Legionella;
- Electrical resilience;
- Temperature control and Ventilation; and
- Compliance with statutory recommendations in respect of key building services

The 6-facet survey does not address the costs required to bring the estate to a level of compliance with current standards of functionality.

2.5.4 Premises Assurance Model (PAM)

NHS 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 evaluating NHS estates and facilities

- Measuring performance against a common set of questions and metrics
- Prioritising investment decisions to raise standards in the most advantageous way

The NHS PAM supports Boards, clinical leaders and directors of finance and estates to make more informed decisions on the development of their estates and facilities services.

The Estates department will utilise the NHS PAM and self-assessment questions/process to assess the level of compliance and governance models currently in place and develop a single model and action plan. The teams are currently reviewing the PAM models to review Policies and Procedures and will use the PAM structure moving forward.

2.5.5 Energy

The L&D is currently an outlier within its peer group in respect of energy consumption. The steam heating system on the site was decommissioned in the 1990s and replaced by a decentralised arrangement with over 70 gas boilers provided in a number of plant rooms across the site. These are now in urgent need of replacement. Upgrades to the building management system are also required.

The L&D decided in 2016 to pursue procurement of an Energy Services Partner to develop proposals for the upgrade of the energy services on the site. Centrica Business Solutions Ltd (CBS) were selected as the Preferred Partner in 2018 following a procurement run through the Essentia framework. CBS have worked with the L&D to develop a proposal based on provision of a CHP plant, new centralised boilers, an upgrade of the lighting system and a number of energy saving measures linked to plant and control systems. The proposal will deliver energy savings of over £900,000 per year. The Trust will deliver a new Energy Centre building to support the Energy Saving Measures to be delivered by CBS, as well as the new standby generators required to deliver N+1 cover to the whole site.

The new energy centre supports the energy requirements of the site, including new

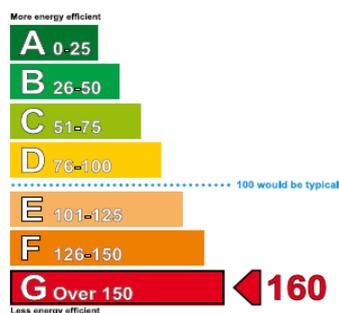
developments on the site and is a key enabler to any elements of new build. The energy centre is part of a separate business case approved by the Trust.

a. Energy Performance

The energy performance of the site is poor which is due to a number of factors including old and poorly insulated buildings, obsolete decentralised gas boilers, and leaking and poorly insulated heating mains. Energy performance is therefore poor with operation of the estate being inefficient and costly. The Display Energy Certification (DEC) is shown in figures 2.2- 2.4 for three of the main clinical buildings at the L&D.

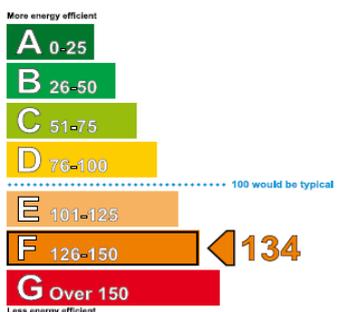
b. Energy consumption

The energy performance of the L&D site based on the 2019 ERIC return data is poor, with energy performance mainly in category D.



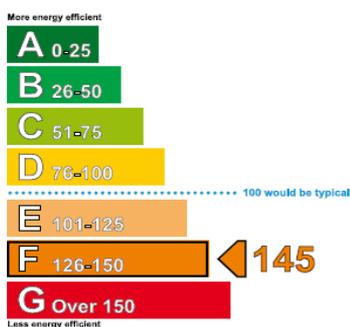
	Heating	Electricity
Annual Energy Use (kWh/m ² /year)	397	217
Typical Energy Use (kWh/m ² /year)	378	90
Energy from renewables	0%	0%

Figure 2.2: Surgical Block Energy Performance Operational Rating 2019/20



	Heating	Electricity
Annual Energy Use (kWh/m ² /year)	235	217
Typical Energy Use (kWh/m ² /year)	378 *	90
Energy from renewables	0%	0%

Figure 2.3: Medical Block Energy Performance Operational Rating 2019/20



	Heating	Electricity
Annual Energy Use (kWh/m ² /year)	300	217
Typical Energy Use (kWh/m ² /year)	378	90
Energy from renewables	0%	0%

Figure 2.4: Maternity Block Energy Performance Operational Rating 2019/20

2.5.6 Current Infrastructure Capabilities

a. Heating

The site currently takes a decentralised approach to heat generation with numerous low pressure hot water (LPHW) systems around the site, each utilising multiple gas fired boilers. None of the boiler plant across the site is dual fuel therefore there is no fuel resilience. The heating systems are in general contemporary with the buildings they serve and there are significant maintenance challenges due to plant age and obsolescence. There are approximately 70 boiler modules on site including very small boilers serving individual buildings.

At present the site heating load is in the region of 7032 kW which will be expected to reach 7585kW after the construction of the new acute service block and medical ward block. This relatively small increase will be due to the new energy centre being installed and the centralisation of the heating services providing efficient and resilient plant.

b. Steam

The steam boiler plant consists of two shell and tube boilers. Steam is distributed to the Sterile Services and Endoscopy Decontamination units. Within these two buildings the total load is made up by six autoclaves, Air Handling Units, heating and hot water. The steam boiler plant is in moderate condition with burner and control upgrades within the past ten years to extend the serviceable life of the plant.

New efficient steam generators replacing these shell and tube boilers in 2020/21 will be installed by CBS. On installation, the Sterile Services and Endoscopy Decontamination departments will become stand alone in terms of steam supply supported by the most energy efficient mode of operation.

c. Cooling

Cooling on site is supplied by a mixture of water cooled chillers and gas DX systems. There has been a past trend to install split AC units across site.

There are currently 350 split units in use. This is hugely inefficient and utilises critical electrical infrastructure capacity.

With the installation of the new Combined Heat and Power (CHP) system within the new energy centre planned for 2020/21, there will be the opportunity to use the waste heat from the unit to run a heat absorption chiller. This, along with a new planned centralised chilled water network, will allow the Trust to significantly lower energy usage and consequentially, ensure sustainability and a reduced carbon footprint.

d. Water Service and Drainage

The site has multiple outfalls to the public sewerage network. The site is currently served by three raw water services which feed into a centralised water treatment and distribution system which is then pumped to remote tanks for local distribution. The water treatment consists of salt water softening and silver copper ionisation.

As part of the design and survey work for the site redevelopment, the Trust will continue to consult with local bodies to ensure there is adequate capacity in the surrounding public sewer systems. The proposed development does not impose a significant change in load into the local sewerage system.

e. Medical Gases

The medical gas network consists of a mixture of centralised storage plant such as the Vacuum insulated evaporator (VIE) for oxygen storage, and decentralised plant for medical air systems. The VIE was upgraded in 2016 and currently is able to meet the Trusts day to day needs at a flow rate of 2250 litres per minute. The supply is backed up by a reserve VIE which can give 3 days back up supply at normal daily usage.

This 'business as usual' requirement has been challenged recently (March/April 2020) due to the Covid-19 response and the requirement to provide increased medical gas flow to patient areas.

f. Electrical Distribution

The site is served from an 11kVA network owned by EDF Energy which provides a secure supply via fully dual rated separate incoming supply cables from different HV networks. In 2008, the authorised electrical supply capacity was circa 1.3MVA against an actual site maximum demand of 2.3MVA. The Trust therefore agreed an increased supply capacity of 3MVA with EDF in 2013. This was the maximum supply capacity at the time that could be provided to the site without network reinforcement works. The Trust's current recorded maximum demand, as of February 2015 was 2.4MVA.

The site's private HV ring is sized for 6MVA and is arranged on an open ring basis, owned and maintained by the Trust, distributing to eight substations. The major risk to the Trust is currently associated with substation B which has a statutory embargo on the switches and can only be operated by the district network operator. This will be re-provided in the Trust's new Energy Centre.

The Trust have self funded an electrical infrastructure capital scheme at a cost of £7.5m between 2019-2020. The upgrading of the sites electrical infrastructure is a critical issue and provides the ability to support redevelopment of the site. The capital programme of improvement removes a significant amount of backlog maintenance and corporate risk. The electrical network has been designed to serve the current and future plans for the site. As part of these works an application is being progressed with UKPN to upgrade the electrical incoming supplies.

g. Standby Electrical Generation

The electrical distribution network is supported by generators which support about 70% of the sites essential electrical services. Electrical load shedding is currently undertaken via the BMS and manual operation. New standby generators have

been procured as part of the HV electrical upgrade programme to provide 100% electrical back up to the site on a N+1 basis in line with best practice.

h. Natural Gas

There are 11 incoming utility metered low pressure gas supplies to the site plus the dedicated meter to the PFI building, St Marys Wing. In general, the gas mains throughout the site are buried and/or routed externally on the façade/roof of buildings.

The new energy centre will require a new medium pressure gas service to support the boilers. Once the energy centre is completed, the majority of the existing supplies will be shut down as the new medium pressure supply to the energy centre will be providing a centralised solution to the site.

2.5.7 Model Hospital and ERIC data

The Model Hospital tool is one of the digital information services provided by NHSE/I which is designed to help NHS providers improve their productivity and efficiency.

The Model Hospital tool utilises Trust's ERIC return input data to allow Trusts to compare their estates and facilities performance in terms of cost efficiency, productivity and quality and safety, against a chosen peer group of similarly sized / located Trusts in terms of the Peer Median and Benchmark values.

The Tool presents figures for 2018/19 and provides trends for the preceding years starting from 2014/15.

The reported estates and facilities ERIC costs for the L&D are presented in figures 2.5 and 2.6. The national NHS ERIC return data is publicly available at <https://digital.nhs.uk/data-and-information/publications/statistical/estates-returns-information-collection/england-2018-19>

Estates & Facilities cost (£ per m2)

In the variation charts, trusts may show as green despite having a higher cost than trusts showing as red. This is because the red and green shading refers to performance against a trust type benchmark rather than a national median. For further information search for 'Estates and Facilities benchmarks' using the question mark icon.

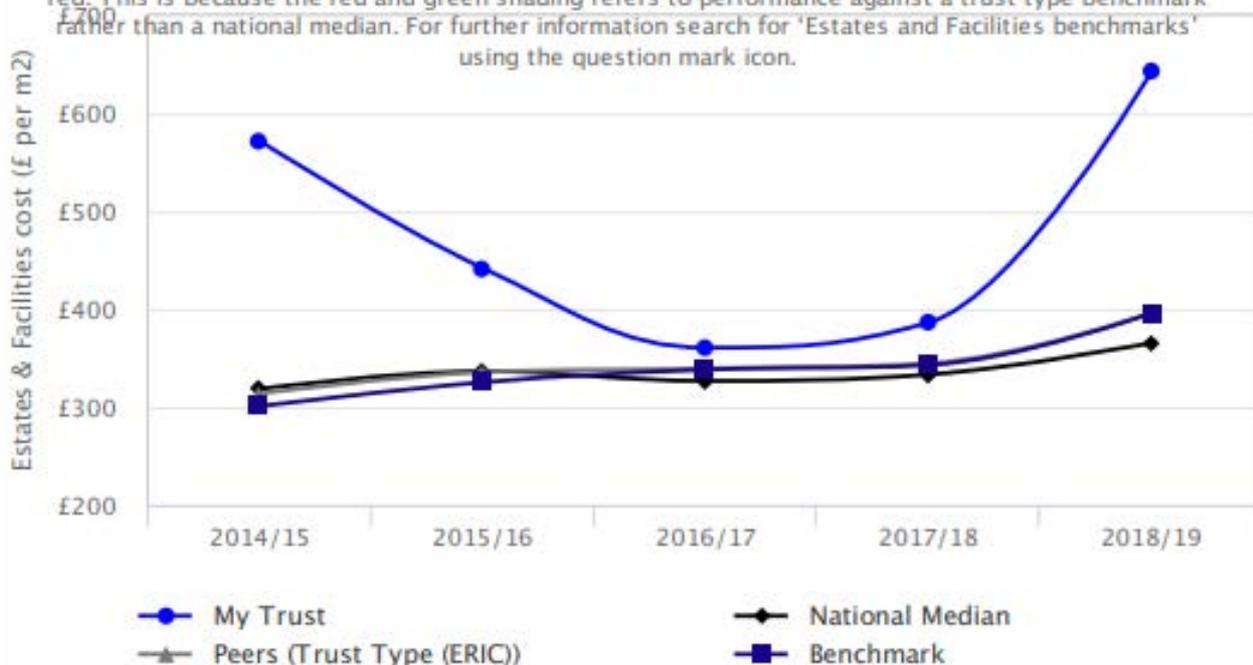


Figure 2.5: L&D Estates and Facilities cost per m2 (ERIC)

Estates & Facilities cost (£ per WAU)

In the variation charts trusts may show as green despite having a higher cost than trusts showing as red. This is because the red and green shading refers to performance against a trust type benchmark rather than a national median. For further information search for 'Estates and Facilities benchmarks' using the question mark icon.

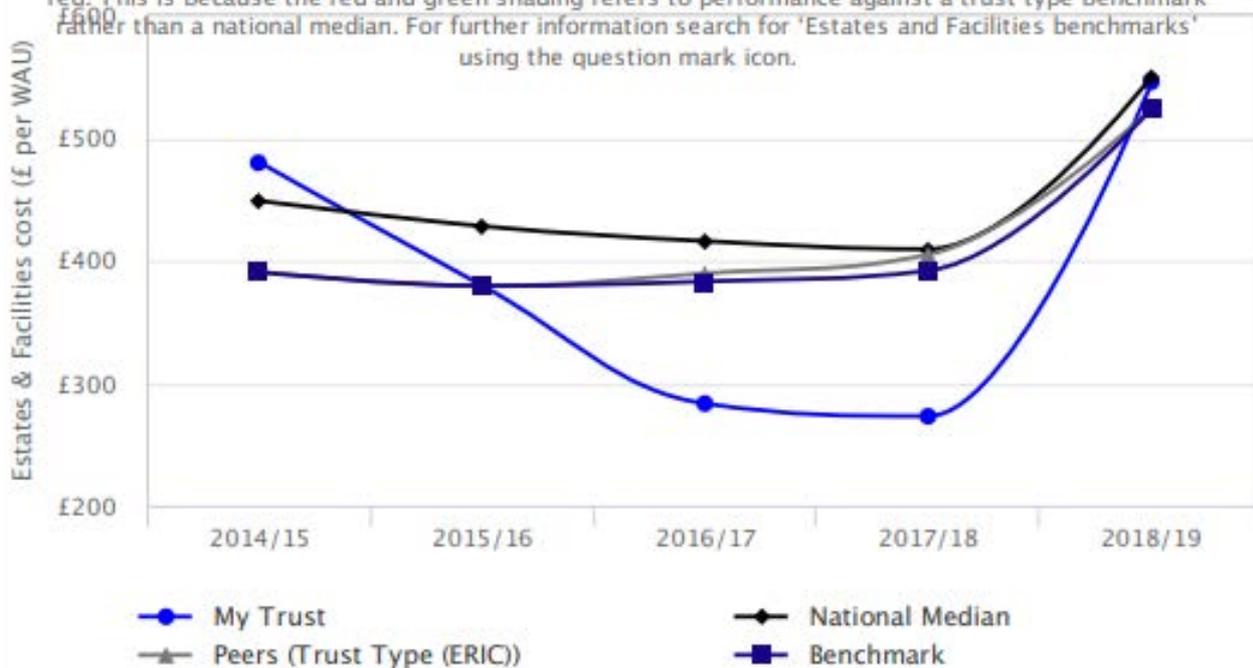


Figure 2.6: L&D Hospital Model Cost per weighted activity unit (WAU)

2.5.8 Patient Led Assessment of the Care Environment (PLACE)

Patient Led Assessment of the Care Environment (PLACE) is an annual assessment of the non-clinical aspects of the patient environment, how it supports patients' privacy and dignity and its suitability for patients with specific needs e.g. disability or dementia. The PLACE assessment tool provides a framework for assessing quality against common guidelines and standards defined by professional healthcare service delivery organisations and field experts. The environment is

assessed using a number of questions depending on the services provided by the faculty.

The L&D estate poses a challenge against good performance in the PLACE inspection. In the 2019 assessment, the L&D scored the same or better than national averages on four headings and slightly less than national average on four headings. The L&D scored below national average on cleanliness, reflecting the difficulty in maintaining old buildings. The L&D scored below average on privacy and dignity, and at average on Dementia.

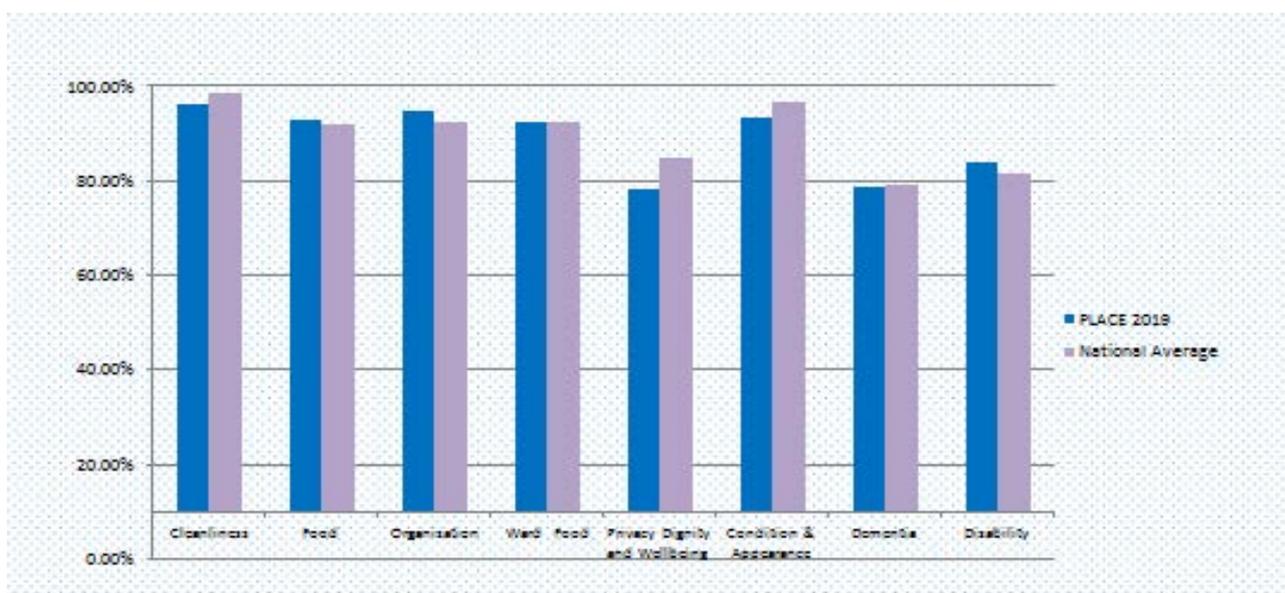


Figure 2.7: L&D Place Score 2019 against National Average

The L&D score was also below national average on condition and appearance reflecting the age of the estate, and particularly the wards. Many of these issues will be resolved through redevelopment of the site.

2.5.9 Fire compliance

Compliance with current fire regulations is a key issue at the L&D, as with many other hospitals of a similar age and condition. The Trust has taken a number of steps to address the issue on the site:

1. It has completed an upgrade of all of the local fire panels on the site. The fire safety system

can now be interrogated at any panel.

2. The fire alarm sounders have now been upgraded to meet current requirements
3. A full survey of fire compartmentation across the site was completed in 2019. This identified a number of areas where remedial works were required. A procurement exercise was completed based on the schedule of works identified by the survey. A contractor has now been appointed to implement the work. Progress is currently determined by the availability of parts of the site during the current Covid-19 pandemic.

The L&D has a good working relationship with the Bedfordshire Fire and Rescue Service. Discussions on fire safety issues take place on a regular basis. The Redevelopment team have retained OFR Consultants Ltd to develop fire strategy documents for all of the major construction activity planned on the site. OFR are actively involved in reviewing the development of the design proposals within this OBC.

2.5.10 Sustainability and Carbon Zero

The Trust are committed to reducing the carbon footprint across the entire site and are putting plans in place to demonstrate a sound and proactive strategy to reaching 'zero carbon' to align with the wider NHS commitments.

The first steps will be to update the Sustainability

Development Plan to capture the new central energy centre and other planned site wide energy performance initiatives. This will set the benchmark to progress the development of a 5-10 year sustainability action plan. The action plan will capture;

- Behaviour
- Efficiency
- Renewables
- Innovation
- Zero carbon

The diagram below shows a phased approach in how the Trust will move from their current carbon position to a carbon zero position.

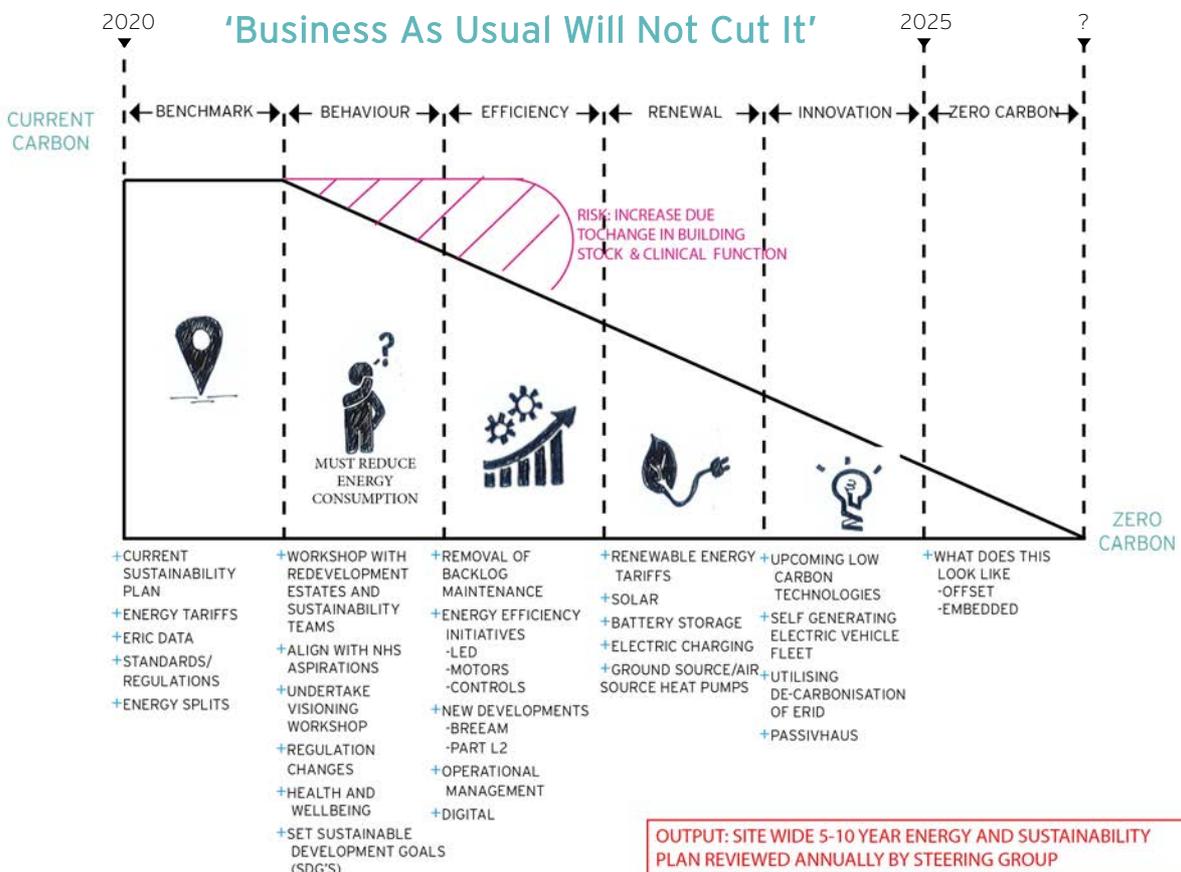


Figure 2.8: Carbon Zero High Level Plan

A major factor in working towards carbon neutral will be the construction of the ASB and NWB. These buildings will introduce highly serviced clinical facilities, in replacement of lower serviced accommodation. The new buildings therefore have the potential to increase energy demand and carbon usage.

Recognising the potential negative impacts of highly serviced buildings, the Trust adopted a sustainable approach in the design for the ASB and NWB using the following energy strategies;

- Be lean: Use less energy (efficient building design and building services)
- Be clean: Supply energy efficiently (utilise combined heat and power plant (CHP) or district heating and cooling)
- Be green: Use renewable technologies

Every effort will be made throughout the lifetime of the project to reduce energy demand as set out in the energy and sustainability policy document. It should be recognised however that due to the specialist nature of the highly serviced clinical facilities being developed in accordance with HTMs, there are a number of governing factors which make this extremely challenging to achieve.

The redevelopment includes the construction of a five storey clinical block (ASB) and a three storey clinical block (NWB).

This ASB will accommodate a delivery suite with operating theatres, critical care, neonatal intensive care and operating theatre facilities and associated cutting edge medical technologies. Large air volumes and cooling will be required to maintain cleanliness for infectious control, as well as defined temperatures for the clinical procedures to be carried out and specialist medical equipment to operate.

The NWB will accommodate inpatient bed facilities and support accommodation and by comparison to the ASB, will have a reduced energy demand. Nonetheless, due to its close proximity to the road, it is likely to be a sealed building and therefore require full mechanical ventilation.

The project 'extra lean' design will implement high efficiency plant and U-values that aim to be better than current Building Regulations. However, the building will still have a significantly higher energy demand compared to other types of properties such as schools/hotels/offices etc.

The project team will focus on the 'clean' aspects that could be applied to the project to address sustainable energy and heat policies. The new buildings will link into the new centralised energy centre to provide renewable and/or, low carbon energy generation and heat technology.

This strategy is based on current construction requirements. It is, however, anticipated that due to the rapid decarbonisation of the National Grid, lowering of carbon emission factors for electricity is imminent, and something already reflected for domestic buildings.

The 55% reduction in carbon emissions from electricity means direct electric heating systems will produce virtually the same CO2 emissions as gas, with heat pump systems being even more favourable. This will be closely monitored as the Trust move forward through the design process.

Another impact of lowering the carbon emission factors is the reduction in benefit it has on carbon reduction measures, such as CHP. Whilst the above changes have not yet been reflected in the Building Regulation assessments that apply to the redevelopment (non-domestic buildings), the two will be aligned as the design is progressed throughout the full business case (FBC) development.

At this stage, the Trust will continue to look for solutions that deliver and align with the current regulations, favouring the incorporation of a gas fired CHP as part of the new energy centre, to efficiently supply energy to the building, to achieve the planning policy targets.

Consideration to other 'green' renewable technologies such as photovoltaics, will be reviewed as part of the Low Zero Carbon report. Based on design team experiences elsewhere, it is predicted that any schemes introduced would generate approximately 1-2% renewable saving.

The engineering services design strategy will support the following:

- Removal of backlog maintenance
- HTM compliance where achievable.
- Improved resilience
- Improved energy performance
- Adoption of latest proven technology
- Enhanced environments for staff, patients and visitors

2.5.11 Capital Schemes supporting the redevelopment of the L&D

The Trust have invested in a dedicated redevelopment office since 2015. Despite significant investment from the capital programme, there are still significant risks and issues that the estate presents on a daily basis. The Trust is fully committed to improving the estate and has spent time and resource on addressing capital requirements. There has been a robust programme of capital investment into the hospital estate over the last 5 years. All of the schemes carried out on the site align to the Development Control Plan for

the site and the Trust's 5 year strategy.

The majority of capital schemes at the L&D have been delivered on time and to budget within the scope of the project. Some projects have been impacted by backlog maintenance issues, which the Board have often agreed to resolve at the time of funding by pulling forward aspects of the backlog programme. These issues have impacted on the scope and thus, extended the programme and cost. Implications of change have been well understood, discussed and accounted for. All capital developments at the Trust have led to qualitative improvements to patients, and importantly, have either improved patient access, patient experience, and/or patient outcomes.

Additionally, developments have led to service efficiencies in support of the wider health economy. Patient and staff feedback from capital developments has been extremely positive.

During 2015/16 the Trust secured an ITFF loan of £19.9m. This was used to fund enabling schemes that directly supported the Trust strategy and redevelopment of the L&D. Table 2.9 gives an overview of the capital developments over the last 5 years and their funding source.

Capital development	Year	Funding source
ED expansion to develop Ambulatory Care Unit	2015	Trust
Corridor improvement works	2015	Trust
Medical Wards x2	2015-2016	ITFF
Day Unit	2016	ITFF
Therapies Hub	2016	ITFF
10 bed haemato-oncology ward	2017	ITFF
Community Hub: Orthopaedic Hub and MSK	2015	ITFF
Operating theatres x2	2017	ITFF
Interim improvements to NICU	2017	Trust
Hospital Mortuary (increase capacity and replace EOL equipment)	2017	Trust
Expansion of the OMFS and Orthodontic unit	2017	Trust
Community Hubs: Arndale House: LSH, Dermatology, Phlebotomy	2018	Trust
Operating theatres x2	2019	Trust
Endoscopy Decontamination Unit	2018-2019	Trust
Electrical Infrastructure Upgrade	2019-2020	Trust
Energy centre	2020	Trust

Table 2.9: L&D capital developments 2015-2020 plus funding source

Moving forward, the Trust has committed to build an energy centre in 2020 to provide modern infrastructure and resilience across the site, replacing the ageing boiler plant and heating systems. The Trust has also embarked on a programme to utilise more energy efficient lighting, reduce the number of electrically heated temporary buildings and improve insulation.

2.5.12 Development Control Plan

The L&D is currently one of the best performing hospitals in the country. It operates, however, from a site which is crumbling, with many facilities in need of immediate replacement in order to comply with current standards and maintain performance ratings. There is an urgent requirement to address the ageing estate which presents daily risks; tackle capacity constraints and find a different way of providing healthcare in response to the national healthcare challenge. The condition of the estate and supporting infrastructure are key risks for the Trust, which impact patient care and patient outcomes on a daily basis. The backlog

maintenance programme for the Trust is £91m.

Maintaining suboptimal facilities is an inefficient use of public funds, and directly contravenes the Health Infrastructure Plan (2019), the Bedford Luton Milton Keynes (BLMK) STP strategic plan and the learning from both the Naylor (2017) and Carter reviews (2016). The L&D aspire to be at the cutting edge of healthcare, providing highly effective, safe and efficient care to patients, in a sustainable environment.

Ultimately the L&D estate requires rebuilding and bringing up to current standards and this will be phased over a number of years.

a. Phase 1 - Delivery by 2023

The first phase in what will be an ongoing journey of development will see a substantial improvement in the hospital estate to provide efficient, compliant and safe clinical accommodation for acute services by the end of 2023. This is the preferred option for this OBC.

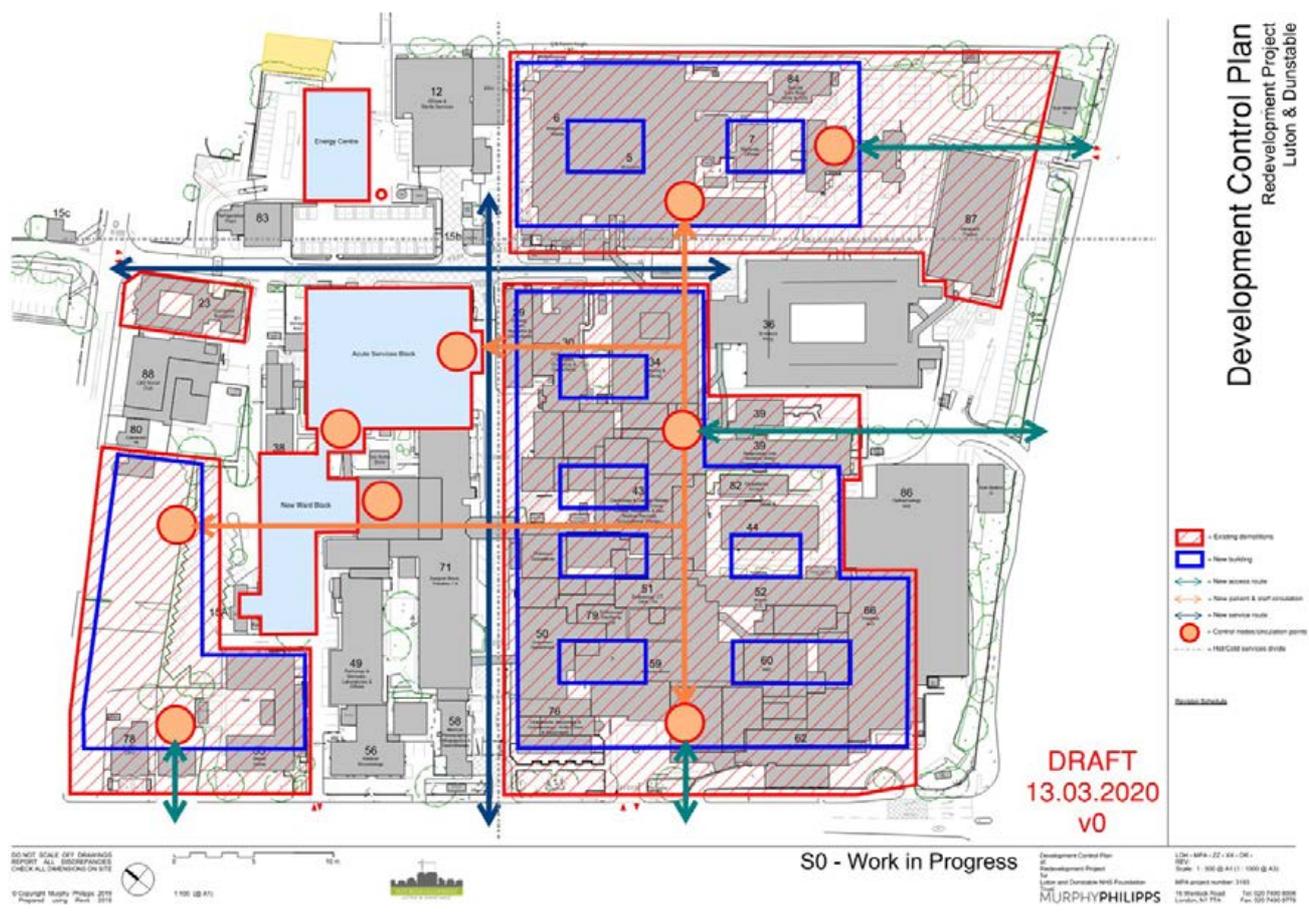


Figure 2.9: Development Control Plan, agreed by the Programme Team March 2020

b. Phase 2 - Delivery by 2027

Phase 1 delivers a significant improvement for the L&D site and acts as a catalyst and enabler for phase 2 of the redevelopment.

Phase 2 of the Hospital redevelopment is planned from 2025 onwards, and focusses on the refurbishment of the Medical Wards. In addition, the condition of the Emergency Department will need to be addressed. This may involve construction of a new facility. Work to the existing Medical Block (built in 1962) will have an additional impact on the backlog maintenance programme.

The vacated maternity ward block from phase 1 would provide decant ward space to support a significant programme of backlog maintenance across the wards on the ageing hospital site. This provides an opportunity to further address the significant and high-risk backlog maintenance issues across the site, with an opportunity to further reduce backlog by £33m. This is 36% of the current (2018 6 facet survey) £91m backlog programme at the hospital.

c. Phase 3 - Delivery by 2030

Phase 3 of the development control plan will address the issues of outpatient configuration across the site. The development space earmarked for this lies within the heart of the hospital, in the myriad of old buildings with poor infrastructure and suboptimal facilities and poor clinical adjacencies.

The Development Control Plan has been designed in such a way as to accommodate future programmes of development across the L&D site. Primarily, the DCP focusses on maximising clinical adjacencies and patient flow around the hospital. Phase 1 of the development has been fully thought through and future proofed to align with phase 2 of the redevelopment - ensuring good links between clinical departments and sensible patient flows.

2.5.13 Demolition

National strategy defined in the Naylor review (2017) is reflected in the Trusts local estates strategy which aims to proactively maintain assets and reduce backlog maintenance. Across the L&D site this is challenging and a key requirement across the site is to replace infrastructure which is no longer cost effective to maintain.

Many of the buildings from the 1930s and many of the old modular buildings across the estate can no longer be effectively maintained. To support the estates strategy, and recognising that the site is space constrained, a number of buildings across the site will be demolished to make way for new healthcare buildings. The drawing below shows the demolition across the site that will take place to support the redevelopment programme.

Site demolition will remove some of highest risk estate and eliminate a significant amount of backlog maintenance.

This OBC concentrates on Phase 1 of the redevelopment. The drawing below shows the buildings that will be demolished to make way for the new healthcare buildings described in this OBC (outlined in orange) and the buildings that will be vacated that can be demolished in phase 2 of the redevelopment (outlined in red).

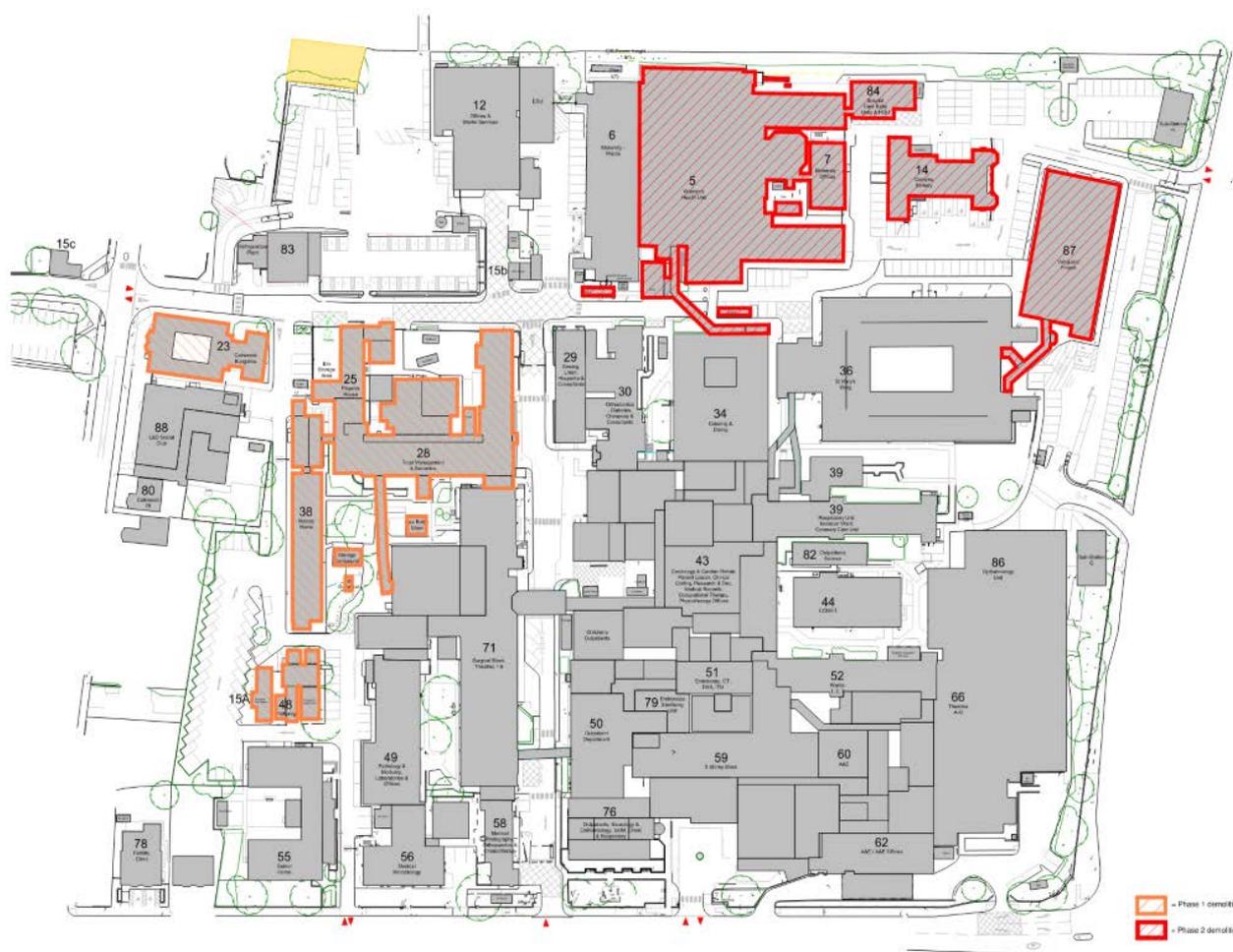


Figure 2.10: Phase 1 and Phase 2 site demolition plan

2.5.14 Disposal of Land

The hospital was built in 1936 on a large area of land purchased from the Electrolux Company. The site lies mid-way between the centres of Luton and Dunstable. At the time of construction, there was no residential development within the surrounding area. Housing started to appear when the hospital was opened by Queen Mary in February 1938.

The L&D is bounded by Dunstable Road, Lewsey Road, Calnwood Road and Farringdon Road. The site was originally occupied by the General Hospital, accessed from Lewsey Road, and the Maternity Hospital, accessed from Dunstable Road. The activities of both hospitals were merged in the 1960s.

The hospital also owned a similar sized plot of land to the north of the main site (the North Site) bounded by Lewsey Road, Lime Avenue, Farringdon Road and Calnwood Road. This was given over to staff accommodation and support activities.

There was a significant amount of residential development around the site in the 1950s. The Trust owned a number of houses on Farringdon Road, Calnwood Road and Lewsey Road which were on the main sites. These were used for staff accommodation.

There was a major reconfiguration of the estate during the 1990s.

1. The residential accommodation on Farringdon Road which was on the main site was sold
2. A major part of the North Site was transferred to the Mental Health Trust to provide for construction of the Luton & Central Bedfordshire Mental Health Unit. A part of the main site was also used for construction of the acute mental health ward
3. In 2003 the Trust entered into a PFI type arrangement with Servite Housing Association (now Optivo Housing Association) to take over

responsibility for the development and operation of residential accommodation for the Trust. Land on the North Site was transferred to enable construction of three blocks of flats and some housing. In addition, the Trusts existing stock of housing was transferred, including a residential block for Doctors that stands on the main site. All of the property transfers are governed by 125 year leases. The Trust has the right to buy back the residential properties at Open Market Value.

The remaining area on the North site, between the Optivo accommodation and the Mental Health Trust, is used to provide for staff and visitor car parking.

The main site is now completely constrained by residential development and the main Luton to Dunstable dual carriageway (A505). The steady increase in the demand for car parking, common across many hospital sites, has driven the Trust to the following:

1. Existing parking on the main site is being lost in the face of development pressure
2. Two of the main staff car parks have been provided with modular decking to deliver increased capacity
3. Two areas of land close to the hospital have been leased to provide additional parking capacity, primarily for staff
4. A key element within the current redevelopment programme is to provide a Multi Storey Car Park (MSCP) on the main visitor car park. To deliver this, the car park will need to be closed for six months.
5. A temporary car park is planned on vacant residential land on Dunstable Road. This is being obtained under a short term lease. The relocation of staff parking to this site will enable the re-provision of visitor parking
6. The Trust is pursuing proposals for a long-term lease on a site to the south of the hospital which could provide for construction of a substantial MSCP for staff parking. This would release space for more patient and visitor parking adjacent to the site.
7. Future redevelopment plans may require the purchase of existing residential accommodation

on the main site to free up access for redevelopment.

In summary, the Trust operates from a very constrained site, with no opportunity for future development without the need for demolition of existing buildings. It is actively considering the purchase of adjoining residential property, whenever this comes to market, in order to protect its position with future development on the main site. The historical decisions in respect of disposal of land have left the Trust in a position where the only option for disposal would be on the basis that the hospital was being moved to a new site.

2.5.15 Capital Plan and Available Funding

The L&D estate requires rebuilding and bringing up to current standards and this will be phased over a number of years. The first phase in what will be an ongoing journey of development will see a substantial improvement in the hospital estate to provide efficient, compliant and safe clinical accommodation for acute services by 2023.

The L&D were given an allocation of £99.5m in August 2019 to build an ASB (including £11.6m for IT and Pathology integration costs to support the FBC for the merger of the L&D and BHT). This was based on the wave 4 STP capital bid in July 2018. The Trust re-established their design team and governance framework and commenced the development of the OBC.

The scheme costs have been updated and the most recent cost estimate of external funding required is £118m.

The business case process has allowed the Trust to re-visit all of the options. The conclusion of this work is that whilst the original option delivers the key scheme objectives, there is another option which gives a much improved and more functional scheme that also unlocks the potential for further development of the site. In this preferred option for phase 1, the Trust proposes a five storey ASB and a three storey New Ward Block (NWB). The NWB would allow the Trust to fully decant the existing maternity building, maximising clinical adjacencies across maternity and neonatal services. The preferred option requires central support of £150m.

The vacated maternity wards would provide decant ward space to support a significant programme of refurbishment of ward areas across the ageing hospital. This provides an opportunity to further address the significant and high-risk backlog maintenance issues, with an opportunity to further reduce backlog by £33m. This is 36% of the current backlog at the hospital.

2.6 IM&T Strategy

The digital vision for the Trust, held in the two hospitals, has developed in line with national goals and drivers as well as recognition that the role of digitisation is fundamentally important to enable the new ways in which the organisation can work.

The national direction for digital strategy has placed an emphasis on local implementation through Local Digital Roadmaps (LDRs). The main national initiative focusing on digitising hospitals is the Global Digital Exemplar programme. Both the L&D and Bedford hospital have been actively involved in the GDE programme. Alignment with the ICS Digital strategy is an important element in the local GDE programme planning, and the Trust has a central role as digital integrator for the ICS shared care record developments.

The L&D has a high level of digitisation and a track record of IT enabled transformational change. This was recognised in the L&D being awarded GDE status and a planned programme of work to achieve specific GDE milestones and take the L&D to HIMMS Level 7 by December 2020, the end of the 3.5 year programme. Bedford Hospital was approved as a GDE Fast Follower (to Luton) to accelerate the pace of developing digital maturity with the goal of reaching HIMMS level 5 by the end of their programme (June 2021).

It is recognised that Digital underpins all clinical and operational services and is a key enabler for clinical integration and transformation. The Digital goals are to further improve patient safety and service efficiency through increasingly paperless care processes.

The Trust also has a key role in working with ICS partners to implement wider shared care records

and support integrated service developments.

By building on the GDE Programme and the merger planning progress, the Trust will ensure that the opportunities presented by Digital bring transformational benefits to patients, staff and citizens.

Strategic plans are under development to underpin the digital aspects of the proposed redevelopment. The objective of the IT work stream is to ensure integration of digital infrastructure and systems with proper due diligence and consideration. The digital strategy will work to ensure the safety of patients and operational efficiency on day one. The digital plans must also ensure that clinical and business critical systems are integrated effectively to enable the Trust to operate efficiently and support the wider integration of clinical services.

The digital vision for the new organisation is:

- To improve and maintain patient safety through capture, access to, and utilisation of integrated patient information; supporting risk identification and alerts, and proactive clinical decision support.
- To provide a digital experience for staff which is seamless; where access to information and use of systems is uniform and of high quality across the new organisation, regardless of role, location or site, and service or department.
- To support the process of cultural integration, for example by prioritising Trustwide email and unified processes around interaction with digital services.
- To deliver financial benefits through rationalisation of IT systems as a by-product of streamlining the applications estate.
- To support clinical services and business support services in their realisation of efficiency benefits by providing the integrated digital systems and processes which are needed for service innovation and reconfiguration.
- To enable an experience for patients which reflects a single seamless organisation; which provides clear, prompt and effective communications, services able to be delivered

flexibility to meet patient needs and preferences, and which provides patients with 'user-friendly' access to their health records and information about their care.

- To achieve digital excellence across the new organisation, with all the benefits implied for patients, staff and services.
- To support the ongoing ICS developments and to continue to play a leading part in the transformation of the wider health and social care economy.

With regard to information governance, the goal is to have a single set of policies and processes to support IG across the whole organisation; dealing with all formats of information and records in full compliance with legislation and best practice.

It is recognised that digital vision and goals will need to be revisited as the new organisation and the wider ICS develops.

2.7 Workforce Strategy

Staff at the L&D are the most valuable asset when it comes to delivering a high quality, safe and efficient service to patients. Staff have been essential to the strategic planning of the redevelopment and will be critical during the construction and commissioning phase of the project. A significant level of planning will be required to move teams, assets and patients into the new hospital buildings.

The redevelopment of the L&D brings with it a clear opportunity to engage with staff, who are very supportive of the redevelopment of the site. By improving the general environment in which staff work and the facilities that they work from, they are supported to provide the very best care.

Proposals to redevelop the hospital estate have been an enabler to stimulating discussion amongst clinical teams to look at opportunities that may arise to redesign care pathways and the workforce. Since 2014, the Trust has held bi-annual staff engagement events. These events provide an opportunity to thank staff for their hard work and contribution to patient care, to hear feedback about the Trust's current direction and the future plans of the L&D. The

redevelopment proposals have been shared at staff engagement events on a regular basis. Additionally, since 2015, there have been a significant number of communication events with staff to discuss key issues facing their service and the patients they care for. These issues have been captured during detailed user group meetings with clinicians, to directly inform the design of the proposed development.

There are 4145 staff that work at the L&D. The ratio of BME to White staff is 38.92%: 57.59% (with 3.49% not declared). Step change increases in activity and workforce requirements are not assumed in this business case. The financial case reflects the opportunity to address workforce challenges through the redevelopment, particularly in critical care and theatres as the current set up across the estate requires an inefficient staffing model to provide care and maintain flow of patients through the hospital. A significant number of efficiency savings can be attributed to these areas.

Associated activity-related staff costs are anticipated to be offset by marginal profits from demographic growth, procurement savings and additional staffing cost improvement plans per year. Please refer to the financial case for further detail.

For the full business case, work will be presented which examines workforce implications in detail and a coordinated effort to recruit, train and retain staff will be implemented.

2.8 Equality Diversity and Human Rights (EDHR)

The Trust is committed to considering how its strategies, plans, procedures, policies, projects and decisions will affect or impact patients, carers, communities, employees and other stakeholders, particularly with regard to the needs of individuals and groups who are captured in the nine protected characteristics and also to key areas of health inequalities such as rural versus urban, or socio-economic considerations. The commitment includes engaging with, consulting and involving service users, staff and other stakeholders.

Equality and Diversity is pivotal to all projects involving decisions or change, particularly those that present an opportunity to do things differently. In writing this OBC, there has been a clear review of current risks managed across the hospital including those which may impact negatively on equality and diversity and how these may be managed.

The Trust's Redevelopment Programme Team have worked closely with accessibility experts, the Equality and Diversity Lead, and stakeholders during the development of this OBC and will continue to do so during the detailed planning and construction phases. The Trust have aimed to identify positive and negative impacts. Where negative effects have been identified, balanced steps have been and will continue to be taken to address this to ensure access to Trust services and employment is equal, fair and inclusive to all and does not disadvantage or discriminate.

Since equality analysis must start when ideas form and cannot be applied retrospectively, the redevelopment project has undergone equality analysis from the earliest planning and this will continue throughout its ongoing life cycle of implementation/review as change is evolutionary and without stasis.

The workforce and service are increasingly diverse with multiple needs. This means making equality considerations part of day-to-day life and of business as usual. Best practice will be utilised in terms of design, interior design and landscaping to ensure the needs of all are considered and wherever feasible catered for not merely to meet DDA compliance but to enhance the facilities for all users. Service users, patients, staff and local residents have been consulted as part of the overall communication and engagement strategy and throughout the planning phases.

The Equality Impact Assessment was updated in December 2019 to reflect the scope of the preferred option and can be found in Appendix 2. Impact assessments will be carried out for each project that makes up the redevelopment programme, and development of these assessments will form part of the terms of reference for the work streams.

2.9 Existing site arrangements

2.9.1 Overview

The Trust has worked hard over recent years to dedicate a sizeable amount of capital funds to maintaining business as usual, through investment in infrastructure and maintenance, as defined by the 6-facet survey. This investment has provided some additional capacity to support demand, such as investment in new operating theatres or medical wards, but has not addressed the fundamental issue that many of the buildings are significantly beyond their shelf life, and can no longer be maintained effectively.

The backlog maintenance programme for the Trust, underpinned by the 6-facet survey, sits at £91m as of March 2020 and maintaining suboptimal facilities is an inefficient use of public funds. This directly contravenes the national strategy around estates, and specifically the BLMK ICS, which aspires to be at the cutting edge of healthcare, providing highly effective, safe and efficient care to patients, in a sustainable environment.

To survive in the future, urgent investment is required at the L&D to support a rebuild that targets the highest risk areas, currently presenting problems in terms of the design, infrastructure and capacity. Most of the key problems are in clinically acute areas of the Trust. These are areas that require complex services and facilities to care for the sickest or riskiest of patients.

2.9.2 Business needs - L&D Capital Priorities

The L&D recognises that a complete redevelopment of the hospital is required. The Trust is, however, realistic about the affordability challenge as well as the organisation's ability to deliver such a large development on a space constrained site whilst operating a live hospital. With this in mind, the redevelopment of the site will be phased. The phasing of the whole site redevelopment is described in section 2.5.12, Development Control Plan (DCP).

The DCP describes the first phase of development as a strategy to address the highest clinical risk areas. These are the areas that present the greatest risk in terms of the efficient maintenance of the estate (reference 6 facet survey and Carter Model Hospital), and the ability to provide safe, high quality clinical care. These areas include the following facilities;

- Maternity
- Neonatal
- Critical Care
- Theatres and day care

The risks within each of the four clinical services are described below;

a. Maternity

Maternity services are spread out in a number of buildings, connected by both public internal walkways and external walkways. The illustration below shows the patient journey through maternity.

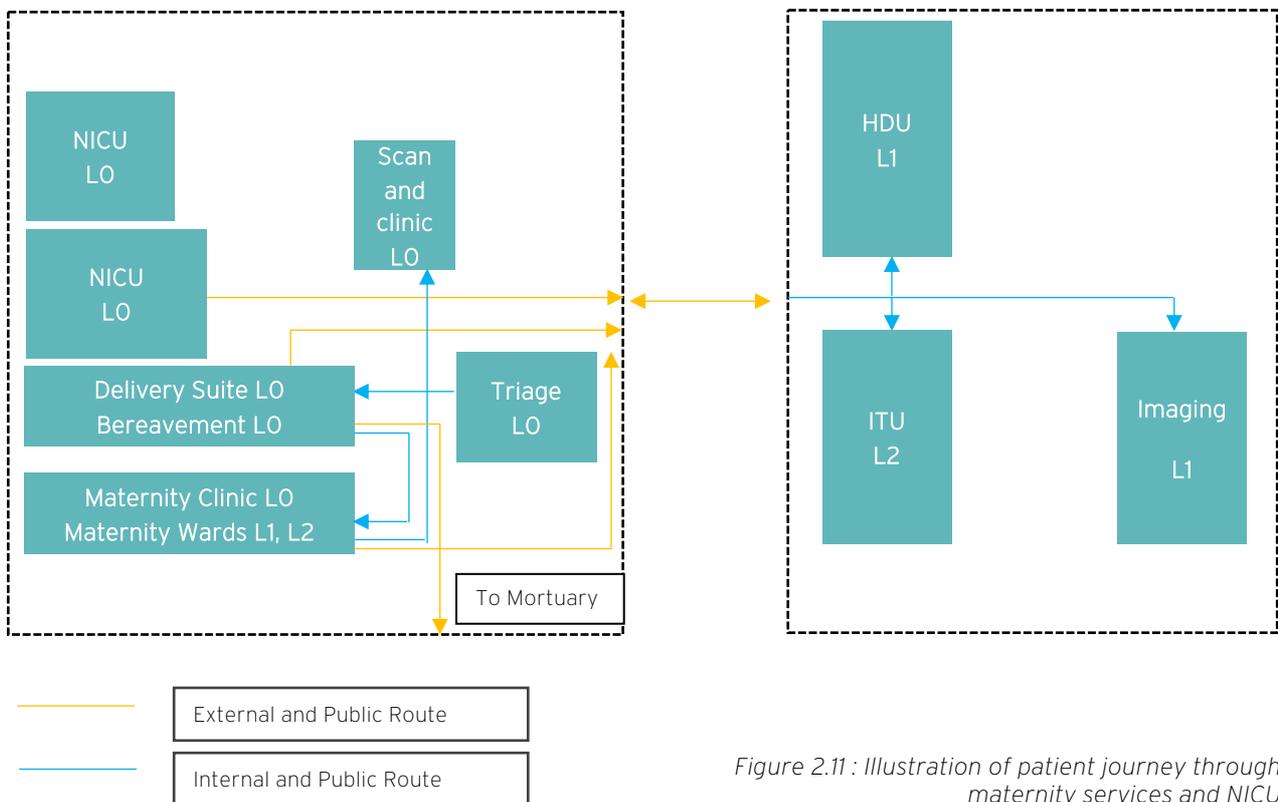


Figure 2.11 : Illustration of patient journey through maternity services and NICU

The maternity service at the L&D deliver 5,200 babies per year and cares for more than 6,000 women antenatally, and similar numbers postnatally. The department are working hard to deliver the Better Births Strategy but face two key challenges: the recruitment and retention of midwifery staff, and a poor estate which does not support current capacity and functional requirements, or a good patient or staff experience.

