



NHS

Bedfordshire Hospitals
NHS Foundation Trust



Building the New L&D

Hospital Redevelopment Programme
Full Business Case



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1 EXECUTIVE SUMMARY



1.1 Introduction

Luton & Dunstable University Hospital (L&D) is one of two sites operated by Bedfordshire Hospitals NHS Foundation Trust (BHNHSFT). This Full Business Case (FBC) deals solely with the redevelopment planned for the L&D site, and follows the Outline Business Case (OBC), published in April 2020. The scope and funding requested through the FBC remains within the allocation approved by DHSC/ SoS and HMT in November 2020.

In the absence of a major capital scheme, the limitations of the estate and investment required in the infrastructure to maintain clinical services will have a significant impact on patient quality, staff wellbeing, efficiency and sustainability and continue to stifle strategic developments.

A substantial redevelopment of the L&D site is required in order to address the poor quality of the current estate and fundamentally to mitigate the clinical risks that this presents. The redevelopment will support the BLMK ICS strategic vision and the Acute 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 full business case deals specifically with the first phase of the redevelopment proposed for the L&D, which aligns to the clinical strategy and DCP for the site and the regional strategic objectives. This forms a project within a wider programme of redevelopment for the Trust.

The Trust 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 scheme will allow the Trust 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.



1.2 Strategic Overview

The Trust operates from an ageing site dating back to the 1930s, with many facilities in need of immediate replacement or significant refurbishment in order to comply with current standards and maintain performance ratings. A large proportion of the estate house's acute clinical services that can no longer be effectively maintained and this presents daily risks. In addition, further refurbishment is not considered viable, whilst maintaining clinical capacity and safety. 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 significantly high at £82m. This phase of the Redevelopment Programme will address £15.4m of backlog (19%), and paves the way to address a further 23% of backlog in subsequent redevelopment phases.

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) ICS, as well as the learning from the Naylor (2017) and Carter (2016) reviews. The Trust aspires to be at the cutting edge of healthcare, providing care that is efficient, sustainable, and safe and patient centred.

Ultimately the L&D estate requires rebuilding and bringing up to current standards. Recognising the limitations on capital funding, it is intended to phase the redevelopment over a number of years. The development at the core of this FBC provides the first phase in what will be an ongoing journey and will see a substantial improvement in the hospital estate to provide efficient, compliant and safe clinical accommodation for acute services in 2024.

BHNHSFT 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%.

The phase 1 development will deliver facilities for maternity services - a delivery suite and obstetric theatres, antenatal and postnatal maternity wards; neonatal intensive care services; critical care; and elective and non-elective care services - a theatre suite, providing a new model of elective surgical care. Recognising that the buildings are simply the wrapper around patient care, the development is underpinned by a significant Change Programme, which includes service change management and cultural change management. Supporting the aims of clinical services for greater integration of information and more efficient processes within the delivery of clinical care. These are Trust-wide requirements rather than new-build specific. Progress in these areas is being delivered through the Trust's Capital investment programme in Digital which are adopting the principles of an Intelligent Hospital.

This scheme remains a priority of the BLMK ICS and has the full backing of the Trust's commissioners.

1.3 Background to FBC Development

The Trust developed an 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 ICS 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 preferred option was granted on the 25th March 2020 in line with the current design (please see Appendix 4).

In January 2020 the Trust identified an alternative ‘do more’ option for the capital scheme. 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 furthermore, a New Ward Block (NWB) for day case and in-patient maternity services. This option generates significant additional benefits and ultimately provides a stronger strategic fit and economic advantage, paving the way for future site development.

The total scheme cost to develop the preferred ‘do more’ option is £168.6m and the Trust requested PDC of £150m. The OBC received approval in November 2020 to invest £168.6m, comprising £118m PDC, £32m emergency capital loan and an £18.6m Trust contribution. A number of conditions were specified as part of the OBC approval. A summary of these conditions can be found in Appendix Pack 1 (Approval conditions for FBC) and all conditions have been adhered to. This FBC builds on the approved OBC (Appendix 15) by delivering against the Trust’s clinical strategy; progressing with the site integration strategy; reviewing value for money based on the current health economic climate; assuring that the scheme remains viable and affordable; describing in detail the procurement process and pre construction agreement with the Trust’s selected Main Works Contractor; and finally, providing a detailed overview of the management and governance for the project.

1.4 Economic Summary

The preferred option delivers two new buildings, a new Acute Services Block (ASB) and New Ward Block (NWB). This investment is aligned with the Development Control Plan (DCP) and the BLMK Estates Strategy. The programme will be delivered over 2.5 years from the start of construction, supported by a mixture of funding options, which includes PDC and BHNHSFT cash contribution.

The preferred option presents the highest Net Present Social Value (NPSV) of £394m, and in turn, the highest benefit to cost ratio at 5.08. It was subsequently ranked delivering the highest value for money (VfM).

In line with the terms agreed in the OBC approval, the Trust maintains its request for £150m of central funding for the scheme.

The total capital requirement for the Preferred Option is £150m. This reflects the capital requirement approved at OBC in November 2020. This is net of a cash contribution by the Trust of £18.6m towards the scheme cost. The capital requirement reflects the outcome of the pre-construction agreement with Kier Construction.

The capital cost funding requirement, as approved in the OBC and based on a central allocation of £150m, is broken down in Table 1.1 below;

Scheme	July 18 STP Bid £m	September 21-FBC Preferred Option £m
IT Merger Enabling	8	8
Pathology Joint Venture	4	3.6
Clinical Buildings	87.5	142.6
	(Acute Services Block only)	(Acute Services Block, New Ward Block and Lift Core)
Other enabling	-	14.4
Trust Contribution	-	-18.6
Funding Required	99.5	150.0

Table 1.1- Capital Costs requirement Summary



The summary table below represents the economic appraisal outcome:

£'000	BAU - Option 0	Do Minimum - Option 1	Do More - Option 2
Incremental costs - total	0	-79,103.7	-96,656.9
Incremental benefits - total	0	345,508.1	490,621.5 ¹
Risk Adjusted Net Presented Social Value (NPSV)	0	266,404.4	393,964.6
Benefit: Cost ratio	0	4.37	5.08
Rank	-	2	1

Table 1.2 - FBC Economic Appraisal Summary Results

1.5 The Preferred Option

The preferred option is for development of the five-storey ASB, housing maternity services, neonatal services, critical care and operating theatres and a three-storey NWB housing maternity wards. Full planning permission for the design was approved by Luton Borough Council in February 2021. The ASB provides much needed new healthcare estate to eliminate the clinical risks that the existing estate presents. The NWB allows the Trust to decant the existing maternity ward block, maximising clinical adjacencies across maternity and neonatal services.

Furthermore, the vacated maternity wards provide an additional benefit in providing 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, driving quality improvements and service efficiencies. The DCP shows that once the existing maternity building is demolished it provides an opportunity for further development on this area of the site.

The design of these buildings is underpinned by a series of principles which include compliant and safe buildings, with improved clinical adjacencies, stimulating service efficiencies and providing appropriate clinical space for the most acutely unwell patients. The buildings are designed to be flexible and maximising an MMC approach and support the wider development control plan for the site and to progress the Trust's journey to achieving Net Zero Carbon.

1.6 Finance Summary

The Trust is a high performing Trust financially, with a strong track record of delivery. The L&D reported a surplus

of £15.4m in 2017/18, £22.6m in 2018/19, £12m in 2019/20, and anticipates continuing with this financial robustness.

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. The BAU option shows a deficit financial position for the Trust in years 24/25 and 25/26, due to the inefficiencies associated with maintaining an old estate, and not realising the full level of merger benefits associated with the redevelopment plans in terms of service colocation, delivery of more streamlined pathways and better patient outcomes.

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 the Trust and delivers the financial trajectories for the organisation.

Sensitivity analysis aligned to the risk profile of the project provides assurance that the scheme remains affordable, and continues to deliver best value for money, in light of key risks coming to fruition (such as increased capital cost or programme delay).

1.7 Commercial Summary

The main scheme on the L&D site has been underpinned by a programme of Trust funded enabling schemes. These commenced towards the end of 2020 and are due to complete in December 2021.

For the main scheme procurement a robust and legally

¹ This incremental benefit number includes £35.6m of revenue savings when compared to the BAU.

sound procurement process to select a preferred bidder has been undertaken, with the process being assured by the Trust's Legal Adviser (Ward Hadaway) participating in all stages. The Trust is able to demonstrate that they have achieved a value for money solution, one that supports the defined programme and cost plan and ensures the hospital will continue to function safely while the construction works take place.

The Trust carried out a comprehensive review of options to support procurement of a contractor to deliver the scheme. Its key drivers were to ensure broad exposure to potential contracting partners, the ability to engage at length with tenderers before selection and the balance between tendering works in a competitive market as against a need to select and engage with a construction partner during development of the construction design. After an extensive review, the Trust elected to pursue procurement via the Crown Commercial Services framework. The issue of the Invitation to Tender underpinned the ability to negotiate the contract terms, the contract preliminaries cost and the Overheads & Profit mark-up within a competitive market. The construction works packages, supported by the construction design, will be tendered on a transparent basis giving the Trust the assurance that the costs of the works properly reflect the current level of pricing for construction works.

The procurement approach was endorsed by the Gateway 3 review as being consistent with best practice.

A legal report has been provided by Ward Hadaway, the Trust's Legal Advisors, which underwrites the approach. This can be found in appendix 9.

The Crown Commercial Services (CCS) Framework for Construction Works and Associated Services (CWAS) was used to approach the market. A two-stage tender procedure to select a preferred bidder was conducted. The Invitation to Tender (ITT) detailed the proposed contract documents prepared by AECOM and Ward Hadaway with input from the Trust.

The Trust entered into a Professional Services Contract (PSC) to develop the design (RIBA stage 4) and a fixed price for the New Clinical Buildings (Stage 1). Following this, Kier will then undertake the Works Delivery via an Engineering & Construction Contract (Stage 2) at the Luton & Dunstable University Hospital site.

The tender response from Kier Construction Limited provided the most economically advantageous tender based on the scoring methodology and criteria set out in the Invitation to Tender. Accordingly, the recommendation to the Trust Board

on the 19th May 2021 was to appoint Kier Construction Limited for the Pre-Construction Services Agreement (PCSA), with the expectation being that, subject to satisfactory performance and achievement of an affordable Lump Sum Contract Price and FBC approval, they would be awarded the main Works Contract under an NEC4 Engineering & Construction Contract, Main Option A. The design team were novated to Kier Construction Ltd concurrently with their appointment under the PCSA to commence RIBA Stage 4.

The initial appointment for the Pre-Construction Services was made via the NEC4 Option A Professional Services Contract, in the sum of £ [REDACTED]. In August 2021 the Trust received a not to exceed price from Kier, which fell within the current cost plan allowance. This is the capital cost which feeds into this FBC, and forms the basis of the FBC approval which is sought from this document. The final contract cost continues to be negotiated with a target date of 29th November 2021. Early indications provide assurance that the Contract Price will be within the Lump Sum Price agreed with Kier.

Full Planning approval has been given by Luton Borough Council (LBC) for the project and the Trust maintain a good track record of delivering against broader LBC objectives.

The redevelopment of the L&D site presents significant opportunities for delivering social value. This in turn supports the Council's (LBC) vision, to eliminate poverty from the Town and ensure a healthy, fair and sustainable community. In partnership with the Trust's Contractor and the local community, there are a number of items pre-construction and during construction that will be adopted to support the wider social value agenda. These include engagement with local education providers and small, medium enterprises (SMEs).

Finally, the new buildings require a significant level of equipping. A detailed equipment strategy has been developed to align with the Trust's overarching Equipment Strategy, to support accurate costings and inform robust management plans.



1.8 Management Summary

The programme SRO is the Trust's Chief Executive Officer. The programme is led by the Redevelopment Programme Board, chaired and supported by some of the Trust's Non-Executive Directors. The programme is underpinned by a number of workstreams, all led by Executive Directors at the Trust, who remain committed and passionate about delivering the investment objectives.

The redevelopment programme is supported by highly experienced and skilled personnel employed by the Trust. Amongst the core team which includes the Programme Director, Deputy Programme Director and Construction Director are individuals trained and skilled in PRINCE2, MSP and NEC. Where skills gaps exist, external partners have been bought in to fulfil the resource plan as required to deliver the programme.

Standard project management tools have been employed to deliver the programme and a culture of continuous learning and improvement has been adopted throughout. This is evident in the design reviews, management/governance reviews and lessons learnt workshops. Formal post project evaluation will feature as a core process towards the end of the construction programme (and into building usage) and will be paramount to assuring the Trust and stakeholders that the objectives and benefits of the programme have been realised and will provide lessons learnt for future schemes.

Clear governance to identify, track and measure benefits has been put in place to ensure management through existing service line management arrangements. Recent experiences from the merger and any lessons learnt have been and will continue to be taken into account.

Clear, consistent and sustained communication has played an integral part in the success of the hospital's redevelopment to date, and will continue to be adapted and strengthened to suit the dynamic programme of works on site. The Redevelopment programme is championed by lead clinicians across the Trust and will continue to be clinically led as the Trust prepares to move into the new hospital buildings.

As determined by the DHSC Gateway 3 Review Risk Profile Assessment tool, the scheme is considered medium risk. The output from the Gateway 3 Review Delivery Confidence Assessment was rated Green with no actions advised. Successful delivery of the programme appears highly likely and there were no major issues that at this stage appear to threaten delivery. The report can be found in Appendix 6 along with the action plan produced following the recommendations given.

Table 1.3 below reflects the current programme for business case development and approvals:

	Q2 21/22	Q3 21/22	Q4 21/22	//	Q4 23/24	Q1 24/25	Q2 24/25
FBC (draft) prepared for DHSC Gateway Review	Jul 21						
FBC (draft) submitted to NHSE/I Region	Aug 21						
FBC (final) submitted to NHSE/I	Sep 21						
FBC Approval expected			Jan 22				
Main works commence			Jan 22				
Construction ends					Mar 24		
Planned completion (incl. commissioning)						May 24	
Contractual completion							Sep 24

Table 1.3- Business Case development programme

1.9 Conclusion

The scheme has significant support from the Trust Board, the Council of Governors, the BLMK ICS and the local community. The scheme aligns with the national and regional health agenda which drives efficiencies and targets improved health outcomes. The scheme remains affordable and provides best value for money in the wider context of alternative options which include not embarking on a major capital scheme (BAU Option). The scheme provides significant social value and provides the right strategic solution for the local healthcare community, in the context of ongoing health demands.

The financial analysis has demonstrated that Option 2 continues to provide long term financial benefits and greater value for money compared to the BAU option given a number of updates to the assumptions as at OBC stage. Option 2 consists of investment into a new build ASB and NWB over a 2.5 year construction period which is expected to reach completion in March 2024. The affordability analysis undertaken within the finance case has illustrated revenue affordability and requires a PDC allocation of £118.0m as well as a £32m from local capital envelopes. The financial analysis has shown a sustained surplus position with benefits outweighing additional capital charges and a steady growth to the forecasted cash position of the Trust.

2 STRATEGIC CASE



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 (BHNHSFT). This business case deals solely with the requirements of the L&D site.

The Trust is a high performing Trust 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 standards and guidance or Trust 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 Trust are an outlier in terms of energy usage and when compared to peers (using the ERIC return and Model Hospital data). The backlog figure decreased to £83m in May 2021 following a programme of Trust funded enabling schemes that pave the way for the major redevelopment of the site.

The proposed Acute Service Block (ASB) and adjoining New Ward Block (NWB) address key estates risks across the Trust. A significant amount of backlog will be removed (£15.4m, 19%) when the new buildings are completed. Acute facilities will be provided in compliant accommodation, thus strengthening service quality for patients and staff; supporting service resilience; and improved energy performance. The total scheme cost to develop the preferred option is £168.6m and the Trust maintains its OBC approved allocation of £150m PDC.

The development will deliver facilities for maternity services - a delivery suite and obstetric theatres, antenatal and postnatal maternity wards; neonatal services; critical care; and elective and non-elective care services - a theatre suite, providing a new model of elective surgical care. Recognising that the buildings are simply the wrapper around patient care, the development is underpinned by a significant Change Programme, which includes service change management and cultural change management.

The Trust commenced a significant programme of enabling works and site clearance in 2020, in order to be able to maintain progress and programme to start the main build in January 2022. A 2.5 year construction programme will

see the main Works elements of the scheme complete by the end of March 2024, with commissioning and training following thereafter. If the development does not progress, none of the enabling work would have been necessary however; the enabling spends have created 'useful' facilities which will remain occupied and productive if the investment doesn't progress. The Trust's Redevelopment Delivery Team has successfully delivered the following schemes in the last 18 months, to clear the site and enable the main scheme;

- New Multi-Storey Patient/ Visitor Car Park
- New off-site staff parking capacity
- Audiology service relocated to new accommodation on site
- EBME Service relocated to new accommodation on site
- Rheumatology & Bariatric outpatient service relocated to new community facility
- New Trust Offices
- Relocated Waste Compound
- Key service infrastructure diversions
- Relocated Estates Workshops and Linen Service

The following additional schemes are currently being delivered on site to support the wider Estates Strategy, supporting site infrastructure, resilience and sustainability;

- New Incoming Electrical Sub-Station and Electrical Infrastructure Upgrades
- Demolition Works
- New Energy Centre

The Trust Board accepts that the FBC and the enabling programme of works has been developed at risk in terms of the programme of work and fees associated with the main scheme development. The Trust Board could not countenance the delay to the delivery of the clinical safety benefits that would have been caused by waiting for an FBC approval before commencing the 18 month enabling programme. For the Trust, Programme is critical.



THE CASE FOR CHANGE SUMMARY CHART

Spending Objectives	To provide a safe environment to care for patients by the end of 2024
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 leading to births outside the Delivery Suite■ Lack of theatre capacity. Anaesthetic rooms used for clinical procedures and occasional C-Sections 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.■ 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 <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 all 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 and very difficult to manoeuvre a Mother post- delivery, in a wheelchair, to see/meet her baby.■ 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.

Theatres:

- 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, as these provide the Trust’s emergency theatres.
- 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

Business Need	<ul style="list-style-type: none"> ■ To provide modern, efficient, compliant and safe clinical accommodation for acute services delivery ■ To provide accommodation that supports segregation in light of COVID learning ■ 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
Scope	<ul style="list-style-type: none"> ■ To provide new hospital estate for acute services – Maternity, NICU, Critical Care, Theatres and to create a more efficient and sustainable estate.
Benefits	<p>A summary of benefits includes;</p> <ul style="list-style-type: none"> ■ Supports delivery of national and regional objectives, for the BLMK ICS, to reduce health inequalities through improved access and service provision. ■ Creates service efficiencies in running costs and workforce rationalisation through collocation of services and processes. ■ A major contributor to societal benefits, stimulating and supporting local people and the local economy, through education, opportunity and investment
Risks	<p>A summary of risks includes;</p> <ul style="list-style-type: none"> ■ Preparedness for major business change and cultural change ■ Delivering against parameters set that mark the success of this project, including programme, budget and benefits realisation
Constraints	<ul style="list-style-type: none"> ■ Requirement to maintaining clinical service provision 24/7 throughout build and commissioning ■ Ensuring infrastructure resilience ■ Ensuring that patients, staff and local residents are not negatively impacted during the construction e.g. ensuring disruption is minimised ■ Capital envelope
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 site. 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 remains a key corporate objective for the Trust and a priority for the BLMK Integrated Care System (ICS)².

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, following a business case approved by NHSE/I a merger with Bedford Hospital NHS Trust (BHT) was implemented in April 2020. 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 BLMK ICS.

This business case sets out the requirement to redevelop the L&D to provide accommodation for the Trust's highest risk, acute services;

- Delivery suite and maternity wards
- Critical Care unit
- Neonatal unit
- Operating Theatres and day surgery unit

2.2 Key Changes Since OBC Approval November 2020

- **COVID-19:** As a result of the global COVID-19 pandemic, the Trust faced significant cost pressures over the past year and will likely continue to do so throughout the FY 2021/22 period. The Trust received additional capital funding for specific COVID-19 assets in FY 2020/21
- **Learning from Covid:** Changes to Design Principles to support an enhanced "Covid Safe" environment
- **Construction Programme:** As a result of NHSE/I approvals requirements, a programme delay of 9 months has occurred. Procurement was instructed not to continue while the OBC was under review. The construction of the project has therefore pushed back from December 2023 to March 2024.
- **Capital Cash Flow:** The capital costs included within this FBC represent the effects of the proposed contractual payments as per the construction cash flow prepared by the Trust's technical advisors, AECOM
- **Capital Impact:** The timing of the approvals has deferred procurement into a challenging construction market. We are now holding a higher than anticipated level of contingency.
- **Gateway Review:** Introduction of DHSC Gateway Review, Stage 3 assessment and learning
- **Further Financial Considerations:** Drawn out at the beginning of the Finance Case, marginally impacting cash flow position

2.3 National Context

2.3.1 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,

² The Bedfordshire, Luton and Milton Keynes Sustainability & Transformation Partnership (STP) became an Integrated Care System (ICS) in 2018

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. The HIP enables the NHS to 'Build Back Better' and greener and supports the Covid recovery with resilient infrastructure and capacity.

2.3.2 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.

2.3.3 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.

2.3.4 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.

2.3.5 Delivering a Net Zero National Health Service, 2020

It is the Trust's vision to be an outstanding provider of healthcare, research and education and a great place to work. We can only achieve this through balancing the three pillars of sustainability – finance, social and environmental. Consequently, sustainability has been integrated into the Trust objectives, in order to achieve a culture that supports a carbon neutral future. By encouraging sustainable development in all its forms, the Trust will continue to take positive steps to mitigate the effects of its activities in the environment.

The Trust 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 Trust has developed a robust sustainable development management plan (SDMP), which is supported by the proposed work on the hospital site; this can be found in Appendix 7.

In October 2020, the NHS reviewed their ambitions for the NHS, in a report called Delivering a Net Zero National Health Service. Two clear and feasible targets emerged for the NHS net zero commitment, based on the scale of the challenge posed by climate change, current knowledge, and the interventions and assumptions that underpin this analysis:



- For the emissions we control directly (the NHS Carbon Footprint), net zero by 2040, with an ambition to reach an 80% reduction by 2028 to 2032
- For the emissions we can influence (our NHS Carbon Footprint Plus), net zero by 2045, with an ambition to reach an 80% reduction by 2036 to 2039.