There are regular incidents within the maternity service due to the failing estate. These include ventilation failures, heating failures, sewage leaks into clinical areas, and the temporary closure of theatres due to urgent maintenance, and temporary water outage.

Accommodation within maternity does not comply with current space and environmental standards.

The delivery suite rooms have extremely poor ventilation which presents an infection control hazard and an extremely poor patient experience for mothers during labour. Some of the rooms on the delivery suite do not benefit from en-suite facilities and women have to traverse the corridor in labour to use these facilities.

The two operating theatres are old and the ability to safely maintain these becomes increasingly challenging, particularly from an operational perspective as emergency C-sections cannot be carried out safely anywhere else in the hospital. Advice from large maternity units in the UK is that at the current birth rate and with the increase in acuity of women, there is now insufficient obstetric theatre capacity to meet current demand, and therefore these facilities need to be replaced. The environment presents significant challenges for

healthcare staff to care for birthing mothers and to maintain the facility.

The maternity block is linked to the main hospital buildings via an external corridor, which is also a public corridor. This presents huge dignity and privacy issues for patients needing to access main theatres, imaging, or the intensive care unit.

There is one dedicated bereavement room on the delivery suite. This is in the middle of the general delivery suite, with poor facilities and poor acoustic protection. This presents significant issues of privacy and compassion, and creates a very difficult experience for families birthing in these rooms. For babies taken to the mortuary, this is via an external route, across the site, via public footpaths and corridors and is an extremely undignified and difficult journey for families and staff.

Department	2016/17	2017/18	2018/2019	Growth (%)
Births	5363	5240	5231	-0.2
Neonatal admissions	2643	2556	2855	11.7

Table 2.10: Number of births per annum and neonatal admissions

Table 2.10 shows that the birth rate over a three year period has been static in the area.

Although birth numbers have remained relatively static, the acuity of Mothers has increased and the C-Section rate has increased by 8% in recent years to 32%. This has increased the demand on inpatient services for surgery and for overnight stay. This in turn has driven an increased demand for neonatal services.

b. Neonatal Services

The Neonatal intensive care unit at the L&D provides a service to the most premature and critically ill new born babies across the whole of Bedfordshire and Hertfordshire. The national direction of travel for Neonatal Intensive Care Units (NICU) is for the delivery of care closer to home, whilst ensuring that level three neonatal units are large enough to accommodate babies who need specialist care. The ability to offer transitional care and repatriation, so that mothers and babies can receive dedicated care together,

are also important considerations for NICU services. The birth rate in the local area is increasing marginally and this, alongside developments in medicine and technology, mean that the requirements for neonatal care will be greater in the future than it is now.

The current NICU does not comply with current space and environmental standards. The space between cots is inadequate, increasing the risk of spread of infection and also allowing little space for medical equipment and parents. The neonatal unit is partly housed in a temporary environment since 2018 that is not ideal; cot spaces are cramped and also prove challenging for patients and clinicians. The nurseries have extremely poor ventilation which presents an infection control hazard. Additionally, the environment is old and shabby and presents an extremely poor experience for parents who are visiting or staying with their babies, many of whom they have just given birth to, and may be critically ill.

The route to NICU for Mothers on the postnatal ward is a long and convoluted one, which requires Mothers to walk a long way after giving birth, via a public corridor. Mothers on a bed cannot be wheeled into NICU due to a lack of space, and wheelchairs present a challenge as there is limited space to wheel a Mother through the unit.

For a small number of babies that require imaging (CT and MRI), these babies are wheeled via internal and external, public corridors across the site.

Furthermore, there is insufficient parental accommodation on the unit which means that the vast majority of parents cannot stay with their babies who are critically ill. The lack of space impacts the ability of parents to bond with their babies. The environment presents significant challenges for healthcare staff to care for these vulnerable babies, and therefore the current NICU facilities need to be replaced.

Department	2016/17	2017/18	2018/2019	Growth (%)
Neonatal admissions	2643	2556	2855	11.7

Table 2.11: Neonatal admissions per annum

The data above reflects the changing pattern of neonatal medicine. As Mothers get more acute, admissions to the NICU increase, and as neonatal medicine evolves, the care that can be offered to babies born prematurely expands.

The chart below describes the changing pattern of level 3 neonatal transfers into the unit, broken down by in utero and ex utero transfers, and the number of transitional care days. There was a change in transitional care protocol in 2019 which increased the requirement for transitional care.

	Number of in-utero transferred in babies	Number of ex-utero transferred in babies	Transitional Care Days
2017	31	21	1169
2018	66	5	1098
2019	56	8	2641

Table 2.12: In utero and ex utero transfers into the L&D NICU

The new neonatal unit will be designed with additional cot capacity to support demand and provide a level of future proofing.

c. Critical Care

The critical care facilities on the site are under-sized and lack capacity to meet current demand. The current arrangement of services offered in critical care is not fit for purpose. The current High Dependency Unit (HDU) is housed in a temporary environment that is not ideal; bed spaces are cramped and prove challenging for patients and clinicians. The intensive care unit (ICU) is housed in an extension to the original hospital building and does not comply with current functional

requirements, particularly in respect of ventilation. The ICU and HDU are on different floors which impose difficulties as patients have to be wheeled via public corridors and lifts to move between the two units.

The split location of these two units challenges staffing levels and skill mixing and presents an inefficient staffing model in an area where specialist staff are in demand nationally. This split arrangement also results in the movement of the very sickest of patients from ward to ward via public corridors. Due to the arrangement of critical care services at L&D, current clinical practices relating to national guidance, cannot be effectively delivered.

The number of patients admitted to critical care has not changed significantly over the last three years, but the composition of patients has. There are now more medical patients admitted to critical care who are sicker and stay longer. There are now

less surgical patients admitted to critical care, as surgical techniques have advanced and become less invasive, thus requiring less critical care support.

Department	2016/17	2017/18	2018/2019	Growth (%)
All Critical Care activity	942	952	917	-3.7

Table 2.13: Critical Care Activity

d. Operating theatres

Since 2010/11, the L&D have significantly changed and improved clinical practice relating to day surgery performance, improving from 62% utilisation to 80% utilisation since 2014/15. However, the condition and design of the existing

facilities makes further improvement impossible. Surgery is carried out in five different locations across the site. This leads to significant inefficiencies in terms of staffing and physical resourcing of these theatres, and compromises patient safety and clinical care.

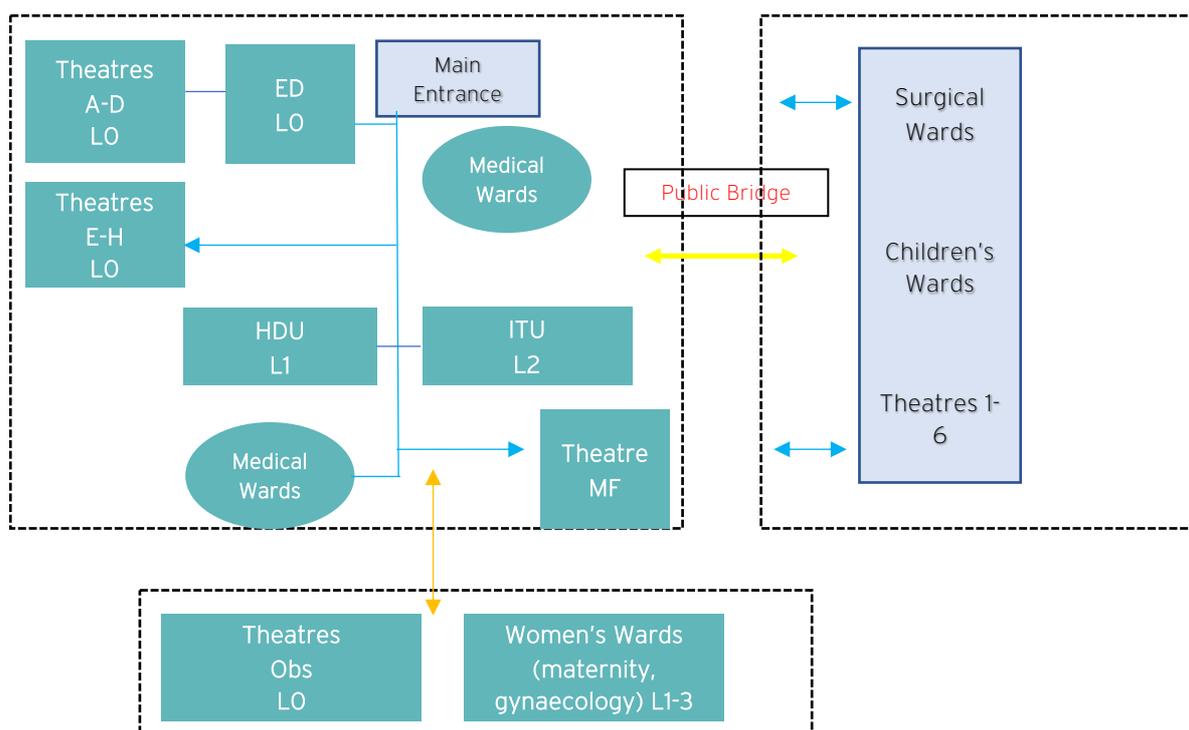


Figure 2.12: Illustration of patient journey through surgery

The hospital opened four temporary theatres as a short term solution to capacity problems 28 years ago. These theatres are no longer fit for purpose and now require substantial investment to address functionality and maintenance shortfalls. The two Maternity theatres, also delivered as temporary structures 26 years ago, are no longer fit for purpose. The hospital opened a further two

temporary operating theatres in 2016, and two operating theatres at the end of 2019 to support flow. Whilst activity has been maintained and waiting lists have arguably been improved by the recent investment, these theatres have negatively impacted service efficiency and patient flow has been poor and not conducive to high quality, efficient care.

Additional operating theatres will be required, due to an increasing demand for surgery arising from demographic changes, the development and repatriation of some tertiary services, potential

changes in the provision of vascular services, anticipated changes to market share and changes in medical technology.

Department	2016/17	2017/18	2018/2019	Growth (%)
Elective surgery spells (adults)	20487	20879	22396	7.3
Emergency surgery spells (adults)	9791	11292	12138	7.5
Elective surgery spells (paeds)	1921	1738	1869	7.5
Emergency surgery spells (paeds)	1407	1444	1460	1.1

Table 2.14: Surgical Activity

As seen by table 2.14, growth in elective and emergency surgery has seen unprecedented demand.

e. Office Accommodation

Office accommodation has become a priority for capital planning for two reasons. Firstly the poor quality of existing office space, and secondly, the current Trust offices occupy land earmarked for the development site. A capital scheme has been developed for a temporary office block which will be funded by the Trust as a key enabling scheme to the redevelopment programme.

The Trust offices building was constructed in the 1930s and was once nurse's accommodation. This has now been re-purposed to provide cellular offices. There is significant backlog maintenance on the building and the infrastructure does not allow for effective maintenance or development. Cellular offices are not considered within the organisation to be conducive to multi-disciplinary team working or information sharing.

Additionally, there are a significant number of offices occupying space adjacent to clinical accommodation, which would be better suited to provide clinical support space.

The current Trust offices (Trust HQ) occupy a part of the site earmarked for demolition to make way for the new development of the L&D. Provision of alternative office accommodation will become a key enabling scheme, funded by the Trust, to support the redevelopment of the site.

f. Car Parking

Development on the site will need to be supported

by measures to address the current issues with car parking for both staff, patients and carers. A capital scheme has been developed against a budget of £5m which will be funded by the Trust to create additional car parking in 2020.

Staff members, visitors and patients can all access the hospital by a range of transport modes. The hospital is well served by local bus routes, including the recently opened Dunstable-Luton Busway, which can be accessed via a short walk from the hospital. Walking and cycling facilities in the surrounding area are good, supporting local journeys to the hospital. Cycling facilities are further enhanced by the Busway, which offers a dedicated, safe, well maintained route for staff and visitors to cycle to/from the hospital.

Within the hospital the internal pedestrian/cycle networks are in poor condition with a number of convoluted routes between hospital plots/buildings.

The limited number of parking spaces provided at the key Lewsey Road visitor/patient car park generates delay and queueing along Lewsey Road for cars, buses and emergency vehicles when vehicles queue to access the full car park throughout the day.

A site audit was conducted on 4th December 2019 to assess the existing parking provision at the hospital, which was deemed to be grossly insufficient. Parking is a key theme of formal and informal complaints received by the Trust.

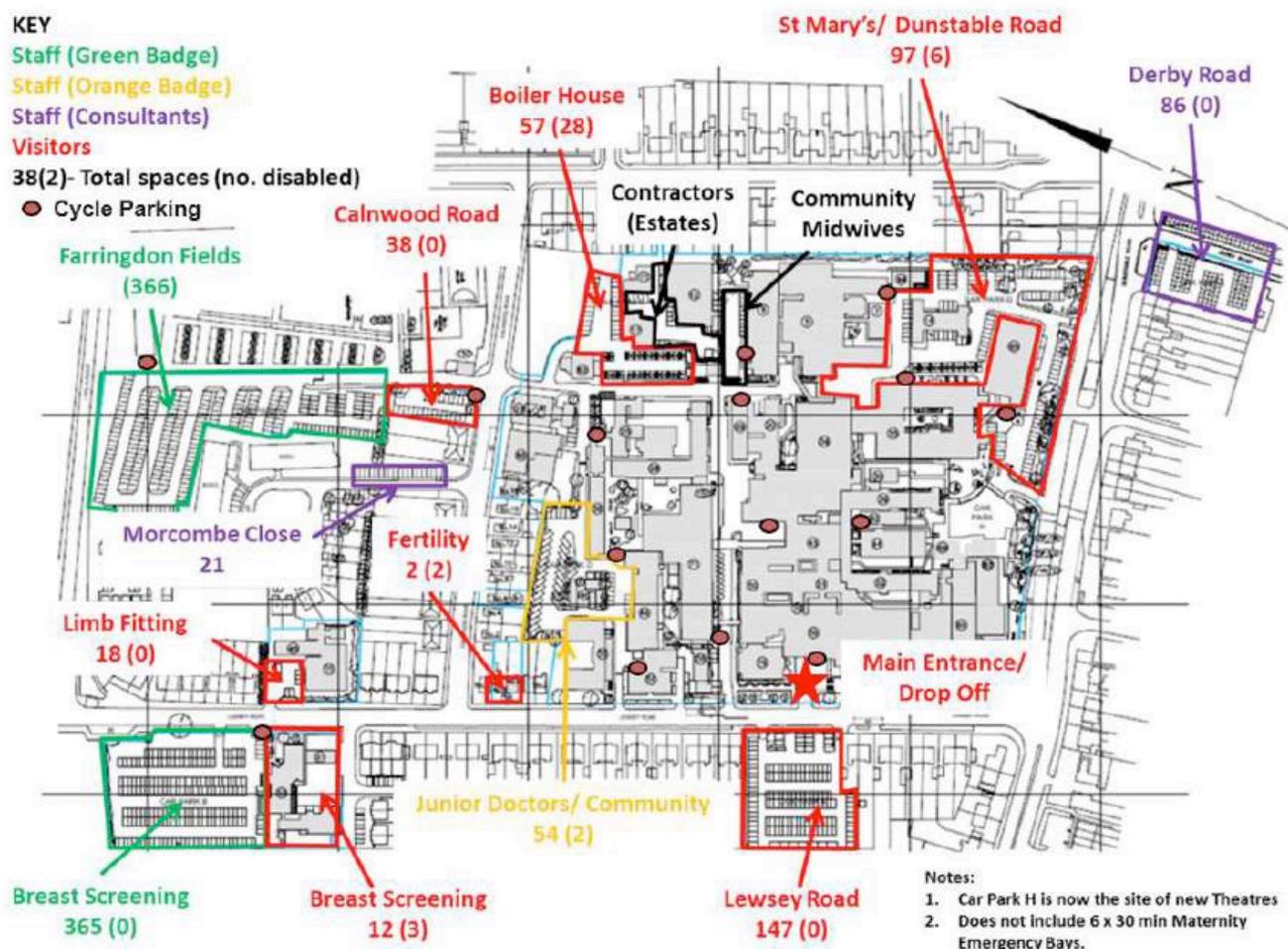


Figure 2.13: Location of car and cycle parking across the site

There are currently 1,263 parking spaces across the site associated with the Trust: 371 visitor spaces; 107 Consultant spaces; 785 staff spaces. Of these 41 (or 3% of the total) are for disabled parking.

A Parking and Access Strategy was initially produced in 2015, and updated in January 2020. The concluding recommendation of this strategy was that total car parking should increase to c. 1,600 spaces (1,100 staff and 500 patient/visitors including 70 disabled) in order to meet assessed demand.

2.9.3 Business As Usual (BAU)

If the Trust continued to operate a Business As Usual estate strategy, this would require an increased level of funding to maintain the site, and a programme of standalone capital developments to address the urgent estate issues. This is described in the finance case.

Assuming that central funding cannot be sought, and the Trust must use its own cash reserves, a £25m capital scheme would be self funded. This would be used to create a new critical care unit as this is agreed to present the highest clinical risk across the estate. The BAU described here is reflected in the economic chapter of this business case.

Notwithstanding the risk associated with self funding (e.g. diversion of funds away from other programmes of development e.g. capital equipment replacement and service innovation), the risk of developing the site in an ad hoc way, in response to major estates risks, contravenes the development control plan and the national estates strategies, limiting efficient clinical adjacencies and patient flows.

2.10 Project scope

The Trust proposes a five storey ASB and a three storey NWB.

The NWB would allow the Trust to maximise clinical adjacencies across maternity and neonatal services. Importantly, the new ward block allows the Trust to decant the existing maternity wards

into the new footprint, subsequently paving the way for the next phase of the hospital's redevelopment.

The preferred option is planned to be delivered over 2.5 years and will see the first phase of the redevelopment of the hospital concluded by the end of 2023.

2.10.1 Functional Content

Functional content of ASB	Capacity
Maternity Delivery Suite	<ul style="list-style-type: none"> ▪ 18 delivery rooms <ul style="list-style-type: none"> - 10 obstetric led - 6 midwifery led - 2 bereavement rooms ▪ 3 obstetric theatres with a 7 bed close monitoring and recovery bay ▪ 4 bed high risk induction bay with en-suite facility ▪ Access to a private courtyard/garden to support mobilisation in labour
Critical Care	<ul style="list-style-type: none"> ▪ 22 bed Critical Care Unit (beds flexed to support Level 2 and Level 3 Care)
Neonatal Unit	<ul style="list-style-type: none"> ▪ 42 cot spaces <ul style="list-style-type: none"> - 18 ITU cots - 24 HDU/SCBU cots (support flexing as capacity requires) ▪ 10 bed transitional care (support flexing as capacity requires) <ul style="list-style-type: none"> - 8 transitional care beds - 2 rooming in rooms ▪ Bereavement suite ▪ Access to 3 additional parental rooms (in addition to the 8 parental rooms on site)
Theatre Support	<ul style="list-style-type: none"> ▪ Theatre Reception ▪ 32 Pods (side rooms) <ul style="list-style-type: none"> - En-suite facilities to bays - Pods support admission/wait/change/recovery - Pod design provides male/female and adult/adolescent/child segregation
Theatres	<ul style="list-style-type: none"> ▪ 8 operating theatres <ul style="list-style-type: none"> - 6 general theatres - 2 hybrid theatres ▪ 21 bed first stage recovery

Table 2.15: Functional content of Acute Services Block (ASB)

Functional Content of NWB	Capacity
Maternity Entrance, Reception and Assessment	<ul style="list-style-type: none"> ▪ Maternity Reception ▪ 6 bed Decision Admission Unit ▪ 6 bed Triage Unit ▪ Clinical support space including shared staff rest, changing facilities and clinical storage
Maternity Wards	<ul style="list-style-type: none"> ▪ 2 wards with 40 beds <ul style="list-style-type: none"> - 20 antenatal beds - 20 postnatal beds - Wards designed to flex as capacity requires, accommodation supports antenatal and postnatal

Table 2.16: Functional content of New Ward Block (NWB)

2.10.2 Enabling Schemes within the scope of this OBC

A number of enabling schemes are required to unlock the site and pave the way for the redevelopment. These enabling schemes are on the critical path, and are being funded by the Trust:

- **Car park:** Car parking for patients, visitors and staff is a critical issue for the L&D. There is a substantial shortfall in capacity which leads to problems with parking in residential areas. These issues are escalated to the Council on a regular basis. Consent for works on the site will be conditional on the Trust's commitment to increase parking provision. The existing surface car park opposite the main entrance will be converted into a multi-storey car park
- **Offices:** The Trust will build an office block for clinical and support teams on the site, to open at the end of 2020. The new office block will support the relocation of staff from Trust HQ, which is the site of the proposed ASB and NWB.
- **Relocation of the Bariatric Service:** The bariatric service will be transferred to new facilities alongside the existing orthopaedic centre, provided in an off-site community hub.

2.11 Capital schemes outside of the scope of this OBC

A number of enabling schemes have been required over recent years to pave the way for the site redevelopment. These have been managed and funded by the Trust and are listed within the Estates Strategy earlier in this chapter.

The following enabling scheme is being funded by the Trust and whilst outside of the scope of this OBC, directly supports the proposed development of the site;

- **Energy Centre:** The Trust ran a procurement during 2018 to identify a partner to develop new power and heating systems which would enable the site to address its energy consumption and provide the resilience required to maintain activity on the site in the event of failures within the local utility networks. Centrica Business

Systems were appointed in 2019. Work will commence on construction of the new Energy Centre in the summer of 2020 with completion planned for 2021. The energy centre will provide energy to the current site and provide capacity for future developments.

- Capital cost circa £17m

- **Electrical Infrastructure:** major upgrade of the sites primary and secondary electrical distribution system. Project includes increasing the sites incoming electrical capacity, sized to meet future redevelopment plans. Programme of works expected to complete in 2021
- Capital Cost circa £7.5m
- **Basement and Service Duct Asbestos Removal:** major programme of works initiated in 2019 and due to complete summer 2020
- Capital Cost £1.5m

2.12 Benefits and Investment Objectives

2.12.1 Benefits

The scheme benefits were agreed by the Executive Directors at a Benefits Workshop held on the 28th January 2020. The Benefits Register can be found in section 7.14.1 of the management case, these are reflected in the CIA model within the economic chapter. The sections below provide an overview of scheme benefits.

a. Clinical benefits of redeveloping the L&D

Investment in the L&D site will result in a range of clinical and quality benefits, including:

- Achievement of quality and safety standards and improvement in patient experience and outcomes.
- Resolution of the backlog maintenance issues relating to the Delivery Suite, Maternity Wards and Triage, the Neonatal Unit, Critical Care, modular theatres (Theatres A-D) and Trust Headquarters, significantly reducing the risk associated with service delivery and service maintenance.

- The transformation of elective surgery through co-location of 14 operating theatres and the introduction of a “pod” system designed to support day case surgery flow and patient outcomes.
- Flexibility in the design to address the workforce challenges currently being experienced across theatres and critical care through service colocation
- Increased capacity within maternity, neonatal care, surgery and critical care, to accommodate demand
- Improved sustainability and efficiency of services
- Enabling the BLMK STP strategic ambitions and clinical vision.

b. Financial Benefits of redeveloping the L&D

The financial benefits delivered under the preferred option will support the Trust in improving its already strong financial position. The financial benefits identified include:

- Theatre efficiency: Increased theatre capacity

will reduce the need for higher cost weekend and evening working.

- Theatres (staffing synergies): Synergies from co-locating theatres will result in a reduction of co-ordination, arrivals and day surgery, escorting and portering staff.
- Critical care pay efficiency: Economies of scale from combining HDU and ITU into a single unit.
- Additional NICU income: Repatriation of NICU income through increased level 3 capacity.
- Additional critical care income: Patients being cared for in the correct bedded facility, and therefore being chargeable at the correct tariff rate.
- Additional elective surgery income: Additional surgical capacity will accommodate rising demand.

2.12.2 Investment objectives

The scheme’s investment objectives were agreed by the Executive Directors at a Workshop held on the 28th January 2020 to agree benefits and investment objectives.

Objective	Key Deliverable/Scope
1 To maximise space efficiency	Increase bed occupancy levels in NICU, Maternity and Critical Care All births where planned will occur on the delivery suite Decrease wait for Induction of Labour and planned C-Sections Increase theatre utilisation
2 To improve clinical safety and mitigate against clinical risk that the environment presents	Provide facilities in line with HBNs and HTMs that support infection prevention standards Eliminate infection control hazards posed by a substandard clinical environment To provide a safe environment for patients and staff
3 To facilitate the merger with Bedford Hospital	Create a platform from which the BLMK STP strategy can be delivered for the ICS Future-proof the hospital design to support any forthcoming clinical requirements.
4 To eliminate inefficiencies from delivering care across split units	Co-locate high dependency and intensive care bed base to create one combined critical care unit Workforce - Decrease nurse to bed ratio as a result of bringing critical care teams together Reduce number of theatre suites from 5 to no more than 2 Decrease the duplication of ancillary space associated with theatres Bring together maternity assessment, delivery and inpatient services to support workforce efficiencies. E.g. one assessment point and not three, one reception point and not five.
5 To improve clinical quality standards	Decrease theatre cancellations on the day due to either bed or staff shortages Decrease complaints within maternity, NICU, critical care and theatres due to the poor environment Remove all temporary clinical accommodation across the hospital Reduce the hospitals backlog maintenance, specifically the high risk element.
6 To optimise space for clinical and non-clinical administration, management and storage	Move away from cellular offices to open plan, multi-disciplinary offices, to support joined up and more efficient ways of working.

Table 2.17: Investment Objectives

2.13 Corporate Risks

A significant number of high (above 15) corporate risks will be directly mitigated and eliminated by the redevelopment, these include the following risks;

1. Poor quality environment within Theatres, Maternity, and NICU and Critical Care - dampness, holes in walls, poor air quality, non compliant sinks
2. Delivery suite accommodation and capacity - no close monitoring and not enough birthing rooms
3. Lack of temperature control in HDU, and in ITU, maternity and NICU
4. Regular maternity block lift failure from wards to delivery suite

5. Non compliant medical gas store (does not comply with NHS Protect requirements)

A significant number of high (above 15) corporate risks will be directly mitigated and reduced by the redevelopment, these include the following risks;

1. High backlog maintenance impacting clinical outcomes, resilience and efficiency
2. Antenatal scan capacity
3. Elective cancellations due to bed shortages
4. Senior team capacity managing regular estate issues e.g. power outage

The chart below gives a profile of the corporate risks as of 12th March 2020. The data provides a profile of how the proposed redevelopment of the L&D will mitigate corporate risk.

Risk Score	Direct Impact - removes risk	Direct impact - reduces risk	Indirect impact - opportunity to reduce risk	No impact	Total risks by risk score
25	1	1	1	1	4
20	2	3	2	8	15
16	4	0	5	30	39
15	9	0	7	18	34
12	8	11	18	65	102
10	4	2	1	7	14
9	8	6	10	59	83
8	3	3	3	22	31
6	3	1	3	25	32
5	0	0	0	1	1
4	0	0	1	6	7
3	0	1	1	3	5
2	0	0	0	1	1
Total risks	42	28	52	246	368

Table 2.18: Corporate risk profile as of 12th March 2020

33% of corporate risks will be impacted positively by the preferred option for the redevelopment of the hospital. This can be further broken down as follows,

- 11% of corporate risks will be eliminated
- 8% of corporate risks will be reduced
- 14% of corporate risk will have the potential to be reduced

Impact of Redevelopment on Corporate Risk

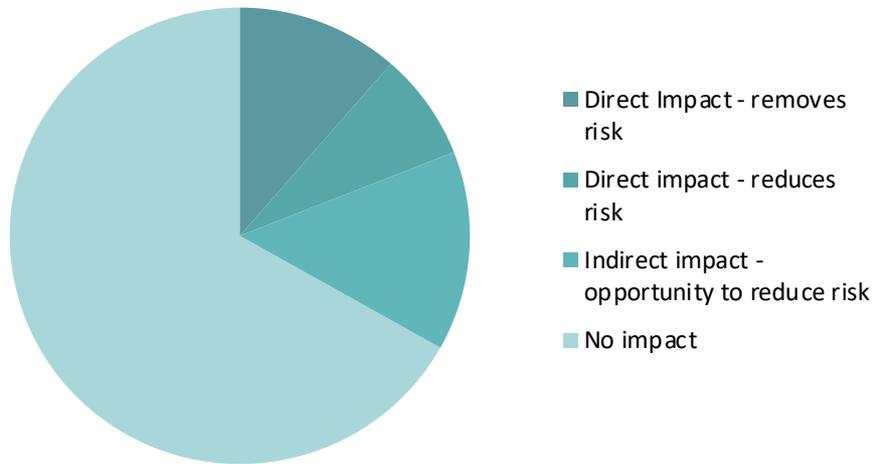


Figure 2.14: Impact of redevelopment on corporate risk

2.14 Constraints

The key constraints to this redevelopment programme are set out in the table below.

Constraint	Description
Maintaining clinical services	The need to maintain all clinical services many on a 24/7 basis during construction
Maintaining access to all areas of the Hospital	The need to maintain access to various parts of the hospital at all times
Ensuring infrastructure resilience	The need to ensure infrastructure resilience throughout the construction and commissioning phases, made more difficult due to the poor condition of the current infrastructure
Maximising car parking	The need to maximise car parking for patients, staff and visitors at all times
Minimising congestion	Increased movement of people on site and traffic due to construction, on an already congested hospital site
Ensuring affordability	The overall economic climate and availability of capital for NHS development at a time when construction prices are rising due to economic recovery making the cost of the scheme higher.
Satisfying the concerns of local residents	The need to respect the local residents during construction by minimising congestion in the local roads that surround the hospital and by minimising noise during construction

Table 2.19: Constraints to the redevelopment programme

2.15 Critical Dependencies

There are a number of critical dependencies to achieve the vision for the development of the hospital. This OBC has progressed and evolved over the years. Collaborative working across the STP for BLMK has provided clarity for the future and strengthened the requirements of this business case.

There is overwhelming public support for this redevelopment. Planning consent was granted by Luton Borough Council at the Development Control Committee on the 25th March 2020. Planning consent was for the main scheme and included the Acute Services Block, the New Ward Block and the Lewsey Road Car Park.

ID	Critical Dependency	Description
1	Funding	A capital allocation of £99.5m was received in August 2019. Discussions are on-going with NHSE/I and the DHSC in respect of funding the £150m required to deliver this development.
2	Enabling Schemes	<ul style="list-style-type: none"> ▪ Car Parking ▪ Offices ▪ Reprovision of bariatric clinic ▪ Coordination with Energy Centre project which is required to be commissioned ahead of the construction of the new buildings.
3	Approvals	Internal and external approvals

Table 2.20: Critical dependencies for the redevelopment programme

2.16 Critical Success Factors (CSFs) and Benefits Criteria

The CSFs for the programme were agreed by the Hospital Redevelopment Board on the 18th December 2019.

CSF	Benefits Criteria
Strategic fit and business need	<ul style="list-style-type: none"> ▪ Aligns with the NHS 5 year forward view ▪ Responds to the Carter Metrics ▪ Aligns with the BLMK STP ▪ Enables the Trusts clinical vision to be realised ▪ Resolution of backlog in the Delivery Suite, Neonatal Unit, Critical Care and old modular theatres, significantly reducing the risks in the delivery of services.
Potential value for money	<ul style="list-style-type: none"> ▪ The scheme supports service efficiencies, decreasing risk and maximising benefits across the health community ▪ The scheme optimises social value by providing major investment into Luton
Supplier capacity and capability	<ul style="list-style-type: none"> ▪ Ensuring at every stage the scheme is attractive to the market
The scheme is affordable to the organisation (revenue and capital)	<ul style="list-style-type: none"> ▪ The scheme is affordable within the £150m central capital funding envelope ▪ The scheme is affordable within the LTFM
Achievability: The scheme is deliverable - there is the required skill set in place to manage, drive and deliver the scheme	<ul style="list-style-type: none"> ▪ The scheme is likely to be delivered given an organisations ability to respond to the changes required ▪ The scheme matches the level of available skills required for successful delivery

Table 2.21: CSF and benefits criteria for the redevelopment programme

2.17 Conclusion of the Strategic Case

A substantial redevelopment of the L&D is required in order to improve the poor quality of the current estate and the clinical risks that this presents.

The site is in poor condition, with many facilities in need of immediate replacement in order to comply with current standards and maintain performance ratings. The condition of the estate and supporting infrastructure are key risks for the Trust, which impact patient care and patient outcomes on a daily basis.

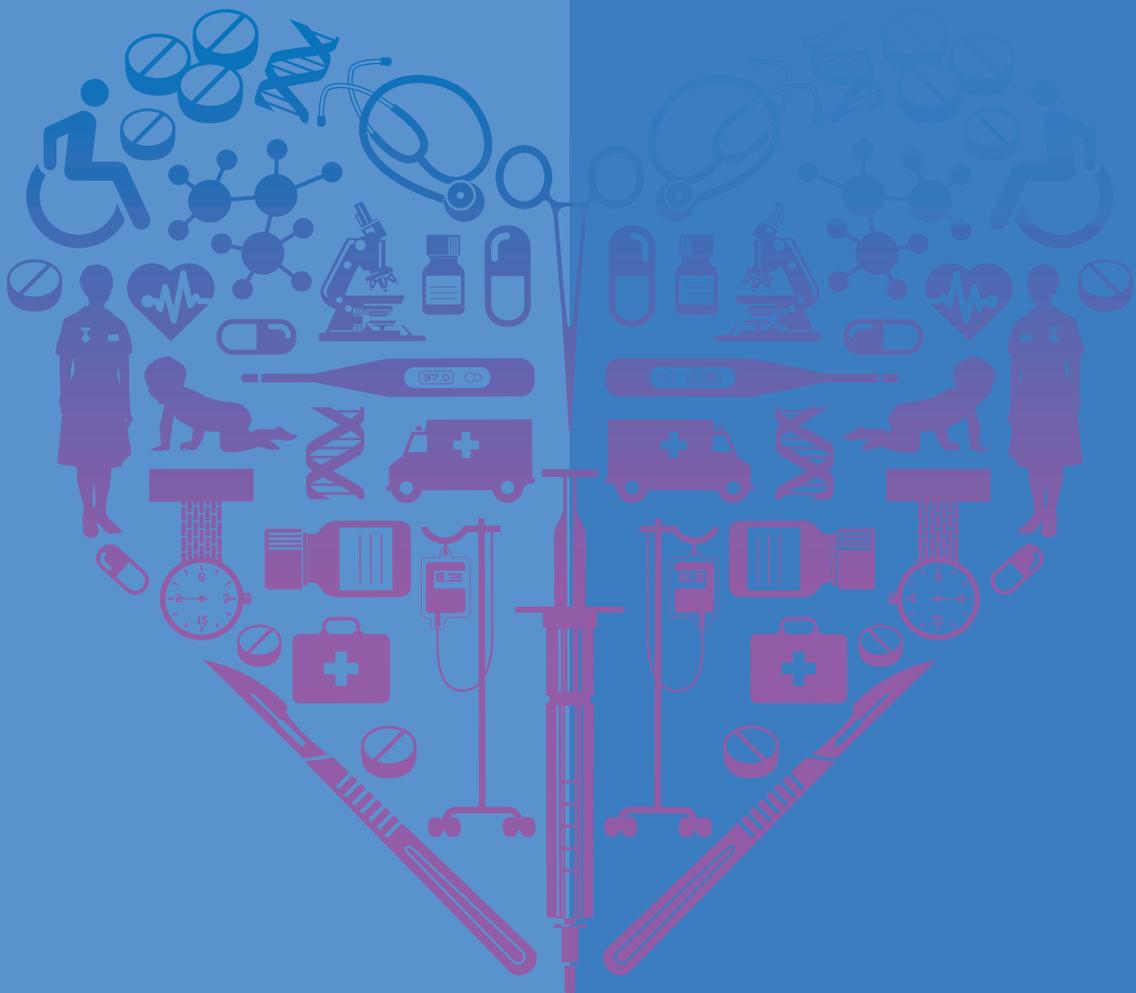
The L&D community is one of the most rapidly growing populations in the country. The community served by the hospital contains a number of local communities of above-average deprivation scores; high (and growing) numbers of very young and very old residents; and cultural diversity. There are chronic workforce shortages in several areas; and sub-scale services. The BLMK STP aims to address this through whole system redesign. The redevelopment of the L&D site forms part of the BLMK STP and is fully supported by the

local community and commissioners. Planning permission for the redevelopment of the L&D was granted by Luton Borough Council on the 25th March 2020.

The strategic ambitions of the redevelopment programme are in line with national policy and ultimately will support higher quality, more efficient and safer patient care.

The proposal to build an ASB and an adjoining NWB would address key estates risks across the Trust. A significant amount of backlog would be removed. Acute facilities would be in compliant accommodation, thus supporting service resilience and improved performance.

Key benefits of the development include an improvement in quality and safety standards for patients and a significant removal of backlog maintenance. The redevelopment, due to complete at the end of 2023, would provide a significantly improved healthcare environment for patients, visitors and staff.



Economic Case Summary

The strategic case described the urgent requirement to redevelop the L&D site and recognised that the estate presented daily challenges to operational efficiency, quality and safety of patient care.

This chapter identifies the preferred option for the urgent redevelopment of the hospital. The programme of works will provide modern, efficient, compliant and safe clinical accommodation for acute services. It will replace infrastructure that is no longer cost effective to maintain. The programme of works will ensure that the Trust's infrastructure aligns with current and future clinical service strategies, and will enable the proactive maintenance of assets and a reduction in backlog maintenance.

The redevelopment will ensure patients being cared for in an acute setting, are cared for in a safe environment, that supports good patient outcomes and service efficiencies.

The chapter reviews the investment objectives for the redevelopment and the critical success factors (CSFs) against which the scheme will be evaluated.

A number of options are considered in this chapter, known as "the long list". These are reviewed against the investment objectives and the CSFs to provide a "short list". The short list includes the business as usual option and a realistic list of options that support and align either fully or in part to the strategy of the Trust and wider healthcare requirements.

Three options make up the short list;

1. Business as usual option
2. Do minimum option: Part new build to create one new hospital building, an acute service block (ASB)

3. Do more option: two new hospital buildings, an acute service block (ASB) and a new ward block (NWB)

The short list is analysed in significant detail in the Comprehensive Investment Appraisal (CIA) model. The model looks at;

- Capital and revenue costs
- Optimism bias
- Risk
- Benefits

The model provides a cost and risk summary which are further analysed to provide the economic summary. This economic summary determines the preferred option.

The preferred option for the redevelopment of the site is option 2, the "do more" option. Option 2 provides an ASB and NWB on the hospital site, delivered over 2.5 years and due to complete at the end of 2023. This option results in the lowest risk adjusted NPC, highest NPSV and the highest benefit: cost ratio of the short listed options. The benefit:cost ratio of this option is 4.88.

This is tested through sensitivity analysis which demonstrates that this conclusion is robust.

The preferred option requires central support of £150m. The particular costs for the ASB and adjoining NWB are fully costed on RIBA stage 2 design information.

The total capital Trust requirement of £150m can be broken down as follows;

Scheme £m Spend 19/20-24/25	July 18 STP Bid £	Apr-20 OBC Preferred Option £
IT Merger Enabling	8	8
Pathology Joint Venture	4	3.6
Acute Services Block	87.5	106.4
Ward Block	-	32.9
Lift core	-	3.3
Other enabling	-	14.4
Trust Contribution	-	-18.6
Funding Required	99.5	150.0

Table 3.1: July 2018 STP capital bid vs April 2020 OBC capital requirement

3.1 Introduction

The strategic case described the urgent requirement to redevelop the L&D site and recognised that the estate presented daily challenges to operational efficiency, quality and safety of patient care.

This chapter develops the preferred option for the urgent redevelopment of the hospital. The redevelopment will provide modern, efficient, compliant and safe clinical accommodation for acute services. It will replace infrastructure that is no longer cost effective to maintain. The programme of works will ensure that the Trust's infrastructure aligns with current and future clinical service strategies, and will enable the proactive maintenance of assets and a reduction in backlog maintenance.

In accordance with the Capital Investment Manual and requirements of HM Treasury's Green Book (A Guide to Investment Appraisal in the Public Sector), this section of the OBC describes a number of

options that have been considered in response to the case for change. These options have undergone an evaluation as defined by HMT guidance to provide a short list of options. The short list has been fed into the Comprehensive Investment Appraisal (CIA) model, recommended for use by NHSE/I in October 2019. An evaluation of the short list options is provided in this case along with the economic summary, which provides a preferred way forward for the scheme. The preferred way forward is described in detail in the next chapter, "the preferred way forward."

3.2 Methodology for developing the preferred option

Figure 3.1 is taken from slides presented to the Trust by NHSE/I in December 2019. It describes well how the preferred option is developed in the economic chapter.

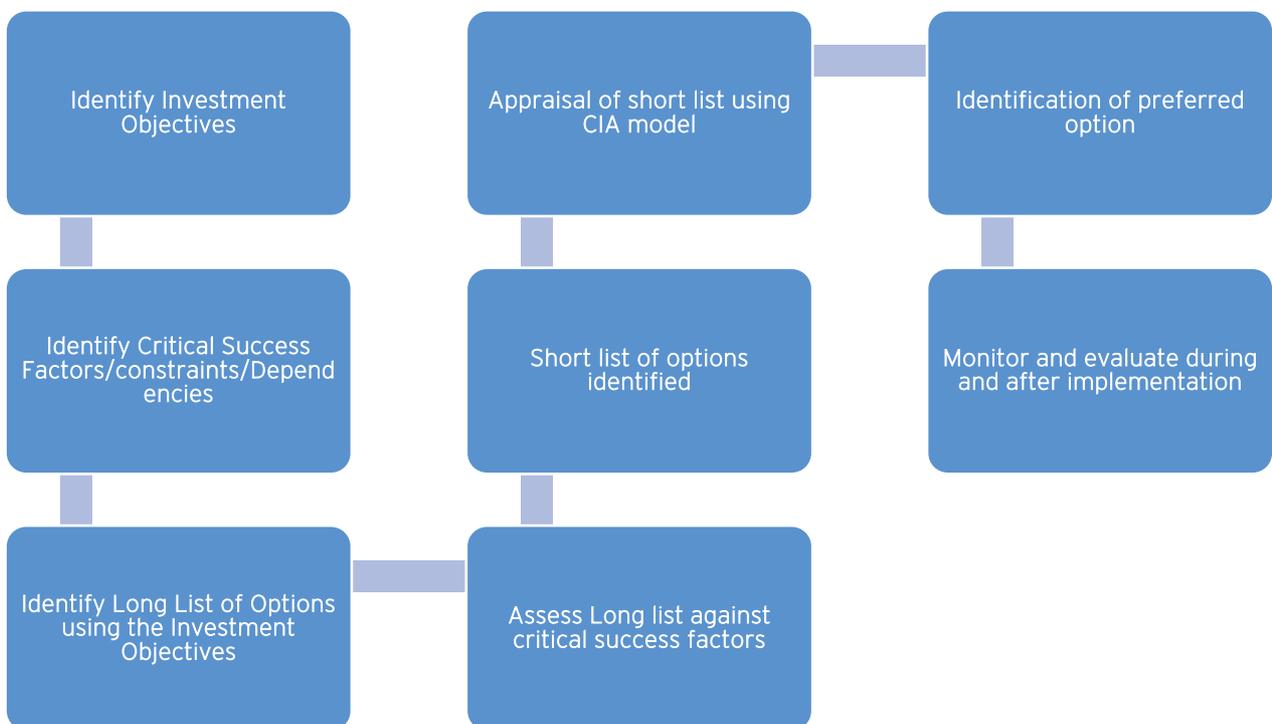


Figure 3.1: Developing the preferred option

3.3 Investment Objectives

The investment objectives for the redevelopment were developed by the Executive Directors following stakeholder engagement. This included a review of quality metrics and user experience.

Staff at the L&D are very much advocates for their patients, and hear first-hand what patients think about the service and facility at the L&D. At the bi-annual staff engagement event in 2018, all staff in the organisation were asked to consider and comment on the redevelopment of the hospital site. Staff fed back on the challenges they experience in

trying to deliver high quality patient care and drew their attention very much to the known risks that exist in the current estate.

The strategic objectives for the Trust were developed in parallel with patient and staff feedback, the Trusts 6-facet survey and a review of corporate risk. The potential scope for the scheme was identified.

The scheme's investment objectives were agreed by the Executive Directors at a workshop held on the 28th January 2020.

	Objective	Key Deliverable/Scope
1	To maximise space efficiency	Increase bed occupancy levels in NICU, Maternity and Critical Care All births where planned will occur on the delivery suite Decrease wait for Induction of Labour and planned C-Sections Increase theatre utilisation
2	To improve clinical safety and mitigate against clinical risk that the environment presents	Provide facilities in line with HBNs and HTMs that support infection prevention standards Eliminate infection control hazards posed by a substandard clinical environment To provide a safe environment for patients and staff
3	To facilitate the merger with Bedford Hospital	Create a platform from which the BLMK STP strategy can be delivered for the ICS Future-proof the hospital design to support any forthcoming clinical requirements.
4	To eliminate inefficiencies from delivering care across split units	Co-locate high dependency and intensive care bed base to create one combined critical care unit Workforce - Decrease nurse to bed ratio as a result of bringing critical care teams together Reduce number of theatre suites from 5 to no more than 2 Decrease the duplication of ancillary space associated with theatres Bring together maternity assessment, delivery and inpatient services to support workforce efficiencies. E.g. one assessment point and not three, one reception point and not five.
5	To improve clinical quality standards	Decrease theatre cancellations on the day due to either bed or staff shortages Decrease complaints within maternity, NICU, critical care and theatres due to the poor environment Remove all temporary clinical accommodation across the hospital site Reduce the hospitals backlog maintenance, specifically the high risk element.
6	To optimise space for clinical and non-clinical administration, management and storage	Move away from cellular offices to open plan, multi-disciplinary offices, to support joined up and more efficient ways of working.

Table 3.2: Investment Objectives

3.4 Critical Success Factors (CSFs)

CSFs for the redevelopment were developed and approved by the Board of Directors in October 2014 when the Trust initially set out on its journey

to redevelop the hospital site. Following more recent stakeholder engagement and a review of the investment objectives in 2019, the CSFs were updated and ratified by the Redevelopment Programme Board in November 2019.

CSF	Scope
1 Strategic fit and business need	<ul style="list-style-type: none"> Enables the Trusts clinical vision to be realised and aligns with national, regional and local policy Provides an environment that is sustainable A physical environment that supports efficient and high quality models of care in a resilient and compliant setting Resolution of backlog in the Delivery Suite, Neonatal Unit, Critical Care and old modular theatres, significantly reducing the risks in the delivery of services. Delivers a plan for any future development on the site Facilitates an efficient, high performing workforce
2 Potential value for money	<ul style="list-style-type: none"> The scheme supports service efficiencies, decreasing risk and maximising benefits across the health community The scheme optimises social value by providing major investment into Luton
3 Supplier capacity and capability	<ul style="list-style-type: none"> Ensuring at every stage the scheme is attractive to the market
4 The scheme is affordable to the organisation (revenue and capital)	<ul style="list-style-type: none"> The scheme is affordable within the £150m central capital funding envelope The scheme is affordable within the LTFM
5 Achievability: The scheme is deliverable - there is the required skill set in place to manage, drive and deliver the scheme	<ul style="list-style-type: none"> The scheme is likely to be delivered given an organisations ability to respond to the changes required The scheme matches the level of available skills required for successful delivery

Table 3.3: Critical Success Factors and Benefits Criteria

3.5 The Long List of options

At the redevelopment programme team workshop held in October 2019 (please see Appendix 1 for minutes of the meeting), a wide range of possible options were discussed in relation to the strategic case for change. The options agreed in 2014 by the

Trust Board were used as a starting point to develop the list.

The options developed either partly or fully addressed the quality and safety requirements of the Trust. The long-list of options were assessed against the CSFs and investment objectives for the project.

Option Title	Option Description
1 Business as usual - invest in backlog maintenance programme	The Trust has carried out a 6-facet survey on the estate, which has identified a backlog liability of £91m. There are some critical issues on the schedule of backlog maintenance which must be addressed urgently in order to support the on-going maintenance of the existing facilities. This includes a new build critical care unit
2 Consideration to move more services into the community/health hubs and develop space freed up to support redevelopment of critical services	Elective day case theatre activity, outpatient services and diagnostic services could move to a purpose build elective treatment centre to free up space on the hospital site to allow new build for critical, high risk services
3 Acute Service Block (excluding maternity wards)	Build an acute service block for; <ul style="list-style-type: none"> ▪ NICU ▪ Delivery Suite ▪ Critical Care ▪ Theatres
4 Acute Service Block with Maternity wards	Build a new Acute Services Block to house the highest risk clinical services, in order to address activity, demand and estate maintenance requirements; <ul style="list-style-type: none"> ▪ Critical Care ▪ NICU ▪ Maternity wards ▪ Delivery suite ▪ theatres
5 Acute Service Block and New Ward Block	Build an acute service block for; <ul style="list-style-type: none"> ▪ NICU ▪ Critical Care ▪ Delivery Suite ▪ Theatres Build a New Ward Block for; <ul style="list-style-type: none"> ▪ Maternity Wards ▪ Clinical Support
6 Full redevelopment of the hospital site	Comprehensive redevelopment of the L&D site, in addition to those services provided in an Acute Services Block (Option 3), a major refurbishment and extension to the Emergency Department (ED) including Helipad and Imaging, and a Central Boulevard- a major new public space improving security, wayfinding and patient experience
7 Full new build off site	Relocate the existing hospital and all services onto a new site elsewhere within the Luton /Dunstable catchment area.

Table 3.3: Critical Success Factors and Benefits Criteria

3.5.1 Evaluation of long listed options

Using recently published guidance (2019) on the assessment of long listed options, a short list of viable options was developed. The business as usual option remains to support option evaluation. The

table below reflects the evaluation process which was worked through at a workshop of the Redevelopment Board on the 18th December 2019. Minutes of this meeting can be found in Appendix 1.

	Business as usual	Do Minimum	Intermediate Options				Do Maximum
Option ID	1	2	3	4	5	6	7
Longlist	BAU	Develop off site health hub	Acute Service Block (excluding maternity wards)	Acute Service Block with Maternity wards	Acute Service Block and New Ward Block	Full redevelopment of the hospital site	Full new build off site
Service scope	Annual backlog maintenance and ad hoc capital	Move some outpatient services into the community e.g. bariatrics and redesign hospital space	Delivery Suite	Delivery Suite	Delivery Suite	Delivery Suite	New hospital
			Critical Care	Critical Care	Critical Care	Critical Care	
			NICU	NICU	NICU	NICU	
			Theatres	Maternity Wards	Theatres	Theatres	
			Enabling	Theatres	Maternity Wards	Maternity Wards	
			Car Parking	Enabling	Enabling	Offices	
				Car Parking	Car Parking	ED	
						Medical Wards	
						Outpatients	
			Car parking				
Service solution	No new build	Refurb	Community Hubs and Refurb	New Build			New hospital
Service Delivery (FM)	Mixed provision	In house	Out source				
Implementation	Rolling programme	2.5 years	Phased 6 years				
Funding	Trust cash	Central funding	Mixed funding				

Table 3.5: Evaluation of long listed options

3.5.2 Developing the Short List

a. Business as Usual - Option 0

	Business as usual	Do Minimum		Intermediate Options			Do Maximum
Option ID	1	2	3	4	5	6	7
Longlist	BAU	Develop off site health hub	Acute Service Block (excluding maternity wards)	Acute Service Block with Maternity wards	Acute Service Block and New Ward Block	Full redevelopment of the hospital site	Full new build off site
Service scope	Annual backlog maintenance and ad hoc capital						
Service solution		Refurb					
Service Delivery (FM)	Mixed provision						
Implementation	Rolling programme						
Funding	Mixed Funding						

Table 3.6: Developing the shortlist- option 0

b. Do Minimum - Option 1

	Business as usual	Do Minimum		Intermediate Options			Do Maximum
Option ID	1	2	3	4	5	6	7
Longlist	BAU	Develop off site health hub	Acute Service Block (excluding maternity wards)	Acute Service Block with Maternity wards	Acute Service Block and New Ward Block	Full redevelopment of the hospital site	Full new build off site
Service scope			Delivery Suite Critical Care NICU Theatres Enabling				
Service solution				New Build			
Service Delivery (FM)	Mixed Provision						
Implementation		2.5 Years					
Funding			Mixed Funding				

Table 3.7: Developing the shortlist- option 1

c. Intermediate Option "Do More" - Option 2 - Preferred Option

	Business as usual	Do Minimum		Intermediate Options			Do Maximum
Option ID	1	2	3	4	5	6	7
Longlist	BAU	Develop off site health hub	Acute Service Block (excluding maternity wards)	Acute Service Block with Maternity wards	Acute Service Block and New Ward Block	Full redevelopment of the hospital site	Full new build off site
Service scope					Delivery Suite Critical Care NICU Theatres Maternity Wards Enabling		
Service solution				New Build			
Service Delivery (FM)	Mixed provision						
Implementation		2.5 years					
Funding			Mixed funding				

Table 3.8: Developing the shortlist- option 2

3.6 The Short List

The evaluation of the long list supports a short list of three options including the business as usual option. The short list will be taken forward in the CIA model to support the development of a preferred way forward.

Long list to short list reference	CIA reference	Option description
1	0	Business as usual
5	1	Do Minimum: Acute Service Block, plus enabling schemes
6	2	Do More: Acute Service Block and New Ward Block, plus enabling schemes

Table 3.9: Short List Option Description

3.6.1 Developing the Preferred Way Forward

The development of the short list starts to focus on a preferred way forward for the hospital's redevelopment project: new build, delivered over 2.5 years, using Trust cash and the central funding allocation, supported by a mixed provision of facilities management. The preferred way forward will be validated using the CIA model.

The BAU option has been carried forward as a benchmark comparison as required by the guidance, although the Case for Change described within the Strategic Case demonstrated that this would not be an appropriate solution as it does not address the efficiency and effectiveness of maternity, NICU and acute services.

3.7 Economic Methodology

3.7.1 Overview of methodology

This section outlines the quantitative analysis that has been undertaken for each of the short-listed options outlined above. The analysis has been prepared on a Discounted Cash Flows ("DCF") basis using the Capital Investment Appraisal ("CIA") model, which is the recommended economic appraisal methodology for investment business cases per

DHSC and HM Treasury Green Book Guidance.

The CIA model requires full data on the anticipated capital costs, optimism bias, maintenance costs, revenue expenditure, net contributions, opportunity costs and transitional costs over a defined project appraisal period. These costs are discounted at a rate equivalent to the expected inflation over the appraisal period to inform the Net Present Cost ("NPC") of options.

The quantifiable risks of each option are then taken into consideration to determine a risk-adjusted Net Present Social Value ("NPSV") for each option.

The quantifiable benefits (comprising cash-releasing, non-cash releasing and societal benefits) are then assessed against the incremental NPSV to determine a benefit:cost ratio for each option.

This metric is used to evaluate the Value for Money ("VfM") delivered by options, with DHSC requirements stipulating that a benefit:cost ratio of at least 4:1 should be achieved on public capital spending in order to demonstrate VfM.

The flow chart in figure 3.2 describes how the CIA model works in terms of the inputs required to develop the economic summary.

The full CIA model can be found in appendix 3.

Determining the Preferred Option

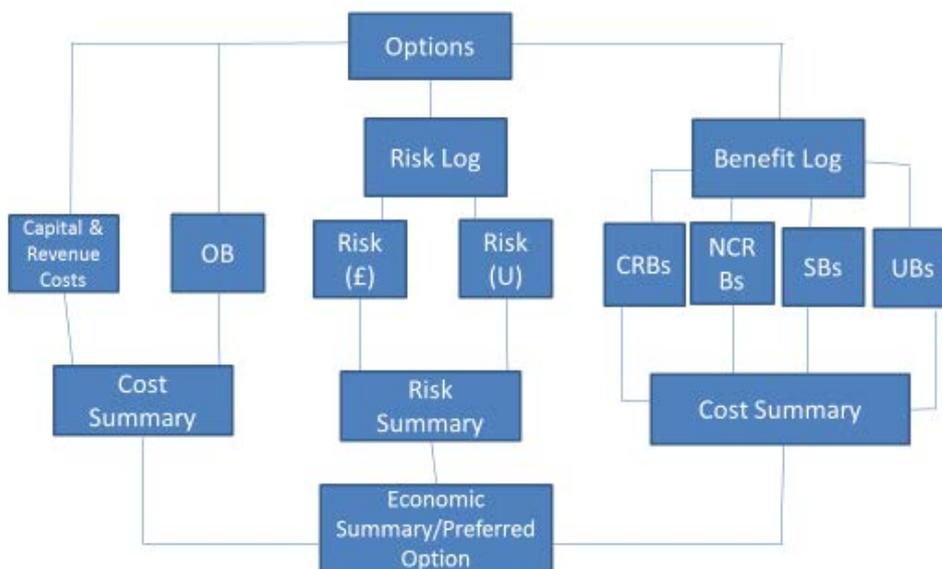


Figure 3.2: Determining the preferred option

The section below outlines each stage of the quantitative appraisal process. Results of the analysis have been subject to sensitivity and switching analysis to ensure robustness in the selection of the preferred option to be taken forward.

3.8 Capital Costs

The total capital Trust requirement is for £150m, this is broken down as follows;

Scheme £m Spend 19/20-24/25	July 18 STP Bid £	Apr-20 OBC Preferred Option £
IT Merger Enabling	8	8
Pathology Joint Venture	4	3.6
Acute Services Block	87.5	106.4
Ward Block	-	32.9
Lift core	-	3.3
Other enabling	-	14.4
Trust Contribution	-	-18.6
Funding Required	99.5	150.0

Table 3.10: July 2018 STP capital bid vs April 2020 OBC capital requirement

OB forms for the elements below can be found in Appendix 3.

- ASB (£106.4 million)
- NWB (£32.9 million)
- Lift Link (£3.3 million)

			Cost Exc.VAT £	VAT £	Cost Incl.VAT £
1	Departmental Costs (from Form 2)		62,946,100	12,589,220	75,535,320
2	On-Costs (from Form 3) (7.2% of Departmental Cost)		4,536,000	907,200	5,443,200
3	Works Cost Total (1+2) at (Tender Price Index Level 1975 = 100 Level)	250 BIS PUBSEC	67,482,100	13,496,420	80,978,520
4	Provisional location adjustment (if applicable) -2.00% of Works Cost		-1,350,000	-270,000	-1,620,000
5	Sub Total (3+4)		66,132,100	13,226,420	79,358,520
6	Fees (15% of sub total)		9,920,000	Excluded	9,920,000
7	Non-Works Costs from Form 4	(a) OTHER (b) LAND SALES	1,421,000 Excluded	284,200 Excluded	1,705,200 Excluded
8	Equipment Cost (from Form 2) (7.3% of Departmental Cost)		4,583,000	916,600	5,499,600
9	Planning Contingency	10.0% 5+6+7(a+b)+8)	8,206,000	1,641,200	9,847,200
10	TOTAL (for approval purposes - excl. Op Bias) (5+6+7+8+9)		90,262,100	16,068,420	106,330,520
11	Optimism Bias	11.6% (excl. Land Sales - 7(b))	10,470,000	2,094,000	12,564,000
12	TOTAL (for approval purposes - incl. Op Bias) (10+11)		100,732,100	18,162,420	118,894,520
13	Inflation Adjustments to notional PUBSEC 299 (based on forecast indices 3Q22) - construction mid-point		19,743,000	3,948,600	23,691,600
14	FORECAST OUTTURN BUSINESS CASE TOTAL (12+13)		120,475,100	22,111,020	142,586,120

Table 3.11: OB Form Summary

3.9 Key Appraisal assumptions

The following key financial modelling principles and assumptions have been established to enable an assessment of the DCF for each of the short-listed options:

- Capital Cost Estimates - developed with support of Trust's technical advisors, AECOM
- Optimism Bias - calculated using HMT guidance. For each option optimism bias was calculated at fixed period in time (February) to determine the optimism bias level for each of the three options. It is important to note that as risk is managed and mitigated throughout the development, optimism bias will naturally decrease
- Lifecycle Cost Estimates - these have been developed by AECOM. A high level Life Cycle Replacement (LCR) cost assessment has been carried out to estimate the life cycle replacement costs of the proposed new facility based on the information included in OB1 Form. The LCR is calculated based on the gross internal area. The LCR costs exclude any assessment of operational Facilities Management (FM) costs for specific services.
- Hard FM Cost Estimates
- Revenue Costs - taken from the Trust's 10-Year Long Term Financial Plan ("LTFM")
- Business as Usual Costs - developed based on the Trust's existing budgets, premises and known critical backlog maintenance requirements

- Price Base for Cost Inputs - all costs based on 2019/20 price base and shown in £'000s unless otherwise stated.
- Appraisal Period - 60 years
- Discount Rate - 3.5% real for years one to 30 and 3.0% real for years 31 to 60.
- Quantitative Economic Appraisal of Options - assumes that the options are funded through Public Dividend Capital ("PDC")

As required by the CIA appraisal guidance, all internal public sector and accounting transactions (such as depreciation, capital charges, PDC and Value Added Tax ("VAT")) have been excluded from the appraisal. In addition, all values have been provided in real (uninflated) terms. Amounts shown in the subsequent tables are demonstrated in present value terms.

This economic appraisal approach looks beyond an individual organisation and aims to consider instead the value of options to the UK as a whole - referred to as 'social value'. Value is analysed into costs, benefits and risk.

Table 3.12 shows the risk-adjusted Net Present Social Value (NPSV) for each shortlisted option, and the benefit-cost ratio. NPSV is the total social value (including all costs, benefits and risks for the option), adjusted to take into account the time-value of money (following Green Book rules on discounting). The appraisal covers a 60 year period, considered to be the useful economic life of the asset. All costs are uninflated with the base year as 2019/20.

£'000	BAU	Option 1	Option 2
Incremental Costs Total	0	-92,722	90,794
Incremental benefits Total	0	374,248	443,033
Risk Adjusted Net Presented Social Value (NPSV)	0	281,526	352,239
Benefit Cost ratio	0	4.04	4.88

Table 3.12: Benefit-Cost Ratio Analysis £'000

As shown in Table 3.12, Option 2 has the highest incremental risk adjusted NPSV and benefit-cost ratio. The underpinning assumptions are explained in further detail below.

3.9.1 Opportunity Costs

Opportunity costs represent the value that could have been obtained if the resources committed under an option were used for their next best alternative purpose, or the benefits that are foregone from undertaking alternative options. For the purposes of this economic appraisal, there are no opportunity costs.

3.9.2 Capital costs

Detailed capital cost forms have been prepared for each option by the Trust's technical advisors, AECOM (see Appendix 3). Capital costs for the purposes of this economic appraisal have been provided at PUBSEC 250 reporting index and exclude VAT and any anticipated outturn inflation between the base date and commencement of the capital programme.

Under the BAU option, the Trust would continue to require an increased level of funding to maintain the site, and a standalone development to address the urgent replacement of the critical care unit. This option fails to address the Trust's investment objectives and on-going requirements and results in higher on-going capital and revenue maintenance over the 60-year appraisal period to keep services running safely. In addition, significant inefficiencies and clinical risks continue to remain which is reflected in the risks quantified in the sections below.

Under Option 1, the Trust will invest £110.419m (NPC including life cycle and optimism bias). Whilst Option 1 goes some way to addressing the Trust's requirements over the BAU, it fails to deliver the centralisation and co-location of maternity services. In addition, a significant number of

inefficiencies and clinical/operational risks will remain across the estate over the appraisal period, due to the poor clinical adjacencies between maternity services, which is reflected in the risk quantification section below.

Option 2 is the preferred way forward from the qualitative appraisal, requiring investment of £108.491m NPC including life cycle and optimism bias) to deliver two new blocks which co-locates maternity services with neonatal services, and theatres with surgical arrivals, recovery and critical care. This option delivers a New Ward Block (c. 4,600m²), an Acute Services Block (12,000 m²) and a Lift Link (c.1,000 m²) that will enable reconfiguration of clinical services throughout the Trust. This option will deliver the Trust's investment objectives and on-going clinical and strategic requirements, providing significant efficiencies and benefits and reducing clinical/operational risk over the appraisal period compared to the BAU and Do Minimum options.

The Optimism Bias figures (for both capital and life cycle costs), are provided in table 3.12 below (see detailed OB forms in Appendix 3). It should be noted that the OB for BAU is higher as a proportion of capital costs (c.20%) in comparison to the New Build options under Option 1 and 2 (11.6%). This is primarily due to the greater uncertainty in delivering backlog maintenance works compared to delivering a New Build facility, in addition to the longer timescale over which the BAU option investment will be delivered. A summary of the NPC of capital costs for each option, inclusive of OB, is presented in Table 3.13 below. Further detail of the capital cost assumptions for each option is included within the detailed OB forms which are provided in Appendix 3.

£'000	BAU	Option 1	Option 2
Capital and life cycle Cost	14,749	98,932	97,205
Optimism Bias	2,947	11,486	11,286
Total	17,696	110,418	108,491

Table 3.13: Capital cost NPC summary

3.9.3 Summary of Revenue costs

Revenue costs refer to the on-going operating costs of delivering services across the whole Trust, with all options modelled using the same assumed activity demand. All revenue costs have been developed based on the Trust's 10-year Long Term Financial Plan ("LTFM"), split by clinical costs, non-clinical costs, building running costs and other revenue costs.

Forecast costs for the appraisal period have been separately developed based on the LTFM for each option, with differing levels of efficiencies assumed under each option based on their ability to deliver core efficiencies. As a result, it should be noted that a considerable level of quantified benefit under each

option has already been captured within the revenue cost reductions and efficiencies.

For the purposes of the value for money analysis outlined further below, the incremental revenue cost reduction against the BAU is included within the benefit:cost ratio of options. In line with CIA modelling principles, adjustments to the revenue costs from the Long Term Financial Plan have been made to ensure that all cost inputs are exclusive of VAT, Capital Charges, PDC charges and inflationary increases.

A summary of the NPC of revenue costs for each option is presented in Table 3.14. Further detail of the revenue cost assumptions for each option is included within Appendix 3.

£'000	BAU	Option 1	Option 2
Clinical Service Cost	395,955	400,530	400,530
Non-clinical Costs		543	543
Building Running Costs	117,774	95,256	81,968
Total	513,730	496,329	483,042
Variance	-	-17,401	-13,287

Table 3.14: Revenue cost NPC summary

As shown in table 3.13, Option 2 demonstrates revenue cost efficiency savings of c. £30.7m in present value terms over the appraisal period versus the BAU, which is due to the significant clinical and operational efficiencies achieved under the centralisation of services in the two new blocks. Option 1 only achieves c. £17.4m of savings versus the BAU, which is from core efficiencies enabled through addressing backlog maintenance and the centralisation of some services.

3.9.4 Net Contribution

All income generated by the Trust through public sector bodies has been excluded from the CIA model, given that this income represents a transfer payment which is a circular flow from an economic appraisal standpoint. This project does not deliver

any net contributions from non-public sector organisations as a consequence of the investment and therefore this has also not been included within the appraisal.

3.9.5 Net Present Cost Analysis

The results of the quantitative appraisal of options is summarised in Table 3.15, which outlines the NPC, broken down by cost line, for each of the short-listed options. The options have been ranked from lowest to highest NPC to illustrate the relativities of options on a quantitative basis.

£'000	BAU	Option 1	Option 2
Capital Costs (Incl OB)	17,696	110,419	108,491
Revenue	513,730	496,329	483,042
Expenditure			
Total	531,426	606,748	591,533
Rank	1	3	2
Distance from #1 Rank	-	75,322	60,107

Table 3.15: Summary Net Present Cost NPC Analysis

The results demonstrate that the BAU generates a lower NPC over the 60-year appraisal period compared to option 1 and 2.

This is driven by the lower capital costs over the full appraisal period under these options. Option 2 has the next lowest NPC over the 60-year appraisal period, with an incremental saving of £15.2 m in present value terms compared to the Option 1. This is due to the significant clinical and operational efficiencies generated from centralising services into the two new blocks.

It should be noted that these results do not take into consideration the quantified risks and wider quantified benefits of each option which vary significantly across options and have been examined further in the sections below.

3.9.6 Quantitative Risk Assessment

As part of the options appraisal process, the Trust has considered the potential risks inherent in each option over the full 60-year appraisal period.

A series of risk workshops were held with key stakeholders of the Trust, including clinical, estates, and finance leads. The purpose of these workshops was to consider in detail the anticipated risks of each option across a number of key areas: Design, Construction, Performance, Operational, Technology and Demand. These risks were agreed by key stakeholders and then a consensus was established on those which could be quantified in monetary terms.

The methodology applied to quantify risks was a multi-point probability analysis in line with CIA modelling requirements. For each risk, a range of

possible outcomes was estimated. An output probability distribution provides a more complete picture of the possible outcomes and recognises that some of these outcomes are more likely to occur than others. The 'expected outcome' is the average of all possible outcomes, taking into account their varying probabilities.

For each risk and for each option the Trust considered and agreed on the following parameters:

- the appropriate cost driver for the risk (e.g. operating costs of theatres)
- the likely impact if a risk occurs - low, medium, high (e.g. +/-% of cost driver)
- the likelihood of occurrence - low, medium, high (total 100%)
- the years for which the risk could occur and therefore for which it should be quantified.

With the support of the Trust's cost advisors, AECOM, the cost drivers, probability, impact and phasing assumptions for each risk were determined and calculated. The key cost drivers and assumptions that led to determining the above parameters for each risk are captured in the CIA model and have been summarised in Appendix 3.

The outcome of the risk quantification is summarised in table 3.16. Where the identified risks aligned with the CIA template risks, these have been mapped and categorised accordingly.

The category of additional risks includes:

- Poor market appetite;
- Under estimation of equipment costs;
- The additional need to divert services;
- Incorrect estimation of life cycle costs;
- Delay in statutory approvals;
- Poor design co-ordination;
- Impact of Brexit on labour and materials; and
- Impact of Covid 19.

£'000	BAU	Option 1	Option 2
Design Risk	68,590	16,722	13,672
Construction Risk	54,943	26,245	32,665
Performance Risk	7,184	6,912	6,912
Revenue Risk	162,256	30,589	15,966
Other	3,485	525	616
Additional	17,156	9,212	10,459
Total	313,615	90,205	80,289

Table 3.16: Risk Quantification NPC £'000

It can be seen that the highest risks are in Option 0 - BAU, and that the risks in Options 1&2 are significantly lower, with the lowest risks in Option 2.

The BAU carries a significant level of Operational and Technology risk compared to the alternative options delivering a new facility. This is primarily due to the poor clinical adjacencies remaining unaddressed, greater likelihood of increasing

operating costs and difficulty achieving the required working efficiencies from digitalisation and smarter ways of working.

3.9.7 Risk Adjusted NPC

A risk adjusted NPC and revised ranking for each option is presented in table 3.17, following the quantification of risks.

£'000	BAU	Option 1	Option 2
NPC	531,426	606,748	591,533
Quantified Risk NPC	313,615	90,205	80,289
Risk Adjusted NPC	845,041	696,953	671,822
Rank	3	2	1
Distance from #1 Rank	173,219	25,131	-

Table 3.17: Risk adjusted Net Present Cost Analysis £'000

Taking into account the risks to determine a risk adjusted NPC, Option 2 is the lowest NPC over the appraisal period whilst the BAU is now the most expensive. The introduction of quantified risk amplifies the NPC difference between the options. This risk adjusted NPC further supports Option 2 as being the preferred option and the option that

provides best value for money.

In order to fully substantiate Value for Money and confirm that this option should be the preferred way forward, it is necessary to take into account the quantification of benefits which is considered in the next section.

3.9.8 Cash Releasing, Non-Cash Releasing and Societal Benefits

As part of the economic appraisal, the Trust has considered the benefits of delivering each option in comparison to the baseline BAU option. To do so, a number of benefit identification workshops were held with key stakeholders of the Trust. These workshops were tasked with identifying a wide-ranging set of benefits that could be delivered

across each different option based on the planned investment, clinical configurations and service delivery over the appraisal period. These initial workshops supported the development of the Benefits Realisation Plan which is considered further within the Management Case.

In developing the benefits, the Trust considered the linkage between the Investment Objectives, CSF and benefits as shown in table 3.18 below.

CSF	Benefits Criteria
Strategic fit and business need	<ul style="list-style-type: none"> Aligns with the NHS 5 year forward view Responds to the Carter Metrics Aligns with the BLMK STP Enables the Trusts clinical vision to be realised Resolution of backlog in the Delivery Suite, Neonatal Unit, Critical Care and old modular theatres, significantly reducing the risks in the delivery of services.
Potential value for money	<ul style="list-style-type: none"> The scheme supports service efficiencies, decreasing risk and maximising benefits across the health community The scheme optimises social value by providing major investment into Luton
Supplier capacity and capability	<ul style="list-style-type: none"> Ensuring at every stage the scheme is attractive to the market
The scheme is affordable to the organisation (revenue and capital)	<ul style="list-style-type: none"> The scheme is affordable within the £150m central capital funding envelope The scheme is affordable within the LTFM
Achievability: The scheme is deliverable - there is the required skill set in place to manage, drive and deliver the scheme	<ul style="list-style-type: none"> The scheme is likely to be delivered given an organisations ability to respond to the changes required The scheme matches the level of available skills required for successful delivery

Table 3.18: Investment Objectives, Critical Success Factors, and Benefits

3.9.8 Cash Releasing, Non-Cash Releasing and Societal Benefits

As part of the economic appraisal, the Trust has considered the benefits of delivering each option in comparison to the baseline BAU option. To do so, a number of benefit identification workshops were held with key stakeholders of the Trust. These workshops were tasked with identifying a wide-ranging set of benefits that could be delivered across each different option based on the planned investment, clinical configurations and service delivery over the appraisal period. These initial workshops supported the development of the Benefits Realisation Plan which is considered

further within the Management Case.

In developing the benefits, the Trust considered the linkage between the Investment Objectives, CSF and benefits as shown in table 3.18 below.

Following the development of a Benefits Realisation Plan, the Trust were required to consider the list of benefits from an economic appraisal perspective, in particular to identify the Cash Releasing Benefits ("CRB"), Non-Cash Releasing Benefits ("NCRB") and Societal Benefits ("SB") across options that could be quantified in monetary terms. These are summarised in table 3.19.

ID	Benefit Category	Benefit Description	CR B	NC RB	SB	UB	Full year value £000s
1	improve clinical quality	Critical Care same sex accommodation compliance	Y				50
2	improve clinical safety	Paediatric segregation in theatre (surgical arrivals and recovery)				Y	0
3	improve clinical quality	To provide private and dignified bathrooms facilities for patients in maternity and critical care				Y	0
4	improve clinical safety	Reduced clinical incidents - providing ventilated clinical accommodation in line with HBN requirements				Y	0
5	To improve clinical safety	Decrease backlog requirement per annum		Y			160
6	To improve clinical quality	Provide access for patients, staff and visitors with disabilities - provide DDA compliant accommodation				Y	0
7	improve clinical safety	Health and Safety Compliance				Y	0
8	improve clinical quality	To maintain business continuity by providing service resilience		Y			160
9	Maximise space efficiency	Reduce waiting times for surgery - create capacity to manage demand	Y				15
10	Maximise space efficiency	Birthing mums requiring a level 3 neonatal bed will stay at their local hospital - create capacity to manage demand	Y				75
11	Maximise space efficiency	Level 3 babies will stay at their local hospital - create capacity to manage demand	Y				180
12	Maximise space efficiency	Level 2 and 3 patients receive the right level of care in the right environment with rapid access - create capacity to manage demand in critical care and reduce transfer in times	Y				36
13	Improve clinical quality	Improve friends and family feedback across maternity, neonates, critical care and theatres				Y	0
14	Improve clinical safety	Maintain or improve CQC rating "good"				Y	0
15	Improve clinical quality	Less staff time spent responding to complaints - reduce number of patients and families that complain due to the environment		Y			40.5
16	Improve quality	Free up paediatric nursing time - children undergoing elective surgery stay in hospital for a shorter period of time - improved surgical pathway for children	Y	Y			500
17	Improve clinical quality	Reduction in agency staff spend	Y				27
18	Improve clinical quality	Achieve CIP to decrease out of hours extra session payments to staff	Y				25
19	Improve clinical safety	Higher PLACE inspection standards				Y	750
20	Improve clinical safety	Process flow and staffing improvement from colocation within an acute service block (theatres)	Y	Y			0
21	Improve clinical quality	To provide private and dignified bathrooms facilities for patients in critical care				Y	180
22	Improve efficiency	Process flow and staffing efficiency from colocation of critical care within an acute service block		Y			30
23	Improve efficiency	Lift resilience		Y			150
24	Improve efficiency	process flow and staffing efficiency from colocation of maternity services and good clinical adjacencies in maternity and NICU	Y				75
25	Improve efficiency	Reduction in number of receptions for maternity	Y				0
26	Improve efficiency	Boost to local economy through local employment during construction and after due to workforce demand			Y		0
27	To mitigate risk that environment presents	Improved sustainability			Y		0
28	Improve clinical safety	Shorter wait times for surgery			Y		0
29	Improve efficiency	Pathology merger savings	Y				3,118
30	Improve efficiency	Revenue saving from avoided equipment rental	Y				1,604

Table 3.19: Identified Benefits

For each benefit outlined above, a methodology was developed to determine an equivalent annual benefit value and the phasing over which the benefit would be realised for each option. This resulted in a set of quantified benefits which have been assessed over the 60-year appraisal period within the CIA model. Cash releasing benefits identified are those which enable an actual reduction in budgetary costs incurred by the Trust, whilst non-cash releasing benefits are those which

result in efficiencies or productivity savings which are quantifiable in monetary terms but do not create a budgetary release. Societal benefits are those which are quantifiable in monetary terms, but the benefit is released by society outside of the NHS/DHSC.

Table 3.20 outlines the total quantified benefits over the 60-year appraisal period for each of the options.

£'000	BAU	Option 1	Option 2
Cash Releasing Benefits	1,596	119,699	161,868
Non-cash releasing Benefits		15,333	18,747
Total	1,596	135,032	180,615

Table 3.20: Quantified Economic Benefits £'000

In line with expectation, the BAU and Option 1 do deliver some quantifiable benefits through improving clinical services and patient facilities, however this is limited given the on-going clinical challenges with the existing estate configuration.

As expected, Option 2 delivers a significantly higher level of quantified benefits over the appraisal period, most notably through changes to an improved estate, co-location of critical care and theatres critical and provision of greater capacity.

3.9.9 Value for Money Analysis

In line with HMT and DHSC Guidance, the benefit-cost ratio of each option has been examined in order to determine the Absolute Value for Money ("AVFM").

The recognised threshold for public health spending is currently a ratio of 4:1; that is, every £1

of marginal cost associated with an option must provide at least £4 of quantified benefits in order to demonstrate value for money from the required investment. The AVFM has been examined by firstly taking into consideration the net quantified benefits outlined in the previous section and comparing these against the incremental NPC of each option to calculate the risk-adjusted NPSV. The benefit:cost ratio has then been determined by comparing the incremental benefits to the incremental cost of options.

For the purposes of this analysis, the BAU is the baseline position against which all other direct investment costs, such as capital costs, are assumed to be marginal to the implementation of that option. The benefit-cost ratio has been calculated on this basis and outlined within Table 3.21.

£'000	BAU	Option 1	Option 2
Incremental Costs Total	0	-92,722	90,794
Incremental benefits Total	0	374,247	443,033
Risk Adjusted Net Presented Social Value (NPSV)	0	281,525	352,238
Total	0	4.04	4.88

Table 3.21: Benefit-Cost Ratio Analysis £'000

The results of the benefit-cost ratio analysis show that Option 2, which was the preferred way forward from the qualitative appraisal, presents the highest benefit:cost ratio of the short-listed options and is deemed to represent value for money for the public sector. This option is therefore the preferred option from both the qualitative and quantitative appraisal

results. This has been subject to further sensitivity and switching analysis in the section below.

Both option 1 or 2 achieve the benefit:cost ratio of 4:1 set out in DHSC guidance. It should be noted the above ratios do not include the additional unmonetisable benefits set out in table 3.22.

Benefit Name	Benefit Description	Applies to Option 0?	Applies to Option 1?	Applies to Option 2?
Paediatric segregation	Paediatric segregation in theatre (surgical arrivals and recovery)	No	Yes	Yes
Maternity bathroom facilities	To provide private and dignified bathroom facilities for patients in maternity	No	Yes	Yes
Critical care bathroom facilities	To provide private and dignified bathroom facilities for patients in critical care	Yes	Yes	Yes
Improved ventilation	Reduced clinical incidents providing ventilated clinical accommodation in line with HBN requirements	Yes	Yes	Yes
Fire compliance	To provide safe and fire compliant accommodation in line with HBN and HTM guidance	Yes	Yes	Yes
Improved disabled access	Provide access for patients, staff and visitors with disabilities - provide compliant accommodation	Yes	Yes	Yes
DDA compliant accommodation	Provide access for patients, staff and visitors with disabilities - provide DDA accommodation	Yes	Yes	Yes
Health and Safety	Health and Safety compliance	Yes	Yes	Yes
Business continuity	To maintain business continuity by providing service resilience	Yes	Yes	Yes
Family and Friends score	Improve family and friends feedback across maternity, neonates critical care and theatres	No	No	No
CQC rating	To achieve CQC rating good or higher	Yes	Yes	Yes
PLACE	Higher PLACE inspection standards	No	No	No

Table 3.22: Unmonetisable benefits

3.10 Sensitivity Analysis

In order to test the robustness of the appraisal's conclusions and consider the uncertainties around some of the key assumptions made, it has been necessary to perform sensitivity analysis to assess the impact, if any, on the relativities between options and the conclusions drawn regarding VfM.

A switching analysis has also been included, whereby scenarios are considered that could give rise to the preferred option being replaced by another option as the preferred way forward.

3.10.1 Increase in Capital Expenditure under the Preferred Option by 10%

One uncertainty surrounding any capital project is the level of planned capital expenditure. Given the complexity of consolidating the Adults, Theatres, Critical Care, Maternity and NICU services into two new builds, this could lead to higher than anticipated spend e.g. through cost overruns during construction or incorrect cost estimates at the design and procurement phases. A sensitivity has been performed to examine the impact of a 10% real increase in capital spend under Option 2.

It should be noted that this increase is in addition to the level of optimism bias already recognised within the CIA model. The Trust has sought to mitigate this uncertainty as far as possible through its programme governance and risk mitigation

processes. The anticipated impact of a 10% increase in capital expenditure on the risk-adjusted NPC and benefit: cost ratio is outlined within table 3.23:

£'000	BAU	Option 1	Option 2
Risk Adjusted NPC	531,425	606,747	591,533
Sensitised Risk Adjusted NPC	531,425	606,747	601,417
Variance	-	-	9,884
Sensitised Benefit-Cost Ratio		4.04	4.40

Table 3.23: Sensitivity Analysis - Increase in Capital Expenditure £'000

As shown in the table above, the benefit: cost ratio for option 2 remains the highest of the short-listed options and remains the preferred option.

Switching analysis was undertaken to consider the percentage increase in capital expenditure required under Option 1 in order to result in a switching of the preferred option. A 19% increase in capital expenditure is required in order for Option 1 to switch to the preferred option.

3.10.2 Lifecycle costs increase by 10%

One of the anticipated benefits of Option 2 is the ability to reduce life cycle costs of the new buildings through the use of modern methods of construction. This assumption underpins a number of the efficiencies incorporated within the capital costs for Option 2.

A sensitivity has therefore been examined whereby life cycle costs are 20% higher than forecast throughout the operational period. The impact of this 20% increase on the risk-adjusted NPC and benefit:cost ratio is outlined within table 3.24.

£'000	BAU	Option 1	Option 2
Risk Adjusted NPC	531,425	606,747	591,533
Sensitised Risk Adjusted NPC	531,425	606,747	592,349
Variance	-	-	816
Sensitised Benefit-Cost Ratio		4.04	4.84

Table 3.24: Sensitivity Analysis - Increase in Life Cycle Costs £'000

L&D has benchmarked the lifecycle costs for the scheme against other similar programmes and these figures include optimism bias and planning contingency. Therefore, it is unlikely to increase

materially above those forecast in the OBC. Regardless it can be seen that the benefits are significant enough to ensure that both options retain a significant Benefit-cost ratio.

3.10.3 Benefits – decrease by 10% in all options (including BAU)

The benefit:cost ratio for all options is based on the delivery of a set of benefits including pay efficiencies. L&D have developed the pay efficiencies based on bottom analysis of the scheme and the associated benefits that will be delivered. There has been engagement with clinical and operational teams to understand the workforce requirements and quantify the staff efficiencies that could be unlocked. As such,

the Trust feels that these assumptions are robust and that, therefore, a 10% decrease in the CIP is unlikely.

However for robustness a scenario of all the cash releasing benefits under options 1&2 being reduced by 10% has been modelled.

The impact of this reduction on the risk-adjusted NPC and benefit:cost ratio is outlined within Table 3.23 below:

	BAU	Option 1	Option 2
Sensitised Benefit-Cost Ratio		3.63	4.39

Table 3.25: Sensitivity Analysis – Failure to Achieve Efficiency Savings £'000

As shown in table 3.25 above, the benefit:cost ratio for Option 2 remains the highest of the short listed options, but again it should be recognised these figures do not include the unmonetised benefits identified in table 3.22.

Switching analysis was undertaken to consider the percentage reduction in efficiency savings required under Option 2 in order to result in a switching of the preferred option and for the benefit:cost ratio to fall below 4:1.

A 17% reduction in benefits is required in order for Option 1 to switch to the preferred option. However, it is likely that a scenario giving rise to reduced efficiencies under Option 2 will also affect the efficiencies achieved under Option 1.

3.10.4 Total Downside Sensitivity

Following the sensitivity scenarios examined above, analysis was performed to consider a total downside sensitivity whereby all scenarios occur simultaneously. This results in a total variance to

the Risk Adjusted NPC under Option 2 of £10.7m, whilst the benefit:cost ratio falls to 3.93 .

Based on the very low likelihood of all scenarios occurring simultaneously, the selection of the preferred option is deemed to be robust and the mitigations which the Trust has in place, as outlined within the Management Case, are deemed sufficient to ensure that the option remains a value for money solution.

3.11 Economic case conclusion

A robust process of economic modelling has been employed using the CIA model to support the development of a preferred option.

The quantitative economic appraisal appraised the shortlisted options and the analysis above demonstrates that Option 2 is the preferred option. This option results in the lowest risk adjusted NPC, highest NPSV and the highest benefit:cost ratio of the short-listed options (see table 3.25).

£'000	BAU	Option 1	Option 2
Incremental Costs Total	0	-92,722	90,794
Incremental Benefits Total	0	374,247	443,033
Risk Adjusted Net Presented Social Value (NPSV)	0	281,525	352,238
Total	0	4.04	4.88

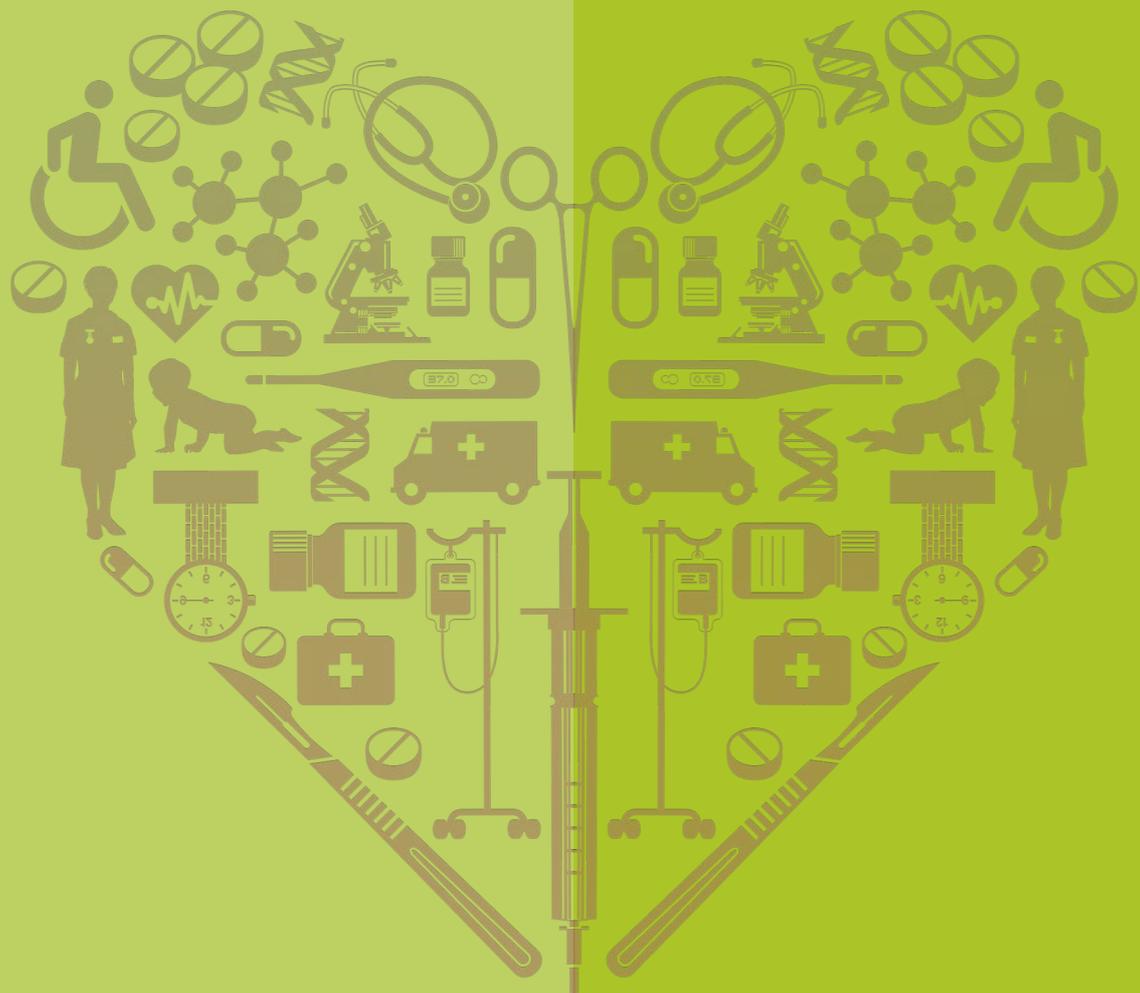
Table 3.25: Risk and Benefit Adjusted NPC £'000

The preferred option provides the most advantageous strategic fit for the Trust and the wider healthcare community. Importantly, the preferred option provides the most value for money.

The preferred option to redevelop the hospital site will provide modern, efficient, compliant and safe clinical accommodation for acute services. It will replace infrastructure that is no longer cost effective to maintain. The programme of works will ensure that the Trust's infrastructure aligns with current and future clinical service strategies, and will enable the proactive maintenance of assets and a reduction in backlog maintenance.

The preferred way forward for the hospital's redevelopment is to build new hospital estate, over 2.5 years, using the central funding allocation, with a contribution of Trust cash. The new hospital estate will comprise of an Acute Service Block for maternity, critical care, neonatology and theatres, and an adjoining ward block. The "Preferred Option" chapter describes the design for the new hospital estate.

The Preferred Option



Preferred Option Summary

The Strategic Case outlined a compelling case for change and the identification of the preferred option. This chapter outlines how the preferred option will deliver the case for change whilst supporting the critical success factors for the scheme and achieving the identified spending objectives. The ambition of the preferred option is in line with national policy and ultimately will support higher quality, more efficient and safer patient care.

Clear and defined programme governance has been followed to support the development of the preferred option. This scheme will support and be delivered in conjunction wider Trust strategies, such as Estates, Workforce and IM&T.

The preferred option will deliver an Acute Service Block (ASB) and New Ward Block (NWB) incorporating:

- A Maternity Delivery Unit with 18 delivery rooms and a dedicated Obstetric Theatre complex comprising of 2 Theatres and 1 Procedure Room
- A Neonatal Unit with 42 flexible ITU/ HDU cots plus 10 transitional care beds
- New postnatal and antenatal maternity wards
- A 22 bed Critical Care Unit
- A Theatre Reception floor utilising an innovative pod system for admission and discharge of elective patients, plus provision of accommodation for 23 hour stays
- A Theatre floor linked to existing main Theatres with 6 additional general operating theatres and 2 hybrid operating theatres

The design supports equality and diversity guidance and has clear quality objectives, with the design led by the end user with engagement with internal and external stakeholders including service users. The design follows HBN and HTM guidance. Where there has been deviation from the latter, a clear derogation process has been followed.

The ASB and NWB will deliver a step change in service delivery for Maternity, Neonatal, Critical Care and Surgery. Much improved adjacencies will

be delivered as demonstrated by:

- The streamlined patient pathway for Maternity and Neonatal Services, with all departments now linked via internal pathways
- Combining HDU and ITU onto a single Critical Care Floor
- Reduction of the number of operating theatre complexes on site from four to two

The preferred option, in conjunction with the Energy Centre, will deliver significantly improved sustainability for the entire site either through reduction of backlog maintenance or through more energy efficient processes.

A number of enabling schemes will be delivered as part of this preferred option. These are not only needed to free up space for the new ASB and NWB but will also in their own right deliver improvements to the hospital site and patient care. These include:

- Increased parking numbers will bring the total parking provision at the Trust in line with the modelled number of spaces required.
- Bariatrics having an outpatients area that meets its Centre of Excellence status.
- An office strategy will enable the Trust to provide appropriate administrative areas for increasing numbers of staff, yet at the same time reducing the total office footprint through adoption of agile working practices. This is crucial on such a space constrained site.

4.1 Introduction

The Strategic Case described the context and case for change for the substantial redevelopment of the hospital. It identified that a significant redevelopment of the L&D was required due to the poor quality of existing estate which is severely compromised causing a detrimental effect on patient care, patient safety, staff morale and operational efficiency. Maintaining suboptimal facilities is also an inefficient use of public funds, and directly contravenes the Health Infrastructure Plan (2019), the BLMK STP strategic plan and learning from Naylor (2017) and Carter (2016) reviews.

Addressing this is a key corporate objective for the Trust in 2019/20 and a priority for the BLMK ICS. The hospital is driven to provide patient focused, efficient and sustainable services, but to continue to do this safely the organisation must radically improve the quality of the facilities through which care is

delivered. This will support the Trust's strategic vision to become a major emergency centre; to provide flagship women's and children's services; to deliver a class leading elective centre; and to advance the commitment to training and teaching. This will allow the L&D to change the way in which care is delivered, maintain performance against national quality and service targets, and lower the risks to services at the site. This is essential to ensure a high performing and sustainable hospital in the future, which allows the Trust to deliver safe, sustainable services for patients.

Whilst a complete site redevelopment is required, as identified by the site development control plan (DCP - see figure 4.1), financial and operational constraints require that this is conducted over a number of phases.

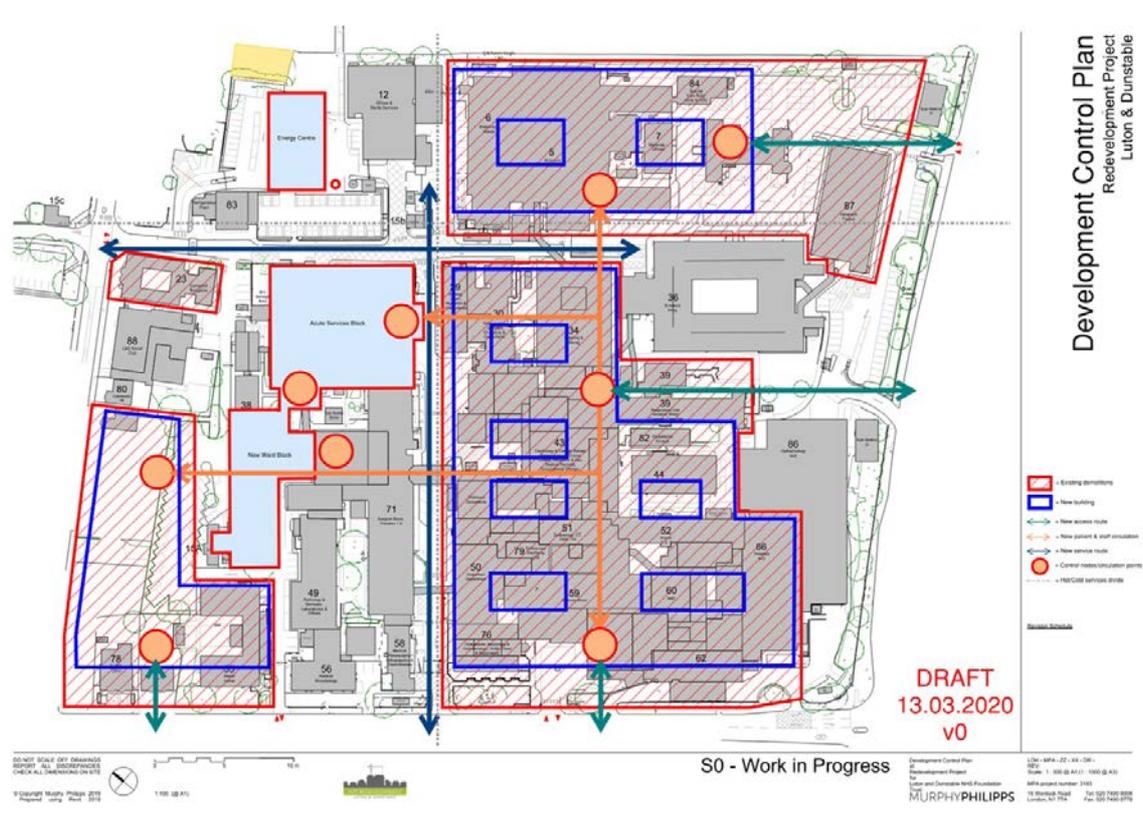


Figure 4.1: Development Control Plan, agreed by the Programme Team March 2020

The first phase of the DCP (the subject of this business case) addresses the Trust's highest risk clinical areas. The critical success factors, essential for success of the scheme and identified in the Strategic Case, along with the respective benefits criteria are rearticulated in table 4.1.

CSF	Benefits Criteria
Strategic fit and business need	<ul style="list-style-type: none"> ■ Aligns with the NHS 5 year forward view ■ Responds to the Carter Metrics ■ Aligns with the BLMK ICS strategy ■ Enables the Trusts clinical vision to be realised ■ Resolution of backlog in the Delivery Suite, Neonatal Unit, Critical Care and old modular theatres, significantly reducing the risks in the delivery of services.
Potential value for money	<ul style="list-style-type: none"> ■ The scheme supports service efficiencies, decreasing risk and maximising benefits across the health community ■ The scheme optimises social value by providing major investment into Luton
Supplier capacity and capability	<ul style="list-style-type: none"> ■ Ensuring at every stage the scheme is attractive to the market
The scheme is affordable to the organisation (revenue and capital)	<ul style="list-style-type: none"> ■ The scheme is affordable within the £150m capital funding envelope ■ The scheme is affordable within the LTFM
Achievability: The scheme is deliverable – there is the required skill set in place to manage, drive and deliver the scheme	<ul style="list-style-type: none"> ■ The scheme is likely to be delivered given an organisations ability to respond to the changes required ■ The scheme matches the level of available skills required for successful delivery

Table 4.1: Critical success factors and benefits criteria

The preceding chapters conducted an extensive options evaluation and identified that the preferred option that will deliver phase 1, and achieve the CSFs, requires a significant investment to create a five-

storey acute services block (ASB) with an adjacent three storey ward block (NWB). This is to be delivered by 2023. Table 4.2 provides a summary of accommodation across each block.

	Acute Services Block	New Ward Block
Ground floor	Maternity Delivery Suite <ul style="list-style-type: none"> ■ 18 delivery rooms - 10 obstetric led - 6 midwifery led - 2 bereavement rooms ■ 2 obstetric theatres and 1 procedure room, with a 7 bed close monitoring and recovery bay ■ 4 bed high risk induction bay with en-suite facility ■ Access to a private courtyard/garden to support mobilisation in labour 	Maternity <ul style="list-style-type: none"> ■ Maternity Reception ■ 6 bed Decision Admission Unit ■ 6 bed Triage Unit Clinical support space <ul style="list-style-type: none"> ■ Shared staff rest ■ Changing facilities ■ Clinical Storage
First floor	Critical Care Unit <ul style="list-style-type: none"> ■ 22 bed Critical Care Unit (beds flexed to support Level 2 and Level 3 Care) 	20 bed Maternity Ward <ul style="list-style-type: none"> ■ Postnatal ward ■ Can flex for additional antenatal capacity
Second floor	Neonatal Unit <ul style="list-style-type: none"> ■ 42 cot spaces - 18 ITU cots - 24 HDU/SCBU cots (support flexing as capacity requires) ■ 10 bed transitional care (support flexing as capacity requires) - 8 transitional care beds - 2 rooming in rooms ■ Bereavement suite ■ Access to 3 additional parental rooms (in addition to the 8 parental rooms on site) 	20 bed Maternity Ward <ul style="list-style-type: none"> ■ Antenatal ward ■ Can flex for additional postnatal capacity
Third floor	<ul style="list-style-type: none"> ■ Theatre Reception ■ 32 Pods (side rooms) - En-suite facilities to bays - Pods support admission/ wait/ change/ recovery - Pod design provides male/female and adult/adolescent/child segregation 	N/A
Fourth floor	Theatres <ul style="list-style-type: none"> ■ 8 operating theatres - 6 general theatres - 2 hybrid theatres ■ 21 bed first stage recovery 	N/A

Table 4.2: Summary of preferred option accommodation

This first phase of redevelopment will consist of a number of enabling schemes. A requirement to increase car parking spaces is a critical issue for the Trust, a significant office strategy programme will need to take place to provide a new way of

working and Bariatrics Outpatients will move to an off-site location (continuing the Trust strategy of moving less acute services to a community setting).

This chapter will provide more extensive commentary on the preferred option, the design process and how the design will address the case for change articulated in the Strategic Case. It will not provide any commentary on the design and build of the Energy Centre, which is subject to a separate internal business case.

A full design pack can be found in Appendix 4 and Appendix 5. This includes the principal designs from architects, structural engineers and M&E engineers.

4.2 Design process

4.2.1 Governance

To ensure effective delivery of the programme, a clear structure was established to ensure that appropriate arrangements are in place to support decision making. The management case sets this out in detail, providing the programme structure and governance adopted for this scheme (see figure 4.2). The FT Board of Directors were ultimately responsible for the design process, seeking assurance that all stakeholders had been engaged in the process and the design was aligned with the Trust's redevelopment proposals.

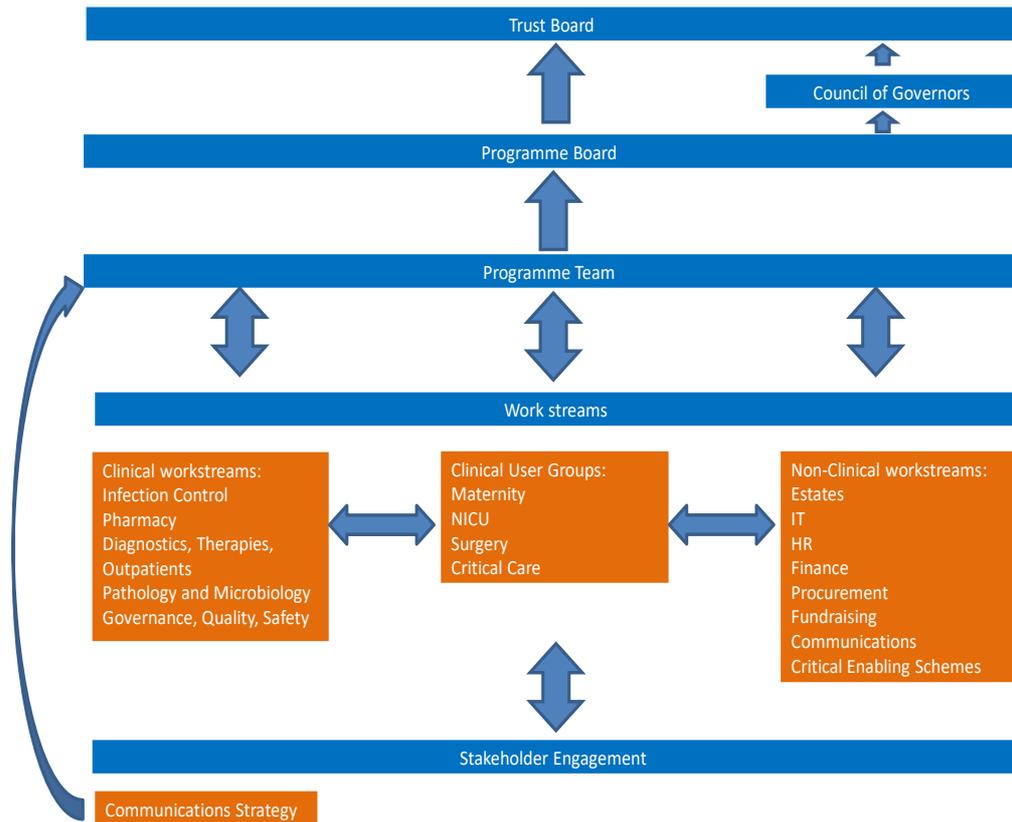


Figure 4.2: Programme structure and governance

4.2.2 Design approach

The Redevelopment Programme Team had responsibility for managing the overall design process, ensuring it was aligned to the Trust's aspirations and strategy whilst remaining within the cost envelope. They were required to challenge the design and identify innovative design solutions to drive down operational and capital costs or reduce the delivery programme.

Acknowledging that the Trust does not have appropriate expertise or capacity for all elements of the design, the Redevelopment Programme Team were required to procure and appoint an external design team. Key members of the 2015 OBC design team were reappointed in 2019 along with a number of technical advisors.

In line with the Trust workforce strategy (see the Management Case), the preferred option will be defined by its approach to supporting and enabling clinical and corporate leaders to drive and deliver service transformation to overcome the shortfalls of current facilities. For these reasons the design for the new clinical accommodation is being led by the clinical and managerial end users who will be providing the care and managing service lines within these facilities.

To manage this process, the Redevelopment Programme Team established a number of Clinical User Groups providing them with a clear remit, terms of reference, membership and timetable. In total four Clinical User Groups were established with the following leads:

- Maternity- Clinical Director, Women’s Services
- NICU- Clinical Director, Neonatal Services
- Theatres- Director for Surgery
- Critical Care- Clinical Director, Critical Care.

An example structure for a Clinical User Group is in figure 4.3. These meetings were held regularly with the proposed designs presented for review and discussion. A record of engagement is available on request. The user group meeting had a core membership with members of the other clinical and non-clinical workstreams (such as IT, Pharmacy, Therapies and Infection Control) providing input into the design process. A number of internal and external stakeholders were also engaged as part of the process, to enable optimal engagement in the process. This included taking designs to divisional and service line meetings, and engagement with patients who had been service users. Designs were also scrutinised in separate workshops, such as the review of the engineering and facilities management design by the Estates Team.

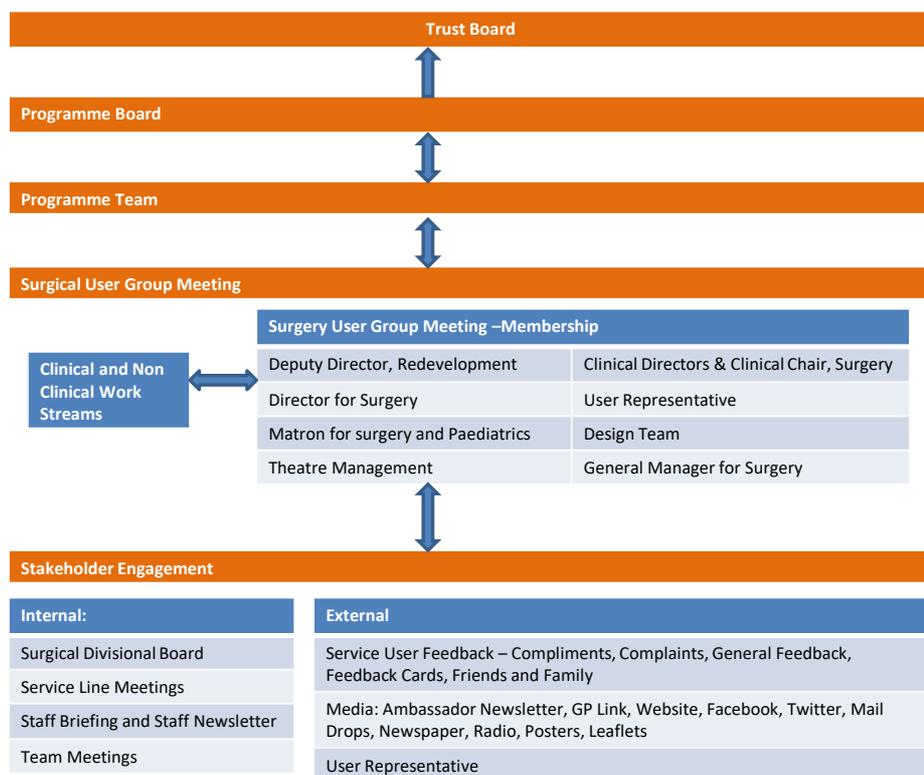


Figure 4.3: Example user group structure

4.2.3 Independent design appraisal

The Procure 22 design appraisal toolkit (DAT) process was selected to enable a review of designs, with peer user groups evaluating designs of the preferred option. DAT is a tailored version of Achieving Excellence Design Evaluation Tool (AEDET), which is approved by NHS England as meeting the requirement of an independent Design Appraisal as referenced within the NHS Business Case Checklist.

Due to COVID 19, the full DAT process could not be achieved prior to submission of OBC. Initial evaluations are included in Appendix 6; summary results are in figures 4.4 and 4.5 with the scoring matrix in figure 4.6. Some areas of design are not fully detailed at this stage with the scoring reflecting this. DAT is an iterative process and a re-evaluation will take place prior to FBC.

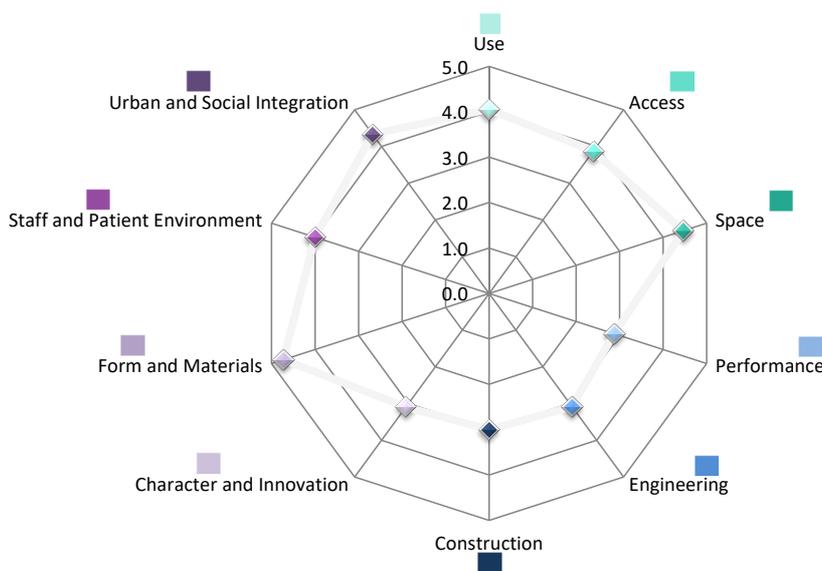


Figure 4.4: DAT assessment of Maternity and NICU

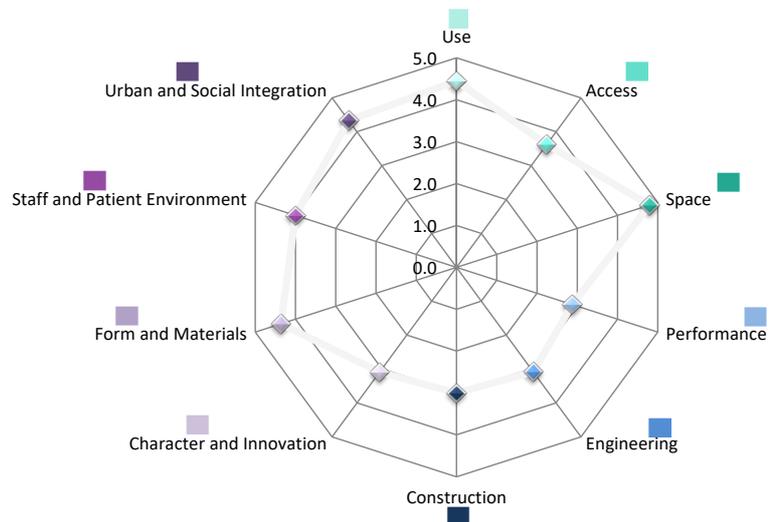


Figure 4.5: DAT assessment of Critical Care and Theatres

Scoring
Virtually Total Agreement (6)
Strong Agreement (5)
Fair Agreement (4)
Little Agreement (3)
Hardly Any Agreement (2)
Virtually No Agreement (1)
Unable to Score (0)

Figure 4.6: DAT scoring matrix

4.3 General Design Principles

The purpose of the proposed option is to provide the Trust with an estate appropriate to deliver healthcare

provision into the future. The spending objectives stated in the Strategic Case, shown in table 4.3, provided guiding principles for this design.