This is a change from the original time frame of 2050 (described in the OBC published in April 2020) and highlights the urgent need for action and implementation of existing plans.

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, carbon management has to be at the core of all strategic thinking. When building new hospital estate, sustainable buildings with less energy intensive processes should be fundamental principles.

2.3.6 Delivering the Modern Methods of Construction Agenda for the New Clinical Buildings

The Trust fully recognises, accepts and subscribes to the value and benefits generated by the deployment of Modern Methods of Construction, as set out in the Construction Strategy. Indeed, as is referenced elsewhere in this FBC, the Trust team has significant experience of delivery of such facilities, including within the self-funded enabling schemes for the New Clinical Buildings (Replacement Trust HQ; Relocated Hearing Aid Clinic; Relocated Estates Offices and Workshop; Multi-Storey Car Park and Energy Centre).

The Trust's selected Contractor, Kier, has a strong track record of delivering to this agenda and with the support of the Trust are implementing strategies that will deliver significant value creation through MMC approaches. These are being realised as the design develops

1. MEP ductwork and AHU installations, etc.
2. Skid mounted packaged plant & Plate Heat Exchangers etc.
3. Pre-assembled IPS panels
4. Pre-cast columns
5. Floor slab reinforcement

6. Pre-assembled and finished door sets
7. Cladding/ façade construction
8. External service risers
9. Pods for 2nd stage recovery
10. UPS
11. Stairs in pre-cast concrete with pre-installed handrails

As a result, the Trust is confident of achieving 62% of MMC and off-site added value.

2.3.7 Clinical Strategy

a. NHS Long Term Plan, 2019

The 2019 Long Term Plan has a continued focus on improving access to health care, including planned care; improving health outcomes; reducing health inequalities; supporting staff and enabling productive working; improving clinical efficiency and safety; progressing maternity and neonatal services to ensure children and families have the best start in life; feature heavily in the Long Term Plan

b. 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.

c. Surgery

Get It Right First Time (GIRFT), 2012 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.

d. 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 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 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 guide 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.

2.4 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 Trust is part of the Bedfordshire, Luton and Milton Keynes (BLMK) ICS, comprising four local authority areas within the footprint illustrated in Figure 2.1. 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 for 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

2.4.1 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 identified 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 (this completed in April 2020)

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. It also aligns with the ICS Estates Strategy which can be found in Appendix 7.

2.4.2 Support from the BLMK ICS

The BLMK ICS fully support the redevelopment plans for the L&D which align to the ICS single operating plan published in 2019. The OBC was formally approved by the ICS following a presentation by the Trust on the 15th April 2020, with the endorsement letter included in Appendix 1. The FBC letter of support, dated 9th November 2021 can be found in Appendix 1.

The BLMK ICS Estates Group continues to meet bi-monthly and progress on capital schemes and business case development feature highly. The group have received bi-monthly updates on the capital development at the L&D.

2.5 The Local Context

2.5.1 Organisation Overview – Bedfordshire Hospitals NHS Foundation Trust

The L&D and BHT merged on the 1st April 2020 to create BHNHSFT. The Trust has strong support and regard from the local community and a reputation for delivering excellent services. The Trust has a long track record of working together and in partnership with Luton CCG and Bedfordshire CCG. The Trust provides 94% of Luton CCG's emergency work, and 78% of Bedfordshire CCG's emergency work.

The Trust provides acute and specialist healthcare services for close to 600,000 people in Bedfordshire and parts of Hertfordshire. The Trust employs over 7,000 people and, as such, is one of the largest employers in the county. The Trust has a turnover of approximately £600m per year. The Trust has a strong track record of delivering key performance targets. Prior to the merger, the L&D Hospital had been a national leader in delivering performance against the emergency care standards, having met the 4 hour target every single week since February 2011.

2.5.2 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 645 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.



2.5.3 The L&D Performance Highlights 20/21

	19/20	20/21
Catchment population	320,000	320,000
Acute and critical care beds	645	645
A&E attendances	157,521	95,249
		A&E; 84,428, UGP-led 10,821)
Emergency Admissions	50,631	39,079
Births	5,264	5,046
Total staff employed	4193 wte	4431 wte
Staff Survey score on recommending hospital as a place to work	72.9%	64.7%
Compared to national average score (Staff Survey)	62.5%	66.9%
Turnover £m	385	686 (merged)
Carter productivity cost per WAU (position in national quartiles)	Top 25%	Top 25%
CQC	Good	Good

Table 2.2- L&D Performance Highlights 20/21

2.5.4 L&D Partners

Main Partners	L&D
Commissioners	BLMK ICS
Councils	Luton Borough Council, Central Bedfordshire 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

2.5.5 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%.

2.5.6 L&D Historical Financial Performance

As outlined at OBC, 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 continued surplus position from 2016/17 through to 2020/21, with 2020/21 acting as the first full financial year of the merged organisation. The Trust anticipates continuing with this financial robustness in 2021/22.

Luton & Dunstable University Hospital	17/18	Outturn £m	18/19	Outturn £m	19/20	Outturn £m	20/21 Outturn £m
Net surplus/(deficit)		15.4		22.6		12.0	45.6

Table 2.4- L&D three year historical performance and outturn

2.5.7 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/II 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.

2.5.8 Corporate Risk

Corporate risk ultimately impacts quality and safety. A significant number of high (above 15) corporate risks linked to the condition of the facilities 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 facilities)
2. Delivery suite accommodation and capacity – non compliant facilities, poor adjacencies, limited capacity, no close monitoring
3. Separate ITU and HDU with poor visibility of patients, no isolation facilities
4. Sub-standard ventilation and lack of temperature control in HDU, and in ITU, maternity and NICU
5. Regular maternity block lift failure from wards to delivery suite

In addition, there are a significant number of high (above 15) general corporate risks which will be directly impacted and reduced by the redevelopment; these include the following risks;

1. High backlog maintenance impacting clinical outcomes, resilience and efficiency
2. Capacity
3. Elective cancellations due to bed shortages

4. Senior team capacity managing regular estate issues e.g. power outage

A review of corporate risks undertaken on the 30th June 2021 reflected the following impact of the redevelopment on the corporate risk profile;

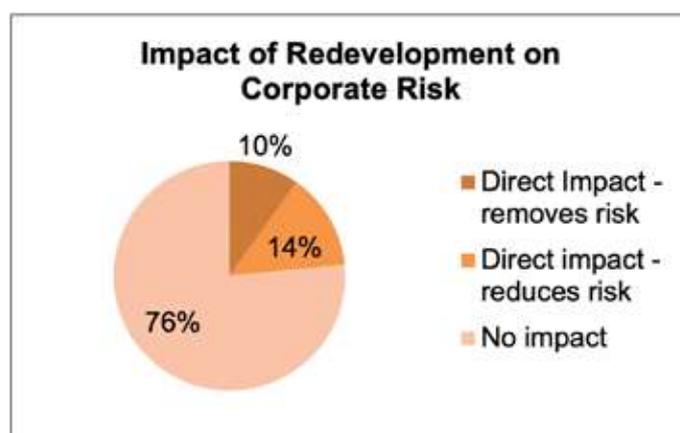


Figure 2.2- Impact of redevelopment on corporate risk

Currently no risks have been identified as a negative impact post development.



2.6 Trust Strategy

Ultimately the Trust's Clinical Service Strategy guides and drives the organisation. The Clinical Service Strategy is underpinned by 5 key strategies. These are shown in the diagram below. All of these are equally important in guiding the Trust's Redevelopment programme and alignment to these strategies has provided key principles for the design and programme management.



Figure 2.3- Trust Strategy

2.7 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 due to the compact nature of the estate 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.

The key objectives of the Estates Strategy dated 2021 which can be found in Appendix 7 includes the following;

- Meet compliance obligations
- Reduce backlog maintenance
- Actively manage identified risks
- Provide buildings, services and surroundings that are high quality, fit for purpose, safe and affordable
- Support clinical requirements and enable progression of the Clinical Strategy through providing the right clinical space
- Develop a more efficient estate
- Drive forward the Sustainability Strategy, actively reducing carbon emissions

The Estates Strategy addresses a range of factors which affects today's patients, the increasing population, the

changing Clinical Strategy, the delivery of activity targets and the ability of the Trust to achieve a financial surplus for reinvestment back into services and the estate.

These factors include:

- Improving the physical state of the hospital environment
- Providing space for expanding services
- Reducing hospital acquired infections
- Improving privacy and dignity for patients
- Full DDA compliance
- Providing facilities that can be cleaned to the required standards
- Ensure dementia friendly environment
- Developing the infrastructure in a sustainable way
- Improving asset performance
- Facilitating improvements to Estate Condition
- Optimise service delivery between BH and L&D Hospital sites

Whilst the Trust's HAI rates are not an outlier, it is fair to say that the current clinical facilities present challenges for the control of HAIs, owing to a number of primary causes:

1. Non-compliant spatial allowances/ bed-pitches
2. Significantly limited numbers of side-rooms
3. Non-compliant ventilation rates in wards and some other areas

4. Poor functional adjacencies leading to sub-optimal patient-journeys and segregation through the estate

The Trust's priority is to meet its compliance obligations and to reduce its backlog maintenance liability across the two estates. This will be done by a combination of a works programme and disposal of facilities which have a high backlog liability.

Capital investment will be focused on expanding, modernising and improving the quality and efficiency of accommodation to meet the service and environmental needs of all users. It needs to optimise the use of the estate and support the delivery of service targets.

2.7.1 Existing Site Arrangements

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, sat at £91m as of April 2020 when the OBC was submitted. Subsequent to a programme of enabling projects that underpin the main construction, the backlog has reduced to £83m. The requirement to maintain suboptimal facilities however is an inefficient use of public funds and directly contravenes the Trust's corporate objective (and National Commitment) to achieve Net Zero Carbon. Furthermore, maintaining inefficient facilities directly contravenes the national strategy around estates, and the BLMK ICS estates strategy, which aspires to be at the cutting edge of healthcare, providing highly effective, safe and efficient care to patients, in a sustainable environment.

To allow for a sustainable future and high quality healthcare, urgent investment is required at the L&D to support a phased redevelopment, one that targets the highest risk areas, in terms of functionality, compliance and capacity.

2.7.2 Changes to the Estates Strategy Since OBC

The OBC was underpinned by an interim Estates Strategy for the L&D site. The FBC draws on the 2021-2026 Estates Strategy for, BHNHSFT. It recognises that two hospitals merged in the midst of a pandemic and the progress in understanding the needs of the organisation

were therefore limited and challenged due to the ongoing operational pressures faced across the NHS. The strategy will continue to be reviewed and developed where appropriate on an annual basis in response to the refinement of the Clinical Strategy for the Trust and across the BLMK ICS and also in response to national drivers e.g. Net Zero Carbon.

2.7.3 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 Estates and Facilities Management team, the site looks run down, unwelcoming 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. Some departments have been recently renovated but this has the unfortunate effect of making the older parts of the hospital appear even worse.

The overall quality across the existing estate is compromised by:

- Non-compliance with HBN and HTM guidance, presenting daily risks in the management and maintenance of the estate
- Suboptimal clinical adjacencies and external routes between buildings
- Poor circulation which leads to compromised flows of patients, staff, visitors, goods in and waste out
- A lack of general space and capacity to accommodate demand and progress strategic developments
- 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
- 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.

2.7.4 The Challenge to the Estate During the Pandemic

COVID 19 crisis has brought additional challenges to the estate on both sites that no one could have prepared for. Covid-19 has posed, and will continue to pose, major challenges in maintaining health and safety to keep our staff and patients safe, delivering enhanced and specialised cleaning regimes and ensuring availability of the right space to accommodate the demands of COVID-19.

In response to the initial wave of COVID-19 and the continued developments of the pandemic , the Trust like all the other NHS organisations, had to repurpose space to provide urgent additional bed capacity and fast changing requirements for space to help meet demand and to protect patients and NHS staff from COVID-19, whether by rapidly restructuring current buildings, converting occupied sites into testing and vaccination hubs, or recommissioning vacant or underused space. Existing wards and theatres were converted into critical care facilities for intubating / ventilating COVID-19 patients and additional beds were equipped to provide oxygen.

Designated self-contained areas had to be created at both sites for the treatment and care of patients with COVID-19. The Trust created cohort areas which differentiated the level of care required to cater for single/mixed-sex wards/bays, underlying patient condition (immunocompromised) and age groups when cohorting children. These areas had to be separated from non-segregated areas by closed doors and had to have signage displayed warning of the segregated area to control entry. Provisions had to be made for these areas not to be used as a thoroughfare by other patients,

visitors or staff, including patients being transferred, staff going for meal breaks, and staff and visitors entering and exiting the building. The learning from COVID was used to update and further develop the designs during stage 3 and represents input from clinical and infection control teams.

The pandemic has brought many clinical challenges due to the poor clinical adjacencies particularly within the Critical Care environment. The Level 1 (ITU) and level 2 (HDU) wards are in different locations. The poor side room provision created a further challenge in being able to isolate patients. The compactness of both departments confirmed the poor infrastructure, particularly in terms of ventilation and IT, highlighted the non-compliant accommodation. The Critical Care Unit was moved in a number of hours to a new location to provide further capacity in terms of space and medical gases. Movement of patients, equipment and supplies was made with minimal disruption to clinical services. Before the move this inevitably caused initial challenges in the efficiency of the working departments but also workforce issues in an area that was already under pressure struggling to recruit. However, by increasing capacity into a single area, again highlighted the move to a combined Critical Care unit was the right decision for the future new ASB.

2.7.5 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 survey was completed in March 2020. The total backlog cost for remedial works required for the L&D building, statutory and fire elements is £46.4m. The estimated total investment to bring the Trust estate up to a satisfactory condition as per NHS Estate code including on-costs and future condition planning had been assessed to be £91m in 2020. The majority of this cost is driven by statutory compliance and remedial works. A further £44m backlog exists at Bedford Hospital. The breakdown below deals solely with the L&D site.

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 Facet 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. It does, however, include anticipated spend to 2026. This is different to the ERIC data.

2.7.6 Backlog Maintenance and 6 Facet Survey (2021)

A series of enabling projects underpin the major construction project described in this business case. These enabling projects aim to clear the site and prepare the site in readiness for the major construction. Enabling projects have been carried out between 2020 and 2021. These are described later in this case, and have had a significant impact on backlog maintenance, a proportion of which has been removed. Enabling projects have included a general upgrade to facilities and a series of demolition works. As of May 2021, the backlog reduced to £83m.

Building	£11,646,747
M&E	£11,306,085
Statutory	£17,108,128
Fire Safety	£1,855,007
Backlog Total Cost	£41,915, 967

Table 2.9- 6 Facet Survey- Total remedial work required for the building, M&E, statutory and fire elements

Building	£5,790,871
M&E	£6,090,095
Statutory	£0
Fire Safety	£0
Backlog Total Cost	£11,880,966

Table 2.10- 6 Facet Survey- Condition future planning costs for future maintenance works (5 years)

Total combined cost	£53,796,933
Total combined cost with on costs*	£82,847,227

*contingency, fees, prelims, profit, VAT

Table 2.11- 6 Facet Survey Total combined cost May 2021

2.7.7 Premises Assurance Model (PAM)

The NHS PAM management tool provides NHS organisations with a way of assessing how safely and efficiently they run the estate and facilities services. The NHS PAM model supports organisations to make more informed decisions on the development of their estates 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 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 latest PAM model has been reviewed and approved by the redevelopment programme board on the 15th September and by the trust board on the 22nd September 2021 Appendix 7.

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

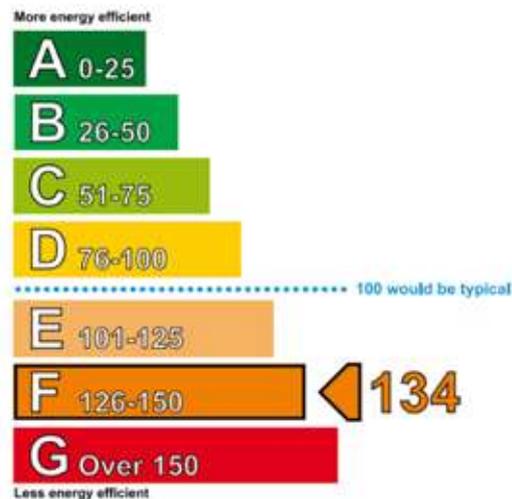
The energy performance of the site is poor which is due to a number of factors including old and poorly insulated buildings, obsolete decentralised gas boilers, and leaking and poorly insulated heating mains. Energy performance is therefore poor with operation of the estate being inefficient and costly. The Display Energy Certification (DEC) is shown in Figures 2.4- 2.6 for three of the main clinical buildings at the L&D.

The energy performance of the L&D site based on the 2019 ERIC return data is poor, with energy performance mainly in category F and G, being the least energy efficient.



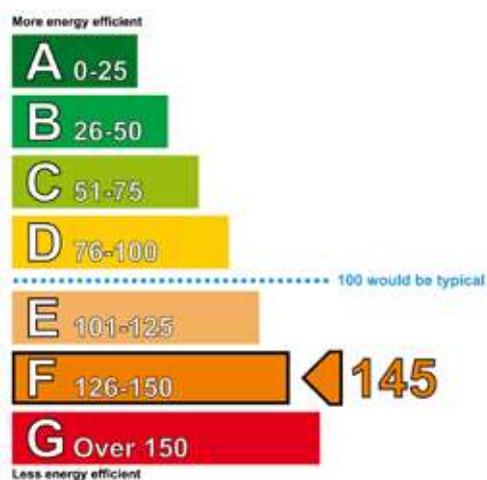
	Heating	Electricity
Annual Energy Use (kWh/m ² /year)	397	217
Typical Energy Use (kWh/m ² /year)	378	90
Energy from Renewables	0%	0%

Figure 2.4- 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 2.5- 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 2.6- Maternity Block Energy Performance Operational Rating 2019/20

A combination of Trust funded capital schemes, Trust funded enabling schemes in support of the major redevelopment, and the opportunity that the redeveloped site presents will all support a more efficient estate.

The future estate will be more energy efficient with significantly less carbon usage.

2.7.8 Current Infrastructure Capabilities

There have been significant estate infrastructure and clinical risk challenges over recent years which have stifled clinical innovation and prevented efficient estate and hindered the Trusts journey to Net Zero Carbon. The Trust has invested significantly from its own cash reserves in improving the infrastructure of the estate in line with national policy. An overview of the Trusts Estates strategy can be found in Appendix 7 which covers:

- Heating
- Steam
- Cooling
- Water Service & Drainage
- Medical Gases
- Electrical Distribution
- Standby Electrical Generation
- Natural Gas



2.7.9 ERIC

The table below provides an indication of L&D’s site energy performance based on the 2020/21 ERIC return data.

Site	Site Energy Consumption kWh	Site Occupied Floor Area m2	Site Heated Volume m3	Site energy per Occupied Floor Area Kwh/100m2	Site Energy Consumed per Heated Volume Kwh/100m3	Site Energy Consumed per Heated Volume GJ/100m3
L&D	38,531,063	81,244	189,486	47,426	20,335	73.21

Table 2.12- L&D Energy Performance Data 2020/21

The reported estates and facilities ERIC costs for the L&D are presented in Figure 2.7. The national NHS ERIC return data is publicly available at <https://digital.nhs.uk/data-and-information/publications/statistical/estates-returns-information-collection/england-2020-21>

To note, the ERIC data is different to the Six Facet survey data, with the latter including the backlog figure and the projected spend figure to 2025 including on-costs such as fees and VAT.

The L&D is an outlier in terms of Estates and Facilities Costs (£/m2) in relation to its peers. The national ERIC return no longer provide curve graphed data however the graph below figure 2.7 provides a useful ERIC return comparison up to 2018/19.

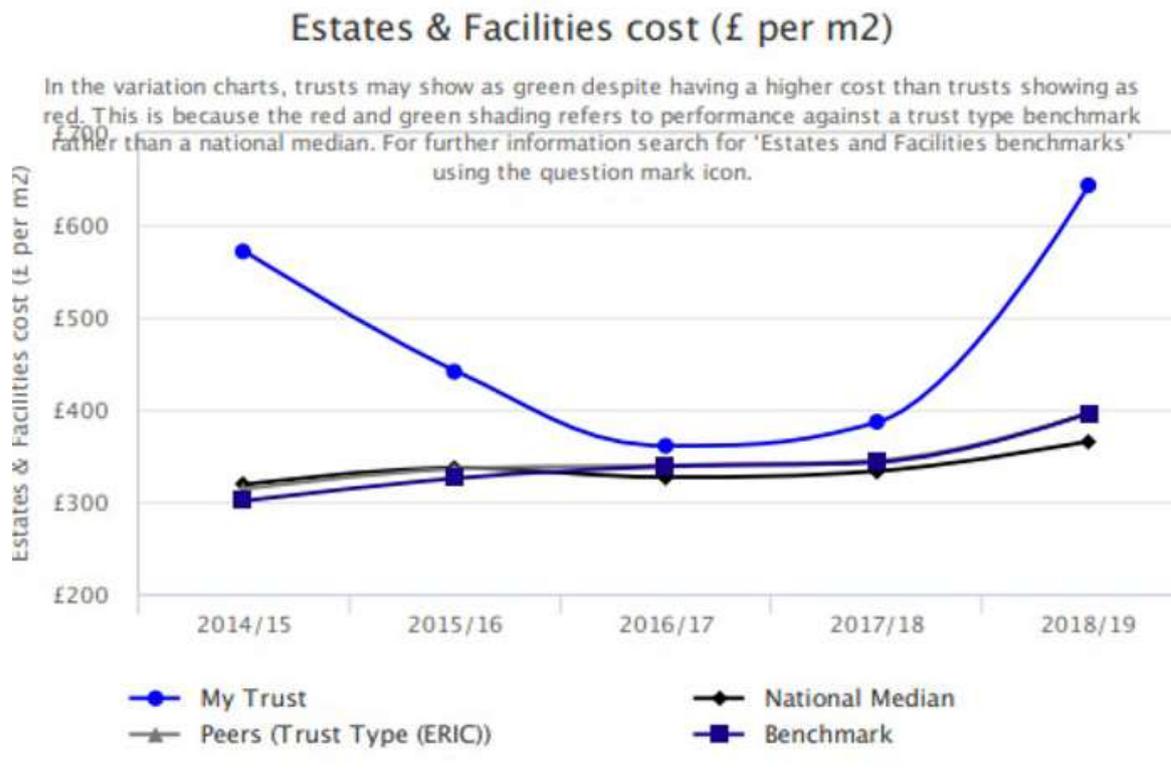


Figure 2.7- L&D Estates and Facilities cost per m2 (ERIC)

2.7.10 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.