Objective		Key Deliverable/Scope
1	To maximise space efficiency	Increase bed occupancy levels in NICU, Maternity and Critical Care All births where planned will occur on the delivery suite Decrease wait for Induction of Labour and planned C-Sections Increase theatre utilisation
2	To improve clinical safety and mitigate against clinical risk that the environment presents	Provide facilities in line with HBNs and HTMs that support infection prevention standards Eliminate infection control hazards posed by a substandard clinical environment To provide a safe environment for patients and staff
3	To facilitate the merger with Bedford Hospital	Create a platform from which the BLMK STP strategy can be delivered for the ICS Future-proof the hospital design to support any forthcoming clinical requirements.
4	To eliminate inefficiencies from delivering care across split units	Co-locate high dependency and intensive care bed base to create one combined critical care unit Workforce - Decrease nurse to bed ratio as a result of bringing critical care teams together Reduce number of theatre suites from 5 to no more than 2 Decrease the duplication of ancillary space associated with theatres Bring together maternity assessment and inpatient services to support workforce efficiencies. E.g. one assessment point and not three, one reception point and not five.
5	To improve clinical quality standards	Decrease theatre cancellations on the day due to either bed or staff shortages Decrease complaints within maternity, NICU, critical care and theatres due to the poor environment Remove all temporary clinical accommodation across the L&D Reduce the hospitals backlog maintenance, specifically the high-risk element.
6	To optimise space for clinical and non-clinical administration, management and storage	Move away from cellular offices to open plan, multi-disciplinary offices, to support joined up and more efficient ways of working.

Table 4.3: Spending Objectives

4.3.1 HBN and HTM guidance

Health Building Notes (HBN) and Health Technical Memorandum (HTM) have been used as the starting point and primary reference tool for the design of the scheme. This is to address the many issues in the current estate, as referenced in the Strategic Case and Estates Strategy (see Appendix 7).

The project is being and will continue to be designed in compliance with HBN 00-09 'Infection Control in the Built Environment'. The Trust's infection control team were part of the user group

meetings. They have reviewed the 1:200 designs and agreed in principle that these are compliant with Trust standards. The formal letter of compliance from the Head of Infection Control will follow post COVID 19 response.

Responsible, clinically-approved and fully documented derogations, based on specific operational requirements and informed by successful application elsewhere, have been made in certain areas. This will ensure optimal space efficiency and delivery of the scheme within the required financial envelope.

The approach to derogation recognises that healthcare methods have continued to evolve over recent years. Local clinical practices may on occasion suggest a different approach to the use of space, and experience from other recently designed and commissioned facilities provides an evidence base of where design innovation has enabled successful derogation. Table 4.4 provides

an overview of the relevant HBNs and date of publication to emphasise the length of time since last updates. For example the Maternity Transformation Programme document 'Implementing Better Births - key deliverables for Local Maternity Systems,' builds on and enhances the 2013 HBN for maternity care and neonatal services.

No	Title	Publication Date
HBN 04-02	Critical Care Units: Planning & Design	20/03/13
HBN 09-02	Maternity Care Facilities: Planning & Design	20/03/13
HBN 09-03	Neonatal Units: Planning & Design	20/03/13
HBN 26	Facilities for Surgical procedures in Acute General Hospitals	02/01/04
HBN 04-01	Adult in-patient facilities: planning and design	01/12/09

Table 4.4: Relevant HBN and publication dates

Table 4.5 outlines key derogations, with the full derogation schedule at Appendix 8.

Where	What	Why	Mitigation
Maternity	HBN recommends maternity unit of this size only has two theatres. Design provides two theatres plus procedure room	High percentage of C sections compared to similar sized units. This is due to the demographic and comorbidities	Procedure room rather than operating room provided. Minor procedures to be conducted in this room, freeing up space in Theatres.
Maternity	Close monitoring bays within recovery, not required within HBN	Prevents delivery room blocking whilst allowing mother and baby to be together.	This is best practice which is adopted post HBN publication.
NICU	SCBU multi-cot spaces	Horizontal cot bay design mirrors Royal London Hospital which was visited by user group.	The horizontal cot bay is more space efficient whilst also fulfilling space requirements.
Critical care	4 bed bays are 33m ² smaller than HBN (110m ² vs 143m ²)	Site visits by user group felt that space recommendations were excessive.	Circulation space reduced within the bay to ensure bed spaces close to HBN requirements
Theatres	Prep rooms for general theatres excluded from design	Best practice is for laying out instruments under laminar flow canopy.	All general theatres are laminar flow, loss of storage compensated for by use of adjoining existing theatres space.
Theatres	Existing storage levels do not meet HBN requirements.	Space constraints along with loss of prep rooms to general theatres.	Refurbishment of existing theatre support space within adjoining surgical block to provide increased storage.

Table 4.5: Derogation schedule extract

Clinicians were able to sign off these derogations in an informed way following site visits to other hospitals and through the use of 1:1 scale floor layouts. An example of this is the design of the four bed bays in the new Critical Care Unit, with an approved derogation from the HBN 04-02 recommendation of 143m² to 110m². This was based on the user group conducting visits to three Critical Care Units, with one unit having bays of this size which incorporated a staff base in the centre of the bay. By removal of this bay the clinical team were able to demonstrate that they could still achieve full 360 degree access to patients and to fit appropriate equipment within the space without encroaching into adjacent areas. The staff base was felt superfluous based on a mobile digital strategy, and work spaces provided for elsewhere in the unit. This was presented to the Executive and Infection Control with approval granted.

4.3.2 Equality and Diversity

An Equality Impact Assessment (EIA) has been completed in advance of writing this business case (at Appendix 2 which has identified that there is no adverse impact on any group anticipated by the development of the L&D. The development will positively impact patients, visitors and staff and enhance equal opportunities, diversity and human rights. Finally, the community will benefit from the proposal through an enhanced opportunity for employment in the local area.

The designs reflect the outputs of this EIA, with no negative effects identified. As stated in the design approach, throughout the design process there was considerable engagement with service users, staff and other stakeholders. Facilities have been designed to be specific for each patient group and also allowing some adaptability and flexibility in order to mitigate further changes in service provision and demand.

Examples of how the design has supported the needs of the nine protected characteristics include:

- Private staff WC, change and shower facilities
- Higher proportion of sex segregated facilities for patients
- Improved children's facilities, such as providing

segregated accommodation for children on an elective journey to ensure visual and acoustic separation.

- New accessible office accommodation
- Space for nursing mothers to express and store milk
- Improved facilities for carers such as facilities on maternity to allow fathers to stay.
- Use of the elective pod system, providing patients a private room when awaiting surgery and for final recovery before discharge.

In particular, consideration was given to the provision of sex segregated accommodation. The proposed changes do not impact significantly on the existing inpatient accommodation. However where inpatient accommodation is provided, such as in the NWB, the ratio of single bedrooms is increasing along with the size of the rooms which will allow an opportunity for the Trust to improve the provision of accommodation for carers and parents.

A letter of compliance on single sex accommodation will be provided post COVID 19 response.

4.3.3 Quality

Consideration of how to optimise the quality of care for specific patient groups has been identified through the EIA (see section 3.2) and was at the forefront of the design process. This will be discussed in greater detail for each department in section 4.

It was acknowledged in the Strategic Case that the overall quality of the existing estate is severely compromised by small clinical rooms (see section 3.1); suboptimal clinical adjacencies (see section 4); poor circulation flows; poor building structures.

To improve circulation the following design principles were followed

- Keeping travel distances to a minimum, eliminating many inter-departmental corridors and keeping corridors as straight as possible.

- Vertical travel is generally quicker than horizontal so the building's central lift core will facilitate ease of movement whilst also assisting in separating clinical and visitor flows.
- Ensuring staff travel distances whilst conducting clinical activity is kept to a minimum, improving clinical effectiveness.

When agreeing the layout for each department, further consideration needed to be given to visual privacy, with careful consideration given to sightlines from circulation spaces into patient accommodation. Acoustic privacy was also a key design consideration, achieved through ensuring appropriate colocation of activity spaces and specifying partitioning to be constructed to achieve the required acoustic performance standards.

Natural light is particularly important factor in improving the quality of patient care, as well as improving the working environment for staff. The form of building, dictated by the available site and functional relationships, restricts some availability of natural light. To mitigate against this a hierarchy of room positioning has been adopted

- Permanently occupied clinical accommodation (patient bed rooms, consult exam rooms, staff areas) positioned along the building's perimeter.
- Intermittently occupied accommodation ('hot desking' areas) given less priority with respect to accessibility of natural light.
- Spaces where natural light is specifically not required (Store cupboards, dirty utilities) located inboard.

Use of open air space is another demonstrable factor in quality care improvement. Incorporate within the scheme include:

- Dedicated outdoor landscaped area for maternity patients.
- A children's outdoor play area
- Provision of an open air space for patients from Critical Care.

It is noted that the current way finding within existing buildings is poor and does not follow coherent processes, creating a negative patient and visitor

experience. To overcome this a workstream focussed on the production of a way finding strategy has been created. This will consider the safety, design and flow of all buildings on site to ensure one approach is adopted across the entire hospital.

4.3.4 Sustainability

As stated in the Strategic Case, the L&D has an obligation to work in a way that has a positive effect on the communities that it serves. The Trust is vigilant about how public money is spent and aspires to make the most of social, environmental and economic assets and to improve health both in the immediate and long term, even in the context of rising cost or natural resources. The L&D has developed a robust sustainable development management plan (SDMP), which is strengthened by the proposed work on the hospital site.

As noted in the Strategic Case, the L&D is currently an outlier within its peer group in respect of energy consumption. Furthermore, reduction in carbon footprint is one of the five priorities for the BLMK ICS Long Term Plan. The Trust is committed to a low carbon management plan, which this redevelopment proposal supports. The key elements of the plan are:

- To support a reduction in CO2 emissions
- To provide a better environment for all to work in
- To encourage healthier low carbon living
- To reduce energy bills
- To reduce backlog maintenance

The Trust's ability to deliver its SDMP is currently constrained by the condition of the site. Whilst the investment will fail to address all SDMP requirements, it will assist greatly in making the SDMP more achievable.

It is noted that NHSI require new hospital builds to have a BREEAM rating of >70% requiring the scheme to target Excellent. The Trust has developed its approach on the basis of achieving Excellent. this target is, however, challenging due to the fact that only a small proportion of the

estate is being redeveloped and the considerable energy demand for both buildings, given the acute clinical facility requirement.

Due to its clinical use, the ASB will require extensive engineering services. Large air volumes and cooling will be required to maintain cleanliness for infection control, as well as defined temperatures for the clinical procedures to be carried out and specialist medical equipment to operate. It will therefore consume a significant amount of energy, which will affect carbon emissions. The NWB, despite requiring less energy demand than the ASB, is likely to be sealed (due to proximity to the road) and will therefore require full mechanical ventilation. New building techniques for both buildings, plus the associated energy centre for this new building will help ensure sustainability.

The initial BREEAM feasibility study in November 2019 indicated a target score of 60.25%, with an updated score in March 2020 (due to the inclusion of the New Ward Block) of 60.77%. This appears to give the scheme a BREEAM rating of 'Very Good' subject to appropriate evidence being made available by the respective stakeholders. The BREEAM assessment can be found in Appendix 9.

Critical to the SDMP is the significant overhaul of the Trust energy supply through creation of a new site wide Energy Centre- utilising CHP- prior to the commissioning of the new buildings (construction starting Summer 2020). This will address both of these strategic priorities, alongside a programme to utilise more energy efficient lighting, reduce the

number of electrically heated temporary buildings and improve insulation. It will also support a significant reduction in backlog maintenance through replacement and centralisation of the 70 gas boilers which are in urgent need of replacement, provide increased infrastructure resilience across the site and is a key enabler to any elements of new build. This element of work forms part of the Trust's five year capital plan, and is subject to a separate internal business case.

A key strategic driver across the NHS is to turn healthcare estates from liabilities into assets. In many Trusts this can be achieved by site reconfigurations which often release capital to re-invest. This is not an option for the L&D owing to its single site status and the fact that many buildings are already at or beyond their capacity.

There are a number of buildings across the L&D earmarked for demolition as a key enabler to this preferred option. This is illustrated by the orange highlighted areas in the demolition plan in figure 4.7. Furthermore, a number of temporary buildings will be demolished or removed to clear the site in line with the master plan for the site. In support of the OBC, the Trusts 5 year capital plan aims to dovetail with the proposed scheme to support improved flow within the hospital and to address backlog maintenance and outstanding environmental concerns.



Figure 4.7: Phase 1 and 2 site demolition plan

In total, £12m will be removed from the current backlog maintenance as a result of this site clearance for phase 1. A further £33m can be cleared as part of the Hospitals phase 2 plans, described under the section “Development Control Plan” in the strategic case.

The Trust remains committed to supporting more sustainable forms of transport through the SDMP, working in conjunction with Luton Borough Council and seeking to support their Local Travel Plan. The new Lewsey Road Multi-Storey Car Park will also incorporate significant cycling storage for both staff and visitors, plus a staff changing and shower facility. Additionally, as part of the ongoing site electrical infrastructure upgrades, 21 additional electric car charging points will be installed in the existing Calwood Road visitors car park.

4.3.5 Preferred option fit with the Trust Estates Strategy

Workshops between the Estates and Redevelopment teams were held on a monthly basis to review the designs of the ASB and NWB.

The engineering services strategies will support a future environment that responds to the varying activities envisaged within the estate, reflecting the Trust’s aim to enhance the staff, patient and visitor experience and support first class clinical care. There have been a series of interactive workshops with Estates, Safety Groups and specialist advisors to ensure that service design is in accordance with Department of Health guidance documents.

A series of policy documents will be produced for all new assets and developments across the site, in order to support this approach. They will:

- Be produced in consultation with the teams responsible for managing and maintaining them.
- Include infrastructure, plant spatial requirement, energy, vertical transportation and internal services.
- Demonstrate how the new buildings will achieve compliance with Building Regulations Part L2A
- Demonstrate how the building construction and installed engineering services will perform to very high levels.
- Ensure flexibility, standardisation, resilience and growth will be built into the design (as per NHS guidance)
- Ensure new buildings will be designed to use less energy and carbon. Thermal modelling of internal spaces during RIBA stage 3 will identify how the space will react to external elements, thereby dictating the heating, cooling and ventilation design.
- Utilise existing underground service ducts to bring energy efficient heating and hot water to the new buildings from the central Energy Centre
- Utilise lighting to create visual interest and a relaxing environment for all, whilst setting the standard and tone for the wider hospital redevelopment. Examples of use of natural lighting and open space are provided in section 4.3.3

All of these are described in detail in the estates strategy (see Appendix 7) with the M&E and Services policy statements at Appendix 4.

As noted in the strategic case, the condition of many of the current buildings makes effective cleaning and the delivery of suitable infection control measures extremely challenging. The regular workshops have ensured that there is a robust facilities management plan for both the ASB and NWB which are in line with DoH consumerism requirements and overcome the current issues. In particular the following principles

have been adopted:

- Provision of dirty utility rooms in each clinical space will enable clinical staff to dispose of waste, with these rooms emptied at frequent intervals into the main disposal hold provided on each floor.
- All disposal holds, with large wheeled waste bins for each waste type, will be near the dedicated FM lifts. This will minimise the FM movements within the clinical areas.
- There is dedicated storage space to support high standards of housekeeping and user safety.
- Each department includes appropriately sized and equipped patient catering facilities.
- Provision of appropriate numbers of dirty utility rooms on each floor which have been appropriately sized to meet requirements.
- Storage space has not been sacrificed and has been a key design requirement.
- Dedicated storage for waste awaiting periodic removal
- Traffic flow throughout the building has been designed to keep interaction of patients and goods/ services to a minimum.
- A centralised equipment repair area has been provided on the ground floor of the NWB to support EBME maintenance.
- A dedicated FM lift has been provided which supports both the ASB and NWB.

A security strategy has been developed and reflects the sensitive nature of the services within the ASB and NWB with vulnerable patient groups (especially in Maternity and Neonatal services). This has been approved by the Trust Security Officer.

The new estate will secure a good performance in the regular PLACE inspections and this will be benchmarked against prior inspections. There will be notable improvements against the following criteria;

- Cleanliness
- Privacy and dignity
- Condition and appearance

4.3.6 Preferred option fit with Trust Fire Strategy

The Trust have appointed an independent Fire Engineering Consultant to review the fire strategy for the building. The Trust has elected to provide for an additional stair core within the new buildings to pre-empt the likely outcome of the Grenfell inquiry. The integration of a third stair core within the ASB, rather than reliance on the stair core in the adjacent Surgical Block, exceeds HBN requirements. This has placed a cost pressure on the ASB, with a requirement for additional floor space on each floor but reflects more modern practices based on national learning from recent events.

The proposed fire strategy is in the Architectural Design Pack at Appendix 5.

4.3.7 Preferred option fit with the Trust Workforce Strategy

As outlined in the Management Case, the Trust vision is "To attract the best people, value our staff and develop high performing teams that deliver outstanding care to our patients". It is widely acknowledged that the poor estate and existing facilities have a significant effect on:

- Recruitment and retention, especially concerning where there are national shortages of trained staff (such as Critical Care and Maternity)
- Creating service inefficiencies which affect patient care and financial performance (such as the split of HDU and ICU).

The preferred option therefore sought to overcome these issues to enable the Trust to employ the very best staff and ensure they are equipped and inspired to work to the highest standards.

More detailed discussion on designs and how they will overcome service inefficiencies are outlined in

section 4.4 below.

Staff welfare was placed as a core principle within the design process. Examples of this include:

- A centralised staff rest area in the NWB. This will support staff being able to leave their place of work for a break. This was identified as a positive approach by the user groups.
- New changing facilities, appropriately sized to support demand within the NWB. Furthermore shower and changing facilities will be incorporated within the new multi-storey car park, alongside secure cycle storage, to encourage more active modes of transport.
- Rest areas, where required, for on call staff (including Deanery Trainees) incorporated within the Critical Care, Neonatal and Maternity floor plates.
- Appropriately designed office and administrative space to support required working practices.

Furthermore, the scheme must ensure safe staff transfer to the new environment with positive staff engagement throughout that delivers visionary transformation. Throughout the design process user groups were encourage to think about how they would operate the unit and to consider staff training requirements and need for standard operating procedures.

4.3.8 Preferred option fit with the Trust IM&T Strategy

By building on the GDE Programme- with expectation of achievement of HIMMS Level 7 by December 2020- and the merger planning progress, incorporation of digital process is a crucial design objective for the preferred option. As stated in the strategic case, it is recognised that digital underpins all clinical and operational services and is a key enabler for clinical integration and transformation.

This will further improve patient safety and service efficiency through increasingly paperless care processes and future integration with ICS shared care record developments.

Throughout the development of the preferred option a key consideration was how IM&T would be incorporated within designs to ensure the safety of patients and operational efficiency on day one. The digital plans must also ensure that clinical and business critical systems are integrated effectively to enable the Trust to operate efficiently and support the wider integration of clinical services.

4.3.9 Preferred option fit with the Trust Equipment Strategy

The Commercial Case provides a detailed evaluation on the equipment strategy to be followed by the preferred option. It is noted that, given the nature of the Acute Services Block, there is a requirement for a significant amount of general and specialist equipment. Through the OBC process, the Trust have a detailed understanding of the equipment requirements, the amount to be transferred from the old to new hospital estate and the equipment which will need to be purchased new. A specialist equipment advisor was appointed to support with this, providing the Trust with a detailed financial and technical analysis of the equipment requirements.

A high level analysis of the Trusts equipment and future requirement determined that the total equipment requirement for the Acute Services Block was circa £8m. This assumed a 36% transfer of current equipment (Appendix 10). Key principles include:

- Equipment being purchased between now and 2023 for the clinical services moving into the new acute services block will wherever possible comply with the equipment requirements of the new hospital build.
- 50% of the equipment requirement forms part of the Trust's rolling equipment replacement/annual capital planning programme
- There is an assumption that the Trust will maintain continuous availability of equipment to avoid any service disruption, during final fit out and commissioning of the development.
- The Trust procures all medical and non-medical equipment directly with suppliers. The Trust will take some risk on delivery and design issues relating to the building and timing of supply.
- The Trust will make use of existing national and local frameworks, tendering where necessary and through OJEU depending on the value.
- Fundraising will be used to support an element of new equipment in NICU
- The Trust has taken the decision not to pursue a standalone managed service deal for the equipment in the scope of this OBC
- The Trust currently leases some medical equipment and will continue to adopt this principle in the new hospital.

A new development of this size requires project management for the delivery, storage and logistics and this will be resourced appropriately. A detailed project plan will be developed at FBC stage and this will underpin the work of the "Equipment Workstream."

An equipment workstream will be established at commencement of the FBC. The equipment workstream will follow the principles of procurement set out in the Trust's Procurement Strategy. The equipment workstream will be led by the Trust's Head of Procurement, and will report into the Redevelopment Programme Team.

4.4 Delivery of the case for change

This chapter has so far considered the general design approach and principles. This section will seek to provide clarity on specific department designs and how they will support the CSFs and case for change. Each of the departments has been designed up to a 1:200 level along with site plans, fire strategy plans and access plans. A full design pack can be found in Appendix 4 and Appendix 5. This includes the principal designs from architects, structural engineers and M&E engineers.

These designs have been approved at Board level, with the appropriate board minutes reflecting this at Appendix 1.

4.4.1 Improved adjacencies

The preferred option will provide considerably improved adjacencies. The NWB and ASB are adjoined through sharing a lift core with joint lobby area, enabling direct links on each floor between buildings (see figure 4.8). Furthermore there will be a direct link between the existing Surgical Block

and ASB/ NWB on the first, second, third and fifth floor. This will internally connect the ASB/ NWB to the remainder of the hospital and in particular the Imaging Department, all medical wards and the ED. Further detail will be provided in the following sections.

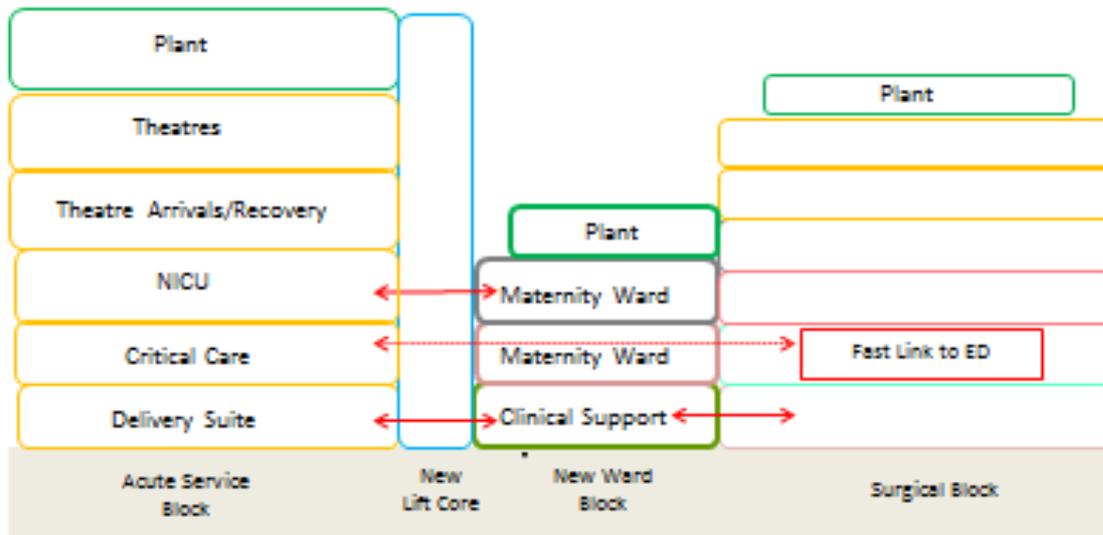


Figure 4.8: Preferred option adjacencies

4.4.2 Maternity

Around 5,200 babies are delivered each year at the L&D. Current birth predictions over the next 5 years suggest that births will increase in line with local demand, and birth numbers will move closer to 6,000. The maternity service at the L&D looks after the highest proportion of high risk obstetric women in England, and thus there is a challenge within the local health community to drive normality for antenatal and intrapartum care.

Due to the high risk patient group, the L&D requires more obstetric intervention with the current delivery suite having 2 substandard operating theatres. Advice taken from medium sized maternity units at neighbouring Trusts is that at 6,000 births, or for a higher than average risk

maternity service, there is a clinical requirement for 3 dedicated operating theatres/ procedure rooms. This will prevent bed blocking in both the operating theatre and in the delivery suite rooms.

The non-invasive, midwifery led birthing unit will actively promote normality to support women to have a low risk birth. This will be facilitated by specialist Midwives who will have the resource and facility to further support the normality agenda. This is crucial if the hospital are to address the increased demand in a service suffering from a national shortage of specialist midwifery staff. The midwifery led birthing unit has been sized to reflect an increased proportion of low risk women on a "normal" birthing pathway.

The Strategic Case identified a number of existing arrangements as a case for change:

- Poor clinical adjacencies - patients have to travel outside of the maternity building (external route) to get to imaging, main theatres and critical care (see figure 4.9).
- Bereaved parents birthing/recovering next to well Mothers and new babies.
- Women in labour in birthing rooms without en-suite facilities.
- Lack of capacity: women birthing outside of Delivery Suite
- Anaesthetic rooms used for clinical procedures when the two operating theatres are being utilised
- Lack of obstetric theatre/procedure room. The

service has two obstetric theatres. A third theatre or procedure room is required to support flow and demand.

- Undersized, inefficient, non-compliant clinical accommodation
- Poor facilities for staff and patients.
- Poor privacy and dignity for patients.
- Poor storage, equipment and supplies in corridors
- Poor support accommodation for multi-disciplinary team working
- Poor facilities for trainees, which has been raised by the Deanery.

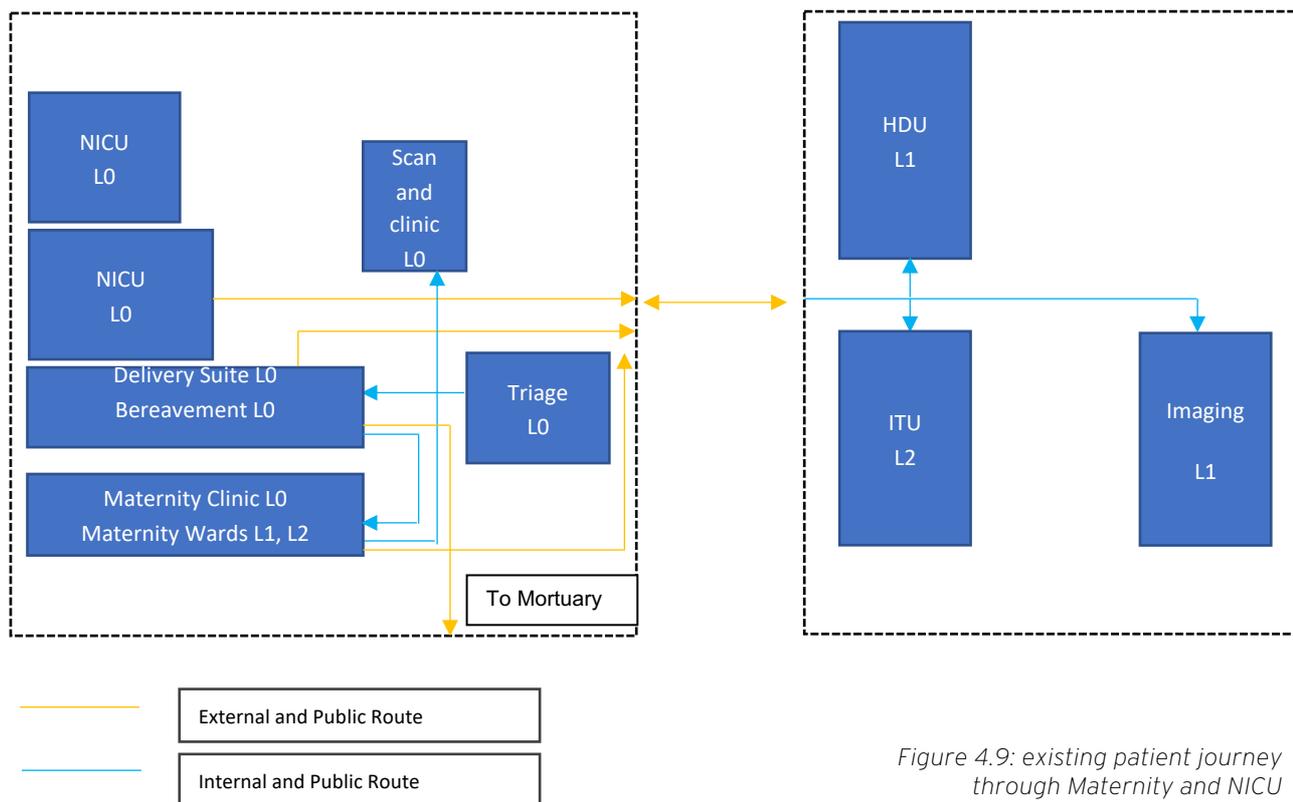


Figure 4.9: existing patient journey through Maternity and NICU

Floorplans for the preferred option for maternity are in figures 4.10-4.13.



Figure 4.10: NWB ground floor (Maternity and Clinical Support)



Figure 4.12:
NWB second
floor
(Antenatal
ward)



Figure 4.13: ASB ground floor (Delivery Suite)

The preferred option will address these concerns through the following design elements:

- Full M&E HTM compliance at this stage
- A dedicated entrance into the ASB for maternity and neonatal service, with a shared reception to improve efficiency
- The poor clinical adjacencies of the existing department have been addressed (see figure 4.14) with direct internal access between:
 - Maternity wards and delivery suite, utilising the shared lift core between the ASB and NWB.
 - Maternity and imaging- achieved by a direct link from the first floor level between the ASB and existing Surgical Block which runs directly into main imaging
 - Maternity and NICU- now collocated within the same building

- Maternity and Theatres- now collocated within the same building
- Maternity and Critical Care- now collocated within the same building
- A dedicated bereavement suite, incorporating two birthing rooms with viewing room. This is geographically separated from the remaining birthing rooms with a discreet exit. These will be flexed to meet demand.
- All birthing rooms have en-suite facilities, improving privacy and dignity for patients.
- An increase in clinical accommodation (see table 4.6). This includes:
 - An additional procedure room to support the two obstetric Theatres, removing the necessity of using Anaesthetic rooms for clinical procedures.
 - An additional birthing room to provide additional capacity.
 - More birthing rooms with pools.
 - Incorporation of new high risk induction

facilities, not required by HBN but reflects modern working practices.

- All clinical rooms sized appropriately (only minor derogations from HBN).
- Maternity wards
 - Utilise a repeatable design approach for standard inpatient wards
 - Achieve 50% side rooms as per HBN requirements
- Dedicated storage areas to prevent equipment and supplies being stored in corridors. These are provided both in the unit and close by in the ground floor of the NWB.
- Opportunities for improved multi-disciplinary team working with open plan office space with associated seminar rooms provided in the ground floor of the NWB. This can also provide training facilities for all staff groups.
- Two on-call rooms on the ground floor of the New Ward Block to provide rest areas for staff

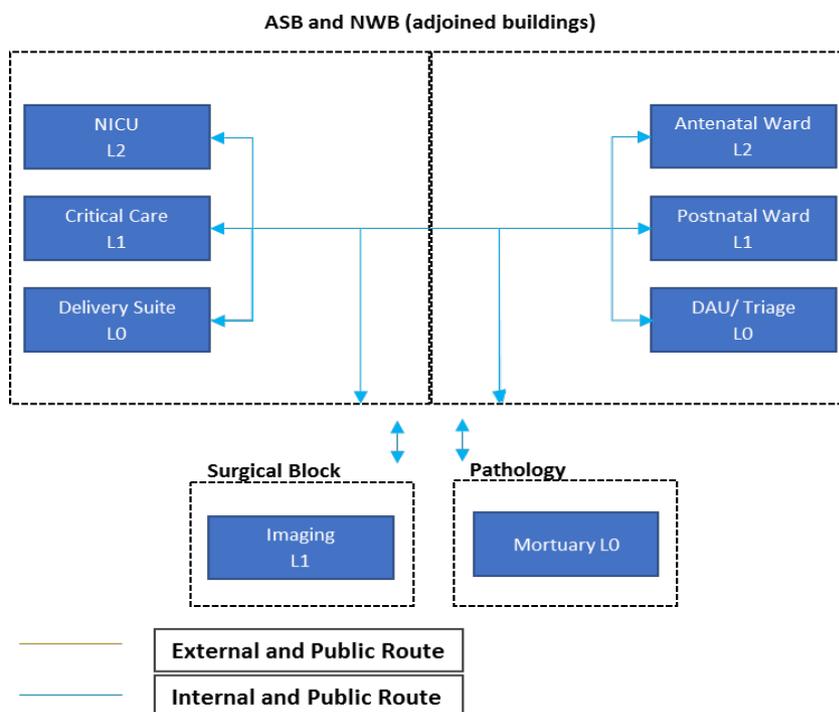


Figure 4.14: Preferred option patient journey through Maternity and NICU

Maternity Accommodation	Current	Proposed
Delivery Rooms	15	16
Bereavement Rooms	0	2
Obstetric Theatres	2	2
Procedure room		1
Theatre recovery/close monitoring	3	7
Beds	54	40
Triage	11	8
DAU	4	6
High risk induction	0	4

Table 4.6: Current vs proposed maternity accommodation

4.4.3 Neonatal Services

The neonatal unit will provide increased capacity to support the care and repatriation of all babies and mothers, locally and further afield, who require specialist level 3 neonatal care. The unit will support transitional care so that mothers and babies can receive dedicated care and support. The unit will also benefit from accommodation to support parents with premature babies. The national direction of travel is to ensure care closer to home and to ensure that level 3 neonatal units are large enough to accommodate babies who need specialist care. The birth rate in the local area is increasing and the boundaries of medicine and technology continue to be expanded. Both factors mean that the requirement for neonatal care will be greater in the future than it is now.

The Strategic Case identified a number of existing arrangements as a case for change:

- Poor clinical adjacencies (see figure 4.8)
- Lack of Level 3 neonatal capacity to support in-

utero and ex-utero transfers.

- Lack of space around the cotside to support equipment and staffing. Postnatal Mothers on beds cannot come down to NICU to see their baby
- Undersized, inefficient, non-compliant clinical accommodation
- Poor facilities for staff and patients
- Poor privacy and dignity for patients
- Poor storage, equipment and supplies in corridors
- Poor support accommodation for multi-disciplinary team working
- Poor facilities for trainees, which has been raised by the Deanery

Floorplans for the preferred option for NICU are in figure 4.15.



Figure 4.15: ASB second floor (NICU)

The preferred option will address these concerns through the following design elements:

- Full M&E HTM compliance at this stage
- A dedicated entrance into the ASB for maternity and neonatal services, with a shared reception to improve efficiency.
- Improved clinical adjacencies (see figure 4.13)
 - NICU and maternity wards- the ante natal ward

(where NICU mothers will be admitted to) is on the same floor as NICU allowing short transfer between ASB and NWB.

- NICU and imaging- achieved by a direct link from the first-floor level between the ASB and existing Surgical Block which runs directly into main imaging
- NICU and Maternity- now collocated within the same building

- Increase in overall clinical capacity (see table 4.7) to meet future demand. Of note:
 - HDU and ITU space will no longer be segregated allowing flexing in capacity to meet demand.
 - Two Rooming In rooms are located within the unit both with en-suites to provide maximum privacy and dignity.
- Increased cot space that will allow mothers in beds to see their baby
- A large waiting area and children's play area located on the ward
- Support accommodation on the unit, enabling multi-disciplinary working.
- Opportunities for improved multi-disciplinary team working with open plan office space with associated seminar rooms provided in the ground floor of the NWB. This can also provide training facilities for all staff groups.
- Centralised large staff change and rest facilities on the ground floor of the NWB.
- HBN compliant storage levels, either on the unit or in the adjacent NWB floor.
- Two on-call rooms on the adjacent NWB floor, with one for Deanery trainees.
- Parental accommodation. There will be one overnight room and two rooming in rooms on the unit, the rest will be provided in dedicated accommodation less than 10 minutes walk from the unit. This is in line with feedback from previous NICU parents who expressed a desire to be able to step off the unit into a non-clinical area for a break and sleep.

NICU Accommodation	Current	Proposed
ITU	11	24
HDU	8	Inc above
SCBU	18	18
Transitional Care	8	8
Rooming In	1	2
Parental Rooms (on unit)	2	1
Parental Rooms (off unit)	8	11

Table 4.7: Current vs proposed neonatal accommodation

4.4.4 Critical Care

The future design of critical care will support a combined high dependency and intensive care unit, with level 2 care for respiratory patients. The unit is designed in such a way as to support flexing of beds to reflect demand and activity levels. This model of care will drive service efficiencies and greater levels of care as the skill mix of staff will allow them to transition across one combined unit. This will support recruitment and retention and a more efficient workforce model. The model of care will ensure that care is provided to critically ill patients within the unit, instead of moving the very sickest of patients from ward to ward.

The Strategic Case identified a number of existing arrangements as a case for change:

- Poor clinical adjacencies. Level 1 (ITU) and level 2 (HDU) wards in different locations and on different floors. This challenges space efficiencies and workforce in an area which is hard to recruit to
- Lack of level 1 and level 2 capacity to support future demand and current business need
- Poor side room provision and challenges isolating patients
- Lack of space around the bedside to support equipment and staffing
- Lack of infrastructure to provide the right infrastructure - in terms of ventilation and IT
- Undersized, inefficient, non-compliant clinical accommodation
- Poor facilities for staff and patients
- Poor privacy and dignity for patients
- Poor storage, equipment and supplies in corridors
- Poor support accommodation for multi-disciplinary team working
- Poor facilities for trainees, which has been raised by the Deanery

- It is noted that the preferred option will increase travel distance from the medical base wards and the ED department. In discussion with user groups it was identified that the key consideration was minimising the amount of vertical/ lift travel in the transfer journey especially from ED. Therefore the decision was made to locate the Critical Care Unit on the first floor of the Acute Services Block- providing a single floor vertical transfer from ED with a total transfer distance of c. 160m. This was deemed acceptable by all clinical teams.
- Increase in overall numbers of beds from 16 to 22 beds (see table 4.8). This exceeds GPICS baseline requirements but takes into account additional capacity and takes specialist tertiary services.
- A bay approach, rather than side room only, was adopted due to staffing requirements.
- Incorporation of two negative pressure isolation rooms, in addition to side rooms, to support care for highest risk infectious patients. This is a GPICS and HBN 04-02 recommendation.
- Critical care has 27% single rooms, however there are no HBN requirements for single sex accommodation in critical care as patient acuity determines the need for access to critical care (HBN 04-02).
- Significant improvement in bay sizes over current unit, although not at HBN compliance. These have been carefully modelled to ensure they are appropriately sized. Of note:
 - Reduced size is predominantly based on reduced circulation areas within the bay. This has been achieved through removal of a central workstation, embracing modern IM&T design and appropriate workstations elsewhere in the unit.
 - Bay sizes are only minor derogation from HBN, with size modelled to demonstrate incorporation of all necessary equipment whilst enabling 360° access to the patient.
- HBN compliance for side rooms and isolation rooms
- HBN compliant storage capacity, stopping use of corridors to store equipment and supplies.
- Incorporation of Trust IM&T strategy for increased digital systems, negating the need for paper based approaches.
- Appropriate support accommodation for all staff working within the unit based on a hot desking approach. This incorporates a Deanery trainee rest room and a seminar room for training.
- Two relatives waiting rooms to be provided in the reception area, outside of the clinical area. This is based on user feedback that there are often large groups that come to visit patients on the unit, and that two separate rooms (rather than one large room) will provide better privacy and dignity.
- Corridor width within unit is sufficient to enable transfer of a level 3 patient with associated equipment and escort staffing.
- Segregated quiet spaces within the clinical area for clinicians to speak to family regarding patient care and prognosis.
- Use of glass partitions to provide maximum visibility of patients in this high-risk area.
- It was agreed that no overnight relative accommodation is required within the unit, due to there being two hotels located within a one-mile radius of the hospital.

Critical Care Accommodation	Curr ent	Proposed
ITU bay beds	5	16
ITU side rooms	2	4
ITU negative pressure rooms	0	2
HDU bay beds	7	N/A
HDU side rooms	2	N/A

Table 4.8: Current vs proposed Critical Care accommodation

There are two options for provision of additional accommodation in the future:

1. Change in the model of care for Respiratory patients by creation of a level 2 HDU facility within the base ward, providing a further four beds for use by the Critical Care Unit. This would form part of future phases of site redevelopment.
2. Movement of soft clinical support space, such as seminar rooms and offices, outside of Critical Care to provide space for two additional side rooms. An indicative location is highlighted by a red dashed line in figure 4

4.4.5 Operating Theatres

Operating theatres are expensive assets and the requirement for more has been subject to detailed discussion and analysis. A comprehensive modelling exercise was carried out by the Trust to determine theatre requirements. Research has suggested that the current theatre schedule is the most efficient and productive model.

Currently there are 15 operating theatres (excluding obstetrics) located in four different locations. The preferred option will consolidate this to 2 locations: the fourth floor of the Acute Services Block (operating as a single floor with the existing

Theatres on the fifth floor of the surgical block) and Theatres E-H in the current location adjacent to ED.

The Strategic Case identified a number of existing arrangements as a case for change:

- 4 old temporary theatres (theatres A-D) now non-compliant, difficult to maintain, maintenance requires twin theatres to be taken out which challenges BAU.
- Lack of infrastructure to provide the right infrastructure - in terms of M&E and IT.
- Undersized, inefficient, non-compliant clinical accommodation
- Poor facilities for staff and patients.
- Poor privacy and dignity for patients.
- Poor storage, equipment and supplies in corridors
- Poor support accommodation for multi-disciplinary team working
- Poor adjacencies with surgery carried out in five different locations across the site. This leads to significant inefficiencies in terms of staffing and physical resourcing of these theatres, and compromises patient safety and clinical care. See figure 4.17.

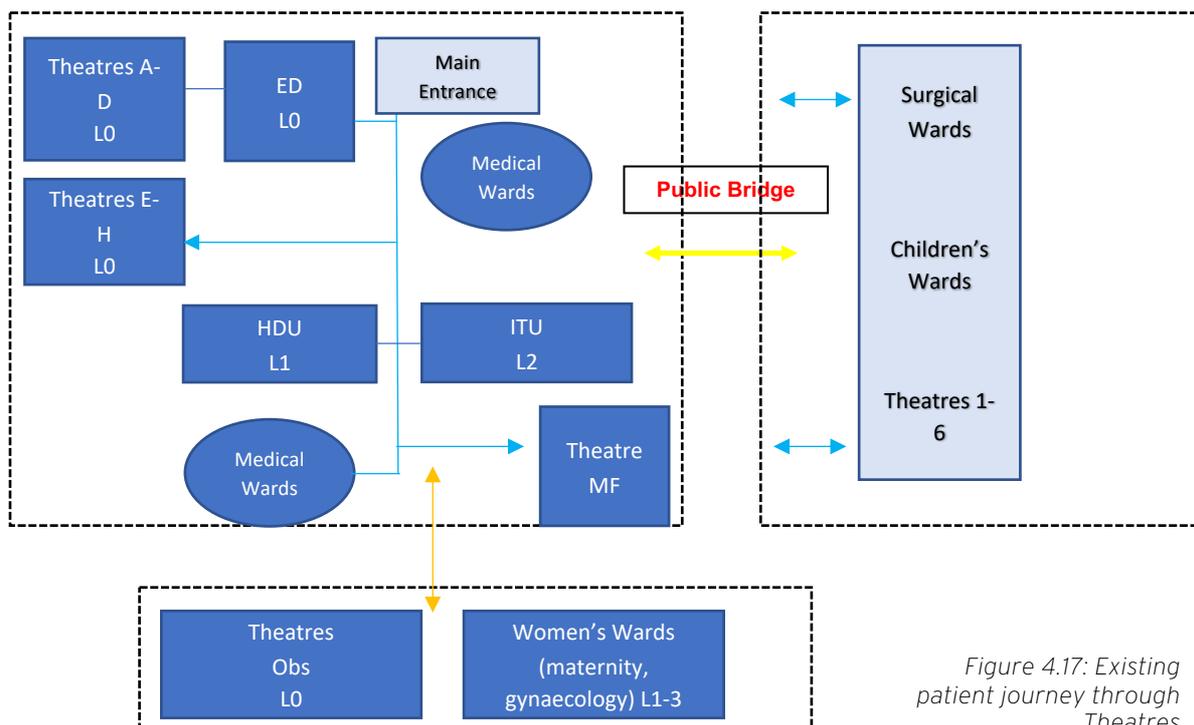


Figure 4.17: Existing patient journey through Theatres

Floorplan for the preferred options are in figure 4.18 and 4.19

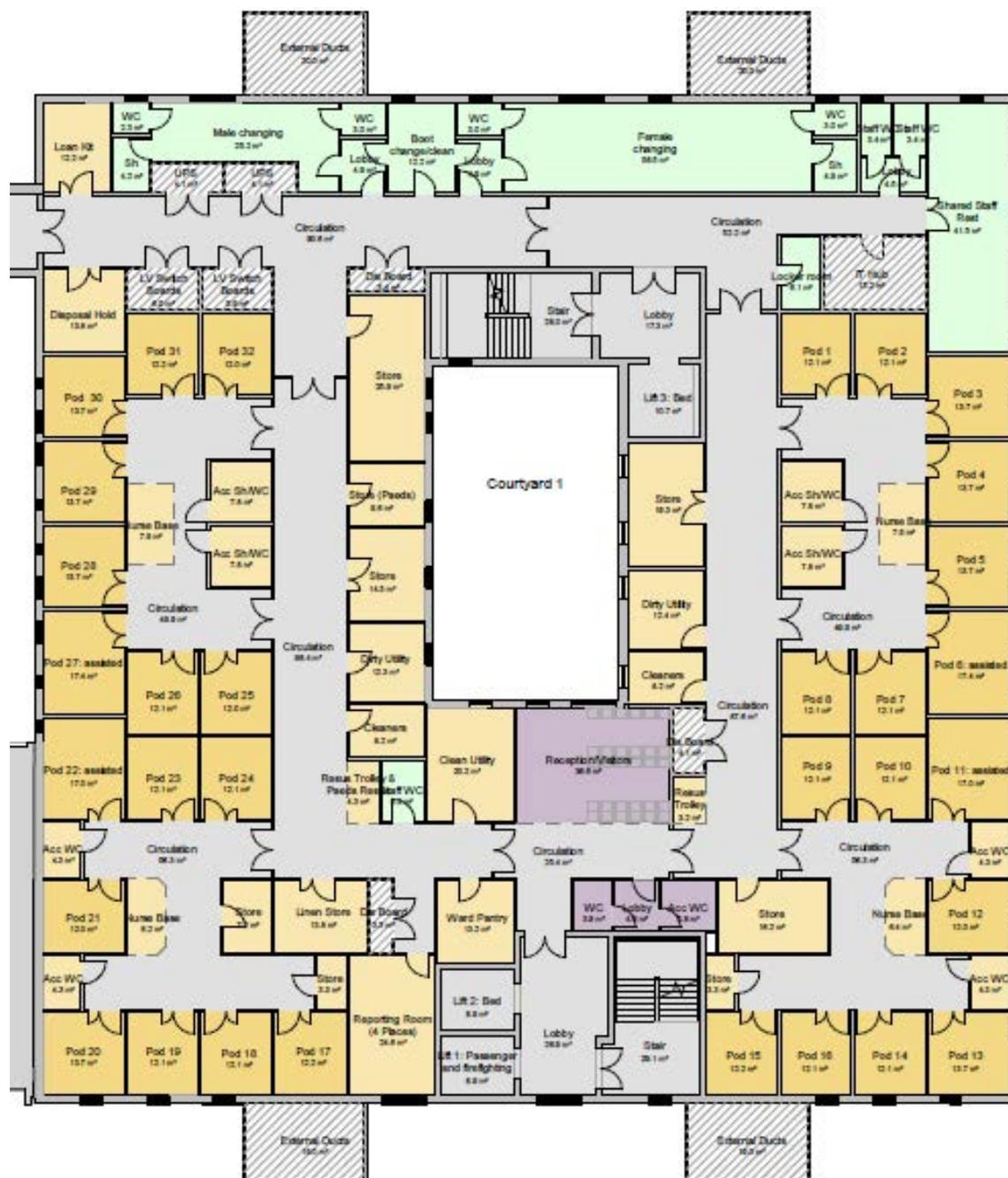


Figure 4.18: Preferred option Theatres reception floor



Figure 4.19: Preferred option Theatres floor

The preferred option will address these concerns through the following design elements:

- Full M&E HTM compliance, negating the sharing of air handling units between Theatres.
- Consolidation of operating Theatre sites will provide improvement in adjacencies (see figure 4.20):
 - Colocation of elective operating with the paediatric and surgical wards (all located in the

existing Surgical Block)

- Theatres adjacent to ED will be able to support emergency and trauma as well as day surgery (with a drop off area adjacent to the unit).
- A drop off / pick up area for patients will support both Theatre sites.
 - All general operating theatres meet HBN compliance. The two hybrid operating Theatres have been sized appropriate to intended use.

- All general operating theatres have been fitted with laminar flow canopies to enable maximum flexibility of use. This has also enabled maximum space efficiency, with prep rooms no longer required for these theatres, with best practice in laminar to set out under the canopy rather than in prep rooms.
- Table 4.9 demonstrates current versus proposed accommodation. The new design will provide a total of three additional Theatres which will meet future demand.
- Incorporation of a new model of care for surgical arrivals and discharge, providing 32 individual pods. This optimises space utilisation by negating the need for an arrivals area, clinical examination rooms, patient change facilities and a bedded second stage recovery. Patients will be able to wait in privacy for surgery and prior to discharge. This will improve utilisation and efficiency meeting national requirements such as GIRFT.
- Whilst each pod will not be en-suite, patient toilets will be provided to each four pod bay. Four of these bays (16 pods) will also have shower facilities. This will enable the use of these areas for "23 hour" post-surgical patients, preventing this cohort of patients having to be admitted to surgical wards and taking up valuable inpatient bed space.
- Design of support accommodation to facilitate multi-disciplinary working.
- Design of storage facilities to prevent equipment and supply build-up in corridors.

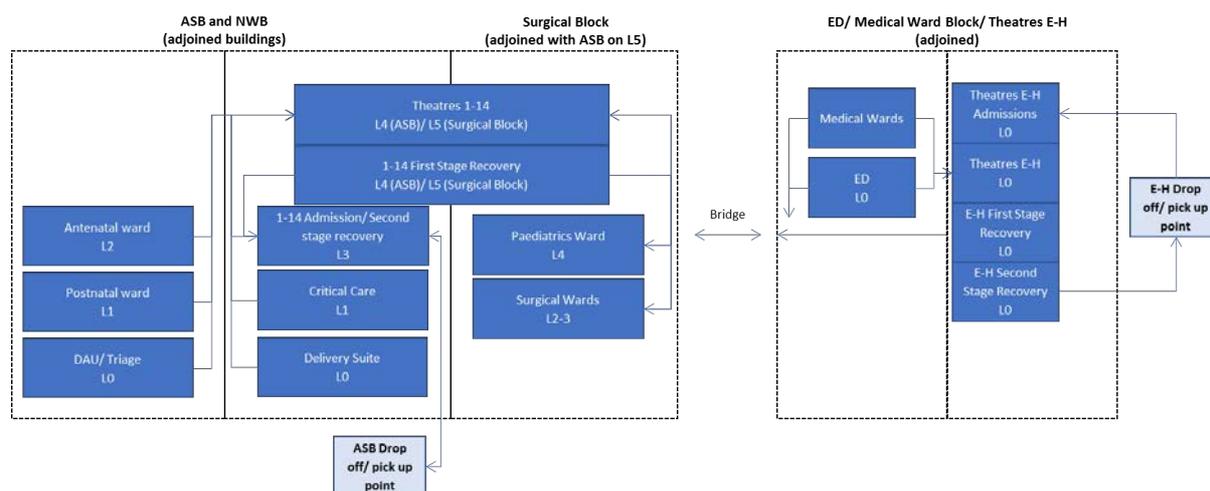


Figure 4.20: preferred option patient journey through Theatres

Surgical Accommodation	Current	Proposed
General Operating Theatres	15	16
Hybrid Operating Theatres	0	2
First stage recovery	23	33
Second stage recovery	24	24
Admissions and recovery Pods	N/A	32

Table 4.9: Current vs proposed Theatres accommodation

This department has been designed to support future service developments as part of the merger with Bedford Hospital NHS Trust. In particular the provision of two hybrid Theatres could enable the tertiary vascular service, currently being delivered at Bedford, to be facilitated within a fit for purpose theatre facility.

Furthermore, the preferred option will enable the closure of Theatres A-D and current OMFS Theatre, with this space being able to provide future expansion space for other clinical services.

4.4.6 Office Accommodation

Office accommodation on site is predominantly located in the Trust Headquarters building, which will be demolished to clear space for the ASB. There are a number of issues with existing accommodation

- Poor utilisation of existing office space, with many traditional cellular offices.
- Due to poor quality and design, there is a lack of cultural appetite to adopt agile working

practices to meet significant demand for office space as staff numbers increase.

- Meeting rooms are of an inappropriate size, with too many large rooms which are inefficient and do not meet demand.

The following strategy has been adopted to overcome these issues:

- Purchase of a temporary modular office block which will be located on site on existing car parking (see figure 4.21 for illustrative example).
- Use of an external Workplace Consultant to design an agile working policy that will be adopted Trust wide.
- The temporary modular office will be fitted out to reflect the findings of the consultancy report. This will likely be predominantly open plan but with appropriate numbers of break out areas and meeting rooms to provide space for confidential conversations or for work that requires maximum concentration.

The temporary office block will allow the Trust time to consider a longer-term office strategy, reflecting on the findings of the consultancy report. This will also enable time for working practices to be reviewed post-merger with Bedford Hospital, identifying opportunities for consolidation or further agile working practices. Ultimately it is expected that this office strategy will enable accommodation of support space within a smaller footprint than currently in place, providing additional space for future site redevelopment. This is key on such a space constrained site.

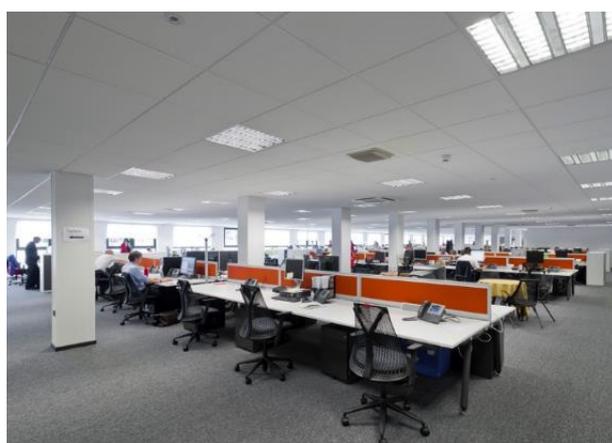


Figure 4.21: Illustrative examples of proposed office accommodation

4.4.7 Car parking

Parking is a key theme of formal and informal complaints received by the Trust. As stated in the Strategic Case, the Trust Parking and Access Strategy has identified that an additional 340 parking spaces (200 staff and 140 patient/ visitor) are required to meet current and future demand. It should be noted that parking on the main site will be lost as part of the forthcoming redevelopment scheme, through:

- Creation of the Energy Centre on an existing visitor car park
- Closure of a staff car park for the site compound for the ASB/ NWB
- Siting of the modular office block on existing visitor car parking
- Siting of the temporary waste compound on existing visitor car parking

To counter this, during phase 1 of the DCP, a number of measures are being taken. A critical enabling scheme is the delivery of a temporary (5 year) staff car park on derelict land within a 5 minute walk of the main hospital site. This will provide an additional c. 200 spaces, with staff car parking on site re-provided to patients and visitors.

A significant enabling scheme will be the creation of a new multi-storey car park on the site of the existing Lewsey Road visitor car park (see figure 4.22). This will effectively double capacity of this car park from 140 existing spaces to 272 spaces. This scheme is expected to complete in December 2020, albeit with risk of delays due to COVID 19. This scheme will have a number of additional benefits:

- Reduction in congestion on Lewsey Road. This is a considerable source of angst for local residents, can prevent emergency ambulance access to the site and delay bus timetables. This will be achieved through the extra parking capacity, along with a significant increase in off road queueing from 2 to 10 cars.
- Support patients, visitors and staff in utilising more active and sustainable forms of transport to travel to the hospital. There will be a dedicated staff change facility and secure storage for 208 staff and 44 visitor bicycles. This is a core component of Luton Borough Council Sustainability Plan and supports the local public investment in sustainable transport infrastructure (such as the busway with adjacent cycle path).



Figure 4.22: CGI of Lewsey Road MSCP

Long term, aligning with phase 2 of the DCP, the Trust is pursuing proposals for a long-term lease on a site to the south of the hospital which could provide for construction of a substantial MSCP for staff parking. This would negate the need for the

temporary staff car park and release space for more patient and visitor parking adjacent to the site as well as for future site redevelopment.