L&D Estates and Facilities costs benchmarked against peers for 2019/20 are shown below;

Cost Efficiency	Cost (/m2)	Benchmark (/m2)
Estates and Facilities cost (£ per m2)	£605.11	£402.10
Estates & Facilities cost £ per Weighted activity Units (WAU)	£545.23	£524.04
Hard FM cost (£ per WAU)	£159.94	£132.43
Soft FM cost (£ per WAU)	£316.45	£190.47

Table 2.13- ERIC Benchmarking

Cost efficiency is anticipated to improve considerably for the new hospital buildings.

2.7.11 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.

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. (Please note a 2020 PLACE inspection was not undertaken due to the Covid Pandemic).



Luton and Dunstable Place 2019

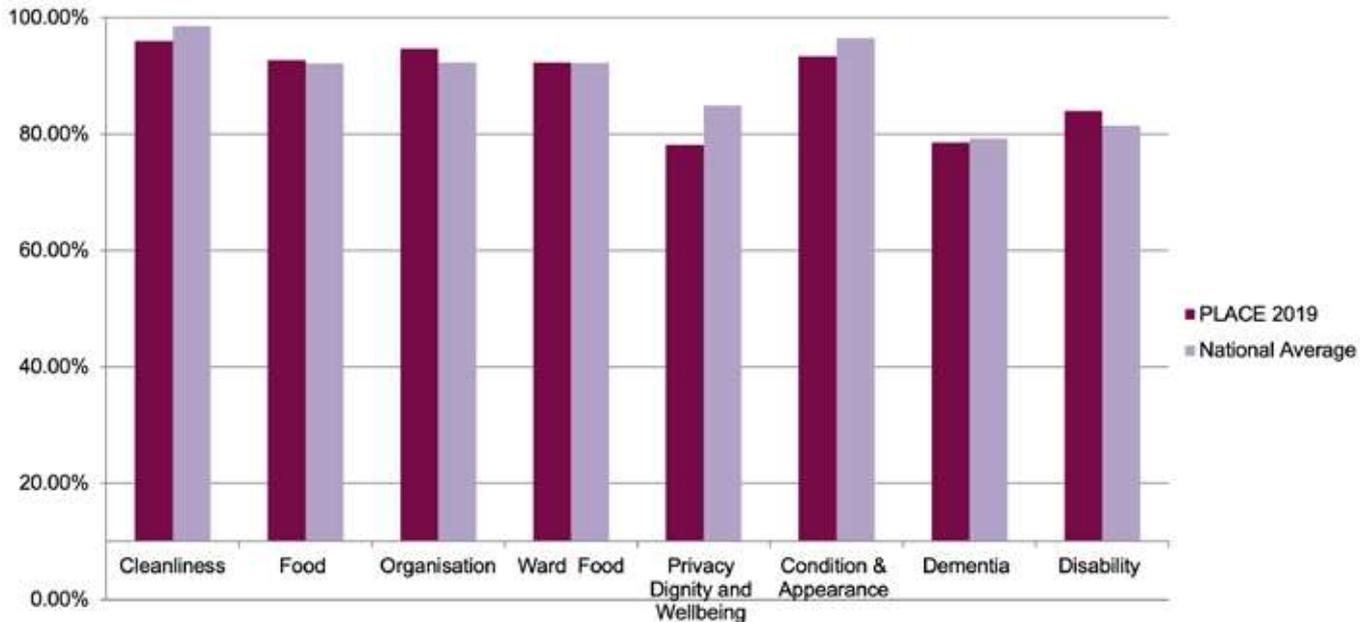


Figure 2.8- L&D Place Score against National Average

2.7.12 Fire Compliance

Compliance with current fire regulations has been 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 programme of works to address fire compartmentation is due to complete in Q2 2021/22.

The Trust 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 supporting the development of the RIBA 4 design proposals. (Appendix 7)

2.8 Sustainability and Net Zero Carbon

It is the Trust's vision to be an outstanding provider of healthcare, research and education and a great place to work. We can only achieve this through balancing the three pillars of sustainability – finance, social and environmental. Consequently, sustainability has been integrated into the Trust objectives, in order to achieve a culture that supports a carbon neutral future. By encouraging sustainable development in all its forms, the Trust will continue to take positive steps to mitigate the effects of its activities in the environment.

The Trust 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 Trust has developed a robust Green Plan, which is supported by the proposed work on the hospital site. This can be found in Appendix 7.

In October 2020, the NHS reviewed their ambitions for the NHS, in a report called 'Delivering a 'Net Zero' National

Health Service’. Two clear and feasible targets emerged for the NHS net zero commitment, based on the scale of the challenge posed by climate change, current knowledge, and the interventions and assumptions that underpin this analysis:

- For the emissions we control directly (the NHS Carbon Footprint), net zero by 2040, with an ambition to reach an 80% reduction by 2028 to 2032
- For the emissions we can influence (our NHS Carbon Footprint Plus), net zero by 2045, with an ambition to reach an 80% reduction by 2036 to 2039.

This is a change from the original time frame of 2050 (described in the OBC published in April 2020) and highlights the urgent need for action and implementation of existing plans.

The approach taken to develop an energy strategy utilises the following energy hierarchy:

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

2.8.1 Low Carbon Management Plan

The L&D is currently an outlier within its peer group in respect of energy consumption. Reducing the carbon footprint is a strategic objective for the Trust with an invigorated emphasis and Trust wide support. Furthermore, a reduction in the 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 the 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 encourage healthier low carbon living
- To reduce energy bills
- To reduce backlog maintenance

2.8.2 Sustainable Development Assessment Tool (SDAT)

A SDAT was completed for BHNHSFT in 2020 which reflected a Sustainability Performance against SDAT Criteria of 29%.

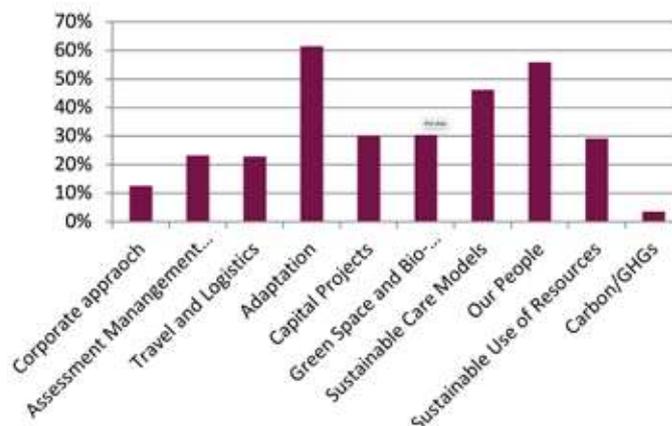


Figure 2.9- SDAT Performance

2.8.3 Green Plan (SDMP)

The Trust’s ability to deliver its Green Plan is currently constrained by the age and condition of the site. Whilst the investment described in this business case will fail to address all Green Plan requirements, it will assist greatly in making the Green Plan more achievable and is a step forward on the journey to Net Zero Carbon.

2.8.4 Net Zero Carbon

The Trust has adopted a phased approach towards tackling the targets set down by the NHS. This can be summarised as follows:

1. Understand in detail the energy consumption on the site, and review any immediate changes in the short term that could improve the carbon footprint
2. Invest in changes and upgrades to the site infrastructure to reduce energy demand
3. Identify opportunities for future decarbonisation of the site

These are dealt with in more detail below

Phase 1 – the immediate to short term goals

a. Energy Consumption

The Trust began its journey towards Net Zero Carbon in 2016. The starting point for the review of options on the site was a comprehensive understanding of the points of energy consumption on the site. The outcome of this work is shown on the TBA drawing attached in appendix 7.

This resulted in the following performance figures.



Time	Description	Gas consumption (kWhr/annum)	Carbon factor	Carbon [Tonnes/CO2/ annum]	Total Carbon [Tonnes/CO2/ annum]
		20,767,897	0.184	3,821.29	
Starting Point	This is the base point for the site before works are undertaken	Electrical consumption (kWhr/annum)	Carbon factor	Carbon [Tonnes/CO2/ annum]	8,978.39
		12,517,224	0.412	5,157.10	

NOTE: The carbon factors are based on DEFRA 2016 Greenhouse Gas Reporting – Conversion Factors, to reflect the emissions at the start of the Trust journey

Figure 2.10- Energy Consumption start of Trust Journey

The Trust recognised investment was required and therefore embarked on consolidating the heating distribution across the site, as well as reinforcing the high voltage electrical infrastructure and standby generation capability to provide a resilient network in line with HTM recommendations.

The development of the first OBC for the redevelopment programme identified the need for a standalone Energy Centre to support the new buildings. The evaluation of options for this building led to a strategic review of options to support energy provision and electrical resilience across the site. This review culminated in a draft OBC which was circulated in June 2016.

In parallel with this work, a supplementary review was carried out to identify improvements required to the HV infrastructure on the site. This work was key to supporting future development plans, and to address resilience issues.

These two strands of work came together with the development of a Business Case in July 2019 which underpinned the future use of energy on the site. The Business Case was based on developing a heat-driven solution, with generated electricity as a by-product. This is the most efficient approach to the use of energy, will meet the future requirements of the Trust and provide a sustainable heating supply and infrastructure for the future.

The main aspects of this scheme are that:

- It addresses the underlying fragility of the existing heating network by replacing existing obsolete and out of date plant and equipment.
- It significantly reduces the considerable risk of infrastructure failure.
- A failure in the gas supply to the site currently would mean the Trust would be unable to provide heating and hot water. An Energy Centre provides the opportunity to have dual-fuel boilers with oil used to provide the heating in the event of a gas supply failure.

- Backlog maintenance costs are reduced by £5.4 million which addresses the replacement of plant and equipment that are key to providing an environment for the patient that is safe, fit for purpose and strategically aligned.
- It provides a guaranteed saving in energy costs of £1,132,716 per year (indexed).
- The Trust is required to deliver at least a 34% reduction in its carbon emissions by the year 2020. This scheme provides a major contribution to delivering the Trust's Carbon Management Plan, with an expected reduction in the Trust's carbon footprint from 7798 tonnes CO₂e (carbon dioxide equivalent) to 5,773 tonnes CO₂e per year. This equates to a 26% reduction.
- It will secure the supply of heat and hot water in the long term for the site and support the delivery of the Hospital Redevelopment Programme.
- The standby generator facility, together with the work delivered by the Electrical Infrastructure upgrade project, will provide the resilience required for the future.

The key elements of this were:

1. The new Energy Centre building. The scheme required a new building to support the equipment being provided by Centrica, the new standby generators and the new sub-station required to replace old and defective equipment in sub-station B. The work was tendered in 2020. A contract was awarded to R G Carter. Work commenced in December 2020 and will be completed in July 2022.
2. The Energy Saving Measures (ESMs) that are being

delivered by Centrica. A Managed Services Agreement has been negotiated and agreed with Centrica. This sets out the obligations and liabilities of both parties to support the delivery of Energy Saving Measures within the new building, and underlines the commitment by Centrica that these will deliver Energy Savings of at least £1,132,716 per annum and annual CO₂ emission reductions of 2,025 tCO₂. The key elements of this are:

- A 1.5 MWe CHP plant
 - 3 no. 2.2 MWt and 1 no. 1MWt dual fuel boilers delivering heat via a new primary LTHW circuit to 13 plant rooms on the site
 - Replacement of circa 6,500 light fittings with LED fittings
 - A full upgrade and optimisation of the BMS system
 - New occupancy controls on a/c units
3. Three 2.5MW standby generators. Procurement of the generators was completed in 2019. Two of these have now been delivered into secure storage. The third is now on-site to support the resilience of the HV/LV network supplied from the new sub-stations at G and H. All three generators will be installed and commissioned into the new building in 2023.

2.8.5 Changes in Carbon Consumption

The key changes in carbon consumption are driven by:

1. The adoption of an efficient heat led CHP plant. This is gas fired but will be installed ready for conversion to Hydrogen.
2. Replacement of over 70 old gas boilers on the site with energy efficient dual-fuel boilers driving a new primary LTHW system feeding Plate Heat Exchangers

3. Replacement of light fittings across the site with LED units
4. De-steaming of most of the site. Electric autoclaves have been installed within the Microbiology unit allowing removal of 200m of old poorly insulated steam main. New steam generators are being installed to support the CSSD and the EDU

In addition, the Estates team have pursued a number of maintenance activities which have supported the first phase

1. The site is moving to an Energy supply partner generating power from renewable resources
2. Investment in an upgrade of the primary chilled water plant across the site. The future strategy is based on establishing a chilled water network, supplemented by absorption chillers on the roof of the new energy centre, which will interconnect the main chilled water plant and drive increased efficiency in use of chilled water
3. Installation of Variable Speed Drives to AHU fans and pumps
4. Insulation upgrades within primary systems and plant rooms. This work is on-going with upgrade works in plant rooms to support the interface work with Centrica

This strategy was in place to align with the regulations at the time, to efficiently supply energy to the Acute Services Block and wider estate whilst responding to local planning authority policy targets.

On completion of the energy centre, the sites performance will be as summarised below.

Time	Description	Gas consumption (kWhr/annum)	Carbon factor	Carbon [Tonnes/ CO ₂ / annum]	Total Carbon [Tonnes/ CO ₂ / annum]
Intermediate	This is after completion of the energy centre which becomes the lead heating source for the site and during the construction of the ASB/NWB	18,720,907	0.18316	3,428.92	5,931.56
		Electrical consumption (kWhr/annum)	Carbon factor	Carbon [Tonnes/ CO ₂ / annum]	
		11,804,911	0.212	2,502.64	

OTE: The carbon factors are based on current DEFRA Greenhouse Gas Reporting – Conversion Factors 2021

Figure 2.11- Energy Consumption on Completion of Energy Centre



2.8.6 Upgrade of the HV Network

A major programme of work has been underway to upgrade the 11kV network on the site to increase the resilience of the network and align with future development requirements, plus the decarbonisation of the grid and move to electrification.

This is supported by the N+1 resilience provided by the new standby generators. Two new sub-stations have been built to current standards, and one has been upgraded, with all three delivering path A and path B through new energy efficient transformers. The main site incomer is being re-built to support the increased demand on the site, and a new sub-station will be delivered to support the redevelopment. The Energy Centre will include a further new sub-station which will allow removal of an old sub-station which is currently unsafe. An additional sub-station will be delivered through the upgrade to the Emergency Department currently underway. Completion of these projects leaves the site operating energy efficient electrical plant which can support voltage optimisation, and which can also support the drift towards electrical plant during decarbonisation in the future.

Phase 2 – Short to medium term goals

b. Construction

The Trust acknowledged that the construction of the Acute Services and New Ward Blocks would introduce highly serviced clinical facilities in replacement of lower serviced accommodation and therefore have the potential to increase energy demand and carbon usage.

Whilst every effort will be made to reduce energy demand 'be lean' and introduce low zero carbon technologies 'clean and green'; due to the specialist clinical nature of the facilities, there are a number of governing factors which make this extremely challenging to achieve. This scenario is recognised within the draft NHP Net Zero standard in its separation of space types; ranging from low tech (offices) to high tech (operating suites).

In terms of 'be lean' the buildings as mentioned above will be linked into the new centralised energy centre providing renewable / low carbon energy generation and heat technology.

Whilst the decarbonisation of the grid is happening at a rapid pace, this is still not yet been reflected in the Building Regulation assessments that apply to the buildings and wider redevelopment (non-domestic buildings).

Our energy strategy has been constructed to respond to the following key documentation:

- DoH guidance, with particular focus on HBN 00-07 and HTM 07-02
- Building Regulations Part L 2013 (incorporating 2016 amendments)
- Planning Authority requirements
- BREEAM 2018

Our starting point for reduction of energy and carbon use has been to reduce the energy demand through a combination of passive architectural measures (e.g., solar glazing, optimal building orientation, reduction of window sizes) and efficient fixed building services (e.g., LED lighting, high performing boilers, and chillers).

As part of the design development the design team have worked through the fabric elements of the building and implemented these into thermal modelling analysis to ascertain measures that would improve the building performance. This included the assessment of blinds and brise soleil to bring down summertime temperatures within the building and subsequently the cooling demand.

An analysis of the existing buildings on site and how the new buildings were to be accommodated was undertaken at the early project stages. However, site constraints and clinical functionality heavily dictated the building geometry and orientation, which in turn restricted passive design solutions to help reduce the building energy demand.

As part of this assessment a Low Zero Carbon report was produced in accordance with BREEAM credit ENE 04 to identify the feasibility of renewable technologies. This was used to inform the OBC strategy.

Operational energy modelling is currently being undertaken, in accordance with BREEAM credit ENE 01 requirements to predict how the building will perform enabling it to be benchmarked against the Energy Usage Intensity targets in the NHP standard and further inform the Trusts Sustainability Development Management Plan and bigger roadmap to zero carbon.

On completion of the ASB/NWB, which will include the demolition of the existing Maternity block 6, the site performance is as follows:

Time	Description	Gas consumption (kWhr/annum)	Carbon factor	Carbon [Tonnes/CO2/ annum]	Total Carbon [Tonnes/CO2/ annum]
		19,549,562	0.18316	3,580.70	
End point	This is upon completion of the ASB/NWB	Electrical consumption (kWhr/annum)	Carbon factor	Carbon [Tonnes/CO2/ annum]	6,327.40
		12,956,110	0.212	2,746.70	

NOTE: The carbon factors are based on current DEFRA Greenhouse Gas Reporting – Conversion Factors 2021

Figure 2.12- Energy Consumption on Completion of ASB/NWB

This results in a total carbon reduction from our starting point of 2,650.99 tonnes of CO2 per annum. With the removal of existing aged estate and the introduction of highly serviced acute accommodation this represents reduction that provides a more efficient estate prepared for the next step of Trust zero carbon journey.

To further review potential areas for improvement we have benchmarked the new buildings against the draft NHP NZC standard with the outcome set out below.

2.8.7 NHP Standard Benchmark

Fabric insulation	Current Design in line with Building Regulations	NHP Technical Standard guidance
External Wall	0.25 Wm ² K	0.12-0.15 Wm ² K
Ground floor	0.22 Wm ² K	0.10-0.12 Wm ² K
Roof	0.25 Wm ² K	0.11-0.12 Wm ² K
Windows (general)	1.4 Wm ² K	1.10-1.30 Wm ² K
Glazing G-value	0.4	0.35 (East/South/West Facades) 0.4 (North Facades)
Building permeability	5 m ³ /hm ²	1-2.5 m ³ /hm ²

Table 2.14 Benchmark data



Whilst there are no specific Local Authority requirements, all new engineering services have been designed to be energy efficient to support the Trust's long term energy and sustainability vision. This is demonstrated in the table below.

System	Sub system	Current design criteria	NHP Technical Standard guidance
Chillers and HVAC			
	Seasonal chiller efficiency	SEER 4.5	SEER 5.5
Heat generation			
	Hot water delivery	Est 50%	95%
	Hot water demand (based on theatres)	1.1 l/d/m ²	1.06 – 1.255 l/d/m ²
Ventilation			
	SFP	1.8	1.3
	Heat recovery	80%	80%
LED lighting	Based on theatres	2 W/m ² per 100 lux	2 W/m ² per 100 lux
Building Management Systems	Metering	TM54 compliant	TM54 compliant
Carbon reduction initiatives			
	CHP	Yes (part of the site wide network)	Yes, accepted as a step from steam decommissioning
	Battery storage	UPS system	Yes, accepted as a new technology
	Photovoltaics	Yes, approx. 2,000m ²	Yes, accepted as carbon reduction technology

Table 2.15 Long Term Sustainability Vision

Although the Trust recognise the merging requirement of the NHP Zero Carbon standard, the strategic designs for the buildings were complete ahead of the draft document being released and to retrospectively incorporate would not be advantageous in terms of both cost and programme.

c. BREEAM

It is noted that NHSE/I 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, challenged due to the fact that only a small proportion of the estate is being redeveloped. Furthermore, it should be noted that both new buildings will have considerable energy demands due to their acute nature (operating theatres, hybrid theatres, critical care, and neonatal intensive care).

As part of our design work to date we have undertaken work on the following key energy and environmental BREEAM credits;

MAT 01: Environmental impacts from construction products – Building life cycle assessment (LCA)

In line with the requirements of BREEAM we have undertaken the following:

- Assessment of all superstructure and substructure materials within the BRE's required scope.
- Additional assessment and allowances for M+E, groundworks, and site impacts expected from the construction phase.
- Produce LCA tool output report, demonstrating how the LCA has benefited the building in terms of measuring and reducing its environmental impact
- Comparisons of materials to be undertaken once options discussed with the team to reduce carbon impacts from the project.

These assessments have identified the total expected emissions at 16,771 tonnes of CO₂e.

The total embodied carbon is expected to be 376kg/m² across all life cycle stages of the project.

ENE 01: Reduction of Energy use and Carbon Emissions

A thermal model has been produced at RIBA Stage 3 to enable energy calculations to be undertaken in line with Building Regulations Part L and BREEAM requirements.

At this stage we have achieved four BREEAM credits for the energy performance under ENE 01. Subsequently, we are compliant with Part L.

These figures will be assessed again as the detailed design is developed. However, the fundamental input data of the design is set and therefore will not change.

Operational energy modelling is currently being undertaken, in accordance with BREEAM credit ENE 01 requirements, to predict how the building will perform enabling it to be benchmarked against the Energy Usage Intensity targets in the NHP standard and further inform the Trust's Green Plan and wider roadmap to zero carbon.