4.4.8 Bariatrics Service

The Bariatrics Services is currently located on the ground floor of Trust HQ building. It is a tertiary level service supporting the East of England. The existing outpatients department is not fit for purpose, especially for one that is branded a Centre of Excellence. Issues include:

- Poor ventilation and cooling, especially important for the patient cohort and a source of complaints.
- Narrow corridors restricting stretcher access
- Clinical rooms that are too small; all are non-HBN compliant
- Poor provision of parking for patients as well patient transport service ambulances. The latter can come from as far as Norfolk and will wait for the patient until treatment is complete.
- Lack of space for group sessions.
- Lack of space to support clinical trials.
- No future expansion with service at capacity.

- Tired, dated décor which makes the unit look shabby.

In 2015, the Orthopaedics Outpatients and Fracture Clinic moved into the former Edwin Lobo centre located on the site of a Travelodge hotel. This is less than a 10 minute walk from the main hospital with dedicated parking. This move has been a success with positive feedback from both patients and staff.

Further space has now become available within Travelodge. This will enable the creation of a fit for purpose outpatients for Bariatrics Services, with direct access from street level. It will address all of the current issues with the existing unit. As part of the lease negotiation, parking for visitors will be provided on site along with two patient transport ambulance bays.

The space (see figure 4.23) will provide a further one dedicated clinical room, with a second room being multi-functional- either one large group session room or two separate clinical rooms separated by a folding partition wall (with appropriate acoustic compliance).

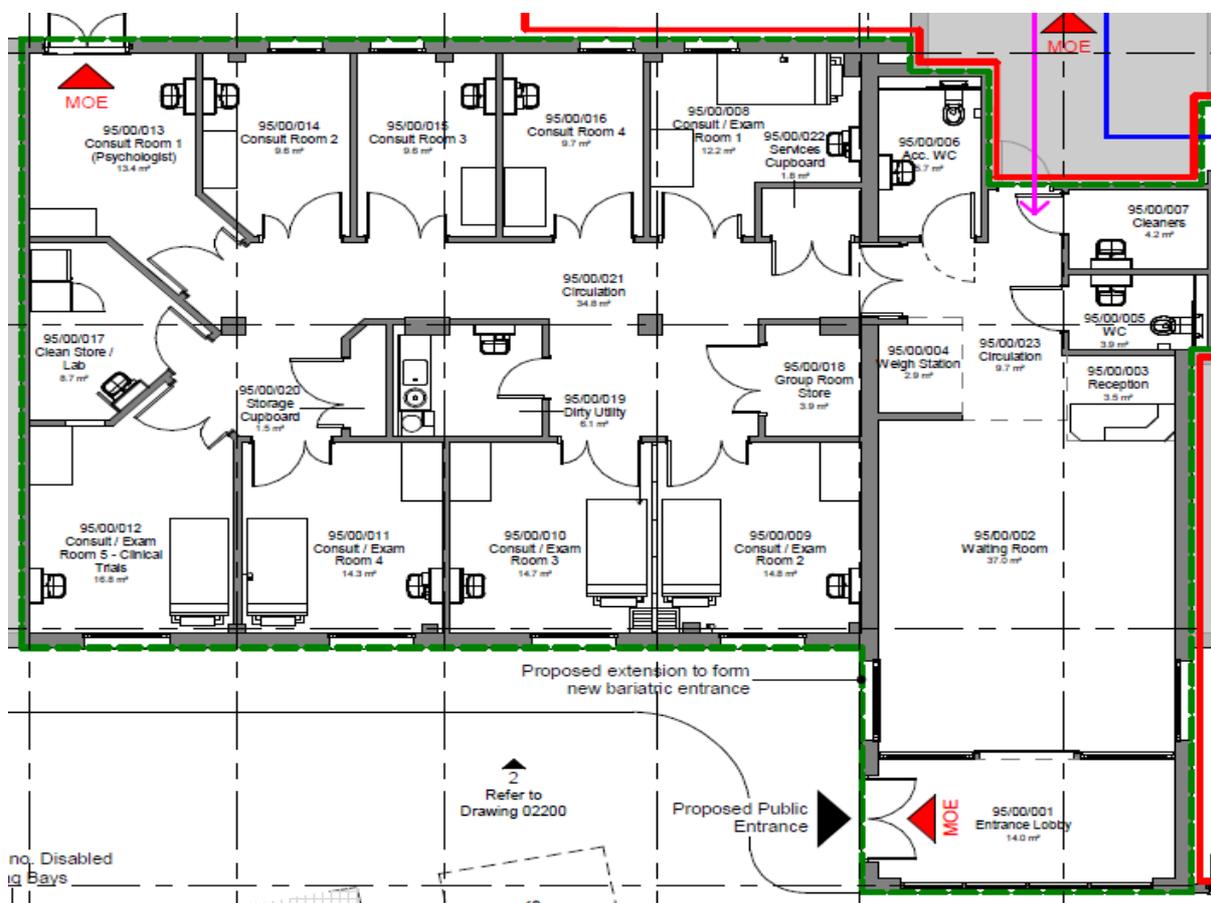


Figure 4.23: Proposed floorplan for Bariatrics Outpatients

On the level above the new outpatient area, space will also be provided for clinical support accommodation (see figure 4.24). In particular this will provide office accommodation- approximately 50

workstations- for Orthopaedics and Bariatrics staff. This will follow the office strategy working principles being adopted across the Trust (see section 4.4.6).

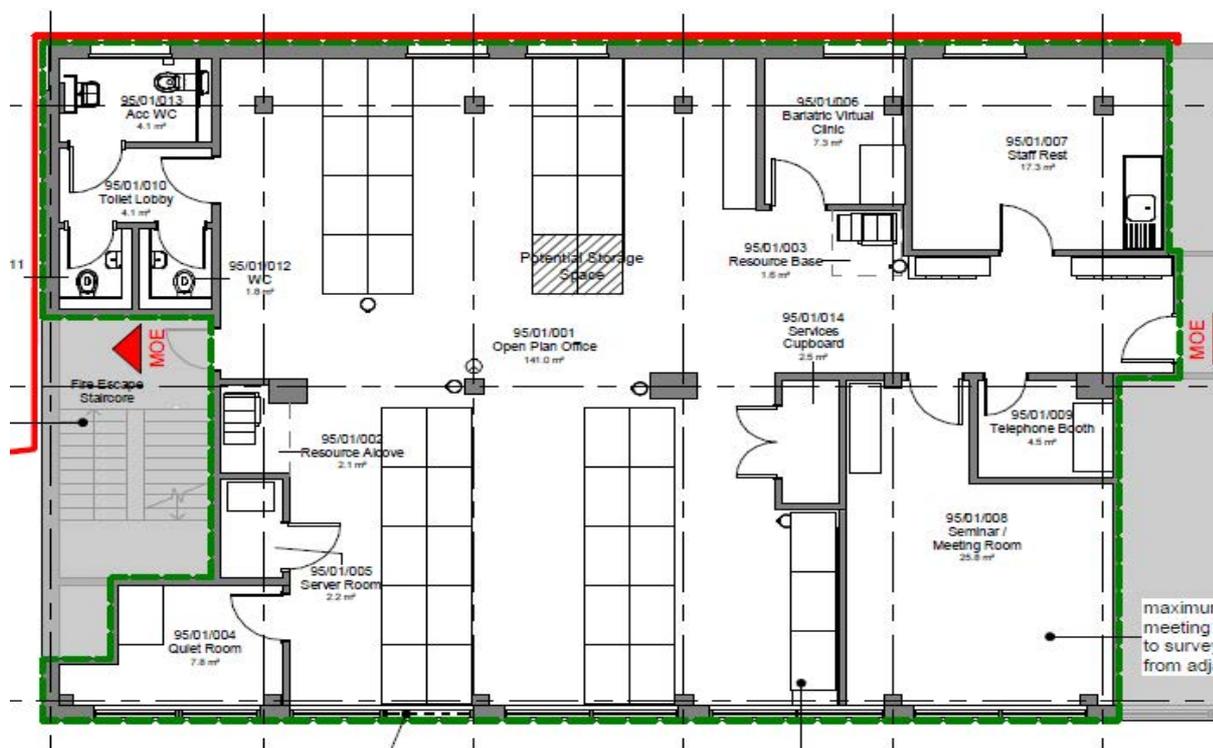


Figure 4.24: Proposed floorplan for office accommodation in Travelodge

Within the support accommodation, small meeting rooms will be equipped with appropriate IM&T facilities to facilitate virtual clinics. This is an important future service development for Bariatrics, due to the length of travel for patients who will remain on a clinical treatment pathway for several years requiring numerous clinical appointments.

4.4.9 Other enabling schemes

There are a number of other enabling schemes to support the preferred option. These include:

- Extension of the existing mortuary to enable the removal of the temporary auxiliary body store (currently located within the site of the proposed NWB). This will be achieved through relocation of existing pathology blood transfusion service, which will support pathology expansion- subject to a separate business case as part of the Trust merger.

- Demolition of the former squash court to enable the relocation of Audiology and Occupational Health
- Relocation of the Electrical and Biomedical Engineering (EBME) department and manual handling training, both located on the ground floor of Trust HQ. This will be achieved through providing a second floor on the forthcoming modular building which will house the third CT (subject to a separate business case).
- Relocation of key logistic hubs, with a new modular building to house linen and estates workshops and moving of the existing waste compound- currently adjacent to Trust HQ- to the visitor car park adjacent to Dunstable Road.
- Relocation of the site main electrical incoming substation from within the proposed site of the NWB to a site close to the northwest site boundary.

4.5 Maintaining Business As Usual

Business as usual activities will continue and be maintained throughout the construction. A specific estates workstream will be established during FBC development to plan for the management of the Hospital site during the construction phase. This will be led by the Trust's Estates Director, reporting directly to the SRO and CEO at the Programme Team Meeting.

4.6 Town planning

Planning permission for the following schemes has been approved by Luton Borough Council:

- 19/01098/FUL- energy centre
- 20/00100/FUL- partial redevelopment of the Luton and Dunstable Hospital Site, incorporating the Acute Service Block, Ward Block and Lewsey Road MSCP
- 20/00178/TEMP- creation of the temporary Dunstable Road staff car park
- 20/00330/FUL- change of use and external works to support relocation of Bariatrics Outpatients to Travelodge

The following are awaiting planning decision:

- 20/00352/FUL- erection of incoming substation (decision expected May 2020)
- TBC- Demolition of squash courts and erection of temporary buildings for Audiology and Occupational Health

- TBC- CT3 (incorporating EBME and Manual Handling Training)
- TBC- Erection of temporary office block
- TBC- Extension to Mortuary and Pathology

All decision notices can be found within the Architectural Design Package at Appendix 5.

4.7 Conclusion to the preferred option

The preferred option supports the Strategic Case to deliver the compelling case for change. The chapter demonstrates that the scheme will ensure that both the Critical Success Factors and Spending Objectives are achieved. All of the identified shortfalls in clinical accommodation within Maternity, Neonatal, Critical Care and Surgery have been overcome. The enabling schemes will not only clear the site for the ASB and NWB, but also deliver significant improvements in other areas such as car parking and office accommodation. It is noted that, whilst HBN and HTM guidance was followed, some derogation was required, firstly in recognition that many of the HBNs are out of date, and superseded by more modern healthcare guidance and best practise, and secondly to ensure optimal space efficiency. Assurance has been sought that derogations will not have a detrimental effect on the quality of patient care.

Commercial Case Summary

The economic case drew out a preferred option for the redevelopment of the hospital, one which will provide the most advantageous strategic fit for the Trust and the wider healthcare community. The preferred option to build new hospital estate will be delivered over 2.5 years, using the central funding allocation, with a contribution of Trust cash. The new hospital estate will comprise of an Acute Service Block for maternity, critical care, neonatology and theatres, and an adjoining ward block.

The economic modelling demonstrated that the preferred option will provide the best value for money, creating a significant redevelopment of the site to provide modern, efficient, compliant and safe clinical accommodation for acute services. Planning permission for the site was awarded by the Development Control Committee at Luton Borough Council on the 25th March 2020 and gained overwhelming public support.

The commercial case explores a number of procurement options to deliver the preferred option. The procurement evaluation examines both a traditional procurement approach on the open market, and a framework approach. The advantages and disadvantages of both routes are explored in detail. Methodology for defining the best route to market for the Trust is focussed on ensuring best value for money, and best fit for the organisation. Social value is an important factor and this is reflected in the decision making.

The commercial case determines that a framework provides the most advantageous route to market for the Trust. The decision has been made to use the Crown Commercial Framework. In line with the programme, explored in more detail in the management case, expressions of interest from the market will be delivered by the end of May, and an appointment will be made at the end of August 2020. The contractor will mobilise shortly thereafter.

A RIBA stage 3 design cost plan will be delivered at the end of September 2020 to support the FBC. It is anticipated that the FBC will be developed from mid April to September 2020. The Trust are communicating with NHSE/I on a monthly basis to ensure that the proposed programme of FBC development is acceptable. The FBC is programmed to be submitted to NHSE/I in the Autumn of 2020.

At the time of submitting this OBC, it is important to note that the full impact of Covid-19 on the programme and construction market is not fully understood for any Trust. As such, whilst the risk of a global pandemic is thought through in the economic chapter, to ensure consistency and a benchmark to work from, the commercial impact of Covid-19 will not be worked through in this chapter, but addressed during the FBC development.

5.1 Introduction

The Commercial case has been developed in accordance with HMT Green Book Guidance. It examines the route to market for the preferred option as developed and defined in the economic case. This chapter reviews a number of procurement options and evaluates their merits according to Programme Board approved criteria and scoring methodology. In this chapter a route to market is selected and the programme for getting a preferred supply chain partner (PSCP) on board is presented.

The strategic case reflected the case for change. To recap, there is an urgent requirement to redevelop the Luton and Dunstable hospital (L&D). The L&D is a high performing hospital which operates from an old and inefficient estate. The estate presents daily challenges to clinical outcomes and operational inefficiencies. Clinical services do not comply with current healthcare facility requirements and this presents a significant clinical risk. Current accommodation is not easily maintained and cannot be developed to support evolving clinical care requirements and patient demand.

The economic case drew out a preferred option for the redevelopment of the hospital, one which will provide the most advantageous strategic fit for the Trust and the wider healthcare community. The economic modelling demonstrated that the preferred option will provide the best value for money, creating a significant redevelopment of the site to provide modern, efficient, compliant and safe clinical accommodation for acute services. The redevelopment will replace infrastructure that is no longer cost effective to maintain. The programme of works will ensure that the Trust's infrastructure aligns with current and future clinical service strategies, and will enable the proactive maintenance of assets and a reduction in backlog maintenance.

The preferred way forward for the hospital's redevelopment is to build new hospital estate, over 2.5 years, using the central funding allocation, with a contribution of Trust cash. The new hospital estate will comprise of an Acute Service Block for maternity, critical care, neonatology and theatres, and an adjoining ward block.

The commercial case explores a number of

procurement options to deliver the preferred option. The procurement evaluation examines both a traditional procurement approach on the open market, and a framework approach. The advantages and disadvantages of both routes are explored in detail. Methodology for defining the best route to market for the Trust is focussed on ensuring best value for money, and best fit for the organisation. Social value is an important factor in the procurement piece and this is reflected in the decision making.

A robust and legally sound procurement process will be developed in this chapter in order to select a preferred bidder. The Trust will strive to deliver a value for money solution, one that stimulates innovation and most importantly, ensures throughout the development, the delivery of high quality patient care.

5.2 Trust Procurement Strategy

Within the NHS environment, the procurement of supplies, services and works has a direct impact on the quality of patient care and treatment outcomes. To support the Trust's vision and realise our strategic objectives, the Trust requires clear parameters for decision making, underpinned by effective governance, accountability and information arrangements.

The procurement strategy for the redevelopment programme has been developed to:

1. Deliver the redevelopment on time and on budget
2. Deliver value for money
3. Support supplier innovation and seek innovative solutions from suppliers
4. Contribute towards the Trust's commitment to the sustainability agenda
5. Support joined up working across the STP and provide an opportunity for local employment and stimulation of the local economy

5.2.1 Methodology for developing the Programme Procurement Strategy

To ensure specialist input into the development of the Trust's Procurement Strategy, the Redevelopment Programme Board agreed to establish a Working Group tasked with resolving the following key aspects of the procurement strategy:

- Works Package structure
- Contract strategy
- Procurement Strategy
- Route to Market

Membership of the Working Group was agreed as:

1. Chair of Redevelopment Programme Board
2. Redevelopment Programme Director
3. Construction Project Director
4. Director of Estates & Facilities
5. Deputy Director of Finance
6. Head of Procurement
7. Deputy Programme Director
8. Business Case Consultant [Brierley Consulting]
9. Cost Adviser [AECOM]

5.2.2 Procurement Workshop

The Procurement Workshop was held on 27th February 2020. Agenda, Papers and outputs from the Workshop are made available in Appendix 11, with key extracts provided in the text below for ease of reference. The Workshop reviewed and agreed evaluation criteria and relative weightings, then scored each option to identify the strategy to be adopted. The resulting evaluation criteria, weightings and scores are fully recorded in Appendix 11, with key extracts and tables provided below.

A summary paper see Appendix 11 identifying the Working Group's recommendations was endorsed by the Redevelopment Programme Board on the 18th March 2020 (minutes can be found in Appendix 1).

The Workshop agreed a consensus scoring and adopted a consistent scoring approach to evaluation,

using a 0-10 score, with selected scores, designed to drive differentiation between scores and options, as per table 5.1.

Assessment	Score
Achieves excellence	10
Meets most of the needs	7
Meets acceptable standard	5
Is just below acceptable level	4
Fails to meet the needs	0

Table 5.1: Procurement assessment and scoring

5.3 Works Packaging Strategy

The Procurement Workshop reviewed and discussed the information and ground setting papers, using the Trust's Critical Success Factors and Strategic Investment Objectives to understand the project context and what would define value for money from the outputs of the procurement process.

Key recommendations on elements of the Strategy were agreed at the Workshop for presentation to and endorsement by the Programme Board. However, a further discussion was agreed to be necessary in order to finalise a recommendation on the Route to Market. The conclusions of that further discussion are summarised in the appropriate section below and were also endorsed by the Programme Board on 18th March 2020.

5.3.1 Works packaging overview

Following good procurement practice, one of the first decisions to be made in order to define a procurement strategy, is the scope and scale of what is to be procured and whether the Project may best be procured through more than a single Contract.

The Works, of which this Business Case are the subject, are the construction of two large scale and interlinked clinical buildings. The location for these new builds is on the site of existing administration facilities at the L&D, necessitating a substantial decommissioning and demolition phase to the Project. An "in principle" decision on whether to split the overall Works package was drawn out.

5.3.2 Contract Options for Works Packages

d. Single Contract for Works

Under a single contract arrangement, the Trust would procure and then enter a single contract with a single Contractor for the entirety of the Works required, including demolition and service diversions. A qualitative evaluation of this approach is provided below:

Pros

- Simplicity - a single entity to work with and only 1 relationship to manage
- A single contract to manage
- Time and design co-ordination risks are passed to a single entity
- Greater overall price certainty (due to a single contract and extent of risks transferred)

Cons

- Anticipated to take more time to negotiate and procure
- Limits the market/ pool of Contractors
- Contractors' risk pricing for demolition, site clearance and service diversions will be significant as, by their nature, they are difficult to specify in detail and will almost inevitably vary once demolition starts
- Requires all contract and design details for the ASB/ MWB to be resolved prior to awarding the demolitions
- Unlikely to be the lowest cost approach achievable (owing to increased risk priced by Contractor)

e. Split Contract for Works

Under a split contract approach, the Trust will procure and enter Contracts with multiple contractors. The number of contractors involved will depend on the precise package structure selected, details of which are discussed below. A qualitative evaluation of this approach is provided below:

Pros

- De-risks start on site of demolition programme, as New Build contract can continue to be negotiated, whilst the clearly defined demolition continues
- Allows for targeted procurement to appropriately sized contractors (with more appropriate company overheads), some of which may be SMEs, which could support more local employment
- De-risks pricing approach - demolition and site clearance is notoriously risky and pricing for that would be included

Cons

- More complex to both procure and manage through delivery, as more than party will require co-ordination
- Trust will own risk of co-ordination between packages
- Some reduction in price certainty at point of Contract entry

Split Package Options

1. Demolish & Site Clear Contract + A combined ASB, Link/ Lifts Block & NWB Contract
2. Demolish & Site Clear Contract + Separate ASB & Link/ Lift Block Contract and a NWB Contract
3. Demolish & Site Clear Contract + Separate ASB Contract + NWB & Link/ Lift Block Contract
4. Demolish & Site Clear Contract + Link/ Lift Block Contract + ASB Contract + NWB Contract

For the purposes of this Project, it is considered that the package options above are the appropriate "split" packaging structures to be considered.

Further considerations for split package

- The NWB could be delivered ahead of the ASB given the size, scale and relative simplicity of the design. The Trust could benefit from this to support additional beds during winter. A discussion with the Programme Team agreed that this would be a high risk move, and it was

important to ensure that the ASB and NWB were commissioned in parallel. Options assessing this benefit have been included for completeness.

5.3.3 Evaluation

The Workshop reviewed the proposed evaluation criteria for the Works packages with the outcome summarised in table 5.2.

Proposed		Adopted		Rationale
		Packaging Structure		
1. Enable fast/ track start on site	4 0	Enable fast/ track start on site	3 0	Redistributed % weight to increase importance of VfM
2. Achieve balanced and appropriate risk transfer	1 5	Achieve balanced and appropriate risk transfer	2 0	Priority of criteria considered greater than proposed
3. Achieve a value for money tender (with limited risk pricing)	2 0	Achieve a value for money tender (with limited risk pricing)	2 5	Priority of criteria considered greater than proposed
4. Simplify Trust's management arrangements	5	Simplify Trust's management arrangements	5	No change
5. Encourage appropriate market interest	2 0	Encourage appropriate market interest	2 0	No change

Table 5.2: Evaluation criteria and outcomes

Table 5.3 provides the consensus scores (weighted) for each of the Works Package options as agreed at the meeting.

Criteria	Weight	Option				
		Single Contract	Demolish & Site Clear Contract + A combined ASB, Link/ Lifts Block & MWB	Demolish & Site Clear Contract + Separate ASB & Link/ Lift Block Contract + a MWB	Demolish & Site Clear Contract + Separate ASB Contract + MWB & Link/ Lift	Demolish & Site Clear Contract + Link/ Lift Block Contract + ASB Contract +
Enable fast/ track start on site	30	4	10	10	10	10
Achieve balanced and appropriate risk transfer	20	7	7	5	5	4
Achieve a value for money tender (with limited risk pricing)	25	4	7	7	7	4
Simplify Trust's management arrangements	5	7	5	4	4	0
Encourage appropriate market interest	20	5	7	4	4	4
Total Score		27	36	30	30	22
Unweighted Rank						
Weighted Score		49.5%	78.0%	67.5%	67.5%	56.0%
Weighted Rank						

Table 5.3: Evaluation Weight scores

5.3.4 Evaluation Conclusion

The Workshop recommended a split strategy to de-risk the Main New Build Scheme element (ASB, Link and NWB), by undertaking an enabling package of demolitions and leave the Main Works Contractor with a clear brownfield site to an agreed ground level.

5.3.5 Asbestos risk

The Trust takes its responsibilities in terms of Asbestos management and disposal extremely seriously and always takes the full risk of asbestos management to prevent inappropriate removal or disposal by a commercially pressured Contractor entity. The Trust has a full suite of Management surveys of the buildings affected by the Works and will commission suitable Refurbishment & Demolition Surveys after staff decant into the new office space (delivered via the Trust funded enabling programme) and prior to physical demolition. The Trust will undertake the R&D Survey and removal of all asbestos identified as a direct contract. However, there remains the risk that the demolition contractor may still discover additional asbestos during their activities. This will be a Compensation Event and managed appropriately via the Contract mechanisms to ensure suitable removal and disposal practices are adopted.

A separate "New Build" Contract would then also need to be procured.

5.4 Contract Strategy

Whilst there are numerous published standard forms (JCT; NEC; GC Works; FIDIC; IChemE etc), alongside bespoke forms of contract drawn up by Client bodies, the key options available to the Trust are published by only two bodies;

- The Joint Contracts Tribunal (JCT)
- The Institution of Civil Engineers (ICE) [who publish the New Engineering Contract (NEC) Suite]

Each of these bodies publish a series of contract forms designed to address the different generic

procurement strategies identified in section 2 of this report.

5.4.1 JCT Contract

The JCT suite of contracts is designed to address the unique legal complexities and issues arising from the construction process, and the creation of assets and real estate. The JCT has evolved over a significant number of years with each iteration addressing new risks, new statutes and evolving case law. The suite of contracts provides a contract to cover all works values (Minor; Intermediate and Major) and each of the various procurement strategies identified in Section 2 above.

JCT Contracts have been well proven in the Courts and there is substantial legal precedent, understanding and interpretation of the contracts available. Furthermore, they are well known and understood by UK Contractors and clients who undertake construction regularly.

However, critics of JCT Contracts consider that the form is "adversarial", pitting one party's interests against the other; that there is strong evidence of Parties not proactively agreeing the impacts arising from change or the impacts from various events during the Works. It is not unusual for a Contractor to present a claim for "loss and expense" and an "extension of time" almost at the very end of the Project, when the client body may be thinking that their full and final financial commitment (Final Account) on the Project is coming to an end. Critics further state that the "Final Account" has been known to become a horse-trade, with a commercially negotiated position being reached, rather than one which is clearly based in contractual entitlements.

5.4.2 Discussion of NEC Contracts

The NEC suite of contracts is published by the Institution of Civil Engineers and consists of not only Works Contracts covering all procurement strategies and Works values (The NEC Engineering & Construction Contract [ECC]), but also a professional services contract and additional supplementary contracts such as for the appointment of an Adjudicator.

The suite has a common and consistent suite of core clauses and requires Parties and named entities to the Contract to behave in a “spirit of mutual trust and co-operation”. The suite also includes Guidance Notes for each form of contract. The current NEC4 suite (2017) is a marginal update and improvement on the preceding NEC3 suite, which is still widely in use.

The various procurement strategy options are achieved by the selection of a “Main Option” which also allows for a choice by the Client on the approach to risk sharing of price, with options ranging from traditional “fixed price, lump sum” by way of a “target price” and on to a fully “cost reimbursable” model. Further “option clauses” can then be selected, or not, by the Client, to allow other risks to be dealt with according to the Clients requirements. Further, amendments and additions to the standard form are declared for transparency via what are called “z-clauses”, rather than having a mark-up or re-written form of the original contract.

NEC Contracts are drafted in plain English, avoid legal terminology and wording which has no definitive meaning such as “reasonably/ reasonable”. Significantly, the project Programme is a formal Contract document under the NEC, whilst this is optional (and some might say unusual) under the JCT form. This means the Client has greater visibility, understanding and control of the Contractor’s process for delivering the Works, than is the case under a JCT form. NEC Contracts also require that the Contractor reveals their time risk allowances, and programme float, with ownership of these programme allowances allocated within the Contract.

Further, NEC contracts require that the cost of an instructed change, along with any additional time the Contractor requires to implement it are agreed proactively in advance, with the Contractor only having a single chance to make any such change to the Contract Price and Programme.

Critics of NEC Contracts consider that they are burdensome in terms of administration and management and that they are relatively unproven in the courts, with some commentary that they are fine for “engineering”, but not suited to “building” projects. Others have stated the opinion that the NEC is more of a management manual than a

Contract.

It is considered that NEC Contracts are indeed more burdensome in their administration than a JCT, but only because good project management practice and clear communication is embedded in the Contract, including the proactive agreement of cost and programme impacts for all change. In effect, NEC Contracts shift the burden from the final account negotiation period to the Works delivery phase and should result in better managed projects with a more certain cost and programme outcome.

HM Government has adopted the NEC suite as its gold standard for Construction works in its Construction Strategy and the contract form is widely recognised as best practice for the Public Sector.

5.4.3 Contract Strategy

After detailed discussion, the Procurement Workshop concluded that the NEC Suite of Contracts was likely to represent the most suitable form of contract. Either Main Option A (Lump Sum with Activity Schedule) or C (Target Price with Activity Schedule) should be utilised, subject to the extent of design detail actually achieved at the point when the tender is required to be issued.

5.5 Contract Pricing Strategy

In order to become an executable contract, the ECC requires the selection of a “Main Option” Clause, which determines the pricing (and reimbursement) mechanism within the Contract. Options here are;

- Option A - Priced (Lump Sum) Contract with Activity Schedule
- Option B - Priced (Remeasurable) Contract with Bill of Quantities
- Option C - Target Price with Activity Schedule
- Option D - Target Price with Bill of Quantities
- Option E - Cost Reimbursable
- Option F - Management Contract

It is to be noted that the "Activity Schedule" is an alternative means to the Bill of Quantities for breaking down the Contractor's pricing and (whilst reflected in the Contractor's Programme) is not a programme related item. Under Option A, the Contractor is paid for each activity completed in the valuation period. Under Option B, the Works delivered are measured each valuation period and the Contractor paid for the progress achieved. Under both Options C & D, the Contractor is paid based on actual costs incurred (and the applicable "Fee"), with full reimbursement up to the target price.

to design a solution costing less than the target price parameter agreed and thereby sharing the financial benefit (in a manner to be defined in the Contract Data) of so doing with the Client/ Employer. Should the costs of the work exceed the target price the Contractor and Client/ Employer share the pain (in a manner to be defined in the Contract Data - NHSP22 secures a Guaranteed Maximum Price by making the Contractor accept 100% of the pain above the target price).

Under Option C, the Contractor has the opportunity

Contract Type	ECC Main Option	Balance of (Price) Risk	
		Employer	Contractor
Priced	A		
	B		
Target	C		
	D		
Cost Reimbursable	E		
Management Contract	F		

Table 5.4: NEC Good Practice Guidance, Considerations for the Employer/Client in selecting a Main Option Clause

Table 5.4 is replicated from NEC Good Practice Guidance (Managing Reality Series) which sets out the considerations for the Employer/ Client, in selecting a Main Option clause.

However, it has to be recognised that the choice of Main Option Clause also affects the Contractor's opportunity and incentive on price as well as impacting on the flexibility able to be exercised by the Client/ Employer during the Contract.

Finally, in order to secure a "lump sum" price (Option A or B) a significant degree of design has to be conducted in order to ensure that the Contractor has adequate information to price the Works. A Contractor faced with a tender demanding a lump-sum price on limited design information will have to include substantial amounts to allow for the risks inherent in that approach. As the Managing Reality books note

(book 2, pg 43):

"A primary driver for the choice of main Option under the ECC is the quality and standard of the Works Information [the design and specifications stipulating what the Contractor has to provide] available..... An Option A contract based on a Works Information that is only 50% complete may give rise to numerous [Compensation Events, clarifying the Employer's Works Information] that will change the profile of the contract from a fixed price, low-Employer-risk contract to a variable-price and therefore higher-risk contract."

The time taken to achieve the level of design required to secure a robust lump-sum cost can therefore be substantial, whereas a target price approach will allow a contract and contract sum to be agreed at an earlier point in the design process.

Understanding and drawing a balance between the extent of design (and hence robustness of price) on which the Contractor is pricing and the time taken to secure a contractually binding price for the Works is therefore critical.

5.5.1 Recommendation

The Procurement Workshop recommended to the Trust's Programme Board that the ECC Contract Main Option A or C be adopted as the Contract Strategy. The balance between time to achieve a design capable of robust pricing (with limited scope for change or design development) - usually considered to be RIBA 4 - and the need for a robust price to be incorporated into the Trust's FBC will drive that decision. This recommendation was endorsed at the Programme Board on 18th March 2020.

5.6 Programme Procurement Strategy

The Procurement Workshop received and reviewed a paper discussing the key procurement strategies available to the Trust. This paper was developed from published information in the CCS framework and reflects the working experience of the Construction Project Director and the lead for the Trust's independent QS, (AECOM). A qualitative discussion of the various strategies is made available below for ease of reference.

5.6.1 Traditional

The "Traditional Contracting" route is when the Client employs a full design team to work up a fully detailed design for the project at hand. The works are then tendered with a full suite of design (for cost certainty this would have to include equipment selection and detailed design such as locations of electrical sockets/ light switches, colours finishes etc). The Contractor takes nil risk for design co-ordination, designer performance and buildability. Design co-ordination and performance (both in terms of quality of information and timeliness of production) of the design team rests entirely with the Client. It is worthy of note that in the modern era, it is typical for a "Main Contractor" to sub-contract nearly all of the actual physical works.

a. Single Stage

Single stage traditional, is the "fully traditional" route, whereby the design is issued (frequently with a Bill of Quantities) to all tendering Contractors and the Contractor prices the works and submits their Tender for consideration.

Pros

- Design led - Client retains control of design quality.
- Maximises competition for price sensitivity.
- Lump sum price and programme agreed at the outset.
- Flexible - established basis for evaluating changes.
- Established procedure familiar to all parties.

Cons

- Slow; requires full design before contractor is appointed.
- Scepticism about low tender prices in current market.
- No Early Contractor Involvement - possibility of disputes.
- Design co-ordination risks retained by the Client.
- Performance specified works or Contractor Design Items can be problematic.

b. Two Stage

Two Stage Traditional is a development of the original methodology and means the Client can select a Contractor with whom they expect to work using less detailed (and more quickly produced) information. An initial tender stage selects a "preferred Contractor" who will then work alongside design teams to input their unique knowledge and understanding of the construction process in finalising the design work..

The “Preferred Contractor” is invited to submit a second price to establish the formal contract once the design information has reached the right level of development. However, the Client retains design team performance and design co-ordination risks.

Pros

- Enables Early Contractor Input and collaborative working.
- Ability to optimise value and buildability with suppliers.
- Can facilitate an earlier start on site
- Client retains control over the design
- Enables ECI - promotes buildability and collaboration
- Ability to optimise value of every specialist package.

Cons

- Early commitment to Contractor reduces competition.
- Client still retains the design co-ordination risks.
- Expected benefits of ECI not always realised.
- Contractor may inflate his costs during second stage.
- Final out-turn cost at large as little risk is transferred.

5.6.2 Design & Build

Design & Build evolved from “Traditional Contracting” in the middle of the 20th Century and transfers design responsibility and specification (after a point) to the Works Contractor. In effect rather than producing a detailed design for which they have responsibility, the Client produces an output based specification, defining the physical, environmental and performance parameters that the building has to achieve (often referred to as Employer’s Requirements). The D&B Contractor is then responsible for delivering a building which meets those parameters, but can choose the optimum (for them) approach to doing so. In both single and two-stage D&B, the Contractor typically

sub-contracts the vast majority of the actual physical works to specialist sub-contractors.

a. Single Stage

Single Stage D&B is when a Client issues a request for a full and final tender to Contractors, with only a preliminary outline design and specification/ Statement of Employers Requirements.

This normally means that the Contractor has to undertake a degree of design development in order to be able to understand and evaluate the project opportunity and tender price. This is typically at their risk and is for that reason not particularly (especially for a scheme of the investment value and complexity of the proposed works) popular anymore, following the advent of 2-stage D&B.

Pros

- Cost and programme certainty on contract award.
- Maximise price competition.
- Single point of responsibility for design & construction
- Design co-ordination risk passed to the Contractor.
- Works can commence before design is completed.

Cons

- Client has less control of later stages of design.
- Potential loss of design quality in final design details.
- Harder to evaluate tenders on an equal basis.
- Later changes to design can be expensive.
- Some financial premium for risk transfer and little scope for ECI.

b. Two Stage

Two stage D&B is when a Client selects their design team who take the scheme design to (normally) either RIBA stage 3 or 4. A tender is then undertaken and a Preferred Contractor selected with a partly tendered price. The Design Team is normally then novated across to the D&B Contractor (although this is not essential - occasionally Clients will retain their own design team to provide a monitoring and quality assurance role), with the D&B Contractor taking on the responsibility for co-ordination of the design itself and performance of the design team. This approach is more popular as it gives Clients more control over the design and specification of key aspects; decreases the Contractor's efforts prior to appointment and still achieves the transfer of design risk and performance to the Contractor.

Pros

- Enables early contractor input on buildability.
- Enhanced cost and programme certainty on contract award
- Single point of responsibility for design & construction
- Flexibility to commence works before design is completed.
- Late novation of design team can safeguard quality.

Cons

- Later changes to design can be expensive
- Contractor potentially inflates costs late in 2nd stage tender.
- Cost premium involved for risk transfer

5.6.3 Management Contracting

Management Contracting formally recognises that the Main Contractor in a traditional strategy is actually sub-contracting the vast majority of the works to specialist sub-contractors. Under Management Contracting therefore, the Contractor simply provides the site establishment and preliminaries necessary for the delivery of the contract and is paid a management fee against the

actual cost of the sub-contract packages as they are let. The responsibility for management and co-ordination of the sub-contractors is retained by the Main Contractor.

Pros

- Time saving potential against overall programme.
- Ability to make early start on site without full design
- Maximum flexibility to vary sequence of work.

Cons

- Lack of a fixed price or programme for the works.
- Risk of contra-charges between subcontractors.
- Risk of design quality loss
- Little ability to optimise value for money
- Close control of the project is required with few direct opportunities to influence success

5.6.4 Construction Management

Under Construction Management, the Client appoints a Construction Manager (a professional role) to co-ordinate and manage package contractors who are in direct contract with the Client body - with the client therefore ultimately retaining risks inherent in co-ordination and performance of those contractors. This is the key difference between Management Contracting and Construction Management.

Pros

- Time saving potential against overall programme.
- Ability to make early start on site without full design.
- Maximum flexibility to vary sequence of work.
- Enables ECI - promotes buildability and collaboration
- Ability to optimise value of every specialist package.
- Able to optimise package procurement strategies to address risk and design status

Cons

- Consultant Construction Manager is not liable for time or cost over-run.
- Lack of a fixed price or programme for the works.
- Places a heavy admin and leadership burden on Client.
- Risk of contra-charges between subcontractors.
- ECI opportunity reduced by need to OJEU packages.

The Procurement Workshop considered 12 proposed criteria, aligned to Trust CSF's and Investment Objectives. The criteria were analysed, evaluated and compared to the procurement strategies available for each Package. The Workshop agreed to vary the definitions and proposed weightings to better reflect the discussion and the shared opinions of those participating. The original proposed criteria, the criteria actually used and the weightings given are summarised in table 5.5:

5.6.5 Evaluation Process

Proposed		Adopted		Rationale
Works Procurement Strategy				
1. Early Certainty of Out-Turn Cost	40	Certainty of Out-Turn Cost by FBC (Sept '20)	80	Workshop considered this refinement better reflected the actual needs of the Programme and the weighting reflected the importance
2. Certainty of Hand Over Date	60	Certainty of handover date	80	Meeting considered certainty of handover date to be as critical as the certainty of cost
3. Ease of Market Accessibility for Trust	35	Ease of Market Accessibility for Trust	35	No change
4. High Quality Construction (understanding healthcare)	50	High quality construction	35	This was reduced in weighting to reflect that all approaches need to deliver a high-quality construction.
5. Ability to Optimise Value for Money	50	Ability to influence and control VE/ VM	40	Refined the criteria description to better reflect the intent of the criteria
6. Shortest Overall Programme	30	Shortest Overall Programme	40	Increased weighting to reflect considered priority
7. Ability to Achieve Technical Performance	35	Ability to achieve technical performance	60	Increased weighting to reflect considered priority
8. Ability to Transfer Delivery Risks	80	Ability to Transfer Delivery Risks	40	Reduced in importance
9. Impact of procurement on client capability and in-house resource	40	Impact of procurement strategy on client capability and in-house resource (during procurement and construction)	45	Marginal adaptation of description to better reflect the precise criteria
10. Ability to Secure Level of Design in Timescales (ahead of financial commitment)	60	NOT USED	0	Considered to be a duplication/ function of Early certainty of out-turn cost. Removed to simplify.
11. Flexibility to Adapt and Change (during construction)	60	Flexibility to Adapt and Change (during construction)	60	No change
12. Early Contractor Input on Buildability	50	Early Contractor input on buildability	60	Increased weighting to reflect considered priority.

Table 5.5: Procurement Strategy criteria proposed and adopted with evaluation weightings

5.6.6 Weighted Scores

The Procurement Workshop agreed consensus scores for each Option and applied them to the weighted criteria, giving the weighted scores identified in the table below:

	Traditional	Design & Build (Single Stage)	Design & Build (Two Stage)	Construction Management	Management Contracting
Certainty of Out-Turn Cost by FBC (Sept '20)	0	320	320	0	320
Certainty of handover date	400	560	560	0	0
Ease of market accessibility for Trust	350	245	350	175	0
High quality construction	350	245	245	350	245
Ability to influence and control VE/ VM	280	160	200	400	400
Shortest overall programme	160	160	280	400	280
Ability to achieve technical performance	600	420	420	600	420
Ability to transfer delivery risks	200	280	280	0	160
Impact of procurement strategy on client capability and in-house resource (during procurement and construction)	315	315	315	0	0
NOT USED	0	0	0	0	0
Flexibility to adapt and change (during construction)	420	300	300	600	600
Early Contractor input on buildability	240	420	420	600	600
Weighted Scores	3315	3425	3690	3125	3025
%age Score	57.65%	59.57%	64.17%	54.35%	52.61%
Ranking	3	2	1	4	5

Table 5.6- Weighted scores for programme procurement strategy

5.6.7 Evaluation

Based on the evaluation, a two-stage Design & Build was recommended to the Programme Board as the clear way forward for the Procurement Strategy. The Programme Board on 18th March 2020 endorsed this recommendation.

5.7 Route to Market

For the value of New Build Works to be procured, the Trust must either undertake a bespoke Public Contracts Regulations (PCR) 2015 compliant procurement or access a PCR compliant pre-tendered framework.

5.7.1 OJEU/ Bespoke PCR '15 Process

The Trust's Construction Project Director and independent QS (AECOM) considered a bespoke PCR/ OJEU compliant process and advised that, in their shared opinion, it would need a considerably longer period to undertake than the programme allowed for.

It was also considered that the benefits arising from such an action would be marginal in nature against accessing existing framework arrangements.

Therefore, it was recommended that the only viable option is the selection of appropriate PCR compliant frameworks, through which to undertake either mini-competitions or direct awards for the various Works Contractors for each identified Package.

5.7.2 National Frameworks

A review of the Construction Contractor Frameworks market identified the following frameworks for consideration:

- NHSProcure22
- Pagabo
- Crown Commercial Services
- Procure Partnerships Framework
- Scape

The following sections provide a high-level overview of these frameworks.

a. NHSPProCure22

NHSPProCure22 (P22) is the Construction Procurement Framework administrated by DHSC for the development and delivery of NHS and Social Care capital schemes in England and is typically the default option for large scale project delivery.

The framework utilises an amended NEC3 form of Contract and Main Option C (Target Price Contract with Activity Schedule). The Z-clauses included in the call-off Contract under the framework are considered to create substantial additional benefit for the Client, albeit that those additional benefits are not "essential" for the successful delivery of a Project, but do give greater leverage and opportunity for the Client body to secure success.

The framework fee paid by the Principal Supply Chain Partners (PSCPs) is used to fund a central DHSC team of Implementation Advisers who support NHS Trust's through the process. The funds raised are also used to provide free training for Clients (and Contractors/ Consultants) on the use of the Contract. The fee has also been used to develop generic designs (known as Repeatable Rooms) which are available, licence free to P22 users and further, to undertake strategic procurement exercises to establish preferential rates and discounts on common materials and equipment, based on the national purchasing volume across all PSCPs/ PSCMs.

P22 is fully consistent with the requirements of Government Policy including the Productivity and Efficiency agenda; the Government Construction Strategy; PCR'15; the National Audit Office guidance on use of centralised frameworks; and the Cabinet Office Common Minimum Standards for procurement of the Built Environment in the Public Sector.

Each of the PSCP's submitted their "Fee" percentage and established Principal Supply Chains (design consultants and specialist contractors) with agreed schedules of rates whilst in competition.

The established and clearly defined process is for the Client to advise the PSCPs of the opportunity (via a templated "High Level Information Pack" [HLIP]), shortlisting to interview from those that respond based on an Expression of Interest document provided by each PSCP, and finally interview. All

necessary contract amendments are already negotiated, although limited local bespoke additions are achievable (but discouraged). The P22 framework has several amendments which are considered to be substantially advantageous for the Client body and are unlikely to be repeatable in an independent/ one-off procurement exercise.

There is a small element of commercial considerations prior to selection facilitated by the PSCPs submission of hourly rates for key roles / personnel during the design stage (but not necessarily the quantum of hours each role will undertake). This information is factored into the PSCP selection process following interviews.

ProCure22 is based on a Design and Build form of procurement with the Contractor's unique experience and perspective on delivery of designed solutions being brought to bear (potentially) from a very early stage of the project. The design is developed by the PSCP with the full involvement of the Client, with a particular focus on risk and value management to drive for the optimum design to be delivered. The agreed design then forms the basis of the Guaranteed Maximum Price (hereafter referred to as 'GMP'), which is a target price with 100% of the pain over that price being to the Contractor's account [subject to specified "Compensation Events"].

To build up the GMP, the PSCP is required to:

- obtain competitive tenders (to an agreed extent) for the sub-contract packages (e.g. groundworks, frame, envelope, windows, joinery, finishes etc.) and/ or
- benchmark against other schemes with Trust Cost Adviser to demonstrate value for money.

Published data from DHSC on cost and programme certainty performance via P22 (and its predecessor frameworks) indicates that 97% of projects were completed to budget or below, and 90% were completed on time or early.

It is to be noted that this is most likely to be against the GMP and final programmes as amended through the Contractual processes, rather than against price and programme parameters set at the outset of the Project.

b. Pagabo

Pagabo is a national Framework for major construction works that is fully OJEU and PCR'15 compliant. The lot-structure is banded by Works Value and by region, allowing an appropriately sized and capable Main Contractor to be selected.

The framework allows a selection from a number of standard contract forms and procurement strategies and allows bespoke amendments to those contracts to be negotiated, locally.

Broadly the process for selection of a contractor is similar in nature to the P22 process. However, there are a greater number of Contractors accessible via the Pagabo framework, albeit not all would have suitable demonstrable health-oriented experience.

The "ownership" of Pagabo (the corporate entity) as a vehicle is a private entity, which utilises an NHS Trust as a "partner" to create and implement the framework. A procurement adviser to the Trust has noted that the vehicle itself has limited assets and appears to be a "shell". A question has been raised about the situation, were that shell entity to cease trading and whether there would be complications for a Trust's procurement in that situation. There is no reason to suspect that such an eventuality might come to pass. However, this question does not exist for the fully public sector owned P22, Scape and CCS frameworks.

c. Crown Commercial Services (CCS)

The Crown Commercial Services (CCS) Construction Works and Services (CWAS) Framework (RM6088) is a centrally procured Government owned framework, procured in full compliance with OJEU and PCR '15 requirements and awarded in October 2019. The framework is split into a number of lots structured by Works values, regions and with a speciality lot for demolitions. The demolition lot is of specific interest, given the potential for packaging of the overall Works. CCS has released to the Trust (under confidentiality) the Contractors' tendered

documentation for the appropriate lots.

The CCS Framework has 14 Contractors appointed to it for the applicable lot for the new build Works (Lot 5) and a further 14 for the demolition specific lot (Lot 10). Contracting entities on Lot 5 and a brief consideration of their recent Health/ NHS experience is provided below.

The CCS framework allows the use of a suite of "call-off" Contracts, including the selected NEC form (in both its NEC3 and NEC4 versions) and further, allows for bespoke "local" amendments and adaptations to the published boilerplate. CCS has already incorporated a range of "common" public-sector oriented amendments for the range of contracts available within the boilerplate referenced.

The flexibility to negotiate amendments to the published call-off Contracts is greater than that available via P22. It should be noted that such negotiation and amendment to the baseline Contract will need the appointment of a legal adviser and sufficient time allowed to undertake them. Further it needs to be understood that any such negotiation will be on a "one-off" contract basis, rather than with the weight and volume of potential work of a national framework.

The CCS selection process can be as simple as a "call-off" of a single Contractor from the framework to negotiate with or be a fully bespoke selection process.

d. Procure Partnerships Frameworks (PPF)

Broadly the process for selection of a contractor is similar in nature to the P22 process. However, there are a greater number of Contractors accessible via the PPF, albeit not all would have suitable demonstrable health-oriented experience.

The "ownership" of Procure Partnerships (the corporate entity) as a vehicle is understood to be similar to that for Pagabo, in that it is a private entity, which utilises an NHS Trust as a "partner" to create and implement the framework.

A DHSC procurement adviser has noted that the vehicle itself has limited assets and appears to be a "shell". A question has been raised about the situation, were that shell entity to cease trading and whether there would be complications for a Trust's procurement in that situation. There is no reason to suspect that such an eventuality might come to pass. However, this question does not exist for the fully public sector "owned" P22, Scape and CCS frameworks.

e. Scape

Scape is a local authority owned JV. There are only two Contractors on the framework split by value of the Contract Works.

We consider that having only a single contractor to work with in developing both the design and price would be considerably risky, especially given that the Works contractor in this case would be Wilmott Dixon Construction Ltd, who have limited recent health experience and therefore less extensive supply chain relationships for the health oriented specialist elements of the Works than can be achieved through other frameworks.

	P22	Pagabo	PPF	CCS	Scape
Contractors Available	BAM GallifordTry Graham IHP (Sir Robert McAlpine [SRM] & VINCI) Interserve Kier	ISG Graham Morgan Sindall SRM VINCI Wilmott Dixon	BAM Morgan Sindall Kier Interserve Graham McLaren GallifordTry Laing O'Rourke VINCI	Balfour Beatty BAM Bouygues Bowmer & Kirkland GallifordTry Interserve ISG Graham Kier Laing O'Rourke MACE Skanska Tarmac Wates	Wilmott Dixon
Procurement Strategy	2-stage D&B (open book)	Various available	Various available	Various available	2-Stage D&B (open book)
Contract Options	NEC3 Option C only	NEC3; NEC4; JCT etc	NEC3; NEC4; JCT etc	NEC3; NEC4; JCT etc	NEC3
PCR'15 and OJEU Compliance	Fully Compliant	Fully Compliant	Fully Compliant	Fully Compliant	Fully Compliant
Demonstration of VfM	Competed and fixed "Fee" by value band Open book competitive tendered packages	Competed and fixed fee/ OHP by value band and contractor Open book tendering an option	Competed and fixed fee/ OHP by value band and contractor Open book tendering an option	Competed and fixed fee/ OHP by value band and contractor Open book tendering an option	Competed and fixed "Fee" by value band Single provider, but open book tenders
Appointment approach	Published to all Contractors on framework Prescribed selection process, with agreed tools	Various options ranging from mini-competition to single point Direct Award [in specified circumstances]	Various options ranging from mini-competition to single point Direct Award [in specified circumstances]	Various options ranging from mini-competition to single point Direct Award [in specified circumstances]	Single point Direct Award

Table 5.7: National Framework comparison

5.7.4 Framework Recommendation and Route to Market

With the above packaging and Works procurement strategies understood, the Workshop considered the available “routes to market” qualitatively, using the information in the preceding sections.

Following a full discussion and debate it was agreed that both the demolition package and main works package should be tendered via the Crown Commercial Services Framework. This decision was endorsed by the Programme Board on the 18th March 2020.

By agreed package, the routes to market were agreed as follows:

- Demolitions: CCS Framework Lot 10
- New Build: CCS Framework, Lot 5, adapted to reflect key benefits of P22

With regard to the new build package, the

Workshop discussed and ruled out both the Pagabo and Procure Partnerships Frameworks as vehicles to access the market. This was due to the Workshop participants strong preference for utilisation of a framework with a fully public sector backed and underwritten “ownership”.

Scape was rejected as a vehicle owing to only a single contractor being available for the value band of works, which was considered not to offer the opportunity for a robust test of value for money. Coupled with that particular contractor’s limited recent experience in delivering health projects, this was believed to be a sound decision by the Workshop.

5.7.5 Rationale for Route to Market

In recognition of the Trust being provided with a level of scrutiny for the decision on route to market, the Workshop discussed the key differences between P22 and CCS, which are summarised in table 5.8.

Matter	NHSP22	CCS
Contract forms accessible	NHSP22 has a bespoke strengthened form of the NEC3, with additional client “teeth” to the Contract. Design responsibility and liability is strengthened as well as additional burdens being placed on the Contractor.	NEC3 or NEC4; + various JCT forms and others CCS has published boilerplate amendments for Public Sector clients
Flexibility on contract T&Cs	Limited/ actively discouraged	Can use bespoke amendments
Process	Well defined process thoroughly road tested by marketplace participants and with central support from Implementation Advisers	Trust would need to design and run its own process with support from CCS and AECOM as QS
Confidence in price submission by September	Full confidence (as a GMP is provided). Design development is at Contractor’s risk subject to occurrence of contractually prescribed risks and client driven change.	Subject to selection of main option. Option A - limited confidence given the RIBA stage achievable by September - unless substantial design development contingencies held. Option C - could generate full confidence if a GMP structure were adopted (as per P22) Both Option A and C would be subject to occurrence of contractually prescribed risks and client driven change

Contractors available on framework	<ol style="list-style-type: none"> 1. BAM 2. Graham 3. Interserve 4. IHP [Sir Robert McAlpine and VINCI] 5. GallifordTry 6. Kier 	<ol style="list-style-type: none"> 1. Balfour Beatty 2. BAM 3. Bouygues 4. Bowmer & Kirkland 5. GallifordTry 6. Graham Construction 7. Interserve 8. ISG 9. Kier 10. Laing O'Rourke 11. MACE 12. Skanska 13. Tarmac 14. Wates
Supply Chain	PSCP's have fully assembled, health-experienced supply chains in place with pre-agreed rates and demonstrable price and delivery performance	Clearly for those CCS Framework Contractors who are also on P22 the statements at left, also apply. Other contractors also have long-term experience of delivery of major health projects.

Table 5.8: Review of differences between P22 and CCS

Commercially, no evaluation was possible between P22 and CCS, as P22 will not publish the agreed "Fee" per Contractor until a formal engagement is committed to. CCS have published each Contractor's percentage OH&P by Works value band and contract form.

The CCS Framework has been selected, over P22 for the following reasons:

- Ability to design and implement our own Contractor selection process
- Larger pool of Contractors [14 vs 6]
- Concern over loss of interest in health marketplace if appointed entity were not to secure a place on P22 successor P2020
- Ability to use NEC4
- Ability to write Z-clauses to generate similar benefits to P22's Contract amendments
- ProCure2020 implementation outside of necessary timeframe for Contractor selection

There was considered to be no differentiation between P22 and CCS, given that both provide compliance with HM Government Construction Strategy and the agenda around:

- Encouraging participation of SME's in Public Sector supply chains
- Apprenticeships and investment in skills and

learning

- Government Soft Landings
- Building Information Modelling
- Modern Methods of Construction
- Local sourcing of materials
- Encouraging local employment and leaving a positive legacy of enhanced skills in an area after Project completion

5.8 Design Team Novation

As a Design & Build strategy has been selected, the Trust has a decision to make regarding whether, or the point at which, the incumbent design team is novated (transferred to being an appointment of the Works Contractor) to the selected Contractor.

The incumbent Design Team has to date, been appointed by way of the NHS Shared Business Services Framework for Construction Consultancy Services using the framework's standard service scope descriptions for each appointed discipline.

The Procurement Workshop discussed the options on novation for the Programme of Works by identified package, and reached the following conclusions:

- Demolition- it was agreed that given the nature of the Works, there was no need for novation of the Design Team on this aspect of the Project.
- New Clinical Buildings- it was agreed that the Design Team should be novated to the successful Works Contractor for the New Build. It was agreed that the Design Team should novate at the end of Stage 3.

The T&C's of those novations will be included in the tender package to be issued via the Framework and will ensure maintained knowledge and understanding of the scheme across the transition to the Contractor's ownership of the design solutions, whilst also protecting the Design Team's commercial and creative rights.

The Trust has appointed a legal adviser (Ward Hadaway) to draft the Novation Agreements and secure the Consultancy team's agreement to those terms, prior to issue of the Works Tender.

5.9 Soft Market Testing

At the L&D, soft market testing has been adopted throughout the design phase to support the development of the preferred solution; to strive towards a value for money solution for the health economy; and to de-risk the scheme at every stage.

By using the Crown Commercial Services Framework, the Trust will be engaging with a pre-selected and evaluated marketplace of specialist Contractors.

Figure 5.1 highlights the strategy for soft market testing.



Figure 5.1: Strategy Soft market testing

The Trust is acutely aware that the Project will be implemented during a period of major reinvestment in the NHS Estate nationally, with several equally and larger scale projects planned for implementation in approximately the same timeframes, some of which are within the East of England region.

The Redevelopment Team has undertaken soft market testing ahead of launching the formal procurement process. This has taken the form of a soft-launch on the 4th November 2019, where a presentation of the scheme and the Trust's key strategic direction was provided to interested contractors. 65 individuals from more than 40 different contracting entities attended the event, including all of the PSCPs from the P22 procurement framework and a significant number of the PSCPs from the CCS procurement framework. Feedback from attendees was very positive and there was a significant level of interest from the market. The full list of attending organisations is available in Appendix 12.