ENE-04: Low Zero Carbon Feasibility Study

A feasibility study was completed in September 2020 which reviewed both the technical and economic feasibility of different LZC technologies against a baseline building modelled using IES Virtual Environment dynamic modelling techniques.

The comparison focussed on the emission rate associated with the regulated loads for space heating and cooling, domestic hot water, auxiliary energy, and lighting, looking at the carbon reduction potential and lifecycle cost of different alternatives.

Notably, CHP, solar thermal, solar photovoltaic and heat pump-based systems emerged as LZC technologies with the most potential applicable to the ASB/NWB. Other technologies which were discounted on techno-economic feasibility grounds were wind turbines, biomass boilers, ground source heat pumps, energy from waste and fuel cells.

CHP presented the highest CO₂ reduction potential at 15.7% and shortest return on investment, supporting the Trust decision to implement this technology on site within the new energy centre. However, it was noted that the case for heat pumps will become more compelling once the new carbon factors become live and this has therefore been factored into the Trust's medium to long term goals.

d. Backlog and Demolition

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. Furthermore, a number of temporary buildings will be demolished or removed to clear the site in line with the master plan for the site. A reduction in backlog maintenance will occur through delivery of the Energy Centre project in 2023.

In support of the FBC, 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.

e. Practical Measures

The Trust has committed to a number of practical measures in support of the Net Zero Carbon targets. This is described in Appendix 7 in the Trust's Green Plan. The plan includes steps such as reducing waste and encouraging healthier lifestyle choices (through diet, exercise and modes of transport to work).

Phase 3 – Medium to Long Term Goals

The investment in the new Energy Centre is a key element to support future decarbonisation on the site. The establishment of new centralised heating plant offers the opportunity for replacing plant with more appropriate plant as new technologies emerge. The gas fired CHP plant could either be retired or converted to run on Hydrogen. Boilers could be converted to run on electricity or hydrogen.

The journey becomes focused on conversion of current plant to run on low carbon fuel sources and then supplemented by addition of renewables. The current proposal for the new buildings includes the provision of solar PV panels on the new roofs. This could be extended to other roofs on the main site. Development of heat pumps is already under consideration. While air source heat pumps are difficult to implement in a clinical environment, the design has implemented similar operating temperature differentials so that the size of the distribution network could accommodate the introduction of a future ASHP



system. There is a greater opportunity for their use in non-clinical buildings. The Trust has investigated the use of ground source heat pumps, but the conditions at the main site would deem these to be unviable.

The Trust will invest in a low loss UPS system to support critical infrastructure in the new buildings. The primary purpose of the system is to provide safe and compliant UPS cover for the critical electrical supplies. The system provides the following benefits over conventional UPS systems:

- Reduces energy losses on standby by over 95%, from about 15%, to 0.5%
- Allows for connection to Aggregator Systems to benefit from Grid Services revenues
- Can be programmed to optimise the performance of renewable power and CHP installations

In addition, the Trust would explore large storage battery solutions as the technology for these becomes more established.

The Trust is developing a decarbonisation plan which brings together these issues in a consolidated manner. The key elements of this are:

Step 0: PLAN – Baseline of our portfolio's emissions and define our science-based carbon reduction plan

Step 1: CUT – Reduce our energy consumption through energy efficiency

Step 2: CONVERT – Update or add to our on-site energy infrastructure to deliver low/zero carbon energy

Step 3: COMPLETE – Complete our journey using renewable energy supply and carbon removal offsets

As we have developed our designs for the ASB/NWB, consideration of the future steps that can be implemented has been given, aligning with the roadmap and approach.

Current considerations across the estate are:

- The Trust are working closely with our energy partner to identify further carbon reduction measures, including:
- The replacement strategy for the gas fired CHP to non-fossil fuel/electrification of primary assets through the introduction of heat pumps and/or hydrogen fuelled plant within the new energy centre
 - Introduction of battery storage
 - Increased monitoring and optimisation of energy usage
 - Electric vehicle charging points (these are planned for delivery on a current car park following completion of the Energy Centre project in 2023)

- Continued investment in photovoltaics, building on the current commitment to provide these on the roofs of the new buildings
- Implementation of a site wide cooling network, including ASHP that aligns with the CHP replacement. A feasibility report has been produced which has identified a strategy for a new ring main chilled water system.
- The key objective is to provide a central fulcrum or hub from where the new or existing main sources of cooling can be pooled for distribution on the site in the most efficient and practical manner. The absorption chiller(s) are a key element in providing optimised economy of the installation where waste heat from the CHP can be utilised in the summer periods to provide the source of energy for the absorption chiller or chillers. Although the efficiency of absorption chillers is very low (COP less than 1) nevertheless they operate from heat energy which will otherwise need to be dissipated. For absorption chillers to operate successfully there needs to be a base load, plus this load needs to be of a relatively stable nature. By connecting the various cooling requirements of the hospital in a site wide cooling scheme, this can provide the required base load to optimise the efficiency of this part of the system. As the absorption chillers would be operating from waste heat, these would be the primary mode of cooling with the additional chillers coming online to support the load for the site.
- Continuing plant and distribution upgrades as part of the Trust operational expenditure programme
- Ongoing site redevelopment using a 'Retrofit' first approach
- Fabric upgrades including roof and window replacement

This will be subject to continuous review as new technologies come to market and regulations are updated.

2.9 Car Parking, Access and Transport

Development on the site had to be supported by measures to address issues with car parking for staff, patients and visitors. A Parking and Access Strategy updated in January 2020 concluded that car parking capacity should be increased to accommodate demand. In line with the promotion of more sustainable travel options, a number of schemes were delivered throughout 2020/21. This can be found in Appendix 7.

At the L&D a new multi-story car park and travel hub supports improved patient and visitor access, and additional leased space close to the hospital provides staff parking to counter the loss of parking on site, required to support the redevelopment. These enabling schemes were completed in early 2021.

The Trust actively promotes alternative and more sustainable travel means. The hospital is well served by local bus routes, including the 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. This is complemented by the Trust's new Cycle Hub which opened in December 2020 and offers shower and storage facilities for cyclists, or those choosing to walk or run to the hospital.

2.10 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. 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 capital projects that directly supported the Trust strategy and Development Control Plan. Table 2.14 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 E & F	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 G & H	2019	Trust
Endoscopy Decontamination Unit	2018-2019	Trust
Electrical Infrastructure Upgrade	2019-2020	Trust
Energy centre	2020-2023	Trust

Table 2.16- L&D capital developments 2015-2020 plus funding source



More recently the Trust embarked on an Enabling Project Programme. Put simply, this portfolio of projects allows the proposed construction described in this business case to go ahead. These schemes are described in detail in the Preferred Option chapter, section 4.4.

2.11 Development Control Plan

The Trust is a high performing hospital. 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 described in the OBC was £91m. Further to enabling projects, funded by the Trust in 2020-21, the backlog has now reduced to £83m (as of May 2021). This remains significantly high.

Maintaining suboptimal facilities is an inefficient use of public funds, and directly contravenes the Health Infrastructure Plan (2019), the 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 SOC for phase 2 is currently being progressed in alignment with the Clinical Strategy and the BLMK ICS strategic estate priorities.

2.11.1 Capital Schemes Currently Being Delivered Outside of the FBC Scope

A number of 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. Whilst outside of the scope of this FBC, these schemes directly support the redevelopment vision, key strategies and the proposed development of the site described in this business case.

■ Energy Centre (Project Cost £30m):

The Trust is proceeding with a project to construct a new Energy Centre on the site. This will address current issues with energy consumption and backlog maintenance with

the current decentralised heating network as well as providing the resilience required to maintain activity on the site in the event of failures within the local utility networks. It will have capacity to support future site development.

The Energy Saving Measures within the building (primarily a CHP plant, new LPHW boilers and local steam plant to support the Sterile Services Department) have been procured through Centrica Business Solutions Ltd (Centrica) following a procurement exercise in 2019. Work commenced on construction of the new Energy Centre in November 2020, with completion planned for 2023.

The capital cost for the scheme is £30m. The Trust will pay for the ESMs, and will look to obtain funding from Salix. The Trust will pay an annual maintenance fee to Centrica for the operation and maintenance of the ESMs. Centrica will guarantee that the ESMs will deliver a saving in energy consumption, and will make up any shortfall against the agreed figure. The relationship between Centrica and the Trust is governed by a Managed Services Agreement with a term of 15 years.

■ Electrical Infrastructure (Capital Cost £7.5m):

A major upgrade of the sites primary and secondary electrical distribution system is underway. The project includes increasing the sites incoming electrical capacity, sized to meet future redevelopment plans. Programme of works expected to complete at the end of 2021

■ Basement and Service Duct Asbestos Removal (Capital Cost £1.5m):

A major programme of work was initiated in 2019 and completes in 2021.

2.11.2 Phase 1 – Delivery 2024

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 2024.



Figure 2.13- Phase 1 DCP

The blue shaded boxes in Figure 2.13 show the new buildings on site (energy centre, acute service block and new ward block). Phase 1 delivers a significant improvement for the L&D site and acts as a catalyst and enabler for phase 2 of the redevelopment;

Zone A and Zone B in Figure 2.13 show the buildings which will be heavily decanted after the new clinical buildings open, thus providing an opportunity for development.



2.11.3 Phase 2 – Delivery 2028

Phase 2 of the Hospital redevelopment will focus on two areas;

- a. The expansion of A&E, including the re-provision of short stay medical assessment wards to support patient flow, rapid decision making and improved patient outcomes.
- b. Delivery of improvements began with a programme of work in 2020, funded through Covid response monies from the DHSC for urgent and emergency care provision.
- c. Backlog Maintenance – the decanted buildings from phase 1 would provide decant ward space in the short term to support a significant programme of backlog maintenance across the wards on the ageing hospital site. This provides an opportunity to further address the moderate, significant and high-risk backlog maintenance issues across the site, with an opportunity to further reduce backlog by £33m. These buildings will then be demolished.

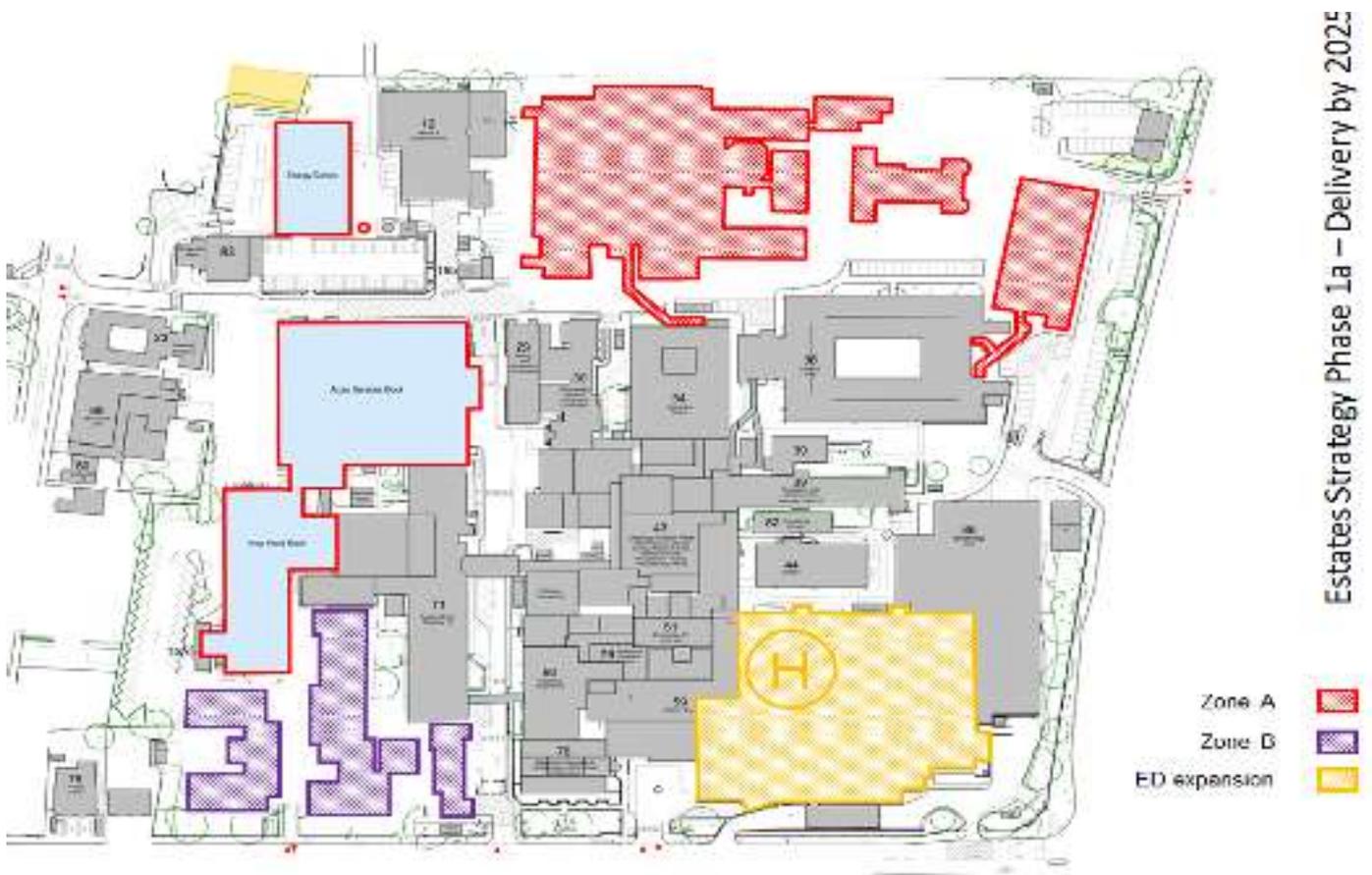


Figure 2.14- Phase 2 DCP

2.11.4 Phase 3 – Delivery by 2030

Phase 3 of the development control plan will address the issues of outpatient and imaging 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, 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, supporting service efficiencies and improved patient outcomes and progressing the wider sustainability agenda around Net Zero Carbon.

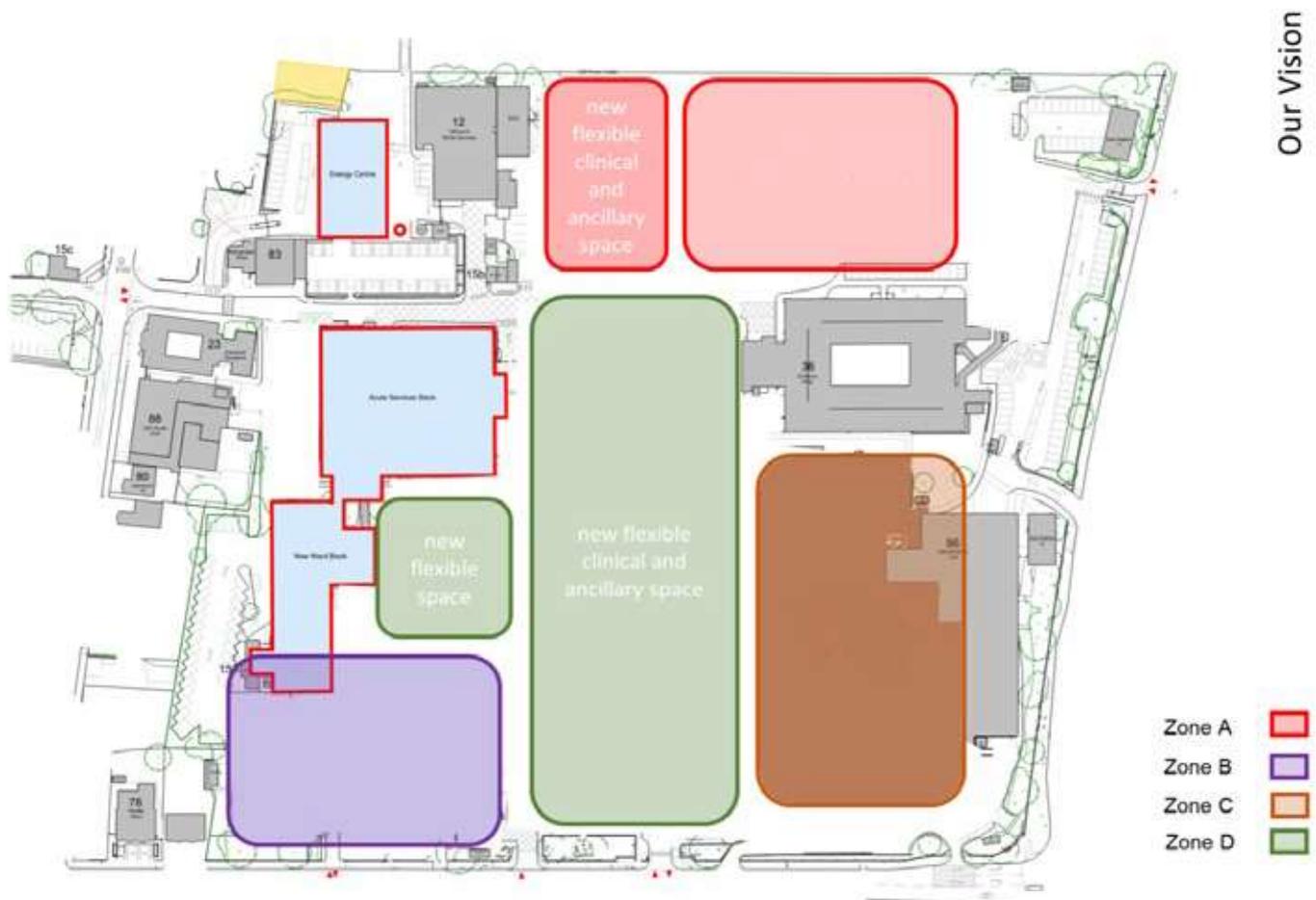


Figure 2.15- Phase 3 DCP

Zone A – new flexible clinical and ancillary space

Zone B – new main entrance and front of house patient services

Zone C – expanded urgent and emergency care with rapid access imaging and assessment wards

Zone D – new flexible clinical space for collocated outpatients and day services



2.11.5 DCP Road Map

	Completed/In Progress	3 year Plan (Phase 1)	Mid Term (Phase 2)	6 – 10 yrs (Phase 3)
Development	<ul style="list-style-type: none"> Two Operating Theatres Endoscopy Decont 'n Unit 	<ul style="list-style-type: none"> Acute Services Block New Maternity Ward Block 	<ul style="list-style-type: none"> Medical Wards Emergency Dept Paediatrics 	<ul style="list-style-type: none"> Outpatient Reconfiguration
Condition	<ul style="list-style-type: none"> Minor Refurb Projects 	<ul style="list-style-type: none"> Minor Refurb Projects 	<ul style="list-style-type: none"> Refurb old Maternity Block 	
Engineering	<ul style="list-style-type: none"> Energy Centre Electrical Services Upgrade Asbestos Removal 	<ul style="list-style-type: none"> OBC Enabling Works Backlog Programme Engineering DCP 	<ul style="list-style-type: none"> Enabling Works Backlog Programme Engineering DCP 	<ul style="list-style-type: none"> Backlog Programme Engineering DCP
Infrastructure	<ul style="list-style-type: none"> New Car Parking Provision incl MSCP 	<ul style="list-style-type: none"> Implementation of Travel Plan 		

Figure 2.16- Development Control Plan, agreed by the Programme Team March 2020

2.12 Demolition and Disposal

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 FBC concentrates on Phase 1 of the redevelopment.

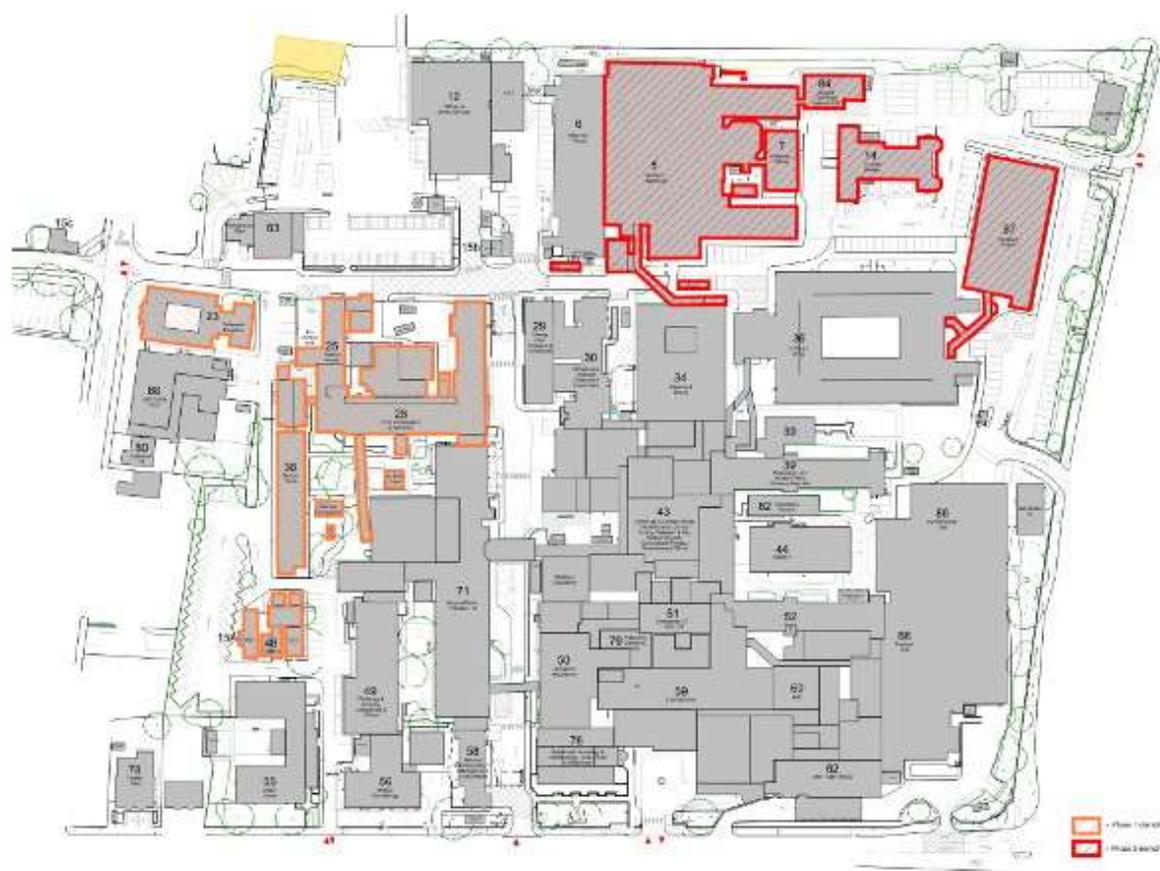


Figure 2.17- Phase 1 and Phase 2 site demolition plan

2.12.1 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 25 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 (Derby Road and Skimpot Lane)
4. Two temporary car-parks have been delivered on vacant residential land on Dunstable Road. This has been obtained via a short term lease. The relocation of staff parking to this site has enabled the re-provision of visitor parking
5. The Trust has successfully provided a new patient and visitor Multi Storey Car Park (MSCP) on the site of the pre-existing main visitor car park.
6. 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.