Outline feedback aligned with the Trust team's anticipation, which is that Construction contractors typically look for projects which are well scoped, well managed and which are supported by a clear funding route. Contractors are looking for schemes that are likely to proceed and which are supported with an appropriately developed and coordinated design for the procurement strategy being implemented. Schemes, such as the L&D's, which have also secured a Planning permission (March 2020) are also considered attractive.

The soft market launch has been followed-up by informal meetings and site walkabouts with Contractors on an individual basis. The purpose of these meetings was to elicit early Contractor thoughts on the procurement and strategy, including the package of works proposed, and to understand what measures could be put in place by the Trust to make the scheme as attractive to the marketplace as possible, and importantly, to mitigate risk as early in the process as possible. At the time of writing this OBC, individual meetings have been held with four large construction companies (Willmott Dixon, Kier, Morgan Sindall and Vinci).

5.9.1 Learning from Soft Market Testing

Learning from this market engagement, the following aspects which will be incorporated into the Trust's strategy;

- Clearly defined brief
- Decision makers involved have the authority to make decisions
- Allowing flexibility in solutions to future proof the proposals
- Collaborative approach - one team ethos with client / end users / design team / contractor
- Clear strategy for decision making processes and ensuring an engagement plan is set out to provide the necessary information to the decision makers at the appropriate times. Appoint a clear and authoritative/ empowered Project Leader
- Regular risk review workshops with clear mitigation strategy and ownerships
- Early close out of risks, through surveys and enabling works packages. De-risking the main works and clearer defined scope
- Provide a clearly defined brief and objectives for the contractor
- Engage the contractor early to develop scheme with the supply chain and buildability from the outset
- Appoint Trust third party consultants/ subcontractors in a timely fashion to ensure the programme can be met
- Clear, open and honest communication between the team. We can only support if we are involved
- Detailed investigation and analysis of the existing estate. Use of technology to support the identification of existing services and structures

In summary, the Trust recognises that in the backdrop of procurement will be a programme of significant investments in NHS premises. It has been acknowledged that this has the potential to increase competition for the right resources. The following factors combined are felt by the Trust to provide an advantage in terms of getting the right partner on board;

- advanced stage in the Business case process
- accelerated procurement process and resulting shorter timelines for delivery
- accelerated delivery of enabling packages
- de-risking of the New Build project by undertaking demolition and site diversions
- scale of project (neither too big, nor too small) and
- our utilisation of a framework other than NHSProCure22/ 2020

5.10 Social Value

The Trust is actively engaged in a number of wider “Anchor organisation” initiatives with procurement leads from Luton Borough Council (LBC) and other major procurers in the Luton region. These programmes seek alignment of the Trust’s strategies and approaches with the Council’s drive to generate Social Value in the city and wider region.

One such event is an exercise (Meet the Buyers) being organised by LBC at which the major commercial and construction client entities will present their schemes and invite prospective tier 1 Contractors, with LBC inviting locally based potential tier 2 and 3 Contractors and SME’s, to promote both the schemes themselves and to enhance the opportunities for locally based businesses to access and network with the larger Construction Contractors.

Local strategies to enhance social value will be reflected into Key Performance Indicators for the appointed Contractors, with evidence of tendering entities activities in the Social Value field being requested during the tender process. Social Value

generators will include;

- Encouraging participation of local SME’s in Public Sector supply chains
- Apprenticeships and investment in skills and learning
- Local sourcing of materials
- Encouraging local employment and leaving a positive legacy of enhanced skills in an area after Project completion

The detail of the Social Value KPIs to be monitored, reported on and managed against will be refined as tender and contract drafting is progressed. The Trust are using the National Themes, Outputs and Measures (TOMs) from www.socialvalueportal.com and other publicly available resources to evaluate and target the key social benefits that will drive the scheme to deliver. These will be negotiated with Contractors to form a key element of the evaluation and selection process, as well as being a key central report back to the framework level on the Contractor’s performance.

CoVID-19 Note

Responses addressing CoVID-19 have now been included in the National TOMs and will be investigated as a means of capturing further social benefits being generated from the planned investment and construction activity.

5.11 Programme management resource

5.11.1 Previous capital procurement capability at the Trust

The individuals within the Redevelopment team at the Trust have significant experience of successfully delivering small to large scale capital projects in healthcare, using both open market tenders and frameworks. Short form CV’s of the team members have been provided in the Management case.

The Redevelopment team are already in the process of delivering a programme of critical enabling projects, in order to allow the accelerated delivery of the new clinical facilities. These are described in the strategic case.

5.11.2 Contract Management

The Trust team features an NEC Accredited Project Manager and Accredited NHSP21 Project Director and there is substantial experience within the team of managing the NEC forms. The degree of experience with the Trust team is significant and as a result, several key learnings will be implemented, including the use of a Project Extranet (ProjectPlace; already implemented) and a web-enabled NEC Contract Management tool (Sypro or CEMAR are examples).

5.11.3 Project Management

Additional Project Management skills will be secured via seconded consultancy roles, in line with the structure set out in the Management Case and replicated below for ease of reference. The Team

has identified the need for specialist NEC Supervisor skills and input, as well as for NEC Project Manager capability and capacity for the volume of Works to be delivered. Notably, we will also secure specialist programming/ scheduling expertise to enable thorough interrogation and analysis of the contractually required, monthly Contractors "Programmes for Acceptance". This resource will, should it be required, also provide proactive programming and input into the Project Manager's assessment of programme impacts from Compensation Events where the PM is contractually required to do so. Funding for these roles is included within the Professional Fees identified in the OB Forms.

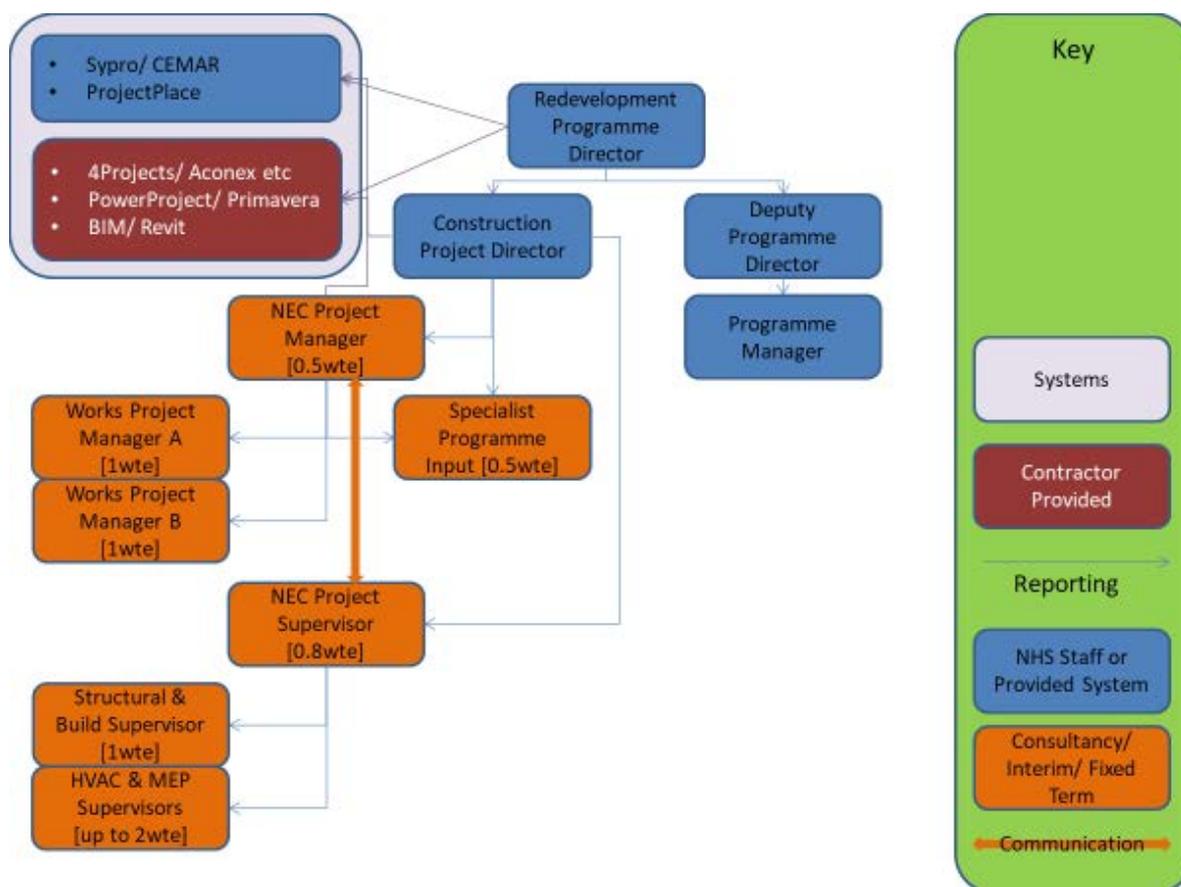


Figure 5.2- Project management structure

The NEC Supervisor team will work closely with an “Independent Commissioning Manager”, selected by the Trust but appointed by the Contractor and having a duty to both the Trust and Contractor in delivering a fully commissioned and ready for operation clinical facility.

At the time of writing the OBC, the Trust is preparing to procure the NEC Supervisors and Independent Commissioning Engineer as their inputs into the Works tender documentation for the New Clinical Buildings will be essential (tests, investigations and demonstrations need to be identified in advance as well as the equipment needed to undertake these) and will benefit from our Design Team and operational Estates team input into the selection process. This approach with both an NEC Supervisor and Independent Commissioning Manager will deliver a robust commissioning and quality management process

beyond the benchmarks set out in the relevant Health Technical Memoranda.

The Trust is acutely aware that typically, the Commissioning phase is the section of programme which gets cut if a Programme is running late. Given the nature of the clinical facilities being created and the significant challenge of returning to clinical areas once they are put into operational use, the Trust will therefore implement and preserve the Commissioning Programme identified by the Independent Commissioning Manager.

5.12 Procurement Programme

The anticipated procurement programme for the new clinical buildings is shown below, this is an extract from the Trust’s master programme for the Project, taken on the 11th March 2020.

Task Name	Duration	% Complete	Start	Finish
Stage 1	90 days	7%	Fri 27/03/20	Thu 30/07/20
Prepare Capability Assessment / EoI	4 wks	50%	Fri 27/03/20	Thu 23/04/20
Issue Capability Assessment/ EoI	0 wks	0%	Thu 23/04/20	Thu 23/04/20
Contractors' Response Period	3 wks	0%	Fri 24/04/20	Thu 14/05/20
Contractor Open Day	1 wk	0%	Fri 01/05/20	Thu 07/05/20
Receive Cap Assess/ EoIs	0 days	0%	Thu 14/05/20	Thu 14/05/20
Review Cap Assess/ EoIs	2 wks	0%	Fri 15/05/20	Thu 28/05/20
Recommend Short-list for Tender	1 wk	0%	Fri 29/05/20	Thu 04/06/20
Programme Board Endorsement of Short-list	0 days	0%	Thu 04/06/20	Thu 04/06/20
Prepare First Stage Tender Packs	4 wks	0%	Fri 24/04/20	Thu 21/05/20
Issue First Stage Tender (RIBA 2 Design)	0 days	0%	Thu 04/06/20	Thu 04/06/20
First Stage Tender Period	6 wks	0%	Fri 05/06/20	Thu 16/07/20
Short-listed Contractors' Open Day	1 wk	0%	Fri 12/06/20	Thu 18/06/20
Review First Stage Tenders	4 wks	0%	Fri 19/06/20	Thu 16/07/20
Contractor Interviews	1 wk	0%	Fri 17/07/20	Thu 23/07/20
Recommendation to Programme Board on Contractor	1 wk	0%	Fri 24/07/20	Thu 30/07/20
Stage 2	181 days	0%	Thu 30/07/20	Fri 23/04/21
Contractor Appointment	0 days	0%	Thu 30/07/20	Thu 30/07/20
Contractor Accepts Appointment	0 days	0%	Thu 06/08/20	Thu 06/08/20
Contractor Mobilisation	2 wks	0%	Fri 07/08/20	Thu 20/08/20
Checkpoint on RIBA 3 Design Status	0 days	0%	Mon 05/10/20	Mon 05/10/20
Contractor Affordability Review	4 wks	0%	Tue 06/10/20	Mon 02/11/20
Contractor Affordability Review Checkpoint	2 wks	0%	Tue 03/11/20	Mon 16/11/20
Agree Design Deliverables for Not to Exceed Price/ GMP	1 wk	0%	Tue 17/11/20	Mon 23/11/20
Produce NTE/ GMP for FBC	8 wks	0%	Tue 24/11/20	Mon 01/02/21
Further Design Development/ VE on GMP (based on Completed RIBA3)	79 days	0%	Tue 05/01/21	Fri 23/04/21
Revised GMP Agreed	0 days	0%	Fri 23/04/21	Fri 23/04/21

Table 5.9: procurement programme

5.13 Procurement Evaluation

5.13.1 Competitive Process

The Trust are working closely with the Crown Commercial Services Team to implement guidance on Contractor evaluation and selection for the CWAS Framework. The process is summarised below at high-level:

For the Demolition Package:

1. Expression of Interest to all 9 Contractors on the Lot 10 of the Framework
2. Offer open day
3. We anticipate a response from 6-7
4. Qualitative questions will be used to select a shortlist
5. We will issue a full Tender package to the Shortlisted 4/5
6. Receive and analyse tenders
7. Tenderer Interviews
8. We will select the "Most Economically Advantageous Tender" using a 50% Quality 50% Price

For the New Clinical Buildings:

1. Expression of Interest to all 14 Contractors on the Lot 5 of the Framework
2. Offer open day
3. Anticipate responses from 8-10 (we believe some will self-exclude due to limited health sector experience at this scale)
4. Qualitative questions will be used to select a short-list of between 4 and 6
5. Issue First Stage Tender along with RIBA 2 design packages to short-listed Tenderers
6. Offer further open day
7. Receive and analyse First Stage tenders
8. Tenderer Interviews
9. We will select the "Most Economically Advantageous Tenderer" using a 60% Quality 40% Price balance, with whom we will work on the development of the final design and Stage 2 price/ GMP

5.13.2 Bid Evaluation and Value for Money

Criteria Number	Criteria	Percentage Weightings [values allowed under CCS Framework]	Trust's Proposed Weighting
A	Quality	Between 50% and 100%	60%
B	Price	Between 0% and 50%	40%

Table 5.10- Bid evaluation and value for money

The actual criteria and questions to be asked, for each of the headline criteria identified above in order for the Trust to identify the Most Economically Advantageous Tender, will be further refined as the Trust concludes the drafting of the ITT/ Capability Assessment. However, as an indication of the questions and analyses the Trust considers likely to be utilised, set out below are some example criteria and potential weightings:

- Sub-criteria for Quality (60%):
 - Strength and depth of experience on proposed

CVs

- Extent of time commitments made by seniority
- Method Statements and means of mitigating works' impacts on BAU
- Commentary on RIBA 2 design outputs
- Risk considerations
- Team working approaches/ examples

- At interview:
 - Responses to clarifications on tenders and adopted positions
 - Assessment of their team dynamic and leadership
 - Responses to non-technical questions designed to assess their team response. Do they look to their named lead to steer them through responses on these unusual questions?
- Sub-criteria for Price (40%):
 - Tender price adjusted for compliance [by professional QS]
 - Deviation from Average of mid-range bidders (exclude highest and lowest and average remainder)
 - Deviation between submitted price and price adjusted for compliance
 - Outputs of Sensitivity analysis to identify over/under unit-pricing, or significant volume differences
 - Output of QS analysis identifying significant variances from Trust's Pre-tender estimate

5.14 Form of Contract

As noted in the Contract Strategy section above, the Trust has opted to utilise the NEC4 Suite of Contracts. The demolition programme is anticipated to be undertaken using either the Engineering & Construction Contract (ECC) with Main Option A [Lump Sum with Activity Schedule] or via the Engineering & Construction Short Contract (ECSC). The New Clinical Buildings are expected to be procured via the ECC Main Option C [Target Price with Activity Schedule].

5.14.1 Contract Z clauses

For the New Clinical Buildings, the standard form NEC4 will be adapted by way of Z-clauses, to achieve similar benefits as are seen through the P22 process, including;

1. A cap on the gain share mechanism for the Main Contractor

2. 2-year defects period
3. Defect free at Completion
4. Greater clarity on design responsibility and Contractor's ownership of early design
5. Contractor's to raise change notices even if a Client/ PM driven change or lose capability to gain reimbursement
6. Not to Exceed cash flow for NHS Capital draw-down

The Trust has appointed a highly experienced legal adviser (Ward Hadaway) to supplement the Trust's internal and consultancy team in drafting of these Z-clauses.

5.14.2 Contractors monthly submission

The Trust is also deploying learnings from its Project Team regarding the detail of what should be shown in the Contractor's monthly submissions for the "Programme for Acceptance", including (in addition to the requirements of the Contract);

1. Each Contractor's submitted Programme for Acceptance is provided in both native and pdf formats
2. A clear demonstration of the Critical Path for each iteration of the PfA [use Unique Task IDs and have this in the narrative section of the PfA as well as using a visual highlight on the GANTT]
3. Baseline and amended productivity and downtime assumptions underpinning the programme by task/ headline task
4. Report on actual productivities achieved/ reported
5. Any changes made to logical links and dependencies (including any change to +ve/ -ve lag) between tasks/ activities
6. Name and Unique ID of all tasks within 2 weeks of becoming critical path activity
7. Declaration of any consumption or release of TRA for tasks/ activity on critical path
8. Table of Client/ Employer actions with target and "deadline" dates

9. A "Focus" report, looking at:
 - a. Tasks reported as being behind planned progress
 - b. A 3-month and 4-week look ahead at Tasks/ Works/ Decisions by:
 - i. Others
 - ii. Client/ Employer
 - iii. Supervisor
1. Any changes in dates for Activity/ Tasks/ Works/ Decisions by:
 - a. Others
 - b. Client/ Employer
 - c. Supervisor
 - d. A written statement of which critical path tasks hold Client/ Employer risk
 - e. The Contractor, from date of [Contract Award/ appointment?] until the Defects Date, provides an internet connected laptop of an equivalent specification to those in use by the Contractor's programming/ scheduling team [but outwith the Contractor's networks], for the sole use of the Supervisor and Project Manager, including provision of a software licence for the full native programming and scheduling software to be implemented by the Contractor.

5.14.3 Payment/ Valuation Practice

a. Demolition:

Under the NEC4 ECSC Contract, the Contractor is paid for works completed in accordance with the works specification. Assessments of work done are conducted on a monthly basis and the Contractor then invoices for the assessed (and certified by the QS) amount due.

b. New Clinical Buildings:

Under the NEC4 ECC Contract, Main Option C, the Contractor is paid on a monthly basis for the cost of Works to date, along with a Project Manager's forecast of the amount due for works which will be completed by the next Assessment date. Due to the target price nature of Main Option C, the Contractor

is paid for actual demonstrated and properly incurred costs (as described in the definition of Defined Costs), plus their tendered "Fee".

The NEC Project Manager will delegate some of their authority to the independent QS (noted in the management team structure) in order to allow the QS to undertake inspections of records associated with costs and to interrogate ledgers, invoices and sub-contracts at the Contractor's site and Head Offices in order to evaluate this amount.

A monthly forecast of the out-turn cost of the Contract is provided and agreed with the QS and NEC Project Manager, allowing early identification of any budgetary pressures either for the Client or the Contractor (under a GMP Scenario).

c. CoVID-19

The emergence of CoVID-19 and the consequent impacts on the UK Construction industry's ability to deliver Works and support tender processes is of significant concern and potentially generates several risk themes for the Trust, around time frame, price and financial resilience of tier 1, 2 & 3 Contractors in the Supply Chain. This risk is drawn out in the economic model and costed on the assumption of a 6 month delay impact only.

As an NHS Trust and major Construction Client, we acknowledge our leadership role for the industry through this difficult and complex situation. As a Trust we have agreed that we will continue to issue tenders to the market, partly due to our programme constraints, but predominantly to demonstrate to the marketplace that there will be a volume of work to deliver and generate confidence in the Contractors' Marketplace that once the situation returns to something approaching normal, there will be workload to be delivered. We do recognise that any tenders we receive during this period may well be heavily caveated, but this will be worked through on a case-by-case basis.

Further, we have engaged with CCS Framework category leads, as the NEC Suite of Contracts selected allocates risks known about at the time of tender to the Contractor.

CoVID-19 will be included in that definition. Contractors should therefore include price and programme risk in their NEC ECC Tenders, which may;

- Make them substantially more expensive and lengthier than will be the actual case, or
- Mean Contractors refuse to bid

The Trust will work with both CCS and Ward Hadaway to craft a suitable Z-clause or redefinition of the term to allow some degree of flexibility for the Project Manager and Contractor to resolve any such issues.

5.15 Equipment

5.15.1 Procurement strategy for equipment

Given the nature of the Acute Services Block, there is a requirement for a significant amount of general and specialist equipment. As part of the OBC process, the Trust have a detailed understanding of the equipment requirements, which include the equipment that will transfer from old to new hospital estate, and the equipment which will need to be purchased new.

The Trust employed a specialist equipment advisor as part of the OBC development, MTS. MTS provided the Trust with a detailed financial and technical analysis of the build up to the Equipment section of the Acute Services Block.

5.15.2 Existing equipment to be transferred

A high level analysis of the Trusts equipment and future requirement determined that the total equipment requirement for the Acute Services Block was circa £8m. This assumed a 36% transfer of current equipment Appendix 10. Further information can be found in the "Preferred Way Forward" chapter and the "Financial Case."

5.15.3 New Equipment Requirements

Equipment being purchased between now and 2024 for the clinical services moving into the new acute services block will wherever possible comply with the equipment requirements of the new hospital build. The equipment requirement forms part of the Trust's rolling equipment replacement/annual capital planning programme.

5.15.4 Equipment Disposal

A proportion of current equipment will be considered unfit to transfer to the new hospital but will have some value for disposal. This will help to fund the purchase of new equipment. The estimated value of this will be worked through during the FBC development. For budgeting purposes, it is assumed that there will be no contribution to new equipment from the disposal value.

5.15.5 Equipment Transition Costs

There will be internal resource requirements and costs associated with the procurement, delivery installation and commissioning equipment and transfers and, therefore, a requirement for transition costs. On projects of similar sizes costs have been in the region of £75-£150K for items such as security, removals and logistics. A midpoint figure has been referenced in the Finance Case.

There is an assumption that the Trust will maintain continuous availability of equipment to avoid any service disruption during final fit out and commissioning of the development. In adopting the strategy, the project would incur costs relating to loan equipment whilst the moves take place. There are no big pieces of kit that will need calibrating such as large radiological equipment. These costs would be over and above normal transition costs (decommissioning, recommissioning and specialist cleaning function costs). This will be costed in detail at FBC stage.

5.15.6 Equipment Procurement Options

a. Public procurement

The Trust procures all medical and non-medical equipment directly with suppliers. The Trust will take some risk on delivery and design issues relating to the building and timing of supply. This does allow the L&D Team to be flexible with greater choice in equipment replacement if procured through public procurement. The Trust will make use of existing national and local frameworks, tendering where necessary and through OJEU depending on the value. Resource will be made available to undertake this procurement and commissioning.

b. Charitable funding

There are some opportunities for equipment to be funded by the Hospital Charity. NICU has been fundraising for a number of years to support equipment on the new unit. This route usually involves making a case for specific items that are in line with the charity's aspirations.

c. Managed Equipment Service (MES)

There is little opportunity for a standalone managed service deal for the equipment in the scope of this OBC project alone. An MES would be better suited to a whole hospital provision and therefore the Trust has taken the decision not to pursue this as an option.

d. Leasing

The Trust currently leases some medical equipment and will continue to adopt this principle in the new hospital. The revenue implications of this will be worked through in detail during the FBC development.

5.15.7 Equipment Procurement Conclusion

An option appraisal is required to establish the most cost-effective option for the Trust prior during the development of the FBC. It is highly likely that a number of options will be used to provide the equipment in the new hospital.

The procurement process employed for each requirement is identified within the Trust's SFI's and is predicated on the estimated value of the whole life cycle cost of any subsequent contract.

A new development of this size requires project management for the delivery, storage and logistics and this will be resourced appropriately. A detailed project plan will be developed at FBC stage and this will underpin the work of the "Equipment Workstream."

5.15.8 Equipment Workstream

An equipment workstream will be established at commencement of the FBC. The equipment workstream will follow the principles of procurement set out in the Trust's Procurement Strategy. The equipment workstream will be led by the Trust's Head of Procurement, and will report into the

Redevelopment Programme Team.

Terms of reference for the equipment workstream will ensure;

- Existing Equipment to be transferred, when, where and how
- New equipment being procured in advance of scheme and ensuring fit with new hospital build
- Equipment being procured as part of, or in parallel with, the scheme
- Specialist equipment
- Confirmation of who will procure which type of equipment
- Confirmation of how the equipment will be funded
- Confirmation of who will operate and maintain the equipment
- Confirmation of the Procurement Strategy including Milestones and delivery dates
- Resource requirements to deliver the above
- Risk Management associated with the above

5.16 Town Planning

A positive relationship has been developed with the town planning team at Luton Borough Council (LBC) following the inception of the original OBC developed in February 2015 which aimed to transform the entire site. Regular meetings in recent years have helped to steer the proposals for redevelopment of the site and the planning team is supportive of the Trust's ambition to improve healthcare provision for the local community.

A detailed planning submission for the redevelopment was made to LBC on the 31st July 2015 following public consultation. LBC resolved to grant planning permission for the redevelopment of the main site on 10th February 2016. The formal grant of planning permission was made on the 15th April 2016, following the signing of a section 106 agreement.

Planning permission was granted for three years from that date and expired in April 2019.

The Trust entered into a Planning Performance Agreement with the council in January 2020. On the 17th January 2020, a new planning application was made to LBC in respect of the redevelopment of the hospital site. This followed reconfirmation of the public consultation in November 2019.

Overwhelming public support for the redevelopment of the site still exists and the town planning team and LBC remain committed to the aspirations of the hospital to serve its community.

While there was widespread support for the redevelopment proposals and clinical aspirations of the Trust, car parking remains the key issue for local residents. The Redevelopment Team have provided a forum for engagement with local residents since 2015. A committee has been established which is attended by representatives from the local streets and has been attended by LBC Councillors in the past, as well as Executive and Non-Executive Directors of the Trust, and Governors of the Trust. This meets on a bi-monthly basis and has been positively received. The terms of reference for this group can be found in Appendix 13.

In parallel with the main application which includes a new car park on the site for patients, a number of additional planning applications have been made. These include a specific application for the provision of car parking close to the hospital site and the provision of a helipad above the Emergency Department to support the Trust to become a Major Emergency Centre. This scheme is outside of the scope of this OBC.

There is overwhelming public support for this redevelopment and planning consent was granted by Luton Borough Council at the Development Control Committee on the 25th March 2020. Planning consent was for the preferred option as described in this OBC and included planning permission for the ASB, a second clinical block and the MSCP on Lewsey Road. There have been a number of design revisions since the planning submission in January 2020. It has been agreed with the Council that these will be dealt with

through a section 96 notice to be presented to LBC in June. The design revisions are considered to be insignificant.

5.17 Redevelopment Programme of Approvals in relation to procurement

It is understood that this project is classified as a significant capital investment. Therefore although the Trust is not in financial distress, it requires NHSE/I approval, DHSC approval and finally, HMT approval. The Trust was advised in December 2019 by the NHSE/I Strategic Estates Lead for the East of England to allow 3-4 months for the approvals process for the OBC. A similar time allocation for Full Business Case approval has been assumed.

The Trust has completed sufficient design information to enable a procurement exercise to start during the development of the FBC. The critical path, however, flows through a number of key enabling schemes that must be completed prior to the commencement of the main scheme, to build the ASB and NWB. Key enabling schemes, funded by the Trust, include the provision of temporary office accommodation to support decanting of the Trust HQ building prior to demolition. The Trust HQ building is earmarked for demolition as it is the development site for the new building.

Milestones	Proposed date	Comments
Planned start date of enabling work	January 2020	Key enablers include: January 2020 - service diversions, service moves (med gas, offices, stores) Temporary Office Block - June 2020
OBC approval by Trust Board and submission to NHSE/I	April 2020	Approval required from NHSE/I, DHSC and HMT Anticipated approval of OBC September 2020
Procurement to commence	April 2020	Procurement to run in parallel with development of FBC
RIBA stage 3 design completion and stage 3 cost plan	September 2020	
FBC submission to NHSE/I	December 2020	Approach to FBC delivery discussed 03/04/20 with NHSE/I and DHSC. Approach requires further discussion and approval by NHSE/I and DHSC
Planned start date for demolitions	January 2021	Asbestos R&D Surveys and removals, plus key utilities isolations to provide a safe demolition site and limit impact on Business As Usual.
Planned start date of capital work	April 2021	Main scheme build ASB and NWB
Planned end date of capital work	December 2023	2.5 year construction programme

Table 5.11: High level programme and approvals

5.18 Conclusion of the Commercial Case

The commercial case has explored a number of procurement options to deliver the preferred option. The procurement evaluation examines both a traditional procurement approach on the open market, and a framework approach. The advantages and disadvantages of both routes are explored in detail. Methodology for defining the best route to market for the Trust is focussed on ensuring best value for money, and best fit for the organisation. Social value is an important factor in the procurement piece and this is reflected in the decision making.

A robust, legally sound procurement process has been developed to select a preferred bidder that is able to provide a value for money solution. The Trust aim to deliver a service that provides value, stimulates innovation and most importantly, supports delivery of the highest quality of patient care. A strong case has been made to progress the procurement of the capital works element of the redevelopment project at the L&D, using the CCS framework.

In line with the Programme, explored in more detail in the management case, expressions of interest from the market will be delivered by the end of May, and an appointment will be made at the end of August 2020. The contractor will mobilise shortly thereafter.

Crucial to the affordability for all capital schemes, is the utilisation of equipment, both medical and non- medical from the existing Trust asset base. The Trust recognises that services will be provided in a new way in the new clinical buildings and as such, some equipment will not be fit for purpose. The opportunity, risk and cost associated with this is worked through in the finance case and will be further developed in the FBC. The Trust has currently made an allowance of £8m from its rolling capital programme to fund equipment requirements.

A RIBA stage 3 design cost plan will be delivered at the end of September 2020 to support the FBC. It is anticipated that the FBC will be developed from mid-April to September 2020.

At the time of submitting this OBC, the full impact of CoVID-19 on the programme and construction market is not fully understood for any major construction project. As such, whilst the risk of a global pandemic is thought through in the economic chapter, to ensure consistency and a benchmark to work from, the commercial impact of CoVID-19 will not be worked through in this chapter, but addressed during the FBC development.

Finance Case Summary

The L&D has been one of the best financially performing Trusts in the country, reporting a financial surplus in each of the last 19 years. The L&D reported a surplus of £13.0m in 2016/17 rising to £15.4m in 2017/18, £22.6m in 2018/19 and is forecast to deliver a £12m surplus in 2019/20. The Trust, now Bedfordshire Hospitals, following the merger with Bedford Hospital on the 1st April 2020, anticipates continuing with this financial robustness in 2020/21.

The economic case presented a clear way forward for the redevelopment of the hospital site. On review of the capital costs, revenue implications, optimism bias, risk and benefit, the economic summary evaluated that option 2 was the preferred option for the redevelopment of the hospital. Option 2 described the construction of an Acute Services Block (ASB) linked to a New Ward Block (NWB), to be delivered over 2.5 years and programmed to complete at the end of 2023. The new services include maternity services, neonatal services, critical care and theatres. The preferred option supports the Trusts strategic vision and aligns with the Trust's investment objectives.

The Trust had previously presented Option 2 to NHSE/I, DHSC & HMT at a briefing on 21st January 2020. At this stage the cost of Option 2 required £161m in support, and a commitment by the Trust to contribute funding, to reduce this figure to £150m. The central allocation of funding included £12m for IT integration and pathology merger costs associated with the merger of the L&D and BHT, approved by NHSE/I.

In the absence of a major capital scheme, the limitations of the estate and the maintenance required to maintain clinical services, has a significant projected incremental impact on the Trust's financial position. The preferred option delivers financial benefits against the Trust's baseline that cannot be realised by any other option and the economic modelling demonstrates that this provides the best value for money solution with a benefit: cost ratio of 4.88 over the baseline.

This chapter looks at the capital and revenue affordability of the project, taking into account inflation, and indicates how the incremental cost of the scheme will be funded. This chapter draws on the key financial assumptions and concludes that the

preferred option identified in the Economic case is affordability, with significant improvements against the base case.

The BAU option shows a negative financial position for the Trust after year 3 due to the inefficiencies associated with maintaining an old estate, and not realising the benefits associated with the redeveloped estate, in terms of service colocation and the delivery of more streamlined pathways and better patient outcomes.

Option 1 to build an ASB, shows a significant long term improvement to the BAU financial position of Bedfordshire Hospitals NHSFT (although costs are higher in the first two years). This is in line with the merger FBC submitted to NHSE/I in December 2019. This option delivers the financial trajectories for the merged organisation.

Option 2 sees the creation of an ASB linked to a NWB and provides a more robust financial position for the Trust, with greater benefits financially and improved patient outcomes. Option 2 shows a significant long term improvement to the BAU financial position of Bedfordshire Hospitals NHSFT, although costs are higher in the first two years. This delivers the financial trajectories for the merged organisation.

6.1 Introduction

This Financial Case provides an overview of the Trust's current financial performance and sets out the projected incremental impact of the BAU Option 0, Option 1 and Option 2 on the Trust's financial position. The Financial Case assesses the capital and revenue affordability of the preferred option and tests this against a number of key sensitivities. This chapter also identifies the financial benefits that each option delivers and the impact of this on the Trust's financial position.

The central allocation in August 2019 of £99.5m to fund the L&D's capital plans (including £12m for integration costs for IT and Pathology for the merged organisation), unlocked the opportunity for the L&D to merge with Bedford Hospital (BHT). NHSE/I approved the merger business case in December 2019 and the merger went ahead as planned on the 1st April 2020. The primary benefits of the merger focus on integrated patient care and clinical outcomes, but in financial terms, the merger will result in a large cash benefit to the health economy.

The L&D and BHT have identified a range of clinical

and non-clinical synergies and benefits which are anticipated to arise as a result of the merger, through the enhancement and reorganisation of clinical and operational services and policies. The Trust has always been clear that the funding for the hospital redevelopment and the merger are intrinsically linked, and therefore the benefits of the merger are shown (in options 1 and 2) as an incremental change to BAU.

6.2 Historical Financial Performance

The L&D is one of the best financially performing Trusts in the country, reporting a financial surplus in each of the last 19 years. The L&D reported a surplus of £13.0m in 2016/17 rising to £15.4m in 2017/18, £22.6m in 2018/19 (after the application of Provider Sustainability core and bonus funding, in light of the Trust achieving its control total within the year), and £12m in 2019/20. The Trust anticipates continuing with this financial robustness going forward. A summary of the Trust's historical performance is presented in the table below.

£m	2016/17	2017/18	2018/19	2019/20
Operating income from patient care activities	267.7	301.2	322.6	339.4
Other operating income	41.1	32.9	40.0	31.8
Total Income	308.8	334.1	362.6	371.2
Pay costs	-188.0	-203.6	-219.7	-234.2
Non pay costs	-94.2	-102.1	-107.3	-109.8
Total Operating Expenses	-282.2	-305.7	-327.0	-344.0
EBITDA	26.6	28.4	35.6	27.3
Net non-operating revenue and expenses	-13.6	-13.0	-13.0	-15.2
Net surplus/(deficit)	13.0	15.4	22.6	12.0

Table 6.1: Historical financial position and forecast outturn

6.3 Option 0 - BAU option

6.3.1 Financial modelling

The BAU option sees a limited capital programme on site, with the Trust utilising its cash reserves to fund a new (limited) Critical Care block. This would

address the CQC concerns around the Critical Care accommodation, but would not resolve any issues regarding the Trust's ward stock, theatre capacity and condition, NICU condition or maternity facilities.

6.3.2 Forecast Baseline Financial Position

The Trust's Long Term Financial Model (LTFM) has recently been updated as part of the proposed merger with BHT. The LTFM includes (as its base case) the impact of the investment related to Option 1 which had been the preferred option underpinning the Wave 4b STP capital bids in July 2018, before in depth economic modelling to develop the preferred option had been conducted. As such, in order to forecast the baseline financial position presented below, the incremental impact of the preferred option on the Trust's accounts

have been removed from the LTFM to create the BAU option.

Although Option 0 - BAU, modelled in table 6.2, does not incur the significant capital charges associated with the ASB, it also does not deliver the benefits associated with the ASB, nor the benefits associated with the merger. For this reason, these numbers do not deliver the required Financial Trajectory for the merged Trust. Although a surplus is achieved in the first 3 financial years, the Trust slips into deficit from 2024/25 and remains in deficit.

£m	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27
	FOT							
Operating income from patient care activities	544.1	568.2	593.7	620.4	648.7	669.4	698.7	719.7
Other operating income	59.8	48.4	47.7	46.9	46.1	46.1	47.5	48.9
Total Income	603.9	616.6	641.4	667.4	694.8	715.5	746.2	768.6
Pay costs	-376.7	-392.9	-409.1	-427.5	-447.1	-468.7	-484.6	-499.0
Non pay costs	-191.4	-196.7	-197.4	-201.9	-211.8	-211.6	-225.7	-232.5
Total Operating Expenses	-568.1	-589.5	-606.5	-629.4	-658.9	-680.3	-710.3	-731.5
EBITDA	35.8	27.1	34.9	37.9	35.8	35.2	35.9	37.1
Net non-operating revenue and expenses	-23.3	-26.5	-32.4	-34.6	-35.8	-36.9	-38.0	-39.1
Net surplus/(deficit)	12.5	0.6	2.5	3.4	0.0	-1.7	-2.1	-2.0
Financial Recovery Fund	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net surplus/(deficit)	12.5	0.6	2.5	3.4	0.0	-1.7	-2.1	-2.0

Table 6.2: Baseline financial position - Option 0 - BAU

6.3.3 Assumptions

a. Demographic growth

Demographic growth has been based on historical trends, in line with the planned activity growth assumptions for the BLMK ICS, which are predicted to be 2.8%.

b. Tariff and Inflation assumptions

Additional tariff and inflation assumptions have been included in line with published NHSE/I guidance.

c. Activity related staff costs

Associated activity-related staff costs are anticipated to be delivered at between 50-60% of marginal costs, resulting in a recurrent staffing cost increase of approximately 1.5-1.7% recurrently from 2020/21 onwards.

d. Additional staff related costs will be offset by;

- 20% marginal surpluses from demographic growth
- savings on agency spend
- an annual £0.5m in procurement savings
- pathology savings
- up to a maximum of an additional 2% in CIPs per year

Additional BAU CIPs have been agreed as a result of detailed benchmarking work, in light of Model Hospital principles and Carter recommendations.

These CIPs, also known as QIPP schemes have been reviewed and approved by the Finance Investment and Performance Committee (FIP), and have project leads assigned. Responsibility for delivery has been assigned, likely amounts quantified and contingencies identified. All CIP schemes are required to have a Quality Impact Assessment and where there is a potential impact on quality, these schemes are

reviewed by the Trust's Clinical Outcome, Safety and Quality Committee.

All costs are treated in line with the Trust's current capitalisation policy.

6.3.4 Statement of financial position (SoFP)

	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27
Non-current assets	272,169	311,971	332,077	338,074	329,139	319,674	323,174	326,674
Current assets (excl Cash)	57,819	56,565	57,571	58,634	59,761	60,954	60,954	60,954
Cash	43,284	16,223	5,773	2,263	7,814	11,815	6,255	717
Current liabilities	-41,046	-43,252	-44,382	-45,434	-46,728	-47,785	-47,785	-47,785
Total assets less current liabilities	332,226	341,507	351,039	353,537	349,986	344,658	342,598	340,560
Non-current liabilities	-101,688	-103,093	-98,536	-93,559	-89,970	-86,354	-86,354	-86,354
Total net assets employed	230,538	238,414	252,503	259,978	260,016	258,304	256,244	254,206
Financed by								
Public dividend capital	122,590	129,890	141,490	145,590	145,590	145,590	145,590	145,590
Revaluation reserve	30,362	30,362	30,362	30,362	30,362	30,362	30,362	30,362
Income and expenditure reserve	77,586	78,162	80,651	84,026	84,064	82,352	80,292	78,254
Total taxpayers' and others' equity	230,538	238,414	252,503	259,978	260,016	258,304	256,244	254,206

Table 6.3: Option 0 - BAU Statement of Financial Position

The SoFP demonstrates that without central PDC the Trust cannot deliver anything beyond a new critical care block (and in the absence of detailed design work, there is a significant risk that £25m is insufficient for the critical care block). The Trust rapidly uses up its cash reserves and ends 2026/27 with less than £1m cash in the bank.

6.3.5 Cashflow

Table 6.4 shows how the cash position changes. Without support for any of the L&D redevelopment schemes the cash position is rapidly diminished. It is possible that the Trust could, or indeed would, have to make differential decisions on BAU capital spend in the latter years.

£m	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27
	FOT	FOT	FOT	FOT	FOT	FOT	FOT	FOT
Bfwd cash balance	37.1	43.3	16.2	5.8	2.3	7.8	11.8	6.2
Cash from operations - L&D fcast	34.9	28.6	35.4	38.7	36.7	36.6	35.4	35.5
Capex BAU	-52.2	-53.5	-25.3	-16.3	-14.2	-14.2	-28.0	-28.0
Merger Cash requirement	0.0	-4.0	-4.0	0.0	0.0	0.0	0.0	0.0
Redev cash requirement	0.0	0.0	-12.5	-12.5	0.0	0.0	0.0	0.0
Working Capital movements	17.7	1.9	-0.4	-1.1	-1.1	-1.2	0.0	0.0
Cfd cash balance pre funding	37.5	16.2	9.4	14.6	23.7	29.0	19.2	13.7
Funding from PDC	13.5	7.3	11.6	4.1	0.0	0.0	0.0	0.0
Other Funding (GDE, Salix, STP)	2.6	4.9	0.0	0.0	0.0	0.0	0.0	0.0
Other financing activities (Divs, repayment)	-10.3	-12.2	-15.2	-16.5	-15.9	-17.1	-13.0	-13.1
Cfwd cash balance	43.3	16.2	5.8	2.3	7.8	11.8	6.2	0.6

Table 6.4: Option 0 - BAU Cashflow

6.3.6 Capital Plans for the Trust

The L&D have agreed a development control plan (DCP) as described in the strategic case, which starts to articulate the level of site development required to bring the estate up to a modern, more efficient and functional standard. Phase 1 of the redevelopment, as described in this OBC, tackles the highest clinical risk areas across the site, as defined in the Trust's 6 facet survey and by the level of corporate risk the Trust is managing, also described in the strategic case. The DCP requires a significant level of funding.

It is accepted that maintaining old buildings can be an inefficient use of public money and can often

provide the least efficient solution to ensuring clinical environments are fit for purpose. Capital improvements across the site have been agreed by the Trust Board, to tackle the ageing estate and growing backlog which is currently assessed to be at £91m. Associated capital plans for these improvements as part of BAU activities have been agreed. Option 0 only picks up a small part of this required investment and proposes new Critical Care accommodation.

6.3.7 Planned capital expenditure

A summary of the Trust's baseline planned capital expenditure is outlined in table 6.5.

£m	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	Total
	FOT								
L&D									
Day-to-day capital needs	25.8	25.4	7.0	6.9	7.0	7.0	16.0	16.0	111.2
Generators	3.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.3
Energy Centre Building	1.0	13.8	2.4	0.0	0.0	0.0	0.0	0.0	17.2
Energy Conservation Measures	0.7	5.3	3.0	0.0	0.0	0.0	0.0	0.0	9.0
IT Merger Enabling	0.0	4.0	4.0	0.0	0.0	0.0	0.0	0.0	8.0
Pathology Joint Venture	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.6
Critical Care	0.0	0.0	12.5	12.5	0.0	0.0	0.0	0.0	25.0
Total	34.4	48.5	28.9	19.4	7.0	7.0	16.0	16.0	177.3
BHT									
Day-to-day capital needs	2.6	3.5	2.7	3.4	5.3	7.5	12.0	12.0	49.0
Fast Follower Funds (PDC)	3.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	3.5
GHH Hub (PDC)	0.3	1.8	2.8	2.0	0.0	0.0	0.0	0.0	6.9
Theatre 7 & 8 (PDC)	0.0	1.5	4.8	2.1	0.0	0.0	0.0	0.0	8.4
Ward Refurbishment	0.0	0.3	1.3	1.3	1.3	0.0	0.0	0.0	4.2
Other	2.7	2.0	1.8	1.1	1.2	0.0	0.0	0.0	8.8
Total	8.6	9.6	13.4	9.9	7.8	7.5	12.0	12.0	80.8
Combined BAU capital plan	43.0	58.1	42.3	29.3	14.8	14.5	28.0	28.0	258.1

Table 6.5: Option 0 - Planned capital expenditure

6.3.8 Financing the BAU Option

Funding for this capital expenditure is anticipated to be predominantly through the Trust's cash reserves - see table 6.6. There is some PDC receipt modelled

within Option 0, this is in line with the latest wave of STP capital bids, but is also not agreed currently (and not part of this OBC).

£m	Loans	GDE	PDC	Cash	Total
L&D					
Day-to-day capital needs	1.0	5.6	0.9	103.7	111.2
IT Merger Enabling			8.0		8.0
Pathology Joint Venture			3.6		3.6
Critical Care				25.0	25.0
Generators				3.3	3.3
Energy Centre Building				17.2	17.2
Energy Conservation Measures	7.5			1.5	9.0
Total	8.5	5.6	12.5	150.7	177.3
BHT					
Day-to-day capital needs	0.5			48.5	49.0
Fast Follower Funds (PDC)		3.5		0.0	3.5
GHH Hub (PDC)			6.9	0.0	6.9
Theatre 7 & 8 (PDC)			8.4	0.0	8.4
Ward Refurbishment				4.2	4.2
Other				8.8	8.8
Total	0.5	3.5	15.3	61.5	80.8
Combined BAU capital plan	9.0	9.1	27.8	212.2	258.1

Table 6.6: Option 0 - Sources of funding

6.4 Option 1 - "Do Minimum" option

6.4.1 Financial modelling

Option 1 sees the redevelopment of part of the hospital, providing a do minimum option. This option addresses the highest risk clinical estate by re-providing acute clinical accommodation in an ASB. Option 1 represents the STP capital submission in July 2018 and is the base on which the STP wave 4b funding allocation of £99.5m was secured. This capital scheme is currently costed at £118m based on current costing guidance. This includes £106.4m for the ASB and £11.6m for the IT and Pathology integration cost as defined by the L&D and BHT merger FBC (Dec 2019) approved by NHSE/I.

Option 1 relies on a number of enabling schemes to support the functionality of the ASB and the future development of the hospital site, to the tune of £50m. These enabling schemes include a decant ward block solution for £25m which supports a continued programme of backlog maintenance across the hospital estate.

6.4.2 Forecast Baseline Financial Position - Option 1

Option 1- see table 6.7.- shows a significant long term improvement to the BAU financial position of Bedfordshire Hospitals NHSFT (although costs are

higher in the first two years). This is in line with the merger FBC submitted to NHSE/I in December 2019. This option delivers the financial trajectories for the merged organisation.

£m	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27
	FOT							
Operating income from patient care activities	544.1	568.2	593.7	620.4	648.7	678.4	698.7	719.7
Other operating income	59.8	48.4	47.7	46.9	46.1	46.1	47.5	48.9
Total Income	603.9	616.6	641.4	667.4	694.8	724.5	746.2	768.6
Pay costs	-376.7	-391.9	-405.9	-423.7	-443.0	-463.9	-477.9	-492.3
Non pay costs	-191.4	-195.5	-199.5	-205.3	-212.1	-219.8	-226.4	-233.2
Total Operating Expenses	-568.1	-587.4	-605.4	-629.0	-655.1	-683.7	-704.3	-725.5
EBITDA	35.8	29.2	36.0	38.3	39.7	40.8	41.9	43.1
Net non-operating revenue and expenses	-23.3	-27.7	-32.4	-34.6	-35.8	-36.9	-38.0	-39.1
Net surplus/(deficit)	12.5	1.5	3.6	3.8	3.9	3.9	3.9	3.9
Financial Recovery Fund	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net surplus/(deficit)	12.5	1.5	3.6	3.8	3.9	3.9	3.9	3.9

Table 6.7: Option 1 - financial position

6.4.3 Bridge between Option 0 and Option 1 financial position

The main differences to the Option 0 - BAU are shown in table 6.8. The reduced cost of maintaining the site offsets the marginal increase in costs to re-provide the services in the

demolished building. The funding also unlocks the merger benefits which, when combined with the ASB benefits significantly outweigh the additional capital charges. The net annual improvement to the bottom line is a £6m improvement against Option 0 from 2025/26 onwards.

£m	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27
	FOT							
Cost to re-provide demolished buildings	0.0	0.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
Maintenance cost saving ASB	0.0	0.0	0.0	0.0	2.8	3.0	1.4	1.4
Maintenance cost saving Wards	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8
Benefits	0.0	0.0	0.0	0.0	0.0	-0.2	1.7	1.7
Additional Capital Charges	0.0	-1.2	-4.4	-6.7	-7.9	-7.9	-7.9	-7.9
Merger Benefits	0.0	2.2	6.1	7.7	8.7	10.4	10.4	10.4
Total Incremental Change	0.0	1.0	1.1	0.4	3.9	5.6	6.0	6.0

Table 6.8: Bridge between Option 0 and Option 1 financial position

6.4.4 Benefits of option 1 in comparison to baseline

The BAU option sees a piecemeal redevelopment of the hospital. The BAU option provides a small element of new clinical accommodation, which addresses the highest service risk across the estate, in critical care, but does not support good clinical adjacencies across the Trust, and therefore does not support service efficiencies. Substandard clinical adjacencies and maintaining old hospital estate, are key drivers for the reduced total scheme benefit. Option 1 therefore has an improved total benefit over

option 0 and this is reflected in the incremental change between both options. These are provided in detail in the economic case and equate to a £1.7m incremental improvement from 2025/26 onwards.

6.4.5 Assumptions

Assumptions are in line with those in the base case described in section 6.3.3.

6.4.6 Statement of Financial Position (SoFP)

	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27
Non-current assets	272,169	323,846	397,728	439,650	447,623	435,468	438,968	442,468
Current assets (excl Cash)	57,819	56,565	57,571	58,634	59,761	60,954	60,954	60,954
Cash	43,284	13,403	-10,693	-10,714	1,387	13,684	14,104	14,546
Current liabilities	-41,046	-43,252	-44,382	-45,434	-46,728	-47,785	-47,785	-47,785
Total assets less current liabilities	332,226	350,562	400,224	442,136	462,043	462,321	466,241	470,183
Non-current liabilities	-101,688	-103,093	-98,536	-93,559	-89,970	-86,354	-86,354	-86,354
Total net assets employed	230,538	247,469	301,688	348,577	372,073	375,967	379,887	383,829
Financed by								
Public dividend capital	122,590	137,990	188,590	231,690	251,288	251,288	251,288	251,288
Revaluation reserve	30,362	30,362	30,362	30,362	30,362	30,362	30,362	30,362
Income and expenditure reserve	77,586	79,117	82,736	86,525	90,423	94,317	98,237	102,179
Total taxpayers' and others' equity	230,538	247,469	301,688	348,577	372,073	375,967	379,887	383,829

Table 6.9: Option 1 Statement of Financial Position

Table 6.9 demonstrates that even with £118m central PDC, the Trust has a short-term cash problem in 2021/22 and 2022/23. This is despite significant reductions to BAU capital spend (see capital section below). Without support the Trust would be required to defer the decant ward and ultimately the continued management and mitigation of risk associated with the estate's backlog maintenance. This would continue to

negatively impact patient outcomes. This would also have a significant impact on the outputs of the Trust and would potentially put at risk some of the benefits, most notably (from a financial perspective) the time spent responding to complaints, maintenance costs and agency spend. The option has been shown with a cash deficit in these years to enable a full comparison to BAU and Option 2.

£m	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27
	FOT	FOT	FOT	FOT	FOT	FOT	FOT	FOT
Bfwd cash balance	37.1	43.3	13.4	-10.7	-10.7	1.4	13.7	14.1
Cash from operations - L&D fcast	34.9	29.5	36.5	39.1	40.6	42.2	41.4	41.4
Capex BAU	-48.0	-57.2	-52.6	-25.7	-11.5	-11.5	-28.0	-28.0
Merger Cash requirement	-3.6	-4.0	-4.0	0.0	0.0	0.0	0.0	0.0
Redev cash requirement	-0.7	-8.1	-39.0	-39.0	-19.6	0.0	0.0	0.0
Working Capital movements	17.7	1.9	-0.4	-1.1	-1.1	-1.2	0.0	0.0
Cfd cash balance pre funding	37.5	5.3	-46.1	-37.4	-2.3	30.8	27.1	27.5
Funding from PDC	13.5	15.4	50.6	43.1	19.6	0.0	0.0	0.0
Other Funding (GDE, Salix, STP)	2.6	4.9	0.0	0.0	0.0	0.0	0.0	0.0
Other financing activities (Divs, repayment)	-10.3	-12.2	-15.2	-16.5	-15.9	-17.1	-13.0	-13.1
Cfwd cash balance	43.3	13.4	-10.7	-10.7	1.4	13.7	14.1	14.4

Table 6.10: Option 1 Cashflow

6.4.7 Capital Plans

Option 1 builds on the BAU capital plan by creating an ASB. In order to deliver other estate requirements across the hospital however, the Trust is required to make significant reductions to BAU capital. This will support the delivery of ward decant facilities that will enable the Trust to carry out essential backlog maintenance works in ward areas to bring them up to required standards. In option 2, one of the additional benefits in building an adjoining NWB is the subsequent ability of the Trust to utilise the vacated maternity ward block, to provide a decant ward solution. The decant ward will be used as a key enabler to support a programme of backlog maintenance in the current ward areas, thus unlocking phase 2 of the Development Control Plan (DCP) and ultimately, strategic aspirations of the estate.

6.4.8 Methodology for developing capital costs

Capital costs have been developed for the BAU

capital by the Trust's specialist advisors at AECOM. The Forecast Outturn Business Case Total is generated using Healthcare Premises Cost Guides (HPCGs) Second Edition published by Department of Health. HPCGs provide a cost per square metre for building and engineering services installations for different hospital departments. They are based on Health Building Notes and associated example schedules of accommodation published by DH. The Works Cost is calculated at a PUBSEC index of 250. Inflation adjustments are included within the OB1 Forms found in Appendix 3. Costing methodology is described in the economic case.

6.4.9 Planned capital expenditure

A summary of the Trust's planned capital expenditure for option 1 is outlined in table 6.11. Other enabling costs include the procurement costs, internal team costs and the costs of advisers and technical support.

£m	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	Total
	FOT								
L&D									
Day-to-day capital needs	25.8	17.4	6.9	4.3	4.3	4.3	16.0	16.0	95.0
Generators	3.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.3
Energy Centre Building	1.0	13.8	2.4	0.0	0.0	0.0	0.0	0.0	17.2
Energy Conservation Measures	0.7	5.3	3.0	0.0	0.0	0.0	0.0	0.0	9.0
IT Merger Enabling	0.0	4.0	4.0	0.0	0.0	0.0	0.0	0.0	8.0
Pathology Joint Venture	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.6
Acute Services Block	0.7	8.1	39.0	39.0	19.6	0.0	0.0	0.0	106.4
Temporary Ward for decanting	0.0	0.0	15.0	10.0	0.0	0.0	0.0	0.0	25.0
Re-provision of canteen/ kitchen	0.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0	10.0
Other enabling	0.0	11.8	2.4	2.1	0.0	0.0	0.0	0.0	16.3
Total	35.1	60.4	82.7	55.4	23.9	4.3	16.0	16.0	293.8
BHT									
Day-to-day capital needs	2.6	3.5	2.7	3.4	5.3	7.5	12.0	12.0	49.0
Fast Follower Funds (PDC)	3.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	3.5
GHH Hub (PDC)	0.3	1.8	2.8	2.0	0.0	0.0	0.0	0.0	6.9
Theatre 7 & 8 (PDC)	0.0	1.5	4.8	2.1	0.0	0.0	0.0	0.0	8.4
Ward Refurbishment	0.0	0.3	1.3	1.3	1.3	0.0	0.0	0.0	4.2
Other	2.7	2.0	1.8	1.1	1.2	0.0	0.0	0.0	8.8
Total	8.6	9.6	13.4	9.9	7.8	7.5	12.0	12.0	80.8
Combined BAU capital plan	43.6	70.0	96.1	65.3	31.7	11.8	28.0	28.0	374.5

Table 6.11: Option 1 - Planned capital expenditure

6.4.10 Financing of option 1

Funding for this capital expenditure is anticipated to be obtained through a number of sources. This is summarised in the table above. The main source of funds is PDC of £118m to support the ASB Block (£106.4m) and the merger enabling IT & Pathology schemes (£11.6m). It is important to note that at the time of writing this OBC, an allocation of £99.5m has been awarded to the Trust based on the July 2018 STP submission. This cost has now risen to £118m

with the cost increase driven by inflation and a more robust calculation of optimism bias using HMT's new CIA model, not previously adopted by the Trust. Whilst revised cost estimates have been shared with NHSE/I over the last year, it is understood that additional funding is not guaranteed and this remains a risk for the Trust.