2.13 Clinical Strategy

The Trust has a clear Clinical Strategy which has been strengthened subject to the merger in April 2020; however, the objectives have not fundamentally changed. The Trust's vision is to provide:

- A full range of outstanding DGH services to the people of Bedfordshire and surrounding counties.
- Flagship planned and emergency specialist and tertiary services will be provided to the widest possible populations.
- Excellent clinical services will deliver consistently high quality standards and aspire to be rated 'outstanding'
- The highest standards of clinical leadership and innovation duly enabled by agile and efficient support functions
- Integration of care with GP partners will underpin service strategies and specialist teams will work with primary care team to support and develop out of hospital care
- The Trust will work towards repatriation of specialist activities from out of county, that can be delivered safely and effectively within Bedfordshire
- Practices and processes will continue to be focussed on delivering harm-free care to patients
- Care will be standardised within a service, reducing unwarranted variation wherever possible, in order to embrace best-practice and evidence-based approaches and innovations
- Clinical services will be supported by technology and information to optimise the experience of patients and clinicians through standardisation of services and supporting Junior Doctors

2.14 IM&T Strategy

The Trust has a high level of digitisation and a track record of IT enabled transformational change. The Trust's Digital Strategy has been developed in the context of national goals and requirements for digitisation of care services, the development of the local Integrated Care System, and the Trust's internal aims and priorities.

The Trust's digital goals are centred on:

- Patient safety
- Clinical efficiency
- Integrated and paperless processes

The main service drivers for Digital are:

- The Trust merger
- The Redevelopment Programme
- The Integrated Care System

The main areas of focus for digital developments are:

- Improving technical infrastructure and clinicians' experience of using information systems. This includes a Clinical Portal and redevelopment of wired and wireless networks and new virtual desktop infrastructure (VDI) at the Luton & Dunstable Hospital site.
- The integration of systems and information to support integrated services across the Trust's sites, following the merger of the two hospitals.
- Extending the core electronic patient record to support direct care and clinical safety, this includes clinical decision support and removing the paper from care processes.
- Working as part of the Integrated Care System (ICS) to implement a shared care record to underpin the integration of care services and a Patient Portal to improve patient/citizen enablement.

The Trust plans must address the internal clinical information needs for safe and efficient care processes and support the development of wider shared care records to enable integrated care across multiple agencies. They must also support patient and citizen engagement in self-care and wellbeing through patient-owned records and digital interaction with services. The context for Electronic Patient Records (EPR) development and wider shared care records is illustrated below.

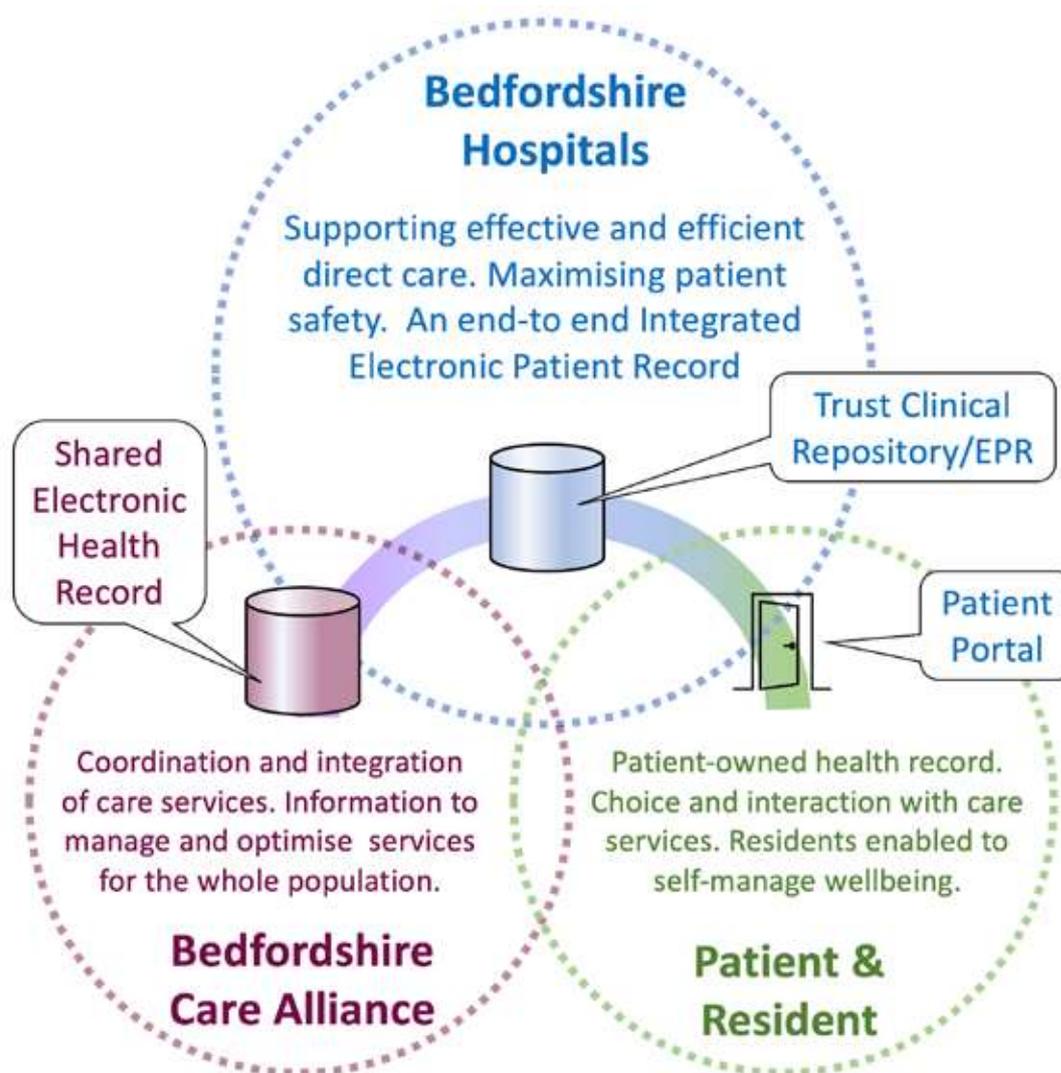


Figure 2.18- IM&T Strategy



2.14.1 Digital Hospital

The Trust's Digital Strategy looks at how information and IT can be developed to increase the support provided for clinical services. The Trust's Digital Programme runs in parallel to the new clinical buildings project and has guided design principles, including ensuring the necessary infrastructure to support Digital as the strategy further develops and evolves.

The diagram below illustrates how some of the areas included in digital plans and the ambitions of clinical areas relate to the future hospital environment. Some elements will be implemented ready for service moves into the new blocks. Future proofed digital infrastructure is being installed to enable additional digital services to be added at later stages without alterations or reworking.

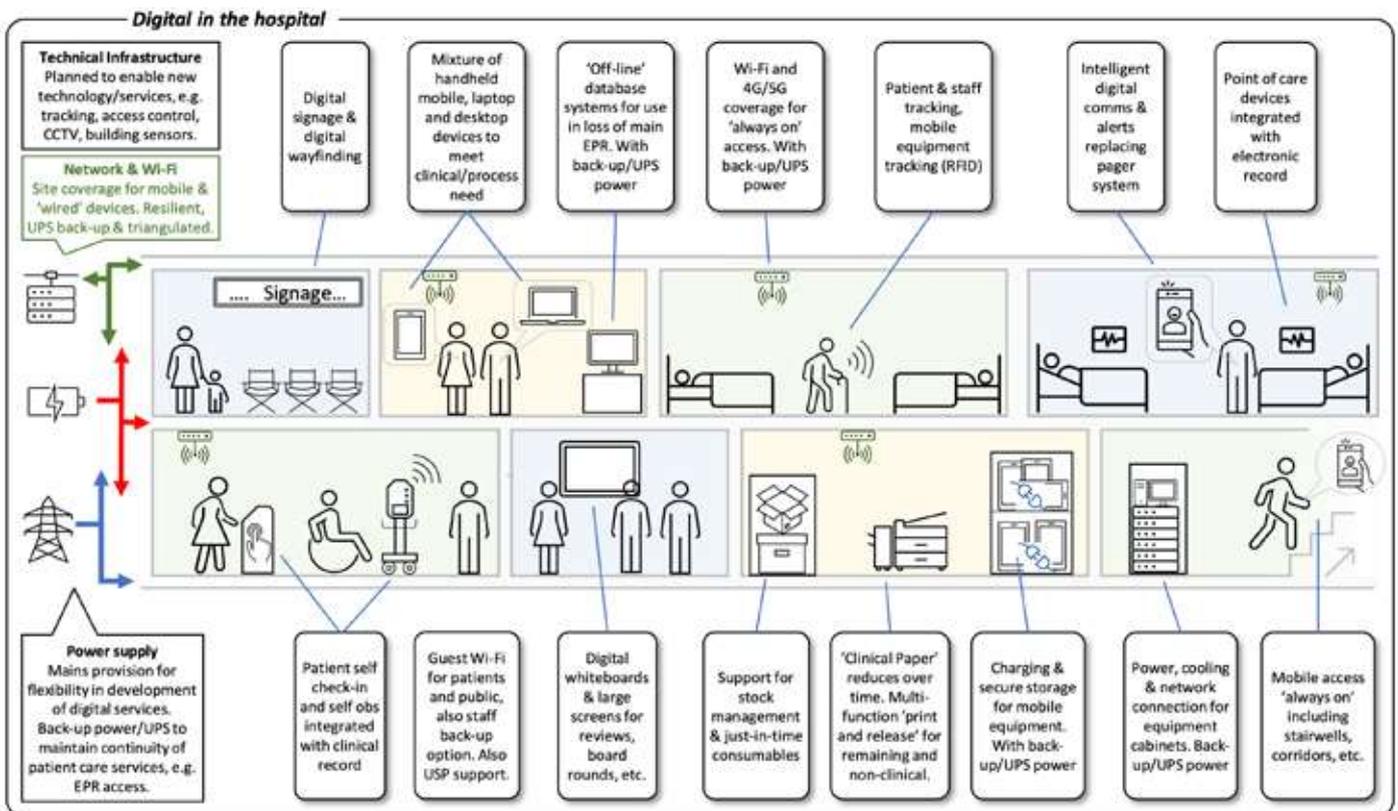


Figure 2.19- Digital Utilisation Plan

2.14.2 Digital Plan for the Redevelopment

Key elements of the plan include;

- Close working between Digital and clinical groups to ensure that the design principals support the evolving digital requirements of services and where future digital facilities are not included in the programme scope that the underpinning digital infrastructure is 'designed in', or future proofed, so that future digital services can be added without alterations
- Equipping the ASB and NWB with digital infrastructure and moving/supplementing the digital equipment used by the relevant clinical services, also working with services to ensure equipment and IT support is ready to enable a seamless move process in each clinical area
- Supporting the aims of clinical services for greater integration of information and reduced use of paper within the delivery of clinical care. These are Trust-wide requirements rather than new-build specific and progress in these areas is being delivered through the Trust's Capital investment storage programme in Digital.

The scope of digital requirements and investment is broadly based on providing like for like digital functionality and services based on the proposed digital baseline. However, there are new digital services which will support efficient utilisation of the digital blocks, for example, the addition of,

integration of data in the ASB Theatres, automated stock management of consumables, and video/voice equipment to enable remote collaboration and meetings. These form part of the Trust's Roadmap to Digital Maturity and will be managed holistically across the Trust.

As mentioned above, future proofed infrastructure is planned to reflect clinical goals so that further IT deliverables can be added beyond commissioning. Additional digital devices (PCs, including for use on pendant mounts, and laptops, etc.) will be procured to provide the extra capacity needed for the relocation process.

Digital services will continue to develop across the Trust up to and beyond commissioning of the new clinical buildings and ongoing planning and review with clinical services will be maintained to maximise alignment of broader digital developments with their requirements specific to the new clinical buildings. The programme governance and management arrangements will also ensure clarity and confidence for clinical services regarding provision of digital equipment and services.

2.15 Workforce Strategy

Staff at the L&D is the most valuable asset when it comes to delivering a high quality, safe and efficient service to patients. 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 merger brought benefits of scale, and development opportunities for staff. The Redevelopment adds an additional layer of benefit through modern, compliant and first class facilities, enabling new and improved models of care, and further enabling innovative ways of working.

Using the key themes of the recently published We are the NHS: People Plan 2020/21 action for us all and NHS People Promise as a foundation we will develop a fully comprehensive People Strategy (2021-2024) which will provide the means by which we will recruit, develop and retain a Bedfordshire Hospitals' workforce that's fit-for-the future - supported, equipped and inspired to give of their best.

The COVID-19 pandemic brought huge professional and personal challenges; it has also brought about transformation of working arrangements at an incredible pace. Building on this momentum and on the NHS People Plan priorities, a number of workforce priorities are identified.

2.15.1 Staff Engagement

Staff engagement and the workplace needs of our staff, have been essential elements in 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. Along with this will come the need to support our staff with effective change management capability.

Our staff are highly supportive of the proposals and the redevelopment of the hospital site brings with it a clear opportunity to engage with, and involve our workforce in, the design of the build. 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. This was highlighted throughout the Gateway Review with positive feedback from clinical staff involved in the review confirming their involvement in the design and development of their services throughout the site redevelopment programme to date.

Proposals to redevelop the hospital estate have helped to stimulate discussion amongst clinical teams to look at opportunities to redesign both care pathways and the clinical and support workforce responsible for delivering this care – a modernised approach in a modern setting.

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 and to hear feedback about the Trust's current direction and future plans for the Luton hospital site. 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 services and the patients they care for. The issues captured, particularly those detailed at user group meetings with clinicians, have informed the design of the proposed development.

2.15.2 Workforce Requirements

There are over 4, 400 staff working at the L&D. Step change increases in activity and workforce requirements are not assumed in this business case. However, there is some growth in workforce numbers as set out in the financial case, which reflects population growth, alignment to new care pathways, additional and more complex infrastructure. A summary of workforce requirements is drawn out in the Preferred Option and includes both efficiencies



and investment in clinical service lines for maternity, neonatology, critical care and theatres, and support service lines including estates and facilities, EBME and IMT.

2.15.3 Workforce Priorities

Three key workforce priorities have been identified as critical to the success of the redevelopment programme. These priorities are fundamental to achieving the benefits of the redevelopment and of becoming a model employer offering new innovative ways of working;

- 1. New ways of delivering care;** involving staff at an early stage, we are developing new ways of working which effectively use of the full range of our staff's skills and experience in the design and delivery of new clinical pathways and models of care such as; the new Theatres arrival and recovery models; Transitional Care co-locating with NICU and; enhanced recovery in Maternity services.
- 2. New ways of working;** the site redevelopment provides an opportunity to continue to develop flexible and agile ways of working. The NHS People Plan sets out the case showing that as a modern and model employer, flexible and agile working in the NHS should be commonplace and will significantly help to recruit and retain key staff. Working in a more agile way has been a marked feature of the way the Trust worked during the COVID 19 pandemic

Clinical and non-clinical staff have at times worked remotely; technology, virtual meetings and remote access to systems has enabled teams and individuals to work effectively from locations away from the hospital site. Included in this have activities such as video/telephone consultations, transcription services, administration and clerical tasks and team meetings. Building on this experience an agile working approach has been developed for the Trust; the first priority of 'agile' will be to support new ways of working in the new office accommodation.

The detailed workforce plans show that within the 4 relocating clinical services, teams will be up-skilled and new and innovative clinical roles will be created, designed to deliver the new models of care, to address skill and capacity gaps, to widen the pool of advanced skills for extended hours working and rota cover, to attract talent into the Trust and to develop our own workforce. These new and expanded roles include; Nurse Associates, Advanced Clinical and Surgical Practitioners, Advanced Neonatal Nurse Practitioners, NIPE Midwife and Advanced Critical Care Practitioners. The new models of care will also require enhanced use of ward pharmacists and other Allied Health

Professional Support in disciplines such as Speech & Language, Dietetics, Physiotherapy, Occupational Therapy and Psychotherapist/Psychology.

- 3. Growing our workforce for the future;** by building on the renewed interest in NHS careers we aim to expand and develop the workforce required to deliver our growing services. We have been instrumental in setting up the Bedfordshire Health, Social Work and Social Care Academy as a centre of excellence in supporting and developing the health, social work and social care workforce locally. Our aim is to recruit and develop students and staff and provide excellent research, informed education and CPD so that we can contribute to improved outcomes for people's health, care and wellbeing in Bedfordshire.

Understanding our region, developing and strengthening opportunities for local communities to live, study, learn and work locally is a key driver for us in supporting staff and students so they want to stay in Bedfordshire. Working together with local partners in the provision of health, social care and social work education in the region; building on our successes and focusing on improvement will help us to reach out to the local community, build awareness in schools and with job seekers, to enable more people to consider a career with the Trust.

The workforce plans are fully aligned with service and financial plans for each of the four key relocating areas. Working through the academy in particular, this enables the Trust to partner with our local universities and education providers, to plan the supply of the right workforce for the future and more specifically for the needs of the redeveloped environment. We are working in partnership to identify development needs and deliver appropriate, timely education and training for our existing workforce and for trainees entering the professions. This will;

- secure the supply of best staff at entry-level clinical and non-clinical roles to deliver outstanding health services from within the local community;
- provide a range of career development pathways to enable our existing front line staff to expand their skills and experience and increase their earnings, with a particular focus on providing developing and widening opportunities for the 39% of our workforce who are BAME colleagues; and
- Attract highly skilled professionals from across the NHS, keen to develop enhanced long-term careers.

Examples of this in the redevelopment programme are the upskilling of the HDU and ICU staff to appropriately provide

care for all level 2 and 3 patients, the development of Band 3 roles to meet the Transitional Care standards and the provision of the apprenticeship training scheme.

2.15.4 Workforce Plans

The three principles above provide the foundation for workforce and OD programmes designed to ensure:

- The safe and appropriate transfer to the new facilities;
- Effective organisational leadership;
- Assessment and development work to support clinical and corporate leaders to address skills gaps and to introduce new roles and pathways;
- Positive cultural integration;
- Effective alignment of Human Resources and Organisational Development functions; and
- Optimum leverage of support available through launch of the national NHS People Plan

The focus for all these activities is to support staff to embrace the change with ease, and to feel ready, willing and able to contribute to the aspirations of the re-modelled clinical services. Each relocating clinical service has worked in partnership with the HR, Education and other support teams to develop workforce plans which include, but not limited to, actions relating to;

- Education /Development /Training
- Recruitment – on-going/phased and in line with adjoining projects
- Widening participation
- Retention
- Adjoining priorities
- Communications
- Engagement

2.16 Equality Diversity and Human Rights (EDHR)

Equality, Diversity and Human Rights (EDHR) is embedded in all the Trust does and is pivotal to any scheme or project involving decisions or change, particularly those that present an opportunity to do things differently and bring improvements for the service and workforce.

The Trust's EDHR principles are Fair Treatment, Access, Inclusion, Respect & Dignity, the application of which are critical to delivering quality services and the NHS Business Plan which is focussed on Prevention and Management of Health Inequalities.

These FAIR principles work alongside our new organisational values of Teamwork, Honesty & Openness, Respect, Inclusivity, Valuing People and Excellence and

their and their acronym of THRIVE. Both of these are fundamental to culture, conduct and consideration.

The Trust is committed to formally considering how its strategies, projects, plans, procedures, policies and decisions will affect or impact patients, carers, communities, employees and other stakeholders. This includes showing due regard to the needs of individuals and groups that are captured within the nine protected characteristics of age, disability, gender, gender reassigned and transgender, sexual orientation, religion, belief or no belief, race and ethnicity, marriage and civil partnership, pregnancy and maternity. It also includes other key areas of health inequalities such as rural versus urban or socio-economic considerations, literacy and other related impacts such as Covid-19.

The Trust's commitment also includes engaging with, consulting and involving service users, staff and other stakeholders and using qualitative and quantitative data from multiple sources where appropriate. This has been applied through the Trust redevelopment strategy; Equality Impact Assessments have been completed for the key areas of development through this project for Maternity, Neonatal Care, Critical and Theatres. These can be found in Appendix 2.

2.16.1 Reaching our Current Position

Ongoing reviews have been undertaken of current risks managed across the Trust, including those which may impact negatively on equality and diversity and how these may be managed.

The Trust's Redevelopment Programme Team worked closely with, and sought support and advice from accessibility experts during the detailed planning and enabling phases. There was an aim to identify positive, neutral and negative impacts. If any negative effects were identified, balanced steps were taken or will be taken to address this. These steps will ensure access to services, and will ensure that employment is equal, fair and inclusive to all and does not disadvantage or discriminate.

As one of the most diverse Trusts in the UK, with the work force and patients becoming increasingly diverse with multiple needs, the focus is on making equality considerations part of day to day life and of business as usual.

Best practice has been 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 disability and other access needs but to enhance the facilities for all users. Also, by taking such issues into



consideration at the early stages of design this helps limit the costs.

Service users, patients and local residents have been consulted as part of the overall communication and engagement strategy and throughout the planning phases.

2.16.2 Developments Impacting on the Equality and Diversity Agenda and Acute Services Project

There have been high impacts on EDHR during 2020-21, which have influenced the delivery of this strategy. This came from four key organisational strategic developments which were;

- the capital allocation for the hospital's redevelopment
- the hospital merger
- the NHS Business Plan (focussing on Prevention, Health Inequalities, and care pathways) and;
- The NHS Interim People Plan (a strategy to support new ways of working).

How the Trust addressed these changes – apart from the increase in the Redevelopment Workforce Team to handle this major redevelopment programme, there is also a new Director of Transformation and Team (to bring together the strategy and support the direction and implementation for future hospital services and plans), and a new Director of Culture and Team (to collaboratively bring together the two hospitals into the new Trust with its culture and values for developing the workforce of the future).

These are an important part of building effective teams, skills and collaboration across the Trust along with desired conduct and outcomes for patient and workforce experience which will help to deliver this strategy to meet both Quality and Equality needs.

2.16.3 Patient and Workforce Experience

Patient and workforce experience are key to the EDHR agenda in the NHS and Trust and are in the well led domain of the Care Quality Commission CQC EDHR Inspection programme. The new Workforce Committee and Patient Experience Council have been implemented to ensure that workforce and patient strategies, activities and experience are well led and improved with both the workforce and patients consulted and provided for.

All of the above developments have had and will continue to have an impact on how the Acute Strategy, Service and Facilities and EDHR agenda are delivered.

Covid 19 arose as a fifth unexpected, and significant development with high impact. This has helped bring EDHR to the forefront once more with more focus on key areas such as health inequalities, prevention and safety, mental and physical wellbeing. Particular highlighting of patients and staff who have disabilities or are from a BAME background and those who are vulnerable for instance in terms of age, health conditions or pregnancy and maternity.

'Equality Impact and Wider Considerations' can be found in Appendix 2 and includes areas such as remote access and video services which will help to strengthen management and delivery of this strategy operationally.

Training and development – The Trust has extended their EDHR training offering for the year ahead beyond the usual and National mandatory NHS on-line video training to offer deeper EDHR knowledge and understanding.

Access and Inclusion - NHS Accessible Information Standard – Interpretation – Website assistive access tool - As one of the most diverse Trusts in the UK, with the patients becoming increasingly diverse with multiple needs the focus is on making equality considerations for access and inclusion considerations part of day to day life and of business as usual.

2.16.4 Business Needs – Capital Priorities

The Trust recognise 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 the development control plan in section 2.12.

The DCP describes the first phase of development as a strategy to address the highest clinical risk areas and infrastructure requirements. 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 surgery facilities

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.



Figure 2.20- Existing external patient journey from Maternity and NICU to the main hospital (used for accessing Imaging, Critical Care and the Mortuary)

The maternity service at the L&D deliver around 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	2017/18	2018/2019	2019/20	2020/21
Births	5240	5231	5264	5046
Neonatal admissions	2556	2855	3065	2871

Table 2.17- Number of births per annum and neonatal admissions

Table 2.15 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	2017/18	2018/2019	2019/20	2020/21
Neonatal admissions	2556	2855	3065	2871

Table 2.18- 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
2020	36	92	3460

Table 2.19- 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 across the network 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	2018/2019	2019/20	2020/21	Growth (%)
All Critical Care activity	1137	1173	1526	

Table 2.20- 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.

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	2018/19	2019/20	Growth %	2020/21*
Elective surgery spells (adults)	20487	20879	22396	19837	-11%	10546
Emergency surgery spells (adults)	9791	11292	12138	13545	12%	9222
Elective surgery spells (paeds)	1921	1738	1869	1589	-15%	634
Emergency surgery spells (paeds)	1407	1444	1460	1318	-10%	770

Table 2.21- Surgical Activity



As seen by table 2.21, growth in elective and emergency surgery has seen unprecedented demand.

2.16.5 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 and economic case (“Do nothing” option).

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, patient flows and opportunities to address key estates infrastructure requirements, including paving the way for a more sustainable future. Further, a BAU option, does not provide any opportunity for investment in either driving towards our stated NZC ambition or creation of new facilities contributing to the MMC agenda.

2.17 Project Scope

The Trust proposes a five storey ASB and a three storey NWB to deliver a significant profile of benefits and mitigate against current estates risks.

The Contract for the construction of the preferred option demonstrates it can be delivered across 2.5 years. This therefore sees the completion of the first phase of the wider redevelopment of the hospital being achieved in 2024.

The first phase of site redevelopment paves the way for subsequent phases by releasing the footprint of a number of buildings and enabling support/ decant areas for a programme of Trust funded backlog maintenance.

2.17.1 Capacity & Demand Triangulation

Data alongside insights from our local system partners, staff and patients has helped the Trust to understand the demand for facilities. By working in partnership with the ICS to understand the current needs of local communities, and how they will likely change over the coming years,

has stimulated thought on how clinical spaces could be better used to benefit more patients and provide a level of flexibility. The use of space continues to change, regardless of the Pandemic and learning from the Pandemic. From office workers working from their homes, to outpatient appointments moving to a virtual format, many functions within the Acute Trust estate are transforming.

The Redevelopment Programme Team agreed a number of assumptions in March 2015 that supported activity modelling which fed into the capacity requirements for the Redevelopment Programme at the time. These were reviewed and revised in November 2017 and subsequently for the Outline Business Case (OBC) submitted in 2020. These are further confirmed as part of FBC development.

There are four component parts of the development that are dependent on a clear understanding of the underlying anticipated demand on the L&D site, these include maternity, neonatology, critical care and theatres. Each component part has slightly different demand pressures driving the future capacity requirements but each can be linked to a combination of volume of activity, productivity, length of stay and occupancy. These also link to the investment objectives.

The baseline year for the modelling is 2018/19 with 2019/20 being used as a benchmark reference to sense check assumptions.

The initial assumptions within the OBC that were made on a 5 year planning horizon starting from 2018/19, have been retained on the basis that overall growth will continue on the same trajectory over this period. Activity during 2020/21, and into 2021/22, was severely impacted by the Covid pandemic meaning 2018/19 remains the most appropriate baseline year for the FBC.

The modelling describes the relationship between current capacity and demand and then links them together with future anticipated activity levels and key performance metrics such as length of stay, occupancy and surgical productivity.

This is in alignment with commissioning assumptions and has been agreed by the BLMK ICS as confirmed in their letter of endorsement, which can be found in Appendix 1.

2.17.2 Capacity and Demand Assumptions

Service	Activity	LOS	Occupancy	Productivity
Maternity	Marginal population growth expected but designed to facilitate up to 16% growth	Improve to national median	Delivery unit – more efficient use of space; Ward beds – improved occupancy through LOS change	Improved flow through space design Improved facilities and quality outcomes through improved adjacencies
Neonatal Critical Care	Marginal population growth expected but designed to flex with demand in maternity services	Assumed unchanged for modelling purposes	More efficient occupancy with space redesign	Improved flow through space design Improved facilities and quality outcomes through improved adjacencies
Adult Critical Care	Marginal population growth with additional capacity requirement from interventional radiology service enhancement and improved clinical pathways	Assumed unchanged for modelling purposes	Redesign seeks to offer improved occupancy through increased bed base	Improved flow Improved workforce efficiencies Improved facilities and quality outcomes through improved adjacencies
Operating Theatres	Marginal growth in elective services over 5 year time frame plus assumed development of interventional radiology services	n/a	n/a	Cases per session assumed to continue at current rate with growth managed through extension to the working week Improved workforce efficiencies

Table 2.22- Capacity and demand assumptions



2.17.3 Current and Proposed Demand

Current capacity supported a certain level of activity and performance in 2018/19. This together with the anticipated growth is described below.

Service	Capacity Type	2018/19 Demand	Expected %	"Change Narrative"	Future Demand
Maternity					
	Delivery Unit Bed Days (inc.4,998 births)	5,741	20%	While activity is assumed flat, capacity has been designed to cope with up to 6,000 births	6,889
	Ward Bed Days	17,989	20%	Reflects maximum number of births	17,270
	ALOS	3.13	-20%	ALOS high compared to national median; 20% reduction brings in line with national average	2.51
	Delivery Unit Occupancy	60%			73%
	Ward Occupancy	91%			91%
Neonatal					
	ITU	2,556	20%		3,067
	HDU	3,464	20%	20% growth reflecting potential maximum demand of 6,000 births	4,157
	SCBU	3,478	20%		4,174
	Occupancy	70%			74%
Critical Care					
	ITU Bed Days	1,628	10%	Marginal growth on baseline critical care capacity; 10%	1,791
	HDU Bed Days	3,005	10%	growth driven by repatriation of vascular services	3,306
	Occupancy	79%			63%
Theatre - Sessions					
	General & Paediatric Surgery	840	17%		985
	Urology	616	17%		723
	Breast Surgery	228	18%	Anticipated growth potential over 5 years deemed equivalent to 17% over that time frame, with the exception of interventional radiology services and emergency theatres.	268
	Colorectal Surgery	439	17%		516
	Vascular	52	675%		433
	Spinal Surgery	116	18%		136
	T & O Surgery*	953	17%		1,118
	ENT	690	17%	The interventional radiology demand based on the current health economy workload undertaken elsewhere within the Trust, Emergency Surgery activity demand assumed to remain flat, but acknowledging that any growth can be consumed within the overall capacity increase.	809
	Ophthalmology	600	17%		705
	OMFS (main theatres)	298	17%		349
	Plastic Surgery	81	17%		96
	Pain Relief	40	16%		46
	Paediatric T & O	37	18%		44
	Gynaecology	416	17%		488
	Emergency	730	0%		730
	Cases per session	2.76			2.76

Table 2.23- Demand Analysis

2.17.4 Current and Proposed Capacity

	Current Capacity	Future Capacity	Change
Maternity			
Delivery Rooms	15	16	1
Triage	11	8	-3
Bereavement Rooms (Delivery)	0	2	2
	26	26	
Occupancy	60%	73%	
Obstetric Theatres	2	2	0
Procedure Room	0	1	1
Theatre Recovery	3	7	4
Ward Beds	46	40	-6
Transitional Care	8	8	0
High Risk Induction	0	4	4
	54	52	
Occupancy	91%	91%	
Neonatal			
ITU	11	24	13
HDU	8	0	-8
SCBU	18	18	0
	37	42	
Occupancy	70%	74%	
Rooming In	1	2	1
Parental Rooms (on site)	2	1	-1
Parental Rooms (off site)	8	11	3
Critical Care			
ITU bay beds	5	16	11
ITU side rooms	2	4	2
ITU negative pressure beds	0	2	2
HDU bay beds	7	0	-7
HDU side rooms	2	0	-2
	16	22	
Occupancy	79%	63%	
Theatres			
General Operating Theatres	14	16	2
Hybrid Operating Theatres	0	2	2
	14	18	
Cases per list	2.76	2.76	
First Stage Recovery	23	33	10
Second Stage Recovery	24	24	0
Admissions and Recovery Pods	0	32	32

Table 2.24- Future Proposed Capacity



In summary, there are a number of expectations and assumptions driving the decision on the capacity provision for the redevelopment – marginal growth, service repatriation, efficiency and effectiveness. Key stakeholders and commissioners are sighted on in these assumptions.

2.17.5 Functional Content

This capacity model has informed the functional content in the preferred option. It has also provided the basis for the finance model and the onward capital and revenue planning.

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 2.25- 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 2.26 Functional content of New Ward Block (NWB)

2.17.6 Enabling Schemes Directly Supporting FBC Development

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 parking:** Car parking for patients, visitors and staff has been a critical issue for the Trust. There had been a substantial shortfall in capacity leading to problems with parking in residential areas. Consent for the redevelopment had been conditional on the Trust's commitment to increase parking provision. Parking provision was increased throughout 2020/21 through a series of enabling projects which included a new multi-story car park for patients and visitors.
- **Offices:** Office accommodation became a priority for capital planning for two reasons. Firstly the poor quality of existing office space. This was constructed in the 1930s, initially as nurse's accommodation, and carried a significant level of backlog maintenance. It could not be effectively maintained or developed.

Secondly, the current Trust offices occupied land earmarked for the development site. A capital scheme was developed for a temporary office block (as per planning approval constraints), funded by the Trust as a key enabling scheme to the redevelopment programme. This was delivered in March 2021. The new modular office block for clinical and support teams on the site was opened at the end of March 2021.

- **Demolition:** Demolition of the Trust HQ and surrounding buildings commenced in April 2021 and will complete by December 2021. This paves the way for the construction of the new clinical buildings.
- **Relocation of the clinical services:** Outpatient accommodation and the Trusts EMBE service have been transferred to new or refurbished facilities both off site and on site to allow for site clearance.



2.18 Benefits and Investment Objectives

2.18.1 Benefits

The scheme benefits were agreed by the Executive Directors of the Trust at a Benefits Workshop held on the 28th January 2020 and further refined in May 2021. The Benefits Register can be found in the management case. They are also 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 ICS strategic ambitions and clinical vision, including the merger benefits

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.

2.18.2 Investment Objectives

The scheme’s investment objectives were agreed by the Executive Directors at a Workshop held on the 28th January 2020 following stakeholder input at various staff events as described in the Communications Strategy and Plan which can be found in Appendix 13.

ID	Objective	Key Deliverable/Scope
1	To maximise space efficiency	<ul style="list-style-type: none"> ■ Decrease cot occupancy in NICU to 80% ■ Decrease bed occupancy in maternity in line with operating guidance, currently 80% for acute beds ■ Eliminate number of births that occur outside of delivery suite due to lack of delivery suite capacity ■ Eliminate planned C-Section cancellations due to lack of theatre capacity
2	To improve clinical safety and mitigate against clinical risk that the environment presents	<ul style="list-style-type: none"> ■ Reduce the hospitals backlog maintenance by £12m (£92m as of March 2020) ■ To provide a safe environment for patients and staff – measured according to staff survey – Health and Safety questions 33 and 34 – target improvement in level of score towards 5 strongly agree
3	To facilitate the merger with Bedford Hospital	<ul style="list-style-type: none"> ■ Create a platform from which the BLMK ICS strategy can be delivered for the ICS and future-proof the hospital design via a Board approved DCP to support future service provision. Measured in line with merger benefits realisation.
4	To eliminate inefficiencies from delivering care across split units within critical care, theatres and maternity	<ul style="list-style-type: none"> ■ Workforce - Decrease administrative workforce (ward clerk and reception) across new clinical spaces by 10% ■ Workforce – decrease nursing coordination requirement by 10% as clinical spaces within maternity, theatres and critical care are bought together. ■ Bank and agency – decrease requirement for bank and agency staff across critical care by 10% as skill set of permanent teams is strengthened. Monitored through bank and agency spend. ■ Upskilling staff will support resilience and improve nursing ratios in line with ratios agreed.
5	To improve clinical quality standards	<ul style="list-style-type: none"> ■ Reduce list delays by 50% due to estate failures e.g. maintenance or plant failure ■ Decrease theatre cancellations on the day by 50% due to estate failures. ■ Decrease patient complaints across the new services by 100% due to the poor environment
6	To optimise space for clinical and non-clinical administration, management and storage	<ul style="list-style-type: none"> ■ Move away from cellular offices to open plan, multi-disciplinary offices, to support joined up and more efficient ways of working. Introduce agile working to support productivity, staff wellbeing and satisfaction. Measured improvement in staff survey 2a (I look forward to going to work), 3b (I am trusted to do my job), 5h (opportunities for flexible working patterns), 6b (I have a choice in deciding how to do my work)

Table 2.27- Investment Objectives



2.19 Constraints

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

ID	Constraint	Description
1	Maintaining clinical services	The need to maintain all clinical services many on a 24/7 basis during construction
2	Maintaining access to all areas of the Hospital	The need to maintain access to various parts of the hospital at all times
3	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
4	Maximising car parking	The need to maximise car parking for patients, staff and visitors at all times
5	Minimising congestion	Increased movement of people on site and traffic due to construction, on an already congested hospital site
6	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.
7	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
8	Programme	Central requirement to deliver new hospital buildings by March 2024.

Table 2.28- Constraints to the redevelopment programme

2.20 Critical Dependencies

There are a number of critical dependencies to achieve the vision for the development of the hospital. This FBC 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 (the latter scheme was delivered in January 21 as a key enabler).

ID	Critical Dependency	Description
1	Funding	The OBC was approved in November 2020 for a capital allocation of £150m, this is subject to FBC approval and impacted by the length of the approval process
2	Programme of Coordination - Enabling Schemes	<ul style="list-style-type: none"> ■ Timely completion of site demolition (December 2021) ■ Coordination with Energy Centre project which is required to be commissioned ahead of the construction of the new buildings, expected 2023.
3	Business Case Approvals	Timely Internal and external approvals. The construction contract must be awarded by the 14th January 2022 to maintain programme and price, FBC approval is required by 14th January 2022.

Table 2.29- Critical dependencies for the redevelopment programme

2.21 Critical Success Factors (CSFs), Benefits and alignment to Investment Objectives

The CSFs for the programme were agreed by the Hospital Redevelopment Board on the 18th December 2019. The CSFs were aligned to key benefit criteria and investment objectives, which are drawn out in detail in the economic case, section 3.3.

CSF	Benefits Criteria	Key Investment Objective
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 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. 	<ul style="list-style-type: none"> To maximise space efficiency To improve clinical safety and to mitigate against clinical risk that the environment presents To realise the merger benefits To eliminate inefficiencies from delivering care across split units To improve clinical quality standards To optimise space for clinical and non-clinical administration, management and storage
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 	<ul style="list-style-type: none"> To maximise space efficiency To eliminate inefficiencies from delivering care across split units within critical care, theatres and maternity To improve clinical quality standards
Supplier capacity and capability	<ul style="list-style-type: none"> Ensuring at every stage the scheme is attractive to the market 	<ul style="list-style-type: none"> To fully realise the merger benefits
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 	<ul style="list-style-type: none"> To fully realise the merger benefits
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 	<ul style="list-style-type: none"> To improve clinical safety and mitigate against clinical risk that the environment presents

Table 2.30- CSFs, benefits criteria and investment objectives for the redevelopment programme



2.22 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 ICS aims to address this through whole system redesign. The redevelopment of the L&D site forms part of the BLMK ICS strategy 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 in 2024, will provide a significantly improved healthcare environment for patients, visitors and staff.



3 ECONOMIC CASE



ECONOMIC CASE SUMMARY

The strategic case has set out the criticality of the L&D site redevelopment recognising the current challenges experienced by the Trust on operational efficiency, quality and safety of patient care.

This chapter summarises the economic outputs and confirms Option 2 as the Preferred Option presenting as the best investment for Trust. 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 enables the proactive maintenance of assets and a reduction in backlog maintenance.

The redevelopment will ensure patients being cared for in an acute setting, are 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. It is against these CSFs and Investment Objectives that the long list was evaluated at OBC, which was cut down into a short list of options carried forward into this FBC. In line with the NHSE/I Checklist, we have again presented the shortlisted options in order to re-evaluate their overall value for money at this FBC stage.

Three options make up the short list;

1. Business as usual option (BAU)
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 ASB and a New Ward Block (NWB)

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

- 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 L&D 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 is due to complete in March 2024, going live to patients in late 2024. This option results in the lowest risk adjusted Net Present Cost (NPC), highest Net Present Social Value (NPSV) and the highest benefit: cost ratio of the short-listed options. The benefit: cost ratio of this option is 5.08. This is then tested through sensitivity analysis for robustness.

In addition to this, Option 2 the preferred option provides a significant level of qualitative benefits and paves the way for phase 2 of the site redevelopment which further positively impacts corporate risk, quality benefits and site running costs. Key distinguishing benefits include the advantage of improved clinical adjacencies and co-location of services, which in turn supports nursing/midwifery time efficiencies.

The Preferred Option 2 currently requires central support of £150m. The ASB and adjoining NWB construction costs have been provided by Kier based on "not to exceed" pricing.

The total capital funding requirement is £150m and can be broken down as follows:

Scheme Spend FY 19/20-24/25	July 18 STP Bid (£m)	Oct 21- FBC Preferred Option (£m)
IT Merger Enabling	8	8
Pathology Joint Venture	4	3.6
	87.5	142.6
Clinical Buildings	(Acute Services Block only)	(Acute Services Block, New Ward Block and Lift Core)
Other enabling	-	14.4
Trust Contribution	-	-18.6
Funding Required	99.5	150

Table 3.1- Capital Funding Requirement



3.1 Introduction

The Strategic Case reaffirmed the urgent need to redevelop the L&D site and recognised that the estate poses daily challenges to operational efficiency, quality and safety of patient care - as set out at OBC stage.

To address the challenges set out in the Case for Change, the Preferred Option was selected during the options appraisal process in the OBC, submitted in April 2020, based on its ability to provide value for money (“VfM”) and meet the Investment Objectives and Critical Success Factors defined by the Trust. This chapter reviews the business as usual (“BAU”), do minimum, and Preferred Option developed in the OBC, and the ability of the Preferred Option to continue to offer value for money from a cost, benefit and risk perspective, in alignment with the NHSE/I Fundamental Business Case Criteria checklist.

Since the OBC was approved in November 2020, the following developments have occurred:

- Capital costs driven up by inflationary pressures, mitigated through a combination of tender packages coming in below AECOM’s cost estimates, and value engineering.
- Several assumptions have been adjusted to reflect deeper analysis undertaken post OBC, and are set out in detail in the quantitative section of this case;
- A revalidation of the benefit realisation exercise has been undertaken by the Trust - set out in greater detail in the Benefit section; and
- A revalidated risk quantification has been conducted by the Trust and their advisory team, with all changes detailed in the Risk section of this case.

This section of the FBC was developed in accordance with the Capital Investment Manual, NHSE/I Fundamental Business Case Criteria checklist and requirements of the HM Treasury’s (“HMT”) Green Book and supplementary Better Business Case guidance. The two options brought forward from the OBC stage are appraised using the CIA Model; the HMT/NHSE/I recommended economic appraisal tool, with the results outlined in detail within the ‘Economic Summary’ section of the CIA Model. Details and assumptions of the evaluation are set out in this chapter. This includes a costs appraisal, benefits assessment and risk evaluation, in order to come to a final benefit: cost ratio for each option.