To note, BHT PDC is in line with the latest wave of STP capital bids, but is also not agreed currently (and not part of this OBC).

£m	Loans	GDE	PDC	Cash	Total
L&D					
Day-to-day capital needs	1.0	5.6	0.9	87.5	95.0
IT Merger Enabling			8.0		8.0
Pathology Joint Venture			3.6		3.6
Acute Services Block			106.4		106.4
Temporary Ward for decanting				25.0	25.0
Re-provision of canteen/ kitchen				10.0	10.0
Other enabling				16.3	16.3
Generators				3.3	3.3
Energy Centre Building				17.2	17.2
Energy Conservation Measures	7.5			1.5	9.0
Total	8.5	5.6	118.9	160.8	293.8
BHT					
Day-to-day capital needs	0.5			48.5	49.0
Fast Follower Funds (PDC)		3.5		0.0	3.5
GHH Hub (PDC)			6.9	0.0	6.9
Theatre 7 & 8 (PDC)			8.4	0.0	8.4
Ward Refurbishment				4.2	4.2
Other				8.8	8.8
Total	0.5	3.5	15.3	61.5	80.8
Combined BAU capital plan	9.0	9.1	134.1	222.3	374.5

Support required
£118m

Table 6.12: Option 1 - Sources of funding

6.5 Option 2 - "Do more" option

6.5.1 Financial Modelling

Option 2 is the preferred option as determined by the economic case. It relates to a new ASB, linked to a NWB. The ward block contains three floors of maternity accommodation: assessment wards and inpatient wards. The design supports efficient clinical adjacencies. The NWB ultimately allows the existing maternity ward block to be vacated, to become a decant ward block, facilitating the programme of backlog maintenance, associated

with inpatient wards across the site. The capital scheme for the new build element is currently costed at £142.6m based on a RIBA stage 2 design. OB forms can be found in Appendix 3. A significant amount of enabling schemes will be funded by the Trust to support the phase 1 redevelopment of the site, to the tune of £19m, not including previous Trust funded enabling schemes such as the energy centre (£17m).

The total capital Trust requirement is for £150m, this is broken down as follows;

Scheme £m Spend 19/20-24/25	July 18 STP Bid £	Apr-20 OBC Preferred Option £
IT Merger Enabling	8	8
Pathology Joint Venture	4	3.6
Acute Services Block	87.5	106.4
Ward Block	-	32.9
Lift core	-	3.3
Other enabling	-	14.4
Trust Contribution	-	-18.6
Funding Required	99.5	150.0

Table 6.13: July 2018 STP capital bid vs April 2020 OBC capital requirement

6.5.2 Forecast Baseline Financial Position

Option 2 shows a significant long term improvement to the BAU financial position of

Bedfordshire Hospitals NHSFT, although costs are higher in the first two years- see table 6.14. This significantly exceeds the financial trajectories for the merged organisation.

£m	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27
	FOT							
Operating income from patient care activities	544.1	568.2	593.7	620.4	648.7	678.4	698.7	719.7
Other operating income	59.8	48.4	47.7	46.9	46.1	46.1	47.5	48.9
Total Income	603.9	616.6	641.4	667.4	694.8	724.5	746.2	768.6
Pay costs	-376.7	-391.9	-405.9	-423.7	-443.0	-463.9	-477.6	-492.1
Non pay costs	-191.4	-195.5	-199.5	-204.0	-208.6	-217.4	-224.0	-230.8
Total Operating Expenses	-568.1	-587.4	-605.4	-627.7	-651.6	-681.3	-701.6	-722.9
EBITDA	35.8	29.2	36.0	39.6	43.2	43.2	44.6	45.8
Net non-operating revenue and expenses	-23.3	-28.1	-32.2	-34.7	-36.5	-37.8	-38.9	-40.0
Net surplus/(deficit)	12.5	1.1	3.8	4.9	6.6	5.5	5.7	5.7
Financial Recovery Fund	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net surplus/(deficit)	12.5	1.1	3.8	4.9	6.6	5.5	5.7	5.7

Table 6.14: Option 2 - financial position

6.5.3 Bridge between option 1 and option 2

The main differences between Option 1 and Option 2 are shown in table 6.15.

£m	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27
	FOT	FOT	FOT	FOT	FOT	FOT	FOT	FOT
Saving on re-provision	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8
Temporary Ward for decanting	0.0	0.0	0.0	0.0	1.6	1.6	1.6	1.6
Additional Capital Charges	0.0	-0.5	0.2	-0.2	-0.7	-0.9	-0.9	-0.9
Colocation benefits	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2
Revenue saving on day-to-day spend	0.0	0.0	0.0	0.5	1.1	1.6	1.6	1.6
Maternity Ward Block	0.0	0.0	0.0	0.0	0.0	-1.5	-1.5	-1.5
Lift Core	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Incremental Change	0.0	-0.5	0.2	1.1	2.7	1.6	1.8	1.8

Table 6.15: Bridge between option 1 and 2

a. Saving on not having to provide a decant ward block

By building the NWB, the Trust saves money on the temporary ward block for decanting. The additional capital charges, are offset by this saving and that of the re-provision of the canteen and kitchen to create space for the temporary ward block.

By building the ASB and adjacent NWB simultaneously, the Trust will negate the requirement to build a decant ward block to support the backlog maintenance programme for the remaining estate. This reduces the re-provision requirement and presents an estate saving. The estates saving on this block is reflected from 2023/24 onwards.

b. Maternity Ward Block

Although the requirement to build a decant ward facility is removed in option 2, the vacated maternity ward block will require servicing from 2024/25 onwards, as it will serve as a temporary decant ward facility.

c. Lift Core

The lift core joining the ASB and NWB has a small associated services cost in addition to option 1.

6.5.4 Assumptions

Other assumptions are in line with those in the base case described in section 6.3.3.

The main differences between Option 1 and Option 2 are shown in table 6.15.

6.5.5 Statement of Financial Position (SoFP)

	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27
Non-current assets	272,169	331,515	394,100	442,576	459,790	450,325	453,825	457,325
Current assets (excl Cash)	57,819	56,565	57,571	58,634	59,761	60,954	60,954	60,954
Cash	43,284	6,084	4,002	9,860	20,514	31,681	33,890	36,121
Current liabilities	-41,046	-43,252	-44,382	-45,434	-46,728	-47,785	-47,785	-47,785
Total assets less current liabilities	332,226	350,912	411,291	465,636	493,337	495,175	500,884	506,615
Non-current liabilities	-101,688	-103,093	-98,536	-93,559	-89,970	-86,354	-86,354	-86,354
Total net assets employed	230,538	247,819	312,755	372,077	403,367	408,821	414,530	420,261
Financed by								
Public dividend capital	122,590	138,800	199,900	254,300	278,951	278,951	278,951	278,951
Revaluation reserve	30,362	30,362	30,362	30,362	30,362	30,362	30,362	30,362
Income and expenditure reserve	77,586	78,657	82,493	87,415	94,054	99,508	105,217	110,948
Total taxpayers' and others' equity	230,538	247,819	312,755	372,077	403,367	408,821	414,530	420,261

Table 6.16: Option 2 Statement of Financial Position

The SoFP in table 6.16 demonstrates that with £150m central PDC, the Trust maintains a positive cash balance and a limited, but deliverable level of day-to-day capital spend (see table 6.17).

£m	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27
	FOT	FOT	FOT	FOT	FOT	FOT	FOT	FOT
Bfwd cash balance	37.1	43.3	6.1	4.0	9.9	20.5	31.7	33.9
Cash from operations - L&D fcast	34.9	29.0	36.7	40.2	43.3	43.7	43.2	43.2
Capex BAU	-47.3	-62.4	-28.0	-19.0	-14.2	-14.2	-28.0	-28.0
Merger Cash requirement	-3.6	-4.0	-4.0	0.0	0.0	0.0	0.0	0.0
Redev cash requirement	-1.3	-10.7	-52.2	-52.2	-26.1	0.0	0.0	0.0
Working Capital movements	17.7	1.9	-0.4	-1.1	-1.1	-1.2	0.0	0.0
Cfd cash balance pre funding	37.5	-2.8	-41.9	-28.1	11.7	48.8	46.9	49.1
Funding from PDC	13.5	16.2	61.1	54.4	24.7	0.0	0.0	0.0
Other Funding (GDE, Salix, STP)	2.6	4.9	0.0	0.0	0.0	0.0	0.0	0.0
Other financing activities (Divs, repayment)	-10.3	-12.2	-15.2	-16.5	-15.9	-17.1	-13.0	-13.1
Cfwd cash balance	43.3	6.1	4.0	9.9	20.5	31.7	33.9	36.0

Table 6.17: Option 2 - Cashflow

6.5.6 Capital Plans

Option 2 builds on the BAU capital plan by creating an ASB linked to a NWB. The additional central support enables a more efficient scheme and supports the Trust in delivering a more credible BAU capital plan, in line with the requirements of the six facet survey and equipment replacement plans.

The Trust had previously presented Option 2 to NHSE/I, DHSC & HMT at a briefing on 21st January 2020. At this stage the cost of Option 2 required £161m in support, and a commitment by the Trust

to contribute £11m, to reduce this figure to £150m of central support. As described at the beginning of this chapter, this included £12m in IT integration and pathology merger costs. This total capital requirement has been reduced to £150m through a combination of value engineering and Trust contribution.

A summary of the Trust's planned capital expenditure is outlined in table 6.18. Other enabling costs include the procurement costs, internal team costs and the costs of advisers and technical support.

£m	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	Total
	FOT								
L&D									
Day-to-day capital needs	25.8	25.4	7.0	6.9	7.0	7.0	16.0	16.0	111.2
Generators	3.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.3
Energy Centre Building	1.0	13.8	2.4	0.0	0.0	0.0	0.0	0.0	17.2
Energy Conservation Measures	0.7	5.3	3.0	0.0	0.0	0.0	0.0	0.0	9.0
IT Merger Enabling	0.0	4.0	4.0	0.0	0.0	0.0	0.0	0.0	8.0
Pathology Joint Venture	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.6
Acute Services Block	0.7	8.1	39.0	39.0	19.6	0.0	0.0	0.0	106.4
Maternity Ward Block	0.7	2.3	12.0	12.0	5.9	0.0	0.0	0.0	32.9
Lift Core	0.0	0.3	1.2	1.2	0.6	0.0	0.0	0.0	3.3
Other enabling	0.0	8.9	2.8	2.8	0.0	0.0	0.0	0.0	14.4
Total	35.7	68.1	71.4	61.9	33.1	7.0	16.0	16.0	309.3
BHT									
Day-to-day capital needs	2.6	3.5	2.7	3.4	5.3	7.5	12.0	12.0	49.0
Fast Follower Funds (PDC)	3.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	3.5
GHH Hub (PDC)	0.3	1.8	2.8	2.0	0.0	0.0	0.0	0.0	6.9
Theatre 7 & 8 (PDC)	0.0	1.5	4.8	2.1	0.0	0.0	0.0	0.0	8.4
Ward Refurbishment	0.0	0.3	1.3	1.3	1.3	0.0	0.0	0.0	4.2
Other	2.7	2.0	1.8	1.1	1.2	0.0	0.0	0.0	8.8
Total	8.6	9.6	13.4	9.9	7.8	7.5	12.0	12.0	80.8
Combined BAU capital plan	44.3	77.7	84.8	71.8	40.9	14.5	28.0	28.0	390.0

Table 6.18: Option 2 - Planned capital expenditure

6.5.7 Financing

Funding for this capital expenditure is anticipated to be obtained through a number of sources. This is summarised in table 6.19. The main source of funds is PDC of £150m to support the ASB, NWB and the

merger enabling IT & Pathology schemes.

The Bedford Hospital PDC is in line with the latest wave of STP capital bids, but is also not agreed currently (and not part of this OBC).

£m	Loans	GDE	PDC	Cash	Total
L&D					
Day-to-day capital needs	1.0	5.6	0.9	103.7	111.2
IT Merger Enabling			8.0		8.0
Pathology Joint Venture			3.6		3.6
Acute Services Block			106.4		106.4
Maternity Ward Block			32.0	0.9	32.9
Lift Core				3.3	3.3
Other enabling				14.4	14.4
Generators				3.3	3.3
Energy Centre Building				17.2	17.2
Energy Conservation Measures	7.5			1.5	9.0
Total	8.5	5.6	150.9	144.3	309.3
BHT					
Day-to-day capital needs	0.5			48.5	49.0
Fast Follower Funds (PDC)		3.5		0.0	3.5
GHH Hub (PDC)			6.9	0.0	6.9
Theatre 7 & 8 (PDC)			8.4	0.0	8.4
Ward Refurbishment				4.2	4.2
Other				8.8	8.8
Total	0.5	3.5	15.3	61.5	80.8
Combined BAU capital plan	9.0	9.1	166.1	205.8	390.0

Support required
£150m

Total scheme cost
£168.6m

Table 6.19: Sources of funding for Option 2 capital expenditure

6.5.8 Further opportunity for capital cost reduction

The NWB was costed in January at £37.3m and the link between the NWB and ASB was costed at £5.7m. A process of design review and coordination (as expected at OBC) and value engineering, has been undertaken to rationalise space requirements whilst maintaining scope and compliance, this has reduced the capital costs to £32.9m and £3.3m respectively. A total reduction of £6.8m has been achieved at OBC stage based on RIBA stage 2 design.

The Trust believes that further cost savings on the NWB could be achieved based on soft market testing and benchmarking from specialist advisors,

AECOM. A report outlining the potential to further decrease capital costs is included in Appendix 3. This will be further worked through during the FBC development.

6.6 Financial Appraisal

6.6.1 I&E Impact

Table 6.20 shows that on net surplus, Option 2 is the preferred option, with a significant improvement against Option 0 and a £3m improvement against Option 1 by 2026/27 (and an ongoing £0.2m improvement year on year).

Net Surplus £m	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27
	FOT	FOT	FOT	FOT	FOT	FOT	FOT	FOT
Option 0	12.5	0.6	2.5	3.4	0.0	-1.7	-2.1	-2.0
Option 1	12.5	1.5	3.6	3.8	3.9	3.9	3.9	3.9
Option 2	12.5	1.1	3.8	4.9	6.6	5.5	5.7	5.7

Table 6.20: Financial Appraisal- I&E Impact

6.6.2 Risks and Benefits

Risk and benefit is described in detail in the economic case, for completeness, option 2 has considerably lower risks than Option 0 and Option 1

and also generates the highest level of cash releasing and non-cash releasing benefits- see table 6.21.

Discounted £m	Risks	CRB	NCRB
Option 0	313.6	1.6	0.0
Option 1	90.2	119.7	15.3
Option 2	80.3	161.9	18.7

Table 6.21: Financial appraisal- Risks and Benefits

6.6.3 Revenue savings and payback

Both option 1 and option 2 achieve strong revenue savings as a percentage of initial capex, and pay

back within a reasonable period, given the significant re-provision within the options.

Option 0	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	...	2082/83
Revenue Savings	-	-	-	-	-	61	59	-	10
Initial Capex	25,000								
Average annual revenue saving 20/21 - 82/83	25								
Revenue savings as a proportion of initial capex	0%								

Table 6.22: Option 0- revenue savings and payback

Option 1	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	...	2082/83
Revenue Savings	3,709	8,389	10,768	13,624	15,324	15,324	15,324	-	12,206
Initial Capex	143,000								
Average annual revenue saving 20/21 - 8	14,930								
Revenue savings as a proportion of initial capex	10%								
Payback period	11 Years								

Table 6.23: Option 1- revenue savings and payback

Option 2	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	...	2082/83
Revenue Savings	3,709	8,389	11,296	14,920	17,158	17,158	17,158	-	17,158
Initial Capex	150,000								
Average annual revenue saving 20/21 - 8	16,677								
Revenue savings as a proportion of initial capex	11%								
Payback period	11 Years								

Table 6.24: Option 2- revenue savings and payback

6.7 Sensitivity analysis

Sensitivity analysis of the preferred option has been completed to test the affordability against potential downside scenarios. The sensitivity analysis includes:

- Capital cost of the ASB and NWB (for Option 2) - increased by 10%
- Lifecycle costs - increased by 10%

- Benefits - decreased by 10% in all options (including BAU)

Table 6.25 shows the incremental surplus / deficit level of the options based on the downside sensitivities. Even with a cumulative impact of all three downside sensitivities occurring simultaneously, the Trust remains in a surplus position in options 1 and 2.

£m	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27
	FOT	FOT	FOT	FOT	FOT	FOT	FOT	FOT
Option 0	12.5	0.6	2.5	3.4	0.0	-1.7	-2.1	-2.0
Capital Cost increase by 10%	0.0	0.0	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2
Lifecycle costs increase by 10%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Benefits decrease by 10%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Option 0 downside	12.5	0.6	2.4	3.2	-0.1	-1.9	-2.2	-2.2
Option 1	12.5	1.5	3.6	3.8	3.9	3.9	3.9	3.9
Capital Cost increase by 10%	0.0	-0.1	-0.3	-0.6	-0.7	-0.7	-0.7	-0.7
Lifecycle costs increase by 10%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Benefits decrease by 10%	0.0	-0.4	-0.8	-1.1	-1.4	-1.5	-1.5	-1.5
Option 1 downside	12.5	1.1	2.4	2.1	1.9	1.7	1.7	1.7
Option 2	12.5	1.1	3.8	4.9	6.6	5.5	5.7	5.7
Capital Cost increase by 10%	0.0	-0.1	-0.4	-0.7	-0.9	-0.9	-0.9	-0.9
Lifecycle costs increase by 10%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Benefits decrease by 10%	0.0	-0.4	-0.8	-1.1	-1.5	-1.7	-1.7	-1.7
Option 2 downside	12.5	0.6	2.6	3.1	4.3	2.9	3.1	3.1

Table 6.25: Incremental surplus/ deficit level of the options based on downside sensitivities

6.8 Assessment of project costs incurred ahead of OBC approval

The Trust has, and continues to incur advisor costs and professional fees in advance of any OBC approval. The Trust has incurred costs of £1.17m in 2019/20 and recognises that these are incurred at risk.

6.9 Accounting treatment and tax

The new buildings will be accounted for in line with IFRS guidance, with the fair value of the asset (the cost of the construction works) recognised as property, plant and equipment on the L&D's balance sheet. At that point, the L&D has not assumed any impairment on the asset, although this will be assessed during the next phase of the programme. The asset is assumed to have a 60 year useful life, with straight-line depreciation over this period.

The L&D will pay VAT on the construction costs of the new buildings, with this set out in the OB forms prepared by the Trust's technical advisors, AECOM. VAT on professional fees are expected to be recoverable and have therefore been excluded in the OB forms and in this financial analysis.

6.10 Financial case conclusions

It is clear from the economic analysis that Option 2 provides the greatest value for money compared to the other options. Option 2 describes the construction of an ASB and NWB, over a 2.5 year period, expected to complete at the end of 2023. This option provides a lower level of risk and a higher level of benefit for a minimal net cost in comparison to the other short listed options, option 0 and option 1.

The impact of the project does not undermine the ability of the organisation to meet its statutory financial duties. BAU will be maintained throughout the development in terms of service provision and commissioning plans.

This financial case demonstrates revenue affordability over the lifetime of the asset, and requires a central capital allocation from £150m to deliver this option. A significant series of capital enabling schemes have been funded by the Trust to date, including £17m for a new energy centre. A further Trust contribution of £18.6m will be contributed to enabling schemes over the next 4 years to directly support capital works for the redevelopment as defined by within this OBC.

Management Case Summary

Programme and project management arrangements are key to ensure robust governance and well managed projects, delivered to agreed outputs. The redevelopment of the L&D site is considered to be a relatively large construction project with an ambitious programme. The main scheme will be supported by a number of Trust funded enabling schemes on the critical path. These commenced in January 2020. Arrangements for successful project management, including change management, contract management and risk management will be key. Ultimately, post project evaluation will be paramount to ensuring the benefits of the scheme have been realised, and early consideration is given to this to define measures of success.

Clear, consistent and sustained communication will play an integral part in the success of the hospital redevelopment project. As the redevelopment moves from the strategic planning phase into a procurement and then construction phase, it is imperative that communication remains clear. This will provide key stakeholders a sense of clarity, ownership and pride throughout the project, and ensure that stakeholders have a clear understanding on how the project may affect them or the organisation/group that they represent.

It is recognised that large projects must be broken down into manageable workstreams, with their own terms of reference and agreed outputs. The design of the new clinical buildings has been clinically led and wherever possible, end users have formed part of the clinical user group discussions to inform the design. This input has been invaluable and often encouraged innovation or more patient focussed design.

The redevelopment of the L&D will ultimately be led by the CEO in his capacity as Senior Responsible Officer (SRO) and the Trust Board. On a day to day basis, there is a well established Redevelopment Programme Team. The team has made a number of appointments to advisory roles and combined, the Trust and external team have the capacity and capability to delivery this project.

The budget to deliver the Redevelopment programme is agreed by the Trust Board. The Redevelopment Programme Team report on a monthly basis to the Redevelopment Programme Board. The Programme Board receive a number of standing items and provide a level of scrutiny to ensure that robust governance arrangements are being followed. In turn the Programme Board reports to the Trust Board via the Trust's Finance, Investment and Performance Committee.

Wave 4b STP funding was announced in August 2019. The Trust re-established their design team and progressed the development of an OBC in house between September 2019 and April 2020. Critical enabling schemes funded by the Trust commenced in January 2020. FBC development will be progressed from April 2020 and the route to market examined in the Commercial Case, will be initiated. FBC development is due to complete in the Autumn of 2020 with the main works anticipated to start on site in Winter 2020/1.

It is recognised that the global pandemic may have a significant impact on this project. It is not yet understood what this impact will be. The Redevelopment Team and Trust Board have responded to the challenge by maintaining the governance arrangements already in place, working remotely, and coordinating with multiple teams, across multiple companies, virtually.

7.1 Introduction

The following chapter describes the programme and project management arrangements that are in place to identify, scope, procure, deliver, monitor and evaluate the hospital's redevelopment scheme. This chapter presents the programme management arrangements in detail for OBC delivery, FBC delivery and post project arrangements. This chapter demonstrates that the preferred option concluded by the Economic modelling, can be successfully delivered by;

- Managing in accordance with robust governance arrangements, with particular emphasis on risk management and change management
- Managing in accordance with recognised programme and project management methodologies
- Managing in accordance with best practise with a team capable of and with a track record of delivering against agreed objectives
- Providing a level of independent assurance

The Trust team recognises that the scale and scope of proposed changes coupled with their interlinked and

interdependent natures qualify this business change effort as a "Programme" as opposed to a single "Project." The Trust has therefore inherently recognised the need for both Programme and Project management methodologies to be adopted.

The Trust has adopted "Managing Successful Programmes" (MSP) and "Projects in Controlled Environments 2," (PRINCE2) as the benchmark for best practice but has, where considered applicable, adapted the "pure" approach to generate a "lite" version, as is enabled through the methodology itself.

Set out below are the programme and project disciplines and methodologies being implemented in this business change effort.

7.2 Programme Structure

To support the effective delivery of the Redevelopment Programme, the Trust set out a detailed set of delegated roles and responsibilities to ensure the appropriate arrangements are in place to support decision making (see figure 7.1)

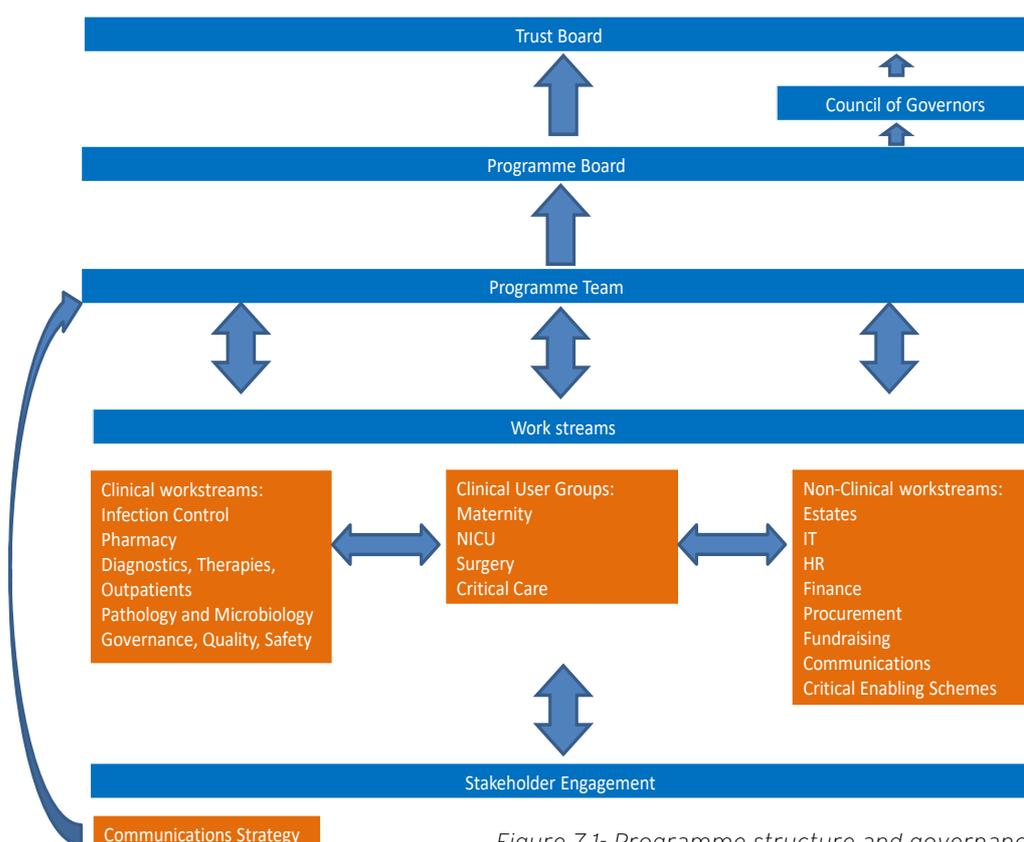


Figure 7.1- Programme structure and governance

It is important to note that there is a proposed change to the programme structure agreed by the Redevelopment Programme Board on the 18th March 2020, following a review of the Terms of Reference. Supporting the reporting and governance arrangements for the FBC, the Redevelopment Programme Board will indirectly report to the Trust Board via the Trust's Finance, Investment and Performance (FIP) Committee.

7.2.1 Trust Board

The Trust Board has overall responsibility and accountability for the delivery of all capital investment and the Trust's redevelopment proposals as set out in this OBC for the site redevelopment.

The Trust Board has accountability for all aspects of Trust business and retains overall responsibility for the delivery of the Trust's vision and ultimately the delivery of the stated patient benefits and improved outcomes.

The Trust Board will seek assurance that all stakeholders have been fully engaged with and are aligned with the Trust's redevelopment proposals and have ultimate responsibility for:

1. Establishing the necessary teams and setting a culture for the organisation to support the delivery of the Strategic Investment Objectives and Critical Success Factors for this investment
2. Agreement and ultimately delivery of the Programme's Strategic Investment Objectives, Critical Success Factors and Benefits
3. Ensuring alignment of the Trust's Estates Strategy and Sustainability Development Management Plan
4. Approval of the Business Case (OBC/FBC) and management plans drawn out in the business case
5. Delivery of the overall scheme to budget, programme and with the agreed quality
6. Commissioning and endorsement of all Project Evaluation and Lessons Learned Reports

The Trust Board meet on a quarterly basis and will

receive regular updates on the programme by the Chief Executive in his role as Senior Responsible Owner, at times supported by the Redevelopment Programme Director, who reports directly to the Chief Executive.

The Trust Board established the Redevelopment Programme Board as a formal sub-committee of the Board with delegated authority, as described in the Terms of Reference see Appendix 13. The majority of the Trust's Executive Directors sit on both the Trust Board and Redevelopment Programme Board.

7.2.2 Council of Governors

As a Foundation Trust, the Trust has a constitutional obligation to seek the endorsement of the Trust's Governors for any single investment of more than £3m. During the development of the OBC, the Trust has been keen to ensure the Governors are involved and consulted on the development proposals. To this end it was agreed that two Governors would sit on the Redevelopment Programme Board in a non-voting capacity. The Governors have supported the Programme Communication Plan through facilitating community stakeholder engagement.

Governors will continue to support community stakeholder engagement throughout the business case development and become involved in the workstreams during FBC development where they can add value. The role of Governors in this regard will be to assure themselves that the project is being effectively managed; that due diligence is being followed and that the work is in line with the redevelopment strategy that has already been reported to them.

7.2.3 Redevelopment Programme Board

The Redevelopment Programme Board has direct responsibility, delegated by the Trust Board prior to March 2020, and delegated by FIP from March 2020, for overseeing the management and delivery of all aspects of the Trust's redevelopment proposals and the successful implementation of all redevelopment projects.

The Programme Board is chaired by one of the Trust's Non-Executive Directors, who has significant and senior experience in Construction Consultancy as a Quantity Surveyor/ Cost Adviser.

The terms of reference for the Hospital Redevelopment Programme Board set out the key responsibilities for the Board and can be found in Appendix 13. The Programme Board meets on a monthly basis. As a sub-committee of the Trust Board, a full record of Papers and minutes are maintained.

The Programme Board has, in accordance with its Terms of Reference established a governance and management structure for the wider Programme and individual Projects, described in detail in this chapter.

7.2.4 Redevelopment Programme Team

Critical to the success of the overall redevelopment scheme is the timely delivery of all elements of the programme and, to this end, a Hospital Redevelopment Programme Team chaired by the Chief Executive in his role as Senior Responsible Owner, has been established. The majority of the Trust's Executive Directors sit on the Redevelopment Programme Team as well as the Redevelopment Programme Board (and Trust Board). The Hospital Redevelopment Team meet ahead of the Hospital Redevelopment Board to discuss operational issues affecting programme delivery and to discuss programme impact on the business as usual.

The development of the Business Case is managed by the Redevelopment Programme Team.

See Appendix 13 for the terms of reference for the Hospital Redevelopment Programme Team.

7.2.5 The Operational Programme Team

It is recognised that a significant proportion of public sector, capital programmes and projects fail to deliver the intended objectives and benefits. In many cases this has been identified as being due to a lack of capability and capacity within the programme team and/or wider organisation. Following a number of site visits to NHS Trusts recently having undergone major capital investments, this is certainly the theme expressed by management teams. The L&D has recognised this and as a direct response,

established a redevelopment (operational) programme team to develop the Trust's business case process.

The redevelopment team is considered to be suitably skilled and resourced to manage the proposed large scale construction project and lead the organisation to achieve the stated Strategic Investment Objectives and Benefits.

The operational programme team will actively manage the in-house development of the OBC and FBC, and use specialist advisors only when and where there is a skills gap.

7.2.6 Programme Team Responsibilities

Key responsibilities of the Programme Team are to;

- Procure and appoint a full Design Team and any additional technical advisors as required to support the development of business cases and the delivery of all enabling schemes
- Establish such working groups and Project Boards as are appropriate and required to assure that robust project management discipline is being delivered for constituent projects
- Review OBC delivery and monitor and manage progress taking corrective action if and when required
- Manage the overall design process to ensure the proposed scheme fulfils the Trust's aspirations and strategy whilst remaining within the cost envelope
- Receive and review Project-level Highlight Reports from Project Teams/ Boards [as appropriate]
- Prepare and submit a Programme-level Highlight Report to Redevelopment Programme Board
- Receive and review Risk Management Report from Risk Management Board
- Summarise and issue Risk Management Report to Redevelopment Programme Board

- Develop, with feedback/ inputs from Project Teams, a robust Programme plan with measurable milestones and key milestones
- Challenge the design to identify innovative design solutions to drive down operational and capital costs or reduce the delivery programme
- Establish effective and robust change control processes for constituent projects
- Ensure the development of a robust planning permission submission.
- Deliver the Communications Strategy ensuring maximum consultation where necessary whilst avoiding time and scope creep
- Establish and manage the Clinical User Groups including establishing their remit, terms of reference, membership and timetable
- Establish and maintain relationships with key stakeholders such as the LBC Planning department, Highways etc
- Establish and manage any Task and Finish Groups including establishing their remit, terms of reference, membership and timetable, ensuring the output from each group is

effectively fed into the overall design development

- Manage risks within agreed contingencies and tolerances, and identify risks to be escalated to Redevelopment Programme Board
- In collaboration with the Finance Department to facilitate completion of the Economic, Commercial and Financial cases of the OBC
- Lead the development of the OBC and FBC and act as lead author in the development of the business cases.
- Consider establishing a business case work stream during FBC development
- Establish and implement an effective post-project evaluation process.
- Manage and co-ordinate all quality assurance processes and prepare for approval Action Plans to address key recommendations.
- Report progress against the Project delivery plan to the Redevelopment Programme Board on a monthly basis in accordance with the established reporting schedule.

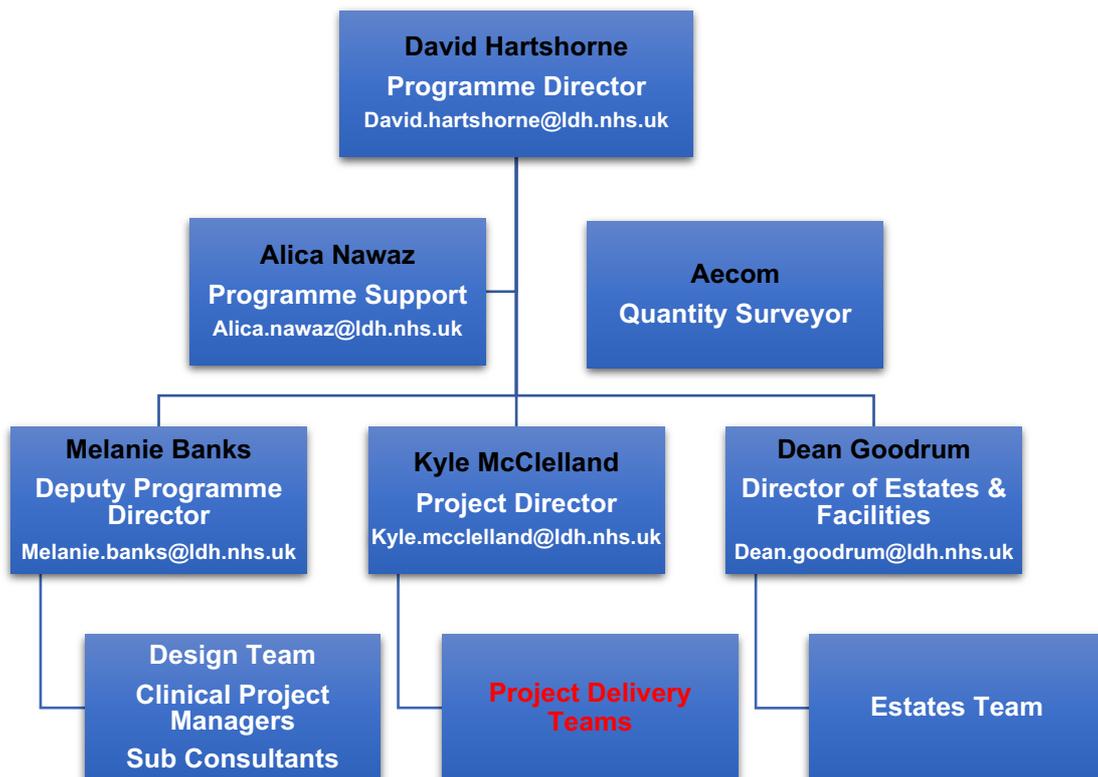


Figure 7.2: Project Management Structure - Hospital Redevelopment Team

7.2.8 Programme Team Key Roles

a. SRO

The SRO for the hospital's redevelopment programme is the Trust's Chief Executive Officer (CEO), David Carter. David has been at the Trust's CEO since 2018 and was formerly the Managing Director for the Trust. David is passionate about the redevelopment of the hospital and the hospital's emerging role in the ICS.

b. Programme Director

The Redevelopment team has been led by David Hartshorne since 2015. David is an experienced Programme Manager having spent many years with private sector bodies developing and leading PFI/PPP proposals for public sector bodies, both in the UK and overseas. His health experience includes the PFI schemes at Woolwich, Dudley and Leicester and a significant number of schemes delivered under the LIFT initiative. David's CV can be found in Appendix 14.

c. Deputy Programme Director

David's deputy is Melanie Banks who joined the team in 2015. Melanie is an experienced NHS manager with 16 years of experience. Melanie has worked as a Senior General Manager in the organisation and as the Chief of Staff to the CEO, leading the Trust's financial recovery plan in 2017. Previous to this, Melanie had a number of roles at Barts Health and Guys and St Thomas' hospitals in London, where she was responsible for operational management and service delivery of large tertiary services. Melanie has substantial experience of leading multi-disciplinary teams through complex project environments to deliver strategic objectives. Melanie also has experience of working in primary care, commissioning and public health. Melanie is PRINCE2 trained and HMT Better Business Case Foundation and Practitioner trained. Melanie will have responsibility for ensuring the new hospital design supports the Trust's Strategic Investment Objectives and Critical Success Factors, and will act as the main link to the organisation, leading the programme work streams and the development of the business case.

d. Construction Project Director

Kyle McClelland joined the team in January 2020 and brings with him significant experience in the UK health field, having supported and delivered NHS capital programmes and projects for approaching 18 years. Kyle has led on major change programmes in public sector construction, procurement and project delivery. Kyle is an NEC3 accredited project manager and held Practitioner Status for both PRINCE2 and MSP. Kyle has experience of leading multi-disciplinary teams through complex projects to deliver organisational objectives. Kyle brings with him a wealth of experience in complex procurement projects, contract analysis and contract management. Kyle will have responsibility for the scheme procurement, contract management and scheme delivery.

7.2.9 Programme Team Budget for OBC development

The programme budget incorporates appropriate contingencies in line with those used on similar sized healthcare projects delivered elsewhere as advised by the Trust's Specialist Advisors. This budget is managed by the Programme Director.

Role	Time dedicated to project
Programme Director	1 WTE
Deputy Programme Director	1 WTE
Construction Project Director	1 WTE
Estates Director	0.2 WTE
Programme Managers	4.6 WTE
Project Support	2 WTE

Table 7.1: Programme Team Budget (WTE)

Budget Line	Q2 2019-20	Q3 2019-20	Q4 2019-20
Pay	96,494	118,148	177,466
Non-pay	37,500	65,500	161,000
Contingency	13,399	18,365	33,847
TOTAL	147,393	202,013	372,313

Table 7.2: Programme Team Budget (£)

7.2.10 Programme Team Budget for FBC development

Budget Line	Q1 2020-21	Q2 2020-21	Q3 2020-21	Q4 2020-21
Pay	183,716	183,716	183,716	183,716
Non-pay	52,000	41,000	41,000	26,000
Contingency	23,572	22,472	22,472	20,972
TOTAL	259,287	247,187	247,187	230,687

Table 7.3: Programme Team Budget for FBC (£)

7.2.11 Project Managers

Within the Redevelopment team, project management support has been identified for each of the clinical and non-clinical work streams. During the OBC development some Project Managers have been recruited to, such as for the clinical workstream design development. Further Project Management appointments are necessary during the FBC development and include the following;

a. NEC Project Managers

The Construction Project Director will be supported by a formally Accredited NEC Project Manager who will have 2 supporting Project Managers (at varying resource commitment levels to suit demands) to allow focus and deeper understanding of the Building/ Structures aspects and separately the HVAC/ MEP aspects.

b. NEC Supervisor

The NEC Project Manager and Project Director will jointly benefit from the appointment of a formally accredited NEC Supervisor, who will access (at varying resource commitment levels to suit demands) up to 3 specialist NEC Supervisors, with a split in responsibilities aligned to the same structure as the Project Management arrangements.

c. Commissioning Engineer

The NEC Supervisor will co-ordinate and work with an Independent Commissioning Engineer, to be

appointed by the Trust to prove and certify the design functionality of the Works.

d. Specialist Programmer

Given the importance of the Programme under the NEC4 ECC form, the Project Director and NEC Project Manager will have access on a call-off basis to a specialist programmer/ scheduler, in order to provide both the analysis of Contractor submissions and, when needed under the Contract, credible programming input to any Project Manager's assessments and revisions to programme.

Learning from other projects is that NEC ECC Management is dramatically simplified and enhanced by the implementation of a purpose designed web-based tool, such as Sypro or CEMAR. Such a system will be deployed for the Hospital Redevelopment Programme, but selection of that tool is not on the critical path and has not yet been completed.

7.3 Specialist Advisors - Sub-Consultants and Design Team

The success of the Programme will depend, to a great extent, on the skills, expertise and experience of those involved, and the synergy between them. Although a certain level of expertise has been acquired as a result of previous and existing projects, the Trust does not have sufficient existing in-house capacity to undertake all required tasks, and additional staffing and professional advisor/consultancy support is needed.

7.3.1 The Design Team: A Potted History

In December 2014, the Trust carried out a procurement exercise through the NHS Shared Business Services framework to identify the design team to support the development of the OBC. A team led by AECOM, with Murphy Philipps as the Lead Architect, were selected as the Trust's partner. Design work began at the beginning of February 2015 and completed at the end of 2015.

The design work was supported by a dedicated Health Care Planning Team, Arc Health, who provided specialist input into the accommodation requirements, design and functionality.

A refresh of the original design work was commissioned in October 2017 and was completed in December 2017 to support the STP capital bid submission to NHSI.

The Trust reinstated key members of the design team in September 2019, to update the redevelopment plan following a commitment from central government in August 2019 to provide funding for part of the L&Ds redevelopment scheme.

7.3.2 Design Team Appointments

Where necessary the Trust has engaged external legal, financial and technical advisers to assist in the development of this business case. Specialist professional and technical advisers will continue to be employed for those activities where the necessary skills and experience are not otherwise available to the programme. The transfer of skills and knowledge from specialist advisers to the programme team members will be achieved wherever possible and appropriate in order to minimise fees if possible.

The key members of the design team appointed in 2015 have continued to work successfully with the Trust on the development and delivery of a number of capital schemes. The Trust decided to make further appointments through the NHS SBS framework of the design team to support the development of the current OBC. This exercise included the following key appointments:

- Principal Designer - AECOM
- Architecture and Lead Consultant: Murphy Philipps Architects

- Building Services Engineer: Troup, Bywaters & Anders
- Civil & Structural Engineer: Perega (rebranded from Thomasons)
- Town Planning Advisor: Barton Willmore
- Quantity Surveyor: AECOM

Further appointments were made to supplement the design work and development of the business case, and included;

- Fire Consultant: OFR Consultants
- Transportation advisor: Stantec
- Air and Noise Advisor: Stantec/ AECOM
- Ecology: Stantec
- Arboriculture: Stantec
- BREEAM advisors: Troup, Bywaters & Anders
- OBC advisor: Brierley Advisory
- Clinical project management and Healthcare Planning: Clinical Guardians

7.3.3 Specialist consultant fees

Fees have been managed based on fee proposals for each element of the redevelopment programme;

- Enabling schemes
- Planning submission and OBC development
- FBC development to stage 3 and stage 4 (where appropriate)

Fee proposals have been fed into the programme budget as described in detail in the economic chapter. An overview is given in table 7.4.

Principal Design Fees	Value £m
To RIBA Stage 3 (programme for June 2020)	2.4

Table 7.4: Programme budget- principal design fees

7.4 Project management methodology

The Trust team recognises that the scale and scope of proposed changes, coupled with their interlinked and interdependent nature, qualify this business change effort as a “Programme” as opposed to a single “Project.” The Trust has therefore inherently recognised the need for both Programme and Project management methodologies to be adopted.

The Trust has adopted “Managing Successful Programmes” (MSP) and “Projects in Controlled Environments 2,” (PRINCE2) as the benchmark for best practice but has, where considered applicable, adapted the “pure” approach to generate a “lite” version, as is enabled through the methodology itself.

The project has used a number of standard products such as highlight reports, risk registers and issues logs. Highlight reports are provided each month to the Hospital Redevelopment Programme Board. Terms of reference have been established for all key groups supporting the programme (Programme Board, Programme Team, Workstreams) and records maintained of all relevant discussions.

7.5 OBC development

The OBC has been developed in house. The Deputy Programme Director acts as the Lead Author to the OBC. The OBC has been developed in line with the following guidance:

- Principles and methodology taught on the HMT Better Business Case Training Programme (2019)
- HMT Green Book Guidance
- HMT Guide to Developing the Programme Business Case
- HMT Guide to Developing the Project Business Case
- NHSI Capital regime, investment and property business case approval guidance for NHS trusts and foundation trusts, Annex 1: Business case core checklist
- NHSE/I and DHSC Fundamental Criteria (previously known as the “Red Lines Document”)

During the development of the OBC, a weekly redevelopment team meeting has been held to review all aspects of the OBC development, including highlight reports provided for each enabling scheme.

Additionally, a bi-weekly Principals meeting with the Design Team has been held to ensure the programme of design is coordinated.

7.6 Information sharing

To enhance Programme and Project Management capabilities, the Trust has implemented an internet based Project Extranet (www.projectplace.com) which enables document management, version control and provides additional valuable project management tools across the multiple organisational and geographic boundaries involved in the Programme.

Further, given the nature of the selected Construction Contract (NEC4), a web-enabled Contract Administration tool is to be utilised (although at this point, no decision has been made on precisely which one, both Sypro and CEMAR being considered).

These structures are then underpinned by a robust Communications Plan.

7.7 Programme work streams

The redevelopment programme is made up of a number of workstreams agreed by the Programme Board at the start of the OBC development. These workstreams underpin the outputs of the OBC and can be split by the following categories;

- Clinical workstreams
- Non-Clinical workstreams

The table below shows workstreams that have been established to develop the hospital's redevelopment programme. These work streams and the associated workstream leads were agreed by the Programme Board on the 16th October 2019.

Work stream	Work stream Lead
Clinical User Groups a) Maternity b) NICU c) Theatres d) Critical Care	Clinical Director, Women's Services Clinical Director, Neonatal Services Director for Surgery Clinical Director, Critical Care
Clinical Work streams a) Infection Control b) Pharmacy c) Diagnostics, Therapies and Outpatients d) Pathology, Blood Science, Microbiology e) Governance, Quality and Safety	Head of Infection Control Head of Pharmacy General Manager for DTO Director for Pathology Director of Quality
Non-Clinical Works treams Estates -facilities management -Fire safety -Security -Health and Safety -Equipment IT HR Finance Procurement Fundraising Communications Critical Enabling Schemes	Director of Estates Director of IT Director of HR Director of Finance Director of Redevelopment and Head of Procurement Deputy Director of Redevelopment and Head of Fundraising Deputy Director of Redevelopment and Head of Communications Director of Redevelopment
Business Case Development (OBC and FBC)	Deputy Director of Redevelopment

Table 7.5: Workstreams and workstream leads

The design for the new clinical accommodation is being led by the end users wherever feasible, and the clinical and managerial teams who will work in the hospital, providing care and managing service lines. Please see Appendix 13 for the terms of reference for each work stream and Appendix 15 for the structure for each clinical user group.

7.7.1 Clinical Work Stream:

Figure 7.3 gives an example of one of the clinical workstream structures, showing where and how decisions are made and how the work stream feeds into the Trust Board.

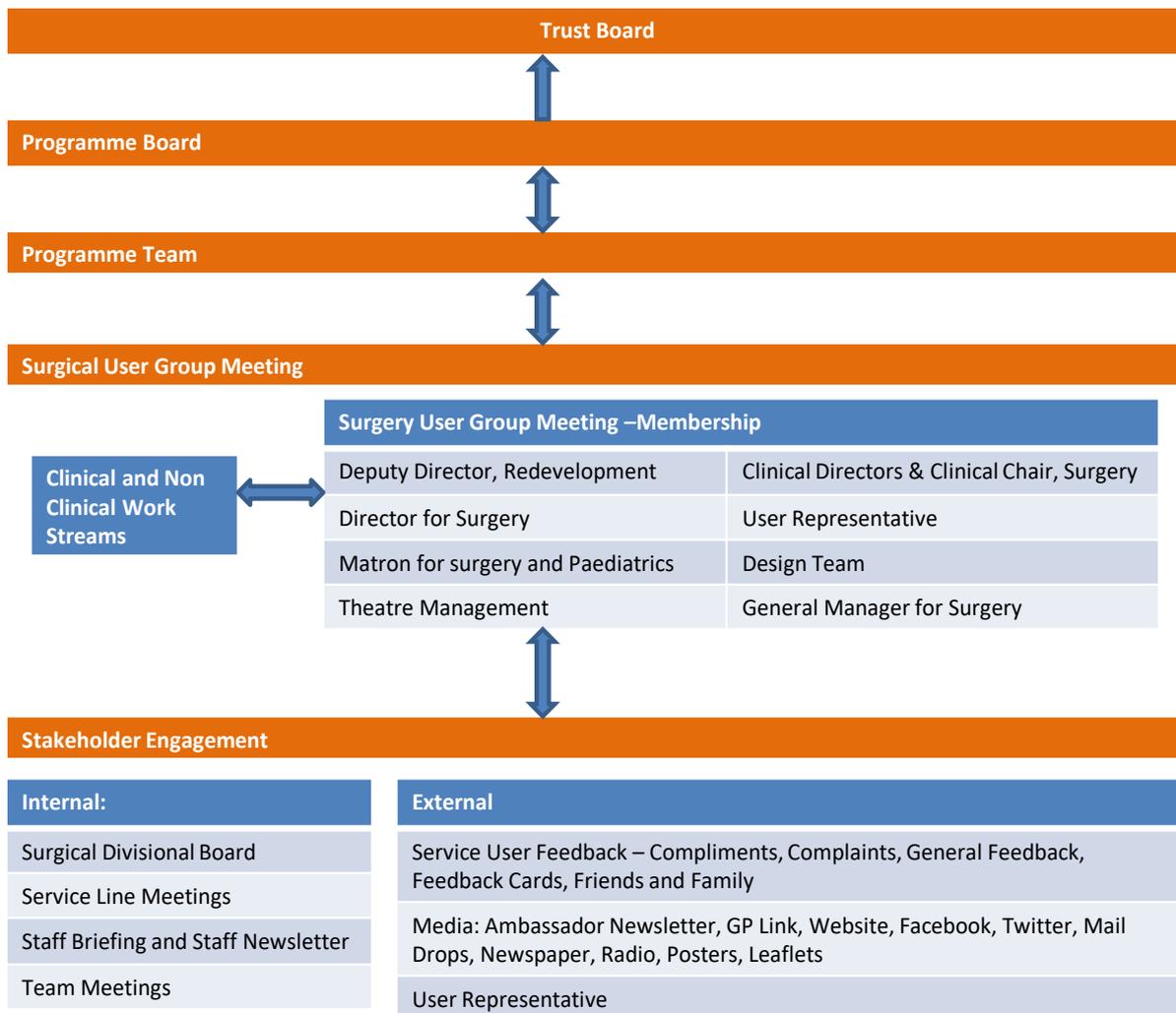


Figure 7.3: Theatres User Group

7.7.2 Non-Clinical Work Streams

Figure 7.4 gives an example of one of the non-clinical work stream structures, showing where and how decisions are made and how the workstream feeds

into the Trust Board. The diagram reflects the level of engagement internal to the organisation to support the clinical design and functionality of the new hospital estate.

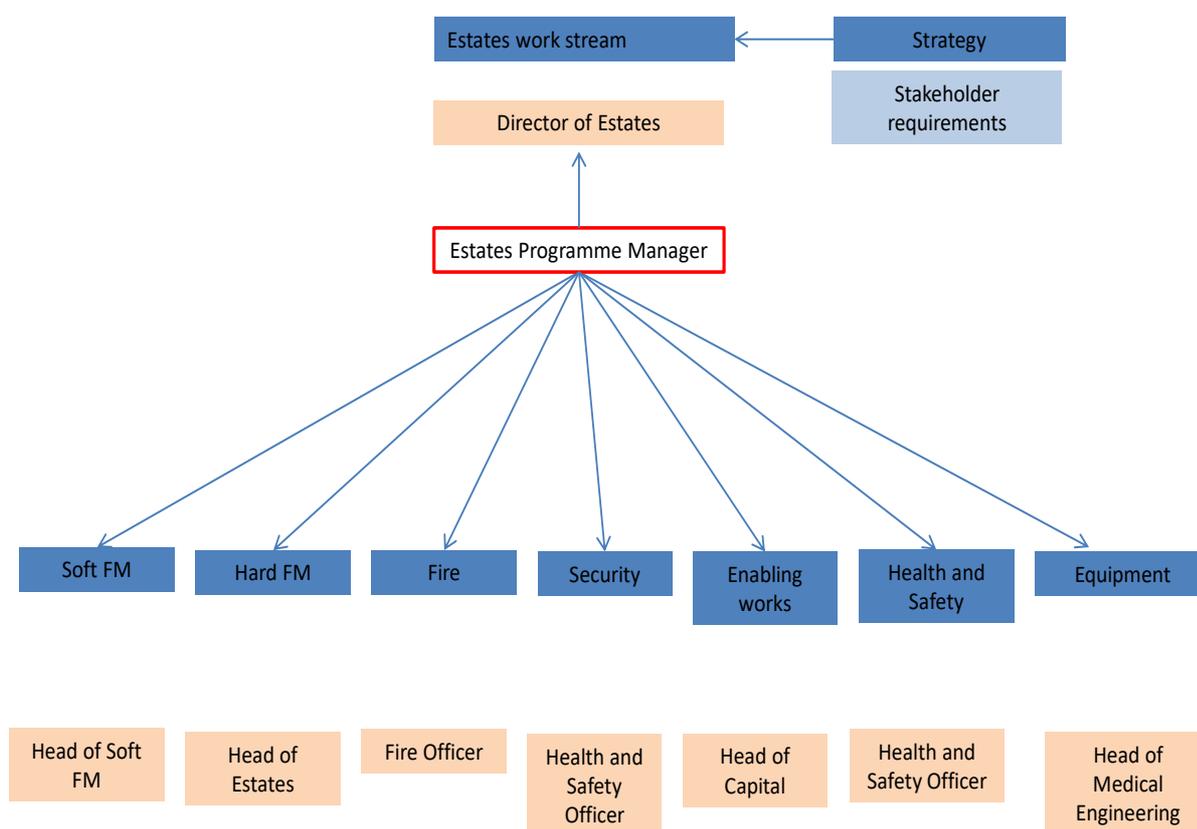


Figure 7.4: Estates work stream structure

7.8 Project Management Reporting

7.8.1 Project Highlight Report

The Redevelopment Programme Team will receive per Project, a "Highlight Report" (in the proposed format in Appendix 16) from the relevant Project or Workstream Programme Manager on a monthly basis. Each Project Highlight Report will provide;

- an assessment of the percentage completion of each sub-task, to inform the overall percentage completion updates in each iteration of the "holistic programme"
- a RAG status of each Project
- key progress summary

- risks and issues
- matters for escalation - these will be recorded in the monthly Programme Highlight Report, submitted to the Programme Board

7.9 Programme Management Reporting

7.9.1 Master programme

The Redevelopment Programme Team has developed a holistic master programme for the entire programme, including delivery of and interdependencies between projects and works which are not the subject of this OBC.

The holistic programme is reviewed on a weekly basis with the programme team and design team. A formal re-issue is issued on a monthly basis, aligned to reporting cycles and demonstrates actual progress achieved. A partially “rolled up” programme is provided in Appendix 17.

7.9.2 Programme Level Highlight Report

The Redevelopment Programme Team will issue a “Programme Highlight Report” (in the proposed format in Appendix 16 to the Redevelopment Programme Board on a monthly basis. Each Programme Highlight Report will provide;

- a RAG status of the programme
- risks and issues
- matters for escalation as identified in Project Level Highlight Reports and at the Programme Team
- request for decisions and support
- financial overview plan against budget
- key achievements

7.9.3 PMO Task List

Learning from other Projects has led the Programme Team to implement a PMO Task List to act as a check on regularity and completeness of reporting of information, from the multitude of sources which this programme is coordinating and managing.

7.9.4 Work stream milestones

One of the Project Management reporting tools that the team have implemented is a key milestone tracker. This gives the initial date for each key milestone at the outset of the project, along with current agreed and current forecast dates (with a RAG rating) and the opportunity for commentary on each milestone. This is considered to be a simple but effective means of tracking the projects key stages and understanding the forward look, without having to have a full GANTT chart presented to the Programme Board on a monthly basis. The detail behind these milestones is available and presented in a summary and rolled up GANTT chart, both of which have been made available in Appendix 17.

7.10 Change Management

The Redevelopment Programme Board has recognised that in a scheme with the scale, complexity and duration of the Redevelopment Programme, there will inevitably be a need to identify, control, agree the consequences of, prioritise and manage change.

There are two types of project change;

1. Contractual works management change
2. Trust requested change to scope or function

The Trust will put processes in place to manage both the contractual works management change process during works delivery, and, any Trust requested changes to scope or functionality (through both FBC and works delivery). It is essential that there is coordination between these two types of change, as each has the potential to impact project benefits, cost and programme.