Furthermore, a review of the Investment Objectives and Critical Success Factors are set out in the first section of this

chapter, to provide the context of the options assessment from a holistic perspective. A section summarising the evaluation process from the long list to short long list at OBC stage is provided, as well as detailed descriptions of the options. Lastly, a sensitivity analysis is performed to test the robustness of each option by altering key inputs.

3.2 Key Changes Since OBC Approval November 2020

- Changes to capital cost reflecting the NTE price agreed with Kier and subsequently reflected in FB forms and design change in support of Covid learning. Any capital cost increase has been mitigated by a combination of tender packages coming in below AECOM’s cost estimates and value engineering
- Change to risk profile – as the design has developed, the risk profile has changed and in many cases, been further mitigated
- Revenue costs have marginally changed to reflect the strategic case developments which include detailed workforce models and implementation plans for the clinical services moving into the new hospital buildings, and the support services that enable this.
- Marginal changes to CIA model specifically optimism bias percentage

3.3 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.

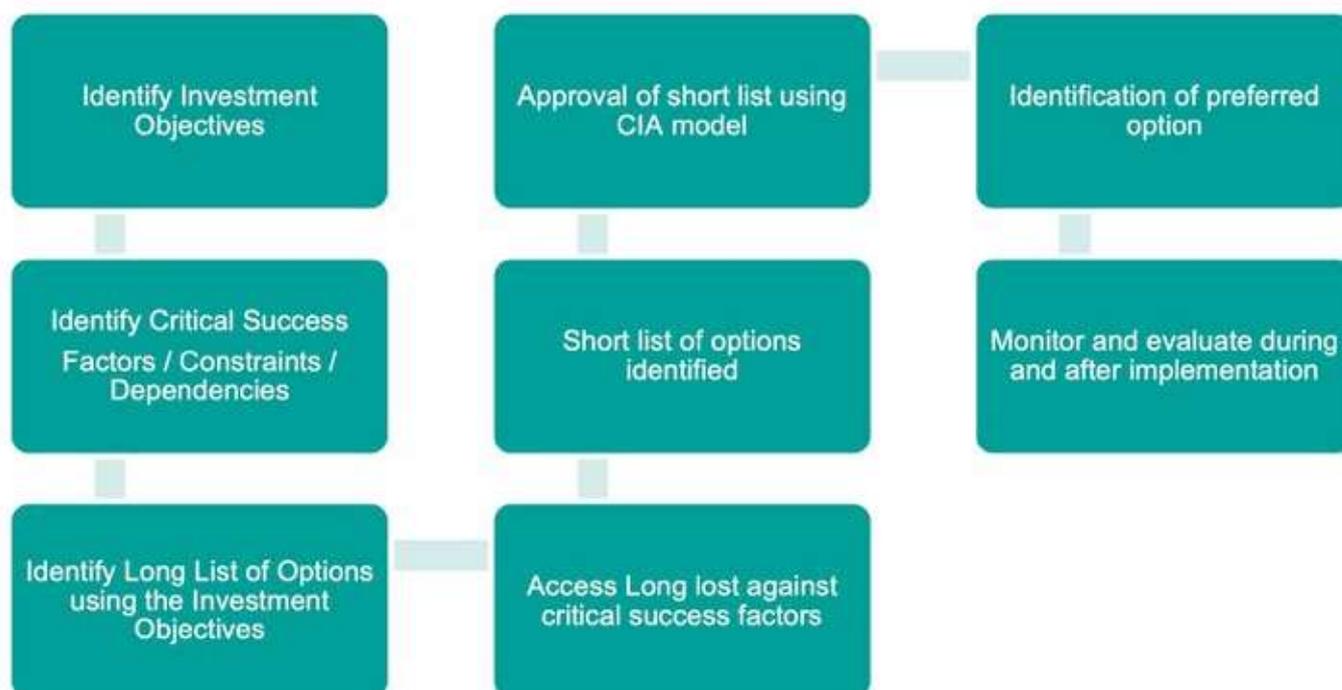


Figure 3.1- Developing the preferred option

3.3.1 Economic Methodology Overview

This section outlines the economic appraisal that has been undertaken on each of the short-listed options as part of this FBC. The purpose of this analysis is to revalidate the conclusions drawn at the OBC stage, with the benefit of the greater level of information available following the competitive tendering exercise undertaken by the Trust. As seen at the OBC stage, the analysis has been prepared on a Discounted Cash Flows (“DCF”) basis using the CIA Model, in accordance with the economic appraisal methodology for investment business cases per Department of Health and Social Care (“DHSC”) and HMT Green Book guidance.

The CIA Model assesses the costs, benefits and quantifiable risks associated with each option in order to arrive at a risk-adjusted Net Present Social Value. The total incremental costs and benefits above the BAU option are then assessed to determine a benefit: cost ratio, which is used to evaluate the VfM of each option.

The methodology for completing the CIA included use of capital figures that had been agreed with NHSE/I finance leads and DHSC economists during the development of the OBC.



The flow chart in Figure 3.2 illustrates how the CIA Model works in terms of what inputs are required to develop the economic summary. For the full CIA Model, please refer to Appendix 3.

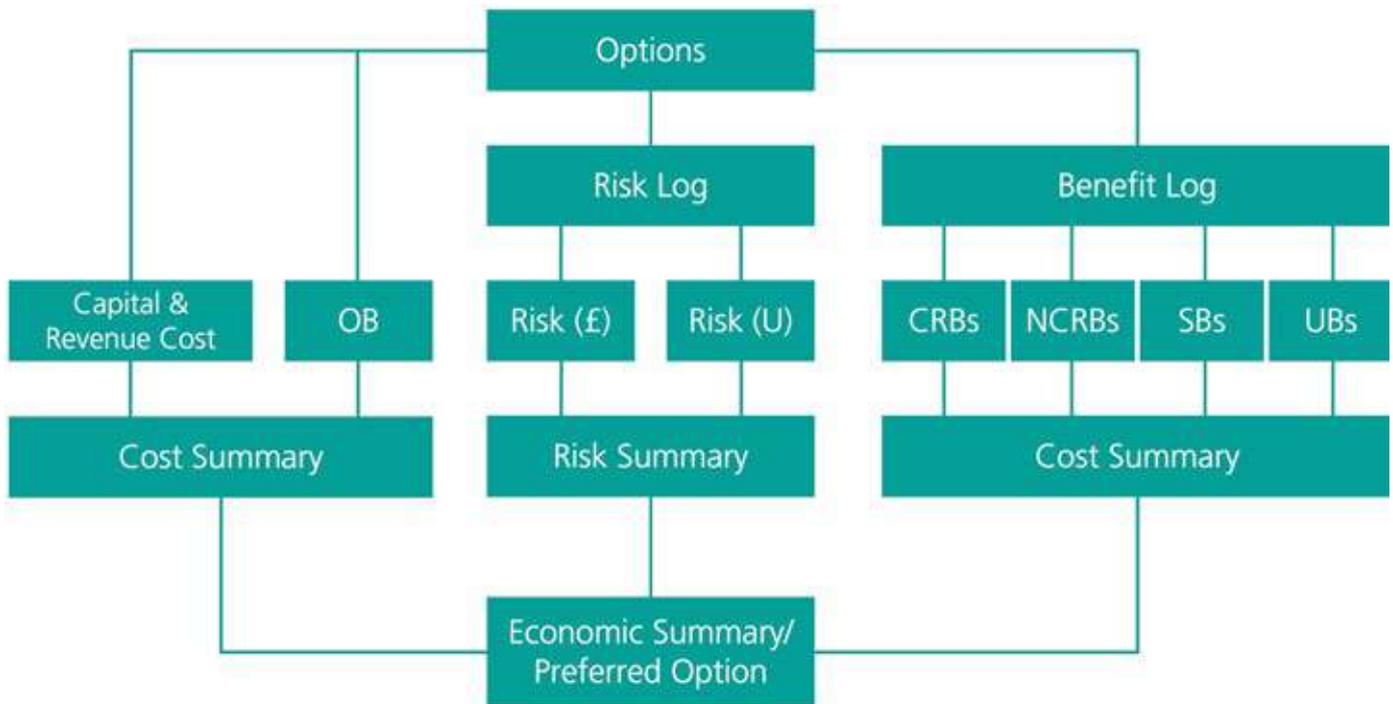


Figure 3.2- Determining the Preferred Option

3.4 Investment Objectives

The strategic objectives were developed following detailed review of;

- Corporate Risk
- The Trusts 6 facet survey/backlog maintenance requirements
- National and regional clinical and estate priorities (Carter efficiencies and Net Zero Carbon targets)
- Stakeholder engagement including staff and patient feedback

Investment objectives were agreed by the Executive Directors at a workshop on 28 January 2020.

The redevelopment will offer modern, efficient, compliant and safe clinical accommodation for acute services. It will replace infrastructure that is no longer cost effective to maintain and ensure that the infrastructure of Trust aligns with current and future clinical service strategies. It will also enable the proactive maintenance of assets and a reduction in backlog maintenance.

ID	Objective	Scope
1	To maximise space efficiency	<ul style="list-style-type: none"> ■ Decrease cot occupancy in NICU to 80% ■ Decrease bed occupancy in maternity in line with operating guidance, currently 80% for acute beds ■ Eliminate number of births that occur outside of delivery suite due to lack of delivery suite capacity ■ Eliminate planned C-Section cancellations due to lack of theatre capacity
2	To improve clinical safety and mitigate against clinical risk that the environment presents	<ul style="list-style-type: none"> ■ Reduce the hospitals backlog maintenance by £23m (£91m as of March 2020) ■ To provide a safe environment for patients and staff – measured according to staff survey – Health and Safety questions 33 and 34 – target improvement in level of score towards 5 strongly agree
3	To facilitate the merger with Bedford Hospital	<ul style="list-style-type: none"> ■ Create a platform from which the BLMK STP strategy can be delivered for the ICS and future-proof the hospital design via a Board approved DCP to support future service provision. Measured in line with merger benefits realisation.
4	To eliminate inefficiencies from delivering care across split units	<ul style="list-style-type: none"> ■ Workforce - Decrease administrative workforce (ward clerk and reception) across new clinical spaces by 10% ■ Workforce – decrease nursing coordination requirement by 10% as clinical spaces within maternity, theatres and critical care are bought together. ■ Bank and agency – decrease requirement for bank and agency staff across critical care by 10% as skill set of permanent teams is strengthened. Monitored through bank and agency spend. ■ Upskilling staff will support resilience and improve nursing ratios in line with ratios agreed.
5	To improve clinical quality standards	<ul style="list-style-type: none"> ■ Reduce list delays by 50% due to estate failures e.g. maintenance or plant failure ■ Decrease theatre cancellations on the day by 50% due to estate failures. ■ Decrease patient complaints across the new services by 100% due to the poor environment
6	To optimise space for clinical and non-clinical administration, management and storage	<ul style="list-style-type: none"> ■ Move away from cellular offices to open plan, multi-disciplinary offices, to support joined up and more efficient ways of working. Introduce agile working to support productivity, staff wellbeing and satisfaction. ■ Measured improvement in staff survey 2a (I look forward to going to work), 3b (I am trusted to do my job), 5h (opportunities for flexible working patterns), 6b (I have a choice in deciding how to do my work) ways of working.

Table 3.2- Investment Objectives



3.5 Critical Success Factors

In accordance with HMT Green Book and Better Business Case guidance, the CSFs were approved by the Board of Directors in October 2014; and ratified by the Redevelopment Programme Board in November 2019 after further review. These CSFs have been re-evaluated again, post OBC approval, and are still deemed relevant criterion for assessing the ability of the shortlisted options to deliver a successful programme.

ID	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 central capital funding envelope The scheme is affordable within the Long Term Financial Model ("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 Benefit Criteria

3.6 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 and the feedback from the staff engagement event in 2018, were used as a starting point to develop the list.

Within the FBC, section 7.9 communications strategy and

stakeholder engagement, describes how the Programme Board have committed to communicate with stakeholders throughout the development and lists various stakeholder engagement events. The Trust continues to hold bi-annual staff engagement events that are attended by the majority of staff employees. The redevelopment of the site remains a key agenda item at these staff events and feedback is directly fed through to the programme.

In 2018, staff were asked to prioritise redevelopment requirements for the estate at the bi-annual staff engagement event.

The analysis of this information fed into an Executive led, Programme Team workshop, held in October 2019 (please see Appendix 1 for minutes of meetings). This workshop focussed on the development of the Trust’s CSFs and investment objectives and the scope of the long list of options for the Trust was developed.

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.

The options have been reviewed for FBC and the Trust can confirm that these all remain appropriate for the long list and no additional options have been identified.

ID	CSF	Scope	
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 will rely on a heavily phased programme of capital development. This includes a new critical care unit.	Does not support the Trust’s investment objectives or CSFs to deliver safe clinical accommodation for the highest risk areas across the site. It offers a piecemeal and inefficient solution to the current problems faced by the Trust. Carried forward for evaluation purposes.
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 built elective treatment centre to free up space on the hospital site to allow new build for critical, high risk services.	Does not support the Trust’s investment objectives or CSFs to deliver safe clinical accommodation for the highest risk areas across the site. It offers a piecemeal and inefficient solution to the current problems faced by the Trust, additionally, many services that can be moved to community hubs have been, and the Trust has been proactive in this respect. Discounted.
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 	This is the basis of the Trust’s STP submission in July 2018. It goes some way to supporting the Trust’s Investment Objectives and CSFs. Carried Forward.
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 	Both option 4 and option 5 support the Trust’s Investment Objectives and CSFs and align with service scope. The difference is in design – option 4 describes one building with additional floors to support wards. This option was discounted at the beginning of the project due to the unlikelihood of planning permission on site for a taller building, and the impact the taller building would have on one of the key enabling schemes – the energy centre. The energy centre building (flue) would have to be significantly taller, and this was an issue for the LBC planning team, as well as local residents. Discounted.



ID	CSF	Scope	
5	Acute Service Block and New Ward Block	<p>Build an acute service block for;</p> <ul style="list-style-type: none"> ■ NICU ■ Critical Care ■ Delivery Suite ■ Theatres <p>Build a New Ward Block for;</p> <ul style="list-style-type: none"> ■ Maternity Wards ■ Clinical Support <p>*Known as Phase 1 of the Design Control Plan (DCP)</p>	<p>This option supports the Trust's Investment Objectives and CSFs and aligns with service scope. Preferred Option.</p>
6	Full redevelopment of the hospital site	<p>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.</p> <p>*Known as Phase 2 of the DCP</p>	<p>This option reflects the Trust's OBC developed in 2016, costed at £177m at this time. This option provides the Trust's forward view of the site in terms of how the site will be developed in the future.</p> <p>It was strongly considered that this option be taken forward to the short list, however, was discounted from the short list for a number of reasons. Firstly, there was no clear route on funding. Secondly, it would have been challenging to manage a significant amount of construction across the estate at one time, pushing the programme out significantly from completion in 2024. Finally, the Trust required time to further consider the strategic direction of ED, in light of (at the time), the forthcoming merger with Bedford Hospital and evolving national drivers. Discounted.</p>
7	Full new build off site	<p>Relocate the existing hospital and all services onto a new site elsewhere within the Luton /Dunstable catchment area.</p>	<p>This option aligns with the Trust's Investment Objectives but challenges the Trust's sustainability in terms of affordability. There was no clear route to funding, nor to a site in which a new hospital could be built. This option was evaluated in some detail in 2014 in support of the SOC. The conclusion was that this proposal was unaffordable and that proposals should be focused on redevelopment of the current site.</p> <p>Discounted.</p>

Table 3.4- Summary of the Long List of Options Evaluation

The long list of options was developed in October 2019 at OBC stage, by the Redevelopment Programme team, with continual engagement with stakeholders and staff throughout the development process. The options were subsequently evaluated against the Investment Objectives and Critical Success Factors, listed earlier in the chapter. The options were then RAG rated collectively by the Programme Team and either carried forward to the short list, or discounted. A summary of the options and the status of each option as described in the OBC is represented in Table 3.5 below. The options reflect the evaluation described in the OBC.

#	Option Title	Qualification of Each Option
1	Business as usual – invest in backlog maintenance programme	Carried forward for evaluation purposes.
2	Consideration to move more services into the community/health hubs and develop space freed up to support redevelopment of critical services	Discounted.
3	Acute Service Block (excluding maternity wards)	Carried forward.
4	Acute Service Block with Maternity wards	Discounted.
5	Acute Service Block and New Ward Block	Carried forward.
6	Full redevelopment of the hospital site	Discounted.
7	Full new build off site	Discounted.

Table 3.5- The Long List of Options OBC Outcome

3.7 The Short List

The following BAU option will focus on annual backlog maintenance and ad hoc capital schemes aligned to the Development Control Plan (DCP), the approved plan which articulates the level of L&D site development required to bring the estate up to a more efficient standard. The service solution will include elements of refurbishment and new build. Facilities management services will continue to be delivered through a mixed service provision, and a rolling programme of implementation will be taken forward through a mixture of funding options.

Long list reference	Short list reference	Option description
1	0	Business as usual
3	1	Do Minimum: Acute Service Block, plus enabling schemes
5	2	Do More: Acute Service Block and New Ward Block, plus enabling schemes

Table 3.6- Shortlisted Options



3.7.1 Business as Usual – Option 0

The BAU option will focus on annual backlog maintenance and ad hoc capital schemes aligned to the Development Control Plan (DCP), the approved plan which articulates the level of L&D site development required to bring the estate up to a more efficient standard. The service solution will include elements of refurbishment and new build. Facilities management services will continue to be delivered through a mixed service provision, and a rolling programme of implementation will be taken forward through a mixture of funding options.

BAU 0 - Option 0	
Service Scope	Annual backlog maintenance and ad hoc capital.
Service Solution	Refurbishment and new build elements.
Service Delivery (FM)	Mixed provision.
Implementation	Rolling programme.
Funding	Mixed funding.

Table 3.7- Business as Usual - Option 0

3.7.2 Do Minimum – Option 1 – Build an Acute Service Block

In summary, Option 1- Do Minimum, will focus on delivering a new Acute Services Block (ASB), aligned to the DCP and the Bedford, Luton, and Milton Keynes (“BLMK”) Estates Strategy. The service solution will include a new build of the ASB. Facilities management services will continue to be delivered through a mixed service provision and the programme will be delivered over 2.5 years from the start of construction, through a mixture of funding options, which includes PDC and BHNHSFT cash contribution.

Do Minimum - Option 1 - Build an Acute Service Block	
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.
Funding	Mixed funding.

Table 3.8- Do Minimum - Option 1 - Build an Acute Service Block

3.7.3 “Do More” – Option 2 – Preferred Option

Option 2, the Do More option, will deliver a new Acute Services Block (ASB) and New Ward Block (NWB). This investment is also aligned with the DCP and the BLMK Estates Strategy. The service solution will include a new build. Facilities management services will continue to be delivered through a mixed service provision, and the programme will be delivered over 2.5 years from the start of construction, through a mixture of funding options, which includes PDC and BHNHSFT cash contribution.

As set out in the OBC economic appraisal summary section below, this option presented the highest NPSV of £282m, and in turn, the highest benefit: cost ratio at 4.06. It was subsequently ranked as the Preferred Option, because it presented the highest VfM overall.

Intermediate Option “Do More” - Option 2 - Preferred Option	
Service Scope	Refurbishment and new build elements.
Delivery Suite, Critical Care, NICU, Theatres, Maternity, Wards, Enabling	Refurbishment and new build elements.
Service Solution	New build.
Service Delivery (FM)	Mixed provision.
Implementation	2.5 years.
Funding	Mixed funding.

Table 3.9- Intermediate Option “Do More” – Option 2 – Preferred Option

3.7.4 The Shortlist OBC Economic Appraisal Summary

In the OBC, approved in November 2020, a full economic appraisal was conducted on the three shortlist options described above. The results of the analysis found that Option 2 was the Preferred Option, due to it offering the most quantifiable and unmonetisable benefits compared to costs, while presenting the least risk to the Trust. The summary of the analysis is presented in Table 3.10 below.

£'000	BAU - Option 0	Do Minimum - Option 1	Do More - Option 2
Risks			
Total discounted risk value	313,615	90,205	80,289
Costs & Benefits			
Incremental Costs Total	0	- 86,994	-92,162
Incremental benefits Total	0	288,239	374,426
Risk Adjusted Net Presented Social Value (NPSV)	0	201,245	282,263
Benefit: Cost ratio	0	3.31	4.06
Overall Rank	-	2	1

Table 3.10- OBC Economic Appraisal Summary Results

3.8 Capital Requirement

The capital requirement for the Preferred Option remains unchanged since the approval of the OBC in November 2020.. There has been significant pressure on the scheme costs following the elongation of the OBC approval, subsequent halt of procurement and the hyperinflation within the construction market. This significant pressure has been addressed through a combination of Value Engineering and procurement savings.

£'000	Do More - Option 2		Variance
	FBC	OBC	
IT Merger Enabling	8,000	8,000	-
Pathology Joint Venture	3,600	3,600	-
Acute Services Block	100,000	106,400	-6,400
New Ward Block	36,800	32,900	3,900
Lift core	5,800	3,300	2,500
Other enabling	14,400	14,400	-
Total Scheme Cost	168,600	168,600	-
Trust Contribution	-18,600	-18,600	-
Funding Required	150,000	150,000	-

Table 3.11- Capital Costs requirement Summary

FB forms can be found in Appendix 3.



3.8.1 Sunk Costs

Some works for the project have been undertaken following OBC approval. In line with CIA model guidance, any sunk costs associated with the programme that have been incurred and cannot be recovered (even if the project ceases) should be removed from calculations. These costs which have been excluded from the capital cost inputs in the CIA model are as follows:

- £2.9 million spent on the Pathology Joint Venture across 2019-2021; and,
- £2.9 million spent on fees for Clinical Buildings up to August 2021; and,
- £1.1 million spent on IT Merger Enabling works in 2020/21.

3.8.2 Key Appraisal Assumptions

The assessment of DCFs for each of the short-listed options are enabled by the following key financial modelling principles and assumptions, in alignment with HMT Green book and NHSI/E guidance.