7.10.1 Works Management Changes

As has been discussed in the Commercial Case, the Trust has selected the NEC4 Engineering & Construction Contract [ECC] Main Option C form of Contract for the New Clinical Buildings and the NEC4 Engineering & Construction Short Contract [ECSC], for Demolitions. The NEC Suite manages changes to the works via a mechanism known as Compensation Events. These encourage robust and proactive agreement of time, cost and cost of time impacts of a change, within a contractually prescribed time period.

Rapid responses are therefore essential, as delays to making a decision will become a reason for the programme to be delayed, resulting in additional cost over and above the cost of any actual instructed change.

The NEC Project Manager (in consultation with the Construction Project Director) will therefore benefit from clearly defined delegations of authority to make such decisions.

7.10.2 Client Requested Scope or Functionality Change

Client requested changes will flow through a Change Request process, with the requestor having to make a justification for the change. A template for the Change Request Form is made available in Appendix 16.

It can be anticipated that many such changes will require input from the Works Contractor to price for both time and cost of the requested change. The NEC Suite allows for such change, via a process known as “proposed Compensation Events”, whereby the Contractor is asked to provide Cost and programme impacts for anticipated changes. Subject to the clarity of the change, this cost and programme impact is then binding, once accepted and implemented by the Project Manager.

All such change requests will be registered in a change management log, along with the decision reached and rationale for that decision. This is intended to reduce the potential for repeated requests for the same change, but also provides an opportunity to review previous decisions if the project context changes and a key constraint informing the decision is impacted.

7.10.3 Change Management Board

In order to provide a coordinated mechanism for rapid and authoritative decisions on such change requests, the Redevelopment Programme Board will establish a Change Management Board during the FBC development and works delivery, to receive both;

- contractual works management change
- Trust requested change to scope or function

Terms of Reference for the Change Management Board are provided at Appendix 13.

For user generated changes, the Change Management Board will be empowered to make decisions (within delegated limits) regarding:

- Justifications for change
- Inclusion/ exclusion of the change
- The means of funding the financial impacts of any such change as is included into the Programme/

project scope.

A sample Change Request Form is provided in Appendix 16.

7.10.4 Change Management Decision Making

Under the chosen form of Construction Contract (NEC Engineering & Construction Contract [ECC]), for Contract and Contractor driven change, the NEC Project Manager (in consultation with the Construction Project Director) is required to be empowered (within limits) to make decisions in a timely fashion, which is likely to be in a shorter timeframe than the meeting cycle for the Change Management Board. The Terms of Reference for the Change Management Board have allowed for this, with a report of any exercise of this authority being discussed with the Chair of the Board and justified/ reported on at the next meeting. The purpose of the PM reporting to the Change Management Board on such changes is to provide a holistic view of the Project situation.

7.10.5 Change Management and Contract Management Arrangements

The Redevelopment Programme as defined by this OBC will be delivered under the New Engineering Contract Suite, using the Engineering & Construction Contract (NEC4 ECC). The NEC4 ECC encourages and makes contractually binding, good contract management practice. As such substantial resources are required to proactively manage and agree time and cost impacts and secure the appropriate quality in the works delivery. These are identified in the management structure provided above.

7.11 Communications Strategy and Stakeholder Engagement

Clear, consistent and sustained communication will play an integral part in the success of the hospital redevelopment project. As the redevelopment moves from the strategic planning phase into a procurement and then construction phase, it is imperative that communication remains clear. This will provide key stakeholders a sense of clarity, ownership and pride throughout the project,

and ensure that stakeholders have a clear understanding on how the project may affect them or the organisation/group that they represent. This communications plan sets out an approach to actively engage stakeholders, internal and external to the organisation.

7.11.1 Communication principles

In developing the communication strategy, the following principles have been agreed with the redevelopment programme board which will continue to shape and guide the development of the communication plan. The redevelopment programme team will;

- Listen to stakeholders
- Ensure that public engagement forms a core part of the design and construction principles
- Ensure meaningful staff involvement
- Identify clinical leads for each area to communicate and sign off plans to ensure clinical teams are on board and listened to
- Communicate the Trust's plans at all information sharing forums to share information about the redevelopment scheme and how it will positively and negatively affect patients, staff and the community
- Respond to invitations and opportunities to present plans and listen to feedback
- Celebrate success at each major milestone, to ensure momentum and a culture of celebrating success
- Regularly review the communication strategy to build on strengths and address challenges or poor/constructive feedback
- Provide credible, timely and well-coordinated information to all key stakeholders

7.11.2 Communication programme objectives;

Key objectives of the communication programme ensure;

- Key stakeholders are identified
- Stakeholders are informed about the

redevelopment scheme in a timely way

- Stakeholders share in scheme objectives and benefits
- Negativity is understood and addressed
- Expectations of stakeholders are understood and met
- Design approval process is shared and understood
- Stakeholders know how to access information, get involved and share ideas
- The Trusts reputation is upheld
- Statutory obligations are met
- Scheme challenges will be managed robustly to minimise any negative effects of the build process

7.11.3 Communication plan

The communication plan was formally agreed by the Redevelopment Programme Board on the 11th October 2019. The plan defines who the key stakeholders are, and the planned method, or forum, for communication to take place. Stakeholder feedback and the natural evolution of the project will require this communications plan to be regularly reviewed. The Communications Strategy for the Redevelopment Programme can be found in Appendix 18.

The Programme Team has been proactive in sharing the messages associated with the redevelopment scheme, both within the Trust and with external stakeholders. A regular newsletter has been issued, a monthly presentation at the Trust's Staff Briefing has been made, and the team have made a number of presentations to local bodies on a regular basis.

In addition, the Trust have, for many years, held a bi-annual staff "tent" event. This is attended by almost all staff working within the organisation. A regular point of discussion and presentation is the redevelopment of the L&D. Staff were asked in 2018 to prioritise the redevelopment requirements of the estate, which supported the Trusts strategic investment objectives and ultimately scope of works.

The diagram below shows the modes of communication internal to and external to the organisation.

Communication Strategy and Stakeholder Engagement



Figure 7.5: Modes of communication

7.12 Cultural Change Management Arrangements

The NHS Interim People Plan (2019) sets out 5 areas for priority action to address workforce challenges, as follows:

1. Making the NHS the best place to work
2. Improving the leadership culture
3. Tackling the nursing challenge
4. Delivering 21st Century Care
5. A new operating model for the workforce

The Trust vision is:

“To attract the best people, value our staff and develop high performing teams that deliver outstanding care to our patients”

The vision and values place significant emphasis on employing the very best staff and ensuring they are equipped and inspired to work to the highest standards. The redevelopment programme aims to provide a well-designed and equipped environment that enables staff to deliver the best possible service to patients.

A HR workstream has been established, led by the Trust’s HR Director. There are a number of sub groups to the HR workstream as shown in figure 7.6.

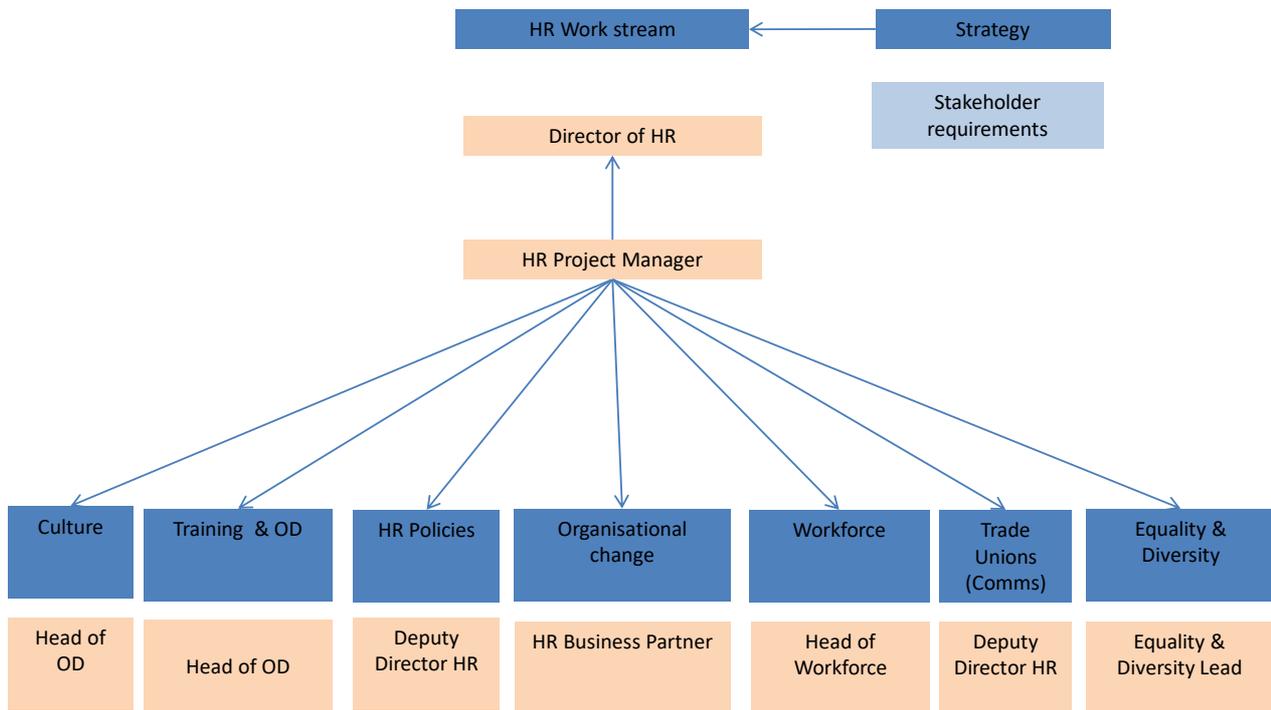


Figure 7.6: HR workstream structure

7.12.1 Culture and organisation change

Culture and change management will be fundamental to ensuring the success of the project and ultimately the realisation of programme benefits. The new clinical buildings, whilst making up the majority of the project cost, act only as a wrapper around the processes that occur within a hospital. Key to effective processes are people, and it is these people, the staff at the hospital, that can influence and build on good clinical practise and a world class patient outcomes.

7.12.2 Workforce

Fundamental to achieving the benefits of the Redevelopment Programme is the ability of the Trust to retain its current workforce and recruit the best staff for the future. The Interim NHS People Plan, published in June 2019, clearly illustrated the workforce challenges being faced by NHS organisations across the country. The workforce strategy for the Bedford, Luton and Milton Keynes (BLMK) Integrated Care System long term plan further highlights these challenges from a local perspective.

Workforce principles mirror the clinical vision - to build an organisation with high performing teams

that will deliver best-in-class standards of performance, quality services and innovation.

The workforce plan provides the foundation for setting the cultural tone, aligning staff capacity and capability with organisational needs, and ensuring effective support from agile, expert HR and OD services to ensure benefits are delivered.

The focus of the Redevelopment Programme is to ensure safe staff transfer to the new environment with positive staff engagement throughout.

7.12.3 Workforce Transformation

The following principles underpin the approach to workforce transformation;

- A new organisational vision that places a commitment to staff firmly at the centre of all undertakings
- Commitment to becoming a model employer with flexible working patterns, career structure and rewards
- Investing in leadership development to equip and inspire leaders, at all levels, to work effectively within autonomous clinical and corporate division

- Training, developing and investing in staff to support their long-term development to ensure that the Trust has a pipeline of talent with the skills and flexibility to maximise local services to the benefit of future patients
- Securing the supply of the best staff to deliver outstanding health services within the local health and social care system in the future
- Creating new and innovative clinical roles designed to address known skill and capacity gaps (for example including nurse associates and advanced practitioners)
- Providing a range of career pathways for front line staff to enable them to earn more money as they expand their skills and experience
- Having an effective workforce plan that is fully aligned with service and financial plans and enables the Trust to work with universities to ensure the right workforce for the future.

These principles provide the foundation for an ongoing workforce programme designed to ensure that the change is managed safely with no significant decrease in staff productivity. The focus for these activities is to support staff to embrace the change with ease, and to feel ready, willing and able to work in the new environment.

The workforce programme will enable teams to work effectively, as quickly as possible both during the transition period as well as when they have taken up occupancy in the new environment.

The aim is to ensure that staff are competent and confident to work in the new environment and with new equipment where provided.

7.12.4 Training and Organisational Development

The Redevelopment Programme will be defined by its approach to supporting and enabling clinical and corporate leaders to drive and deliver service transformation.

The learning portfolio for the new organisation will be focussed on developing both clinical and non-clinical leaders working in the new environment, developing new roles and creating innovative career pathways to support recruitment and ensure retention of valued staff.

7.13 Risk & Issue Management

7.13.1 Management

The risk register is managed on a weekly basis and shared with the Redevelopment team. The risk register is formally reviewed at monthly risk workshops on a monthly basis.

The Programme Team will adopt the approach of removing risks which have occurred or have a 100% chance of occurring from the Risk Register and will include them in an "Issues and Actions Log". The Issues and Actions Log is updated monthly and presented to the Redevelopment Programme Team to provide oversight and scrutiny.

In order to secure the correct level of governance for both risk and mitigation discussions, the risk register, Issues and Actions Log forms a standing item on the Redevelopment Programme Team agenda.

The risk register forms a standing item on the Redevelopment Programme Board and is presented on a monthly basis. High level risks and mitigations are discussed.

As the FBC progresses, the monthly risk management workshops will become a Risk Management Board, chaired by the Deputy Programme Director, which will feed into the Programme Team and Programme Board.

7.13.2 Risk Scoring Methodology

Risks can be identified by any stakeholder. All risks are risk assessed and added to the Project Risk Register. The methodology used to score the full

risk register is in accordance with the Trust's governance structure for managing risk. This risk register scoring and analysis is based on the risk matrix in table 7.6:

Rating	Guide	Cost	Time (delay)	Quality & Functional Performance	Reputational	Operational
H	15-25	>£1m	12 months	Major or Critical impact on the achievement of objectives & overall performance		
M	8-12	£500k-£1m	6 months	Material impact on the achievement of objectives & overall performance		
L	1-6	£200k-£500k	3 months	Minor impact on the achievement of objectives & overall performance		

Table 7.6: Risk matrix

The risk register is held and owned by the Redevelopment Team. Risk owners are required to review their allocated risks on a weekly basis. Risk owners are responsible for ensuring that active management of risks takes place and that mitigation plans are being actively implemented.

The Trust's risk evaluation and quantification matrix can be found in Appendix 19.

7.13.3 Risk workshops

The Redevelopment team undertook an initial programme risk workshop in October 2019. The output from the workshop was a detailed risk register. A series of subsequent risk workshops were held within the Trust with the Senior Team, Design Team and the different clinical and non-clinical work streams. These workshops teased out initial high, medium and low-level risks associated with the development and the delivery of the redevelopment programme.

7.13.4 Risk Management Plan

The risk register is circulated to key stakeholders in the design and redevelopment team on a weekly basis for review.

The register is presented to the Programme Team and Programme Board on a monthly basis. High level risks are presented along with mitigation and action plans. The Programme Board has responsibility for holding the Programme Team to account in terms of ensuring active risk management and mitigation.

7.13.5 Risk Impact on cost

During the development of the OBC all programme risks were costed using the CIA model methodology. Version 1.7 of the risk register, dated January 2020 was used to complete this exercise. Economic modelling of risk will be an iterative process and will be reviewed at regular periods throughout the redevelopment programme. Please refer to the Economic Chapter for further detail.

7.13.6 Risk Register Overview

Version 1.7 of the programme risk register can be found in Appendix 19, dated 28th January 2020. The table below provides a high-level summary of the Programme risks (as at the date of the enclosed register).

Rating	Guide	Cost	Time	Number of Risks
H	15-25	>£1m	12 months	11
M	8-12	£500k-£1m	6 months	65
L	1-6	£200k-£500k	3 months	46
Total Risks				122

Table 7.7: Programme risk register overview

7.13.7 Main Project Risks

The risks identified in table 7.8 are an extract from the project risk register as of January 2020. The extract reflects the high level risks (risk score above 15).

No	Category	Work stream	Risk Description	Consequence	Current Risk Level	Management Actions Planned/Taken
004	Service Risk	Finance	Failure to manage capital budget Due to poor estimating, programme delays or scope creep	Project would require de-scoping to ensure affordability. This may impact critical success factors and scheme benefits	15	Monthly capital review meetings in place. Accountable to Programme Board
020	Service Risk	Finance	Delays to statutory approvals - NHSE/I, DHSC and HMT timescales for statutory approval process currently unclear	Delay to programme will impact cost. Not achieving sign off threatens the entire programme of redevelopment at the L&D hospital	16	Meetings with new regional team scheduled for Jan 20 to discuss OBC and programme, to better understand process of approvals and requirements.
046	Business Risk	Finance	Inadequate provision for contingency Optimism bias may be too ambitious and thus risk not costed appropriately to support the outputs of the scheme	Scheme may be over budget and project will subsequently have to be de-scoped	15	CIA model adopted to support financial planning in line with HM Treasury guidance
057	Service Risk	HR	Benefits of the scheme do not provide equality amongst staff and patient groups A significant number of hospital services will be in the older part of the hospital	inequalities amongst staff and patient groups.	15	Equality impact assessment ongoing. Stakeholder engagement regular and robust. Focus to mitigate inequalities at every stage of development.
060	Service Risk	Finance	Incorrect activity assumptions more or less than 2.82% assumed in the OBC	impact on financial plan and thus affordability	15	Assumptions agreed by BLMK ICS. Sensitivity testing during FBC development
076	Business Risk	Design	Fire Safety Fire cables currently patched to switch rooms across the site, under ground and over ground. Risk that cables could be cut during construction if trust are not aware of location	Fire alarm system will go down	15	Challenging process of mapping cables currently underway
078	Business Risk	Estates	HV cable route Main HV cable to the site is in a duct crossing a small residential road (Calnwood Road). Duct has collapsed. Construction traffic will be heavy across this route which may damage the cable.	Cable at risk of outage	16	Cable being relocated
081	Business Risk	Estates /IT	IT fibre runs unknown Fibre runs in ducts running underground and over ground, unable to fully map due to poor condition of ducts.	IT fibres could be unknowingly severed	16	Mapping exercise due to complete Jan 20. Plan for new network to be made
099	Business Risk	Construction	Traffic/Site Congestion Calnwood Road, a small residential road is the main point of access for construction traffic onto site and waste out of site	Site congestion and disruption to patients, visitors, staff and residents	15	Working with Luton Borough Council to agree alternate egress routes to alleviate congestion

Table 7.8: Main project risks

The most up to date risk register at the time of writing this business case (April 2020) is included in Appendix 19 to provide assurance on the management of risk.

7.13.8 Risk to BAU arrangements

Risks associated with the Project deemed to have an impact on the Trust's business as usual functions will be escalated by the Programme Director to the Programme Team. BAU risks will be included within the Trust's Corporate Risk Register in line with the Trust's Assurance Framework.

It is recognised that the Programme Risk Management methodology needs to integrate and be reflected in to the Trust's BAU Risk Reporting. It is proposed that this be achieved by way of a summary risk entry for each constituent Project in the Trust's Datix risk management and reporting tool, with each Project Summary score being agreed/ recommended by the Risk Management Board.

The Trust's BAU risk register already has a number of estates risks contained within it, as drawn out in the Strategic case. These are reviewed and updated regularly and have been reviewed for probability and consequence given the agreed scope of the Redevelopment Programme.

7.14 Benefits Realisation

A variety of benefits will be derived from the delivery of the proposed redevelopment of the L&D. Scheme benefits have been aligned with the scheme investment objectives and categorised according to the following;

- Cash releasing benefits
- Non-cash releasing benefits
- Societal benefits
- Un-monetisable benefits

7.14.1 Benefits Plan and Register

It should be assumed that all benefits will be realised once the new asset has been commissioned and clinical services have transferred, in line with construction programme.

The benefits have been fed into the economic model, the CIA model, in the economic chapter to provide an economic summary. This ultimately gave way to the preferred way forward for the redevelopment.

The extract below provides a summary of the key benefits associated with this scheme.

ID	Benefit Category	Benefit Description	Service Feature (aspect that gives rise to benefit)	Responsible Officer	Performance Measure	Frequency of reporting	Target Improvement
1	improve clinical quality	Critical Care same sex accommodation compliance	Separate male and female accommodation	Chief Nurse	Same sex reporting	Monthly	Ensure no same sex accommodation breaches
2	improve clinical safety	Paediatric segregation in theatre (surgical arrivals and recovery)	Separate adult and child accommodation	Chief Nurse	to be established	Monthly	Ensure children are segregated from adults
3	improve clinical quality	To provide private and dignified bathrooms facilities for patients in maternity and critical care	En-suite facilities in delivery suite, bathrooms facilities in critical care (L2 patients)	Chief Nurse	patient feedback score	Monthly	Ensure all patients have access to bathroom facilities without crossing general circulation routes
4	improve clinical safety	Reduced clinical incidents - providing ventilated clinical accommodation in line with HBN requirements	Appropriate ventilation and air changes in clinical accommodation	Chief Nurse	Incident reporting corporate risk register	Monthly	Reduce clinical incidents for new accommodation to 0

ID	Benefit Category	Benefit Description	Service Feature (aspect that gives rise to benefit)	Responsible Officer	Performance Measure	Frequency of reporting	Target Improvement
5	To improve clinical safety	Decrease backlog requirement per annum	Backlog eliminated	Director of Estates	Service desk calls	Monthly	20% reduction in service desk calls
6	To improve clinical quality	Provide access for patients, staff and visitors with disabilities - provide DDA compliant accommodation	Accessible accommodation	Director of Estates	BREAAM rating ERIC return complaints	Monthly	All newly provided accommodation to be DDA compliant
7	improve clinical safety	Health and Safety Compliance	Approved Health and Safety Compliance	Director of Estates	ERIC return corporate risk register	Monthly	All newly provided accommodation to be health and safety compliant
8	improve clinical quality	To maintain business continuity by providing service resilience	compliant accommodation	Director of Estates	ERIC return corporate risk register	Monthly	Reduced number of incidents and reduced maintenance requirement in old estate
9	Maximise space efficiency	Reduce waiting times for surgery - create capacity to manage demand	Increased theatre capacity Increased day case rate	Director of Operations	list utilisation Activity/Annual plan Waiting times	Monthly	18 week compliance
10	Maximise space efficiency	Birthing mums requiring a level 3 neonatal bed will stay at their local hospital - create capacity to manage demand	Increased delivery suite capacity	Chief Nurse	In utero transfer data	Monthly	Eliminate in utero transfers out of hospital due to lack of bed
11	Maximise space efficiency	Level 3 babies will stay at their local hospital - create capacity to manage demand	Increased NICU capacity	Chief Nurse	Ex utero transfer data	Monthly	Eliminate ex utero transfers due to lack of L3 cot
12	Maximise space efficiency	Level 2 and 3 patients receive the right level of care in the right environment with rapid access - create capacity to manage demand in critical care and reduce transfer in times	Increased critical care capacity	Chief Nurse	surgery cancellation data GIRFT data Transfer out of hospital data Transfer in times	Monthly	Ensure no patient is waiting for a L2 or L3 bed
13	improve clinical quality	Improve friends and family feedback across maternity, neonates, critical care and theatres	compliant accommodation	Chief Nurse	friends and family score maternity feedback	Monthly	Improve friends and family feedback score

ID	Benefit Category	Benefit Description	Service Feature (aspect that gives rise to benefit)	Responsible Officer	Performance Measure	Frequency of reporting	Target Improvement
14	improve clinical safety	Maintain or improve CQC rating "good"	compliant accommodation	Director of Quality	CQC report	Ad hoc	Maintain good or achieve excellent score at next CQC visit
15	improve clinical quality	Less staff time spent responding to complaints - reduce number of patients and families that complain due to the environment	compliant accommodation	Chief Nurse	Complaints report	Quarterly	Decrease complaint numbers by 10 per month
16	improve quality	Free up paediatric nursing time - children undergoing elective surgery stay in hospital for a shorter period of time - improved surgical pathway for children	paediatric accommodation for surgical arrivals and recovery, and shorter pathways	Director of Operations	LOS data	Quarterly	Decrease overall LOS for paediatric elective activity by 2 hours
17	improve clinical quality	Reduction in agency staff spend	Recruit and retain high performing and happy workforce	Director of Finance	Finance report	Monthly	10% reduction in agency usage due to vacancies
18	improve clinical quality	Achieve CIP to decrease out of hours extra session payments to staff	create theatre capacity in the working week	Director of Finance	Finance report	Monthly	Reduce extra sessions to target value of 750k
19	improve clinical safety	Higher PLACE inspection standards	compliant accommodation	Director of Estates	PLACE report	Annually	10% increase in overall PLACE scores, with emphasis on environment
20	improve clinical safety	Process flow and staffing improvement from colocation within an acute service block (theatres)	combined arrivals, theatres and recovery	Director of Finance	Finance report	Monthly	10% improvement in staff productivity
21	Improve clinical quality	To provide private and dignified bathrooms facilities for patients in critical care	Compliant accommodation	Chief Nurse	Patient Feedback score	Monthly	Ensure all patients have access to bathroom facilities within crossing public spaces
22	Improve efficiency	Process flow and staffing efficiency from colocation of critical care within an acute service block	combined ITU and HDU, with improved visibility	Director of Finance	Finance report	Monthly	10% improvement in staff productivity

ID	Benefit Category	Benefit Description	Service Feature (aspect that gives rise to benefit)	Responsible Officer	Performance Measure	Frequency of reporting	Target Improvement
23	Improve efficiency	Lift resilience	Free up staff time responding to lift failure	Director of Estates	Finance Report	Monthly	75% reduction in lift failures
24	Improve efficiency	process flow and staffing efficiency from colocation of maternity services and good clinical adjacencies in maternity and NICU	shorter patient and staff journeys between buildings which would require additional porters and MCAs	Director of Finance	Finance Report	Monthly	Reduction in WTE
25	Improve efficiency	Reduction in number of receptions for maternity	Reduction from 6 receptions to 2	Director of Finance	Finance Report	Monthly	Reduction in WTE
26	Improve efficiency	Boost to local economy through local employment during construction and after due to workforce demand	Local employment	Director of Redevelopment, Director of HR	Contractors performance report HR report	Monthly	Tbc at FBC
27	To mitigate risk that environment presents	Improved sustainability	Improved energy performance Decreased backlog maintenance	Director of Estates	ERIC return Backlog maintenance schedule	Monthly Annual	Reduction in carbon emissions (55% target) >12% reduction in backlog maintenance and reduction in high risk backlog
28	Improve clinical safety	Shorter wait times for surgery	Patients receive surgery more quickly	Director of HR	Benefit realisation to be worked through with LBC	Annual	Patients return to normal life/workplace more quickly.
29	Improve efficiency	Pathology merger savings	(please refer to merger FBC for full detail, Appendix 20)	Director of Finance	Finance Report	Monthly	(please refer to merger FBC for full detail, Appendix 20)
30	Improve efficiency	Revenue saving from avoided equipment rental	(please refer to merger FBC for full detail, appendix 20)	Director of Finance	Finance Report	Monthly	(please refer to merger FBC for full detail, Appendix 20)

Table 7.9: Key Programme Benefits

7.14.2 Post Evaluation Arrangements

It is imperative that post project evaluation arrangements are agreed from the onset. Post project evaluation will be scrutinised at a local level, by the Trust Board, but also at a regional level, by the ICS, and at a national level, by NHSE/I, DHSC and

ultimately HMT. The programme of works described in this business case is subject to a number of investment objectives, outlined in the case for change. It is imperative that the Trust evaluates whether all of the scheme objectives have been achieved. Learning will support other Trust capital projects, and other capital schemes across the NHS.

7.14.3 Benefits realisation

In terms of ensuring the expected benefits are actually realised, a Benefits Realisation Strategy will be adopted, key objectives of this strategy are to;

- Identify the benefits and responsibility for their delivery;
- Establish baseline measurement where possible;
- Quantify benefits in line with economic appraisal;
- Periodically assess likely realisation and any actions required;
- Record further expected benefits identified during the project; and
- Measure outcomes

The benefits realisation strategy will be further developed during the FBC development.

7.14.4 Post project resource

Post project evaluation will be managed by the Programme Director, reporting to the Programme Board. The evaluation will be overseen by the Redevelopment Board who will act as the evaluation steering group.

Evaluation reports will be completed within three months of the completion of the data collection. The results of each report will be made available to all participants in each stage of the evaluation and to the Trust Board, Commissioners and NHSE/I.

The costs of the final post project evaluation, once the service is fully established, are not included in the costs set out in this OBC as it is assumed that this work will be undertaken in-house as part of the Programme and Project Director roles.

The costs for post project evaluation will be included in the Trust funded Redevelopment budget. The Trust's preferred contractor will be involved in all PPE activities, and this will be fed into the contract requirements.

7.14.5 Post Project Evaluation (PPE)

The Trust is committed to ensuring that a thorough and robust PPE is undertaken at key stages in the process, to ensure that positive lessons can be learnt

from the project at every stage. The lessons learned will be of benefit when undertaking future capital schemes.

PPE also sets in place a framework within which the benefits realisation plan can be tested to identify which benefits have been achieved and which have not - with the reasons for these understood in a clear way.

The objective of the evaluation stage is to assess how well and effectively the project was managed from the business case process through to implementation, including the construction phase.

It will be undertaken using a 360° view of the process using internal and external stakeholders. It is planned that this evaluation will take place within 3-6 months of opening the facility and will examine;

- the effectiveness of the project management of the scheme - viewed internally and externally
- communications and involvement during the project
- the effectiveness of advisors used on the scheme

7.14.6 PPE Approach

Recent NHS guidance on PPE has been considered and the proposed approach will comply with current guidance during the various evaluation stages. The key stages that will be evaluated are:

- implementation (circa 0-6 months)
- in use shortly after the new services have been commissioned (circa 6-12 months)
- once the service is well established (circa 12-24 months)

a. Implementation

It is proposed that this stage of the evaluation be undertaken at the end of the construction phase. The objective of evaluating at this stage is to assess how well and effectively the project was managed from business case development through to construction.

The evaluation will be undertaken using a 360° view of the process using internal and external stakeholders. It is planned that this evaluation will take place within 0-6 months of opening the facility and will examine;

- the effectiveness of the project management of the scheme - viewed internally and externally
- communication and involvement during the project
- the effectiveness of advisors used on the scheme

b. Evaluation in use - shortly after commencement of service

It is proposed that this stage of the evaluation be undertaken between six and twelve months after the completion of operational commissioning, in order that the lessons learned are still fresh in the minds of the stakeholders.

The objective of this stage is to assess how well and effectively the project was managed during the Trust's operational commissioning phase and into the actual operation of the new facilities. The Trust intend to use a 360° view of the process using internal and external stakeholders.

The evaluation at this stage will examine;

- Effectiveness of the Trust project management of the scheme - viewed internally and externally.
- Communications and involvement during and after commissioning
- Effectiveness of the joint working arrangements established between the Trust and Contractor
- Support during this stage from other stakeholder organisations
- Critical success factors of the project and benefits
- Extent to which it is felt the facilities meet users' needs - from the point of view of service users/carers and staff

c. Evaluation once the service is well established

It is proposed that this evaluation is undertaken about one to two years following the establishment of the new facilities.

The objective of this stage will assess how well and effectively the project was managed during the actual operation of the service. The Trust intend to use a 360° view of the process using internal and external stakeholders. The evaluation at this stage will examine;

- The future flexibility of the asset
- Design considerations that would have supported patient outcomes and service efficiencies that could be fed into central guidance
- the extent to which it is felt the design continues to support organisation clinical strategy and users' needs - from the point of view of the staff, service users and carers

7.15 Design Appraisal Toolkit (DAT)

In line with National and Local Strategy drivers, a Design Appraisal Toolkit (DAT) has been developed based on Health Facilities Scotland update of AEDET Refresh. AEDET is approved by NHS England as meeting the requirement of an independent Design Appraisal as referenced within the NHS Business Case Checklist. DAT is a tailored version of AEDET. Described more in the Preferred Case chapter, a programme of design peer review has been established as part of the design process to support good governance and a level of assurance to the Trust. DAT was selected as the peer review design process for the Trust.

Due to the CoVID-19 response, the methodology agreed to conduct DAT had to be changed. DAT assessment was undertaken by the Programme Team towards the end of the OBC development, with the aim of capturing collective views from clinical teams, supporting teams, designers and end users. The design has been scored at OBC 1:200 general arrangement floor plan stage, to check that the design meets the aims set out in the business case.

DAT toolkit methodology and scores can be found in Appendix 6 and reflect an honest assessment of how well the design meets the strategic objectives.

The scores are good and as expected for this stage in the design process.

Further design peer review will be conducted towards the end of the FBC development, once a RIBA stage 3 design, or 1:50 detailed designs, supported by room data sheets, are signed off by the Trust.

7.16 OBC Approvals

The project has the full backing and commitment

a. Internal approvals:

Approval Required	Date
Trust CEO and SRO	08/04/20
Hospital Redevelopment Board	08/04/20
FIP	22/04/20
Trust Board	22/04/20
Board of Governors	22/04/20

Table 7.10: OBC internal approval programme

b. External approvals:

Approval Required	Date
BLMK STP	15/04/20
NHSE/I, DHSC, HMT (expected)	Sep 20

Table 7.11: OBC external approval programme

7.17 FBC Development

The purpose of the FBC is to;

1. Revisit the assumptions and main finding of the OBC
2. Progress the design to RIBA stage 3 to allow a contract to be entered into
3. Evidence the most economically advantageous tender for the project which provides value for

of Executive Directors, clinical and non-clinical teams across the Trust.

The Trust's CEO in his role as SRO and the Trust Board have signed off the OBC and supported its submission to NHSE/I for review and ultimately, approval. The Trust Board have in parallel, supported the Redevelopment Programme Team to progress the development of the FBC.

7.16.1 OBC Development and Programme to Approval

money

4. Confirm the project is still affordable
5. Set out the commercial and contractual arrangements for the negotiated deal
6. Establish that the management arrangements for successful delivery are in place
7. Plan for implementation and operationalise service delivery requirements

7.17.1 FBC Development and Programme to Approval

a. Internal approvals:

Approval Required	Date
Trust CEO and SRO	Q3 20/21
Hospital Redevelopment Board	Q3 20/21
Trust Board	Q3 20/21

Table 7.12: FBC internal approval programme

b. External approvals:

Approval Required	Date
STP	Q3 20/21
NHSE/I, DHSC, HMT (anticipated)	Q4 20/21

Table 7.13: FBC external approval programme

7.17.2 FBC Programme Management Arrangements

The programme management arrangements for the FBC development will be as described in this chapter for the OBC development, with three key additions;

1. Change Management Board - A Change Management Board will be established
2. Risk Board - the regular risk management workshops will feed into a monthly Risk Board with executive representation, feeding directly into the Programme Board
3. FBC Workstream - An FBC workstream will be established with its key objective, to produce the FBC in line with the agreed programme. The business case development will be owned by the CEO in his role as SRO and each chapter led by an Executive Director. Business Case development will continue to be a standing item on the Programme Board.

Table 7.14 describes the programme management arrangements discussed with the Redevelopment Team on the 11th February 2020. These were agreed by the Programme Team on the 7th April 2020 and ratified by the Programme Board on the 8th April 2020.

Business Case Chapter	Objective	Overview	Actions	Responsible Officer
Strategic	Delivering an appropriate solution	Revisiting and updating the strategic case to confirm the current situation in terms of the case for change and project requirements	<ul style="list-style-type: none"> ■ Reconfirm the case for change ■ Finalise benefits realisation arrangements and plans ■ Finalise change management arrangements and plans 	Deputy Chief Executive
Commercial	Contracting for the project	Revisiting and updating the commercial case dimension of the business case to reflect the negotiated contractual position	<ul style="list-style-type: none"> ■ Detail procurement process and evaluation of potential contractors' bids ■ Document the deal that has been negotiated by the public sector organisation and its choice of service provider. 	Redevelopment Director
Economic	Procuring the VFM solution	Revisiting and updating the economic case dimensions of the business case to confirm the continued efficacy of the preferred option following the procurement exercise.	<ul style="list-style-type: none"> ■ Reconfirm the project objectives ■ Reconfirm the OBC options 	Director of Finance
Financial	Ensuring affordability	Revisiting and updating the financial consequences over the lifetime of the contract and service.	<ul style="list-style-type: none"> ■ Set out the financial implications of the project ■ Reconfirm affordability 	Director of Finance
Management	Ensuring successful delivery of the project	Revisiting and updating the management dimension of the business case to record the detailed management arrangements that have been put in place to ensure the successful delivery and evaluation of the project.	<ul style="list-style-type: none"> ■ Finalise project management arrangements and plans ■ Finalise risk management arrangements and plans ■ Finalise contract management arrangements and plans ■ Finalise Post-Project Evaluation arrangements and plans 	Redevelopment Director
Estates	Development of a compliant design	Further development of design to RIBA 4	<ul style="list-style-type: none"> ■ Develop designs to a level to enable contractors to start on site once approval to business case achieved 	Redevelopment Director

Table 7.14: FBC Programme Management Arrangements

7.18 Global Pandemic Impact

It is recognised that the global pandemic will have a significant impact on this project. It is not yet understood what this impact will be. The redevelopment programme at the L&D, like many projects, has been impacted by the measures put in place by Government to slow down the spread and limit the impact of CoVID-19. The Redevelopment Team and Trust Board have responded to the challenge by maintaining the governance arrangements already in place, working remotely, and coordinating with multiple teams, across multiple companies, virtually. The April 2020 OBC deadline for all workstreams has been held, which has meant a significant effort from design teams and Trust teams alike. The two priorities for the Trust Board currently remain the Redevelopment Programme, and the CoVID-19 response. The interface with clinical teams has been challenged from mid-March onwards, and as clinical coordination meetings have had to be stood down, final design sign off by clinicians has not been achieved. In agreement with NHSE/I this formal sign off will follow as the Trust returns to its “business as usual” platform. This remains a risk for the Trust but the Programme Board are assured that clinical teams have been part of the design development process throughout the OBC programme, coordinating closely with supporting teams such as infection control, estates, IMT and finance, and that the communications plan has been executed robustly.

7.19 Management Case Conclusion

The management case presented here describes the programme management arrangements for successful project delivery. The Redevelopment Programme team is ultimately responsible to the Trust Board for the delivery of the scheme. The Trust’s CEO is the SRO for the programme, providing leadership, drive and direction. The programme is split into a number of workstreams, with clinical workstreams being clinically led and supported by end users. Stakeholder engagement has driven the core objectives of this project, and derived the benefits that will be realised.

Robust governance arrangements have been put in place for OBC delivery. These arrangements will be continued and strengthened through FBC delivery,

construction and implementation. Governor and Non-Executive Directors at the Trust remain on the Programme Board to provide a level of scrutiny and ensure transparency throughout the development.

There is a fully established and Trust funded redevelopment team with significant skills and experience to deliver the programme of works. Skills gaps will continue to be filled by experienced and specialist advisors, but the overall programme will ultimately be owned, managed and led by the Trust.

Established programme and project management methodology will be employed throughout the programme, namely Prince2 and MSP methodologies, a blend of “the best of both.” Reporting mechanisms have been clearly defined to support information sharing, good governance and robust programme management. The reporting mechanism complements well established processes within the Trust. It builds on the Trust’s approach to risk and issues management, and change management, to ensure successful project delivery within the scope of agreed parameters.

The Redevelopment programme is supported by a sound communication plan which aims to ensure that staff directly inform the plans for the redevelopment and are well versed in the plans to develop the Trust, to allow them to act as advisories to others. It is recognised that the staff are the Trust’s most precious asset, whilst the buildings simply act as the wrapper around which great care can be offered to patients. This redevelopment aims to eliminate a significant amount of the environmental challenges and shortfalls which prevent staff from providing the world class care they aspire to, and this management case starts to describe exactly how this will be done.

This programme is strengthened by clear benefits that will be realised once the new clinical buildings are opened and more modern processes that enable high quality patient outcomes can be implemented.

The Trust has developed an OBC for the first phase of redevelopment of the hospital. This scheme is required to address the key clinical risks that the Trust currently faces in delivering Maternity services, Neonatal Intensive Care, Critical Care and Surgery from old and non-functional facilities across the site.

This OBC has been produced in compliance with current guidelines from the Department of Health, HM Treasury and NHSE/I for the preparation of business cases. The support and guidance from colleagues in these organisations during the development of the OBC has been greatly appreciated.

The business case has been built on widespread engagement with staff, patients and local stakeholders. There is a broad acknowledgment that the site needs to be redeveloped if it is to continue to provide acute services to its patients on a robust financial basis.

A number of options were evaluated during development of the OBC. A Preferred Option was identified which builds on the basis for the capital application made to the Department through the wave 4 STP Capital bids in July 2018. The construction of a New Ward Block adjacent to the proposed Acute Services Block delivers significant benefits to the delivery of clinical services. This will also release the existing Maternity Ward Block to support the refurbishment of old wards during the next phase of the redevelopment and is aligned to the Development Control Plan for the future site.

The capital application is for £150m. The Trust is providing significant support to the scheme from its own resources. It has maintained an in-house redevelopment team responsible for the development of the scheme and has underwritten the fees required to develop the OBC, and subsequently the FBC. It is also incurring the cost of a range of enabling works projects required to allow construction of the new buildings to progress.

In the absence of a major capital scheme, the limitations of the estate and the maintenance required to maintain clinical services, has a significant projected incremental impact on the Trust's financial position. The preferred option delivers financial benefits against the Trust's baseline

that cannot be realised by any other option and the economic modelling demonstrates that this provides the best value for money solution. The preferred option provides financial benefits and improved patient outcomes.

The proposed scheme is a fundamental part of the Trust's plan to redevelop the Luton & Dunstable hospital site, and will support a significant change in the quality of services that are delivered to patients, as well as enabling a substantial reduction in the backlog maintenance schedule, and ultimately corporate risk due to the poor condition and function of the estate. The new buildings are also key to supporting the delivery of the benefits arising from the merger of the Luton & Dunstable Hospital with Bedford Hospital Trust. The preferred option shows a significant long-term improvement to the business as usual financial position of Bedfordshire Hospitals NHSFT and delivers the financial trajectories for the merged organisation.

Construction will start on site at the beginning of 2021 and complete at the end of 2023. The Trust Board have confidence in the programme team and in the governance arrangements that have been established to guide the organisation through this major development.

The Trust Board fully support this outline business case, and believe that it provides the right strategic solution for the organisation and the community it serves, in the context of ongoing health demands.

Glossary of Terms

ACRONYM	DESCRIPTION
A	
A&E	Accident and Emergency
AEDET	Achieving Excellence Design Evaluation Toolkit
ASB	Acute Services Block
AVFM	Absolute Value For Money
B	
BAU	Business As Usual
BHNFST	Bedfordshire Hospitals NHS Foundation Trust
BHT	Bedford Hospital Trust
BLMK	Bedford Luton Milton Keynes
BME	Black and Minority Ethnic
BREEAM	Building Research Establishment Environmental Assessment Method
C	
CCB	Critical Care Block
CCC	Comprehensive Critical Care
CCG	Clinical Commissioning Group
CCS	Crown Commercial Services
CDC	Capital Development Committee
CEO	Chief Executive Officer
CHP	Combined Heat and Power
CIA	Comprehensive Investment Appraisal
CIPs	Cost Improvement Plans
CQC	Care Quality Commission
CRB	Cash Releasing Benefits
CSF	Critical Success Factor
CT	Computed Tomography
CWAS	Construction Works and Services
D	
DAT	Design Appraisal Toolkit
DCF	Discounted Cash Flows
DCP	Development Control Plan
DDA	Disability Discrimination Act
DEC	Display Energy Certification
DGH	District General Hospital
DH	Department of Health
DHSC	Department of Health and Social Care
E	
EBME	Electrical and Biomedical Engineering
ECC	Engineering Construction Contract
ECI	Early Contractor Involvement
ECSE	Engineering and Construction Short Contract
ED	Emergency Department
EDHR	Equality Diversity and Human Rights
EEAST	East of England Ambulance Services
EIA	Equality Impact Assessment
ELFT	East London Foundation Trust
EoE	East of England
ERIC	Estates Returns Information Collection
EU	European Union

ACRONYM	DESCRIPTION
F	
FBC	Full Business Case
FIP	Finance and Investment Performance
FM	Facilities Management
G	
GDE	Global Digital Exemplar
GIRT	Get It Right First Time
GMP	Guaranteed Maximum Price
GPICS	Guidelines for the Provision of Intensive Care Service
H	
HBN	Health Building Note
HDU	High Dependency Unit
HIMMS	Health Information and Management Systems Society
HLIP	High Level Information Pack
HMT	HM Treasury
HTM	Health Technical Memoranda
I	
ICE	Institute of Civil Engineers
ICS	Integrated Care Systems
ICU	Intensive Care Unit
IFRS	International Financial Reporting Standards
IM&T	Information, Management and Technology
ITFF	Independent Trust Financing Facility
ITU	Intensive Treatment Unit
J	
JCT	Joint Contracts Tribunal
K	
KPIs	Key Performance Indicators
L	
LBC	Luton Borough Council
LCR	Life Cycle Replacement
L&D	Luton and Dunstable
LDRs	Local Digital Roadmaps
LPHW	Low Pressure Hot Water
LTFM	Long Term Financial Plan
M	
M&E	Mechanical and Engineering
MES	Managed Equipment Services
MRI	Magnetic Resonance Imaging
MSCP	Multi Storey Car Park
MSP	Managing Successful Programmes
N	
NCA s	Non-Contract Activity
NCCR	Neonatal Critical Care Review
NCRB	Non Cash Releasing Benefits
NEC	New Engineering Contract
NHS	National Health Service
NHSE	National Health Service England

ACRONYM	DESCRIPTION
NHSFT	National Health Service Foundation Trust
NHSI	National Health Service Improvement
NICU	Neonatal Intensive Care Unit
NPC	Net Present Cost
NPSV	Net Present Social Value
NWB	New Ward Block
O	
OB	Optimism Bias
OBC	Outline Business Case
ODN	Operational Delivery Network
OJEU	Official Journal of the European Union
P	
PAM	Property Assurance Model
PCR	Public Contracts Regulation
PDC	Public Dividend Capital
PfA	Programme for Acceptance
PFI	Private Finance Initiative
PLACE	Patient Led Assessment of the Care Environment
PPE	Post Project Evaluation
PPF	Procure Partnerships Framework
PSCM	Procurement Supply Chain Management
PSCP	Principal Supply Chain Partner
Q	
QIPP	Quality, Innovation, Productivity and Prevention
R	
RIBA	Royal Institute of British Architects
S	
SB	Social Benefits
SCBU	Special Care Baby Unit
SDMP	Sustainable Development Management Plan
SMEs	Small, Medium Enterprise
SOC	Strategic Outline Case
SoFP	Statement of Financial Position
SRO	Senior Responsible Officer
STP	Strategic Transformational Plan
V	
VAT	Value Added Tax
VfM	Value for Money
VIE	Vacuum Insulated Evaporator
W	
WTE	Whole Time Equivalent

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APPENDIX 1 - MEETING MINUTES AND ENDORSEMENTS

Separate document that incorporates the following relevant meeting minutes/ presentations:

- October 2019- Redevelopment Team Workshop Minutes
- December 2019- Redevelopment Board Minutes
- January 2020- Redevelopment Board Minutes
- March 2020- Redevelopment Board Minutes
- April 2020- letter of endorsement from BLMK ICS

APPENDIX 2 - EQUALITY IMPACT ASSESSMENT

Separate Document

APPENDIX 3- CIA MODEL AND COST MANAGER'S OBC REPORT

Separate document that incorporates:

- Form 1- Capital Costs Summary
- Form 2- Capital Costs: Departmental Costs and Equipment Costs
- Form 3- Capital Costs: On Costs
- Form 4- Capital Costs: Fees and Non-Works Costs
- Form 5- CIA model

APPENDIX 4- MEP DESIGN PACKAGE

These are included in separate documents, split as follows:

- 4.1- Policies
- 4.2- Combined Services
- 4.3- Electrical Services
- 4.4- Mechanical Services

APPENDIX 5- Architectural and Structural Design Package

Separate document.

Table of contents:

Category	Number and Revision	Title
1.0- Drawing Register		
	LDH-MPA-XX-XX-RE-A-06200-P1	Drawing Issue Sheet
2.0- Plans		
2.1- Site Plans	LDH-MPA-ZZ-XX-DR-A-01001-P1	Proposed Location Plan
	LDH-MPA-ZZ-XX-DR-A-01010-P1	Proposed Site Plan
	LDH-MPA-ZZ-XX-DR-A-01030-P1	Proposed Site Plan
	LDH-MPA-ZZ-XX-DR-A-01031-P1	Development Control Plan
		Proposed Site Demolition
2.2- Floor Plans	LDH-MPA-ZZ-GF-DR-A-01100-P2	Proposed Ground Floor - ASB & NWB
	LDH-MPA-ZZ-01-DR-A-01101-P2	Proposed First Floor - ASB & NWB
	LDH-MPA-ZZ-02-DR-A-01102-P2	Proposed Second Floor - ASB & NWB
	LDH-MPA-ZZ-03-DR-A-01103-P2	Proposed Third Floor - ASB & NWB
	LDH-MPA-ZZ-04-DR-A-01104-P2	Proposed Fourth Floor - ASB & NWB
	LDH-MPA-ZZ-05-DR-A-01105-P2	Proposed Fifth Floor - ASB & NWB
	LDH-MPA-ZZ-RF-DR-A-01106-P1	Proposed Roof Plan - ASB & NWB
3.0- Elevations		
3.1 - Site Elevations	LDH-MPA-ZZ-ZZ-DR-A-02020-P1	Proposed Site Elevations C & D
3.2 - Building Elevations	LDH-MPA-ZZ-ZZ-DR-A-02100-P1	Proposed Elevations A & B - ASB & NWB
	LDH-MPA-ZZ-ZZ-DR-A-02101-P1	Proposed Elevations C & D - ASB & NWB
4.0- Sections		
	LDH-MPA-ZZ-ZZ-DR-A-03100-P1	Proposed Sections 1 & 2 - ASB & NWB
5.0- Schedules		
5.1 - Schedule of Accommodation by Building	LDH-MPA-89-XX-SH-A-06001-P2	Schedule of Accommodation - ASB
	LDH-MPA-91-XX-SH-A-06002-P2	Schedule of Accommodation - NWB
	LDH-MPA-71-XX-SH-A-06003-P2	Schedule of Accommodation - Surgical Block
5.2 - Schedule of Accommodation by Department	LDH-MPA-ZZ-XX-SH-A-06050-P2	Schedule of Accommodation - Maternity
	LDH-MPA-ZZ-XX-SH-A-06051-P2	Schedule of Accommodation - Critical Care
	LDH-MPA-ZZ-XX-SH-A-06052-P2	Schedule of Accommodation - NICU
	LDH-MPA-ZZ-XX-SH-A-06053-P2	Schedule of Accommodation - Theatres
	LDH-MPA-ZZ-XX-SH-A-06054-P2	Schedule of Accommodation - NWB Shared Space
6.0 - Outline Specification		
	LDH-MPA-XX-XX-SP-A-07000-P1	Outline Specification
7.0 - Fire Strategy		
7.1 - Fire Strategy Drawings	LDH-MPA-ZZ-GF-DR-A-68500-P3	Proposed Ground Floor Fire Strategy
	LDH-MPA-ZZ-01-DR-A-68501-P3	Proposed First Floor Fire Strategy
	LDH-MPA-ZZ-02-DR-A-68502-P3	Proposed Second Floor Fire Strategy
	LDH-MPA-ZZ-03-DR-A-68503-P3	Proposed Third Floor Fire Strategy
	LDH-MPA-ZZ-04-DR-A-68504-P3	Proposed Fourth Floor Fire Strategy
7.2 - Fire Report	200409-Q00-BA19033-LDH ASB & NWB-DF	OFR Fire Strategy Report
8.0 - Planning Consent		
		Planning Consent Letter

APPENDIX 6- OBC DAT EVALUATION

Separate document that incorporates:

- Theatres and Critical Care DAT Evaluation
- NICU and Maternity DAT Evaluation

APPENDIX 7- ESTATES STRATEGY

Separate document.

Table of contents:

Chapter	Page Number
Foreward	2
Executive Summary	3
Where are we now?	5
Where we want to be	22
How do we get there?	37

APPENDIX 8- DEROGATION SCHEDULE

Separate document that incorporates the following derogations:

- HBN- Maternity
- HBN- NICU
- HBN- Critical Care
- HBN- Theatres
- HTM- Preferred Option

APPENDIX 9- BREEAM ASSESSMENT

Separate document.

Table of contents:

Chapter	Page Number
Executive Summary	4
Introduction	6
The BREEAM Standard	7
Project setup	8
Pre-assessment estimated score and rating	10
Next steps and recommendations	28

APPENDIX 10- MTS EQUIPMENT REPORT FOR OBC

Separate document.

Table of contents:

Chapter	Page Number
Executive Summary	5
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Equipment OBC- Report Findings	10
Transfer and Site Visit Report	26
Recommendations	30
Programme and next steps	31
Governance	32
Appendix A- BOQ for Hot Block OBC V5a 03-02-20	
Appendix B- Hot Block Comparison 2016 and 2019 V1 19-12-19	
Appendix C- MTS for L&D Hot Block OBC Recommendations V1 19-12-19	
Appendix D- L&D Medical Engineering Inventory 06-11-19 mts 20-02-20	

APPENDIX 11- PROCUREMENT WORKSHOP 27
FEBRUARY 2020

Agenda:

Item	Matter	Who	How	Time
1	Welcome and purpose	KM/DH	Discuss	5 mins
2	Evaluation process	KM	Discuss	15 mins
2.1	Weighted Criteria			
2.2	Scoring Options (consensus scores)			
3	Packaging Structure	KM	Paper	15 mins
3.1	Options			
3.2	Evaluation Criteria			
3.3	Scoring			
4	Available Procurement Strategies	KM	Paper	60 mins
4.1	Generic Options/ Descriptions			
4.2	Evaluation Criteria by Package			
4.3	Score by Package			
5	Contract Strategy	KM	Paper	30 mins
5.1	Published Form Options Discussion			
5.2	ECC Main Option Clause Discussion			
6	Route to Market	KM	Paper	15 mins
	Options Discussion			
7	Approach to Novation of Design Team	ALL	Discuss	15 mins
8	Sanity Check with [draft] CCS Tool	KM	PPT	15 mins
9	Next Steps	ALL	Discuss	5 mins
	Action Plan			
	Decisions			
10	AOB	ALL	Discuss	5 mins

APPENDIX 12- CONTRACTOR SOFT LAUNCH ATTENDANCE LIST (04 NOVEMBER 2019)

- ADL Building Service and Fit Out LTD
- AECOM
- Ashe group
- BAM
- Barco
- Barton Wilmore
- Borrás Construction
- Bouygues
- Collins Construction
- Darwin Group Ltd
- Dept Health & Social Care
- Frank Shaw Associates
- GallifordTry
- Graham
- Howorth Air Tech
- IHP
- Interserve
- Jarvis Contracting Ltd
- Karl Storz
- Kier
- Lang O'Rourke
- MACE Group
- Marlow
- McAlpine
- Morgan Sindall
- Portakabin
- Premier Modular
- Ramboll
- Reset Compliance Systems
- RG Carter
- Rhoder
- RIS
- Wallace Anthony
- Willmott Dixon Construction LTD

APPENDIX 13- TERMS OF REFERENCE PACKAGE

Separate document that incorporates terms of reference for:

- Redevelopment Programme Board
- Residents Meeting
- User Groups
- Change Management Board

APPENDIX 14- CURRICULAM VITAE OF
DAVID HARTSHORNE, PROGRAMME
DIRECTOR

Separate document

APPENDIX 15- CLINICAL USER GROUP STRUCTURES

Separate document that incorporates:

- Maternity
- NICU
- Critical Care
- Theatres

APPENDIX 16- MANAGEMENT TEMPLATES

Incorporates:

- Programme highlight reports
- Project highlight reports
- Change request form

APPENDIX 17- OVERALL REDEVELOPMENT PROGRAMME

Separate package that incorporates:

- Rolled up programme
- Detailed programme
- KEY MILESTONE Gantt chart

APPENDIX 18- COMMUNICATIONS STRATEGY

Separate document. Table of contents:

Chapter	Page Number
Introduction	1
Background	1
Objectives	2
Principles	2
Audiences and key messages	3
Communication channels	5
Evaluation of successful communications	5
Early Risks to successful delivery of communications plan	6
Communication Events for 2019/20	7

APPENDIX 19- REDEVELOPMENT PROGRAMME RISK PACKAGE

Incorporates:

- Programme Risk Register v1.7- dated 28 January 2020
- Risk management strategy frameworks
 - Risk evaluation and quantification matrix
 - Risk parameter evaluations

APPENDIX 20- BUSINESS CASE FOR
MERGER BETWEEN LUTON AND
DUNSTABLE UNIVERSITY HOSPITAL NHS
FOUNDATION TRUST AND BEDFORD
HOSPITAL NHS TRUST

Separate document.