Assumption	
Capital Cost Estimates	Developed with support from the Trust's technical advisors, AECOM and now reflecting the NTE price agreed with Kier which falls in line with the current approved cost plan.
Optimism Bias (OB)	<p>Calculated using HMT guidance and with support from technical advisors. As the project has developed, with further clarity provided as a result of detailed design works and planning permissions granted, with further risks managed, the OB levels have reduced as is to be expected.</p> <p>The FBC capital costs include Optimism Bias at 7.4%; contingency is included at 7.1% this gives a total risk contingency in line with the output of a QCRA commissioned from AECOM in October 2021. The QCRA is included in Appendix Pack 3.</p> <p>The lump sum price will be agreed with Kier on the 29th November. At this stage it is expected that OB will decrease and contingency will increase to maintain the level of planning and risk contingency that currently exists, assured by the QCRA outputs.</p>
Lifecycle Cost Estimates	Estimates 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 the FB 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	Estimates have remained unchanged since OBC.
Revenue Costs	Taken from the Trust's 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 are based on a 2019/20 price base, and shown in £'000s, unless otherwise stated.
Appraisal Period	64 years
Base Year	2019/20
Discount Rate	3.5% real for years one to 30 and 3.0% real for years 31 to 64
Quantitative Economic Appraisal of Options	Assumes that the options are funded through Public Dividend Capital ("PDC")
Sunk costs	Consists of IT spend, Pathology Joint Venture costs, costs spent on Clinical Buildings up to August 2021 and other enabling schemes. These have been excluded from the appraisal and CIA model according to HMT Green Book guidance.

Table 3.12- Key Assumptions

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

The approach to this economic appraisal considers the value of the options to the UK as a whole, or ‘social value’, which is analysed into costs, benefits and risks. This enables the Trust to look beyond the individual organisation, and instead to the impact of the programme on the wider region.

Table 3.13 displays the risk adjusted NPSV for each shortlisted option, and the benefit: cost ratio. The NPSV is the complete social value and includes all costs, benefits and risks for each option, adjusted to consider the time-value of money. The appraisal covers a 64-year period (64 years project life from a 2019 base date). All costs are in real terms, with FY 2019/20 as the base year.

£'000	BAU - Option 0	Do Minimum - Option 1	Do More - Option 2
Incremental costs - total	0	-79,103.7	-96,656.9
Incremental benefits - total	0	345,508.1	490,621.5 ³
Risk Adjusted Net Presented Social Value (NPSV)	0	266,404.4	393,964.6
Benefit: Cost ratio	0	4.37	5.08
Rank	-	2	1

Table 3.13- FBC Economic Appraisal Summary Results

3.8.3 Opportunity Costs

Opportunity costs portray the value that could have been realised 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. No opportunity costs have been assumed under any option as part of this analysis.

3.8.4 Capital Costs

£'000	BAU	Do Minimum - Option 1	Do More - Option 2
Initial Capital Costs	13,053.9	68,471.2	96,650.2
Lifecycle Costs	1,201.9	5,632.5	7,076.9
Other Capital Costs	2,045.4	8,011.9	5,133.0
Optimism Bias	3,257.0	16,546.3	7,355.0
Total	19,558.2	98,661.9	116,215.1

Table 3.14- Capital Costs

Following discussions with NHSE/I colleagues, Option 1 optimism bias has been adjusted upward within the CIA modelling to recognise that no further design works, including learning from Covid, MMC and NZC guidance has been progressed from the OBC options submission in April 2020. Consequently no updated costings have been received, from the point of OBC submission. This has resulted in an increase in OB from 11.6% to 20.2% to allow for this additional uncertainty, using the CIA model OB calculation methodology. Do More Option 2 optimism bias has been updated to reflect pricing received from Kier. The optimism bias for option 2 has decreased from OBC levels to reflect the current optimism bias assessment as determined by the CIA model. Optimism bias has decreased from 11.6% to 7.4%.

³This incremental benefit number includes £35.6m of revenue savings when compared to the BAU.



3.8.5 Summary of Revenue Costs

Revenue costs refer to the ongoing operating costs of delivering the scope services across the Trust, with all options modelled using the same assumed service level and activity. All revenue costs have been assessed on an incremental basis and consist of clinical service, non-clinical and building running costs to maintain facilities (where applicable across options). Further indicative affordability analysis is included within the Financial Case. It should be noted that, following feedback received, revenue costs as part of this FBC have been amended presentationally to show as consistent across each option (BAU, Option 1 and Option 2). In light of this amendment, the differential between each option is seen through the benefits derived, rather than changes in the revenue cost base shown through the CIA.

Table 3.15 below presents a summary of revenue costs for each option, with further detail in Appendix 3 which contains the CIA.

£'000	BAU	Do Minimum - Option 1	Do More - Option 2
Clinical Service Costs	636,218.9	636,218.9	636,218.9
Building Running Costs	113,791.8	113,791.8	113,791.8
Other Revenue Costs	125,797.1	125,797.1	125,797.1
Total	875,807.7	875,807.7	875,807.7

Table 3.15- Revenue Costs

3.8.6 Net Present Cost Analysis

The initial results of the quantitative appraisal of options is summarised in Table 3.16 below, which outlines the NPC, broken down by cost line, for each of the options. For the purposes of the value for money analysis, the options outputs below are presented incrementally compared to the BAU option, in line with HMT Green Book Guidance and the NHSE/I Checklist.

Overall, the BAU presents the lowest net present costs. As observed in Table 3.16 below, Option 2 is estimated to have £96.7m more in costs compared to the BAU, while Option 1 presents £79.1m more in costs.

£'000	BAU	Do Minimum - Option 1	Option 2
Opportunity Costs	-	-	-
Capital Costs (incl OB)	19,558.2	98,661.9	116,215.1
Revenue Expenditure	875,807.7	875,807.7	875,807.7
Total	895,365.9	974,469.6	992,022.8
Rank	1	2	3
Distance from #1 Rank	-	79,103.7	96,656.9

Table 3.16- NPC Analysis

3.8.7 Quantitative Risk Assessment

As part of the options appraisal process, the Trust has considered the potential risks inherent in each option over the full 64-year appraisal period. Workshops with key stakeholders of the Trust were held, including clinical, finance and estate leads. These workshops considered the anticipated risks of each option across design, construction, performance, operational, technology and demand. Following these workshops a consensus was established on which risks were quantifiable and therefore carried forward for analysis with the support of the Trust's cost advisors, AECOM, with the methodology set out below. These risks have been revalidated in 2021 by the Trust, to ensure their continued consistency with the Options and have been updated to reflect any mitigation enacted since OBC.

In order to quantify risks, a multi-point probability analysis was conducted on all identified risks, according to CIA modelling requirements. This required an estimation of the range of possible outcomes for each risk, and then each outcome was assigned a probability of occurrence, as well as the level of impact if the risk occurs. The 'expected outcome' is then calculated by taking the average of all possible outcomes, while accounting for their varying probabilities. For each risk the Trust agreed the following framework:

- the party responsible for managing risk;
- the impact if a risk occurs – low, medium, high (e.g. +/-% of cost driver);
- the likelihood of occurrence – low, medium, high (total 100%); and,
- The years for which the risk could occur, and therefore for which it should be quantified.

£'000	BAU	Do Minimum - Option 1	Do More - Option 2	[Owner]
Design Risk	68,589.8	6,236.7	4,286.4	
Construction Risk	54,943.1	11,463.6	15,122.9	
Performance Risk	7,184.0	6,911.7	6,911.7	
Operating Risk	21,436.6	8,553.9	4,899.0	
Revenue Risk	162,256.3	28,318.6	14,780.6	
Other	3,485.3	-	-	
Additional	17,156.8	9,211.1	11,278.2	
Total	335,051.9	70,695.5	57,278.8	-

Table 3.17- Quantitative Risk Assessment

As presented above, the BAU presents considerably higher quantifiable risks than Option 1 and Option 2. Option 2 presents the lowest risks of all the options; due to the more limited scope of work it proposes. For full detail on the timing of the impact for each risk, refer to the CIA model in Appendix 3.

In line with the revalidated risk analysis outlined above, Option 1 and Option 2 present lower risks than those estimated at OBC stage. This is due to the risk mitigation process taking place as the Trust moves closer to the start date of the programme.



3.8.8 Risk Adjusted NPC

The risk adjusted NPC of each option is calculated by adding the total risk 'expected outcome' to the NPC. This provides a more robust view of all possible costs which may occur during the life of the project in present terms. The options were then ranked from lowest risk adjusted NPC to highest, with Option 1 ranking marginally ahead of Option 2.

£'000	BAU	Do Minimum - Option 1	Do More - Option 2
NPC	-895,365.9	-974,469.6	-992,022.8
Quantified Risk NPC	-335,051.9	-70,695.5	-57,278.8
Risk Adjusted NPC	-1,230,417.3	-1,045,165.1	-1,049,301.5
Rank	3	1	2
Distance from #1 rank	185,252.6	-	4,136.4

Table 3.18- Risk Adjusted NPC

3.9 Benefits

The Trust has undertaken a high-level assessment of the benefits that could be generated under each of the short-listed options in alignment with the cost assessment. The benefits recognised in the Economic assessment are consistent with those modelled within the financial affordability model. It should however be noted that benefits within the financial case have been inflated and therefore will not correspond directly to the benefits seen within the economic case due to the need to remove inflation from economic appraisals.

3.9.1 Benefit Appraisal Key Assumptions

The benefit appraisal was conducted on the premise of the same assumptions set out in Section 3.8, in line with the NHSE/I Fundamental Criteria checklist and HMT Green Book guidance.

3.9.2 Cash Releasing, Non-Cash Releasing and Societal Benefits

The economic appraisal requires a consideration of benefits attributable to each option to be compared to the baseline option. As outlined at OBC, the Trust ran a number of benefit identification workshops with key stakeholders of the organisation in order to identify benefits that could be delivered by each option based on its respective capital investment, as well as clinical configurations and service

delivery over the appraisal period. The Benefits Realisation Plan was also developed during these workshops and is set out in the Management case of this FBC. A revalidation exercise was undertaken by the Trust in April 2021 to affirm the relevancy of these benefits and continued alignment with the CSFs and Investment Objectives.

As per the comments made within this costs section, it is important to note that revenue cost savings have been recognised within the benefits rather than the costs section of the CIA.

All cash releasing and non-cash releasing benefits attributable to each option are listed below in Table 3.19.

3.9.3 Societal Benefits

Following engagement with NHSE/I, societal benefits have been removed from the FBC.

⁴ Source: UK Input Output Tables, 2017.

£'000	BAU	Do Minimum - Option 1	Do More - Option 2
Cash Releasing Benefits			
Same sex compliance	1,029.8	1,105.9	1,105.9
Reduce waiting times for surgery	-	331.8	331.8
Reduce in utero transfers due to lack of level 3 NICU cot	-	1,658.8	1,658.8
Reduce ex utero transfers due to lack of level 3 NICU cot	-	3,981.1	3,981.1
Increase critical care capacity	-	796.2	796.2
Saved cost from temporary decanting of Ward Block 10, 11 and 12	-	-	46,430.6
Saving on Paediatric nursing time	-	11,058.7	11,058.7
Reduction in agency staff spend	514.9	442.3	552.9
Decrease additional session payments	-	12,441.0	16,588.0
Decrease process duplication in theatres	-	2,985.8	3,981.1
Colocation of maternity services and a reduction in staff and patient transport times	-	-	3,317.6
Maternity reduction in reception points from 6 to 2	-	-	1,658.8
Pathology Merger Savings	-	56,433.1	75,244.1
Revenue saving from avoided equipment rentals	-	-	35,483.4
Trust Merger Savings realised within BAU	75,664.3	52,373.7	69,831.6
Total CRBs	77,209.0	143,608.5	272,020.7
Non-Cash Releasing Benefits			
Reduction in complaints	-	597.2	895.8
Free up Paediatric nursing time	-	597.2	597.2
Reduced backlog maintenance	-	1,769.4	3,538.8
Improved colocation in theatres	-	4,821.6	4,821.6
Improved colocation in critical care	-	3,981.1	3,981.1
Decreased maintenance time	-	2,654.1	3,538.8
Lift resilience	-	331.8	663.5
Total NCRBs	-	14,752.3	18,036.7
Total Benefits	77,209.0	158,360.8	290,057.4

Table 3.19- Cash Releasing and Non-Cash Releasing Benefits

The analysis estimates that Option 2 offers the highest total quantifiable benefits of £290.1m, compared to the BAU benefits of £77.2m. Option 2 outstrips Option 1's benefits by £131.7m, which is largely driven by revenue savings from avoided equipment rentals, saved decant costs and colocation of maternity services attributable to Option 2.



3.9.4 Un-monetisable Benefits

In order to understand an option's broader impact, the un-monetisable benefits of each option need to be considered. Benefits, for example, such as fire compliance, and improved disabled access provide impactful improvements to the services of the programme, which can enhance patient experience. Therefore, in line with HMT Green Book guidance and the NHSE/I Checklist each option has been assessed against its ability to provide several non-quantifiable benefits. These are outlined below along with the value for money analysis for each option.

Benefit	Description	BAU	Do Min-Option 1	Do More-Option 2
Paediatric segregation	Paediatric segregation in theatre (surgical arrivals and recovery)			
Maternity bathroom facilities	Provide private and dignified bathroom facilities for patients in maternity			
Critical care bathroom facilities	Provide private and dignified bathroom facilities for patients in critical care			
Improved ventilation	Reduced clinical incidents provide ventilated clinical accommodation in line with HBN requirements			
Fire compliance	Provide safe and fire-compliant accommodation in line with HBN and HTM guidance			
Improved disabled access	Provide access for patients, staff, and visitors with disabilities - provide compliant accommodation			
DDA-compliant accommodation	Provide access for patients, staff and visitors with disabilities - provide DDA accommodation			
Health and Safety	Health and Safety compliance			
Business continuity	Maintain business continuity by providing service resilience			
Family and Friends score	Improve family and friends feedback across maternity, neonates critical care and theatres			
CQC rating	To achieve CQC rating of good or higher			
PLACE	Higher PLACE inspection standards			
Reduction in HAI	Compliance with HBN 00-09 'Infection Control in the Built Environment			

Table 3.20- Un-monetisable Benefits

As demonstrated in Table 3.20 above, Option 2 presents the highest qualitative benefits. Both Option 1 and Option 2 offer benefits from paediatric segregation, and maternity bathroom facilities, while the BAU fails to offer these due to the limited scope under this option.

3.10 Value for Money Analysis

Following negotiations with suppliers and further economic appraisal, the options' absolute value for money ("AVFM") have been calculated and presented below, in accordance with HMT and NHSE/I guidance. The AVFM has been evaluated by comparing the net quantified benefits presented in the previous section against the incremental NPC of each option to calculate the NPSV. To arrive at a benefit: cost ratio, incremental benefits are divided by the incremental costs of each option.

For 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 below.

Table 3.21 below provides a summary of the Risk Adjusted NPSV for each of the options assessed over 64 years.

£'000	BAU	Do Minimum - Option 1	Do More - Option 2
Incremental Costs - total	-	-79,103.7	-96,656.9
Incremental benefits - total	"-	345,508.1	490,621.5
Risk Adjusted Net Presented Social Value (NPSV)	-	266,404.4	393,964.6
Benefit: Cost Ratio	-	4.37	5.08

Table 3.21- VFM Analysis

The analysis indicates that Option 2 presents the best value for money in comparison, with a benefit: cost ratio of 5.08. Overall, Option 2 presents higher costs than Option 1; however, it also presents higher quantifiable benefits, resulting in a NPSV £127.6m higher than Option 1.

3.11 Sensitivity Analysis

In order to test the robustness of the economic appraisal it has been necessary to perform sensitivity analysis to assess the impact on the relativities between options and the conclusions drawn regarding VfM. This demonstrates the robustness of the options appraisal, as it exposes any sensitivities to changes in inputs for each option. The analysis tests the following changes to key variables, with metrics chosen which the Trust considers lies within the reasonable range of adjustment:

Capital costs in all options – 10% increase

- Lifecycle costs in all options – 10% increase
- Benefits in all options (including BAU) – 10% decrease

The subsequent implications of these changes on each option are set out by sensitivity in the sections below.

3.11.1 Increase in Capital Expenditure under the Shortlisted Options by 10%

One uncertainty surrounding any capital project is the level of planned capital expenditure. To account for this risk, a sensitivity analysis has been carried out by increasing capex by 10%, with the resulting impacts presented below for each option.



£'000	Do Minimum - Option 1	Do More - Option 2
Risk Adjusted NPC	-1,045,165.1	-1,049,301.5
Sensitised Risk Adjusted NPC	-1,045,354.5	-1,059,479.9
Variance	9,189.4	10,178.4
Sensitised Benefit: Cost Ratio	3.91	4.59

Table 3.22- Increase in Capital Expenditure Sensitivity Output

The sensitivity analysis suggests that should capital expenditure increase 10% the Risk Adjusted NPC for both Options 1 and 2 will increase by £9.2m and £10.2m respectively, resulting in a sensitised BCR of 3.91 for Option 1 and 4.59 for Option 2. This analysis demonstrates that even in an event of capital expenditure increase, Option 2 remains the Preferred Option from a VFM perspective.

3.11.2 Lifecycle Costs Increase in the Shortlisted Options by 10%

The ability to reduce lifecycle costs of the new builds due to their modern construction is considered a key benefit of Option 2, as it underpins various efficiencies incorporated within the capital costs for that option. Therefore, to account for the risk that this intervention does not reduce lifecycle costs, an increase to lifecycle costs by 10% was calculated for each option, with the subsequent impacts presented below.

£'000	Do Minimum - Option 1	Do More - Option 2
Risk Adjusted NPC	-1,045,165.1	-1,049,301.5
Sensitised Risk Adjusted NPC	-1,045,841.8	-1,050,010.4
Variance	676.7	708.9
Sensitised Benefit: Cost Ratio	4.33	5.04

Table 3.23- Increase in Lifecycle Costs Sensitivity Output

According to the results of the sensitivity analysis, should lifecycle costs increase by 10% over the appraisal period; the Risk Adjusted NPC for both Options 1 and 2 will increase by £677k and £709k respectively. This increase results in a very slight decrease in the sensitised BCR for both options, however, still proves Option 2 to be the Preferred Option of the two.

3.11.3 Benefits – Decrease by 10% in the Shortlisted Options

The delivery of benefits underpins the positive benefit: cost ratio for all options. The Trust has developed the pay efficiencies through a bottom-up analysis of the scheme and associated benefits attributable to it. Significant engagement with clinical and operations teams has been undertaken in order to come to a robust quantification of the staff efficiencies that could be released through the scheme, and therefore the Trust considers a 10% decrease in CIP unlikely.

However, in alignment with the NHSE/I Fundamental Criteria checklist and HMT Green Book guidance, this assumption was tested again for robustness by decreasing the benefits of all options by 10%. The impact of this decrease on the benefit: cost ratio is laid out in the Table 3.24 below.

	Do Minimum - Option 1	Do More - Option 2
Base Case Benefit: Cost Ratio	4.37	5.08
Sensitised Benefit: Cost Ratio	4.27	4.36

Table 3.24- Decrease in Benefits Sensitivity Output

In the unlikely event that all benefits valued under the shortlisted options should decrease by 10%, the sensitised BCR of Option 1 would decrease to 4.27, while the BCR for Option 2 would be reduced to 4.36. Despite this reduction in BCR, in this scenario, Option 2 still remains the Preferred Option.

3.12 Economic Case Conclusion

The Trust has gone through a significant re-validation exercise for all economic inputs since the completion of the OBC. Updated capital and revenue costs have been included in the analysis as a result of the programme delay increased level of design works undertaken and the construction contractor tender process. A benefits validation exercise has been undertaken in order to reaffirm the validity of the benefits included at OBC stage, in addition to a revised quantitative risk appraisal being undertaken, again recognising the increased maturity of the programme. Following OBC approval the CIA Model has been updated for each of these elements, with the results of the analysis clearly demonstrating that Option 2 remains the Preferred Option with the ability to drive the most economic benefit both to the Trust directly and to wider society.

Option 2 results in the highest benefit: cost ratio of the short-listed options, 5.08. Option 2, the Do More option, will deliver a new Acute Services Block (ASB) and New Ward Block (NWB). This investment is also aligned with the DCP and the BLMK Estates Strategy. The service solution will include a new build. Facilities management services will continue to be delivered through a mixed service provision and the programme will be delivered over 2.5 years from the start of construction, through a mixture of funding options, which includes PDC and BHNHSFT cash contribution.

As set out in the OBC economic appraisal summary, this option presented the highest NPSV of £394m, and in turn, the highest benefit: cost ratio. It was subsequently ranked as the Preferred Option, because it presented the highest VfM overall.

Option 2 is therefore the Preferred Option to redevelop the hospital site providing modern, efficient, compliant and safe clinical accommodation for acute services. In addition to being the most advantageous strategic fit for the Trust and the wider healthcare community. 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.

4 THE PREFERRED OPTION



THE PREFERRED OPTION SUMMARY

The Strategic Case outlined a compelling case for change and a vision to redevelop the site aligned to strategic objectives to improve quality. This chapter outlines how the preferred option will deliver the case for change in response to the critical success factors and objectives for the scheme. The ambition of the preferred option is in line with national policy and ultimately will support higher quality, more efficient and safer patient care. This chapter includes the estates solution – why are we doing this, what are we doing and how are we doing it. Plans describe whole hospital site plans, departmental plans and individual room layouts. There is an emphasis on quality design to support patient outcomes; modern methods of construction supporting programme and value optimisation; and digital collaboration which maximises the best use of clinician’s time.

We recognise the importance of working with our regulators to ensure we fully meet, if not exceed the standards expected of a well-run, high performing NHS Foundation Trust. These standards ensure we provide high quality, safe, effective care in an economically sustainable manner. We have an inherent obligation to protect our patients, visitors, staff and others and we must ensure the care we provide is of the highest standards and that we provide good value for money to the tax payer. Our aim must also be to ensure as much money as possible is available to support the delivery of care, through the elimination of waste, duplication and inefficient use of resources in our Estate and how we operate it.

This Estates Strategy ensures we minimise risk in all forms, that our environments are safe and provide a high quality experience for patients and visitors. The environment in which we provide our clinical services must be maintained to a very high standard and support our staff to deliver high quality care. We will strive to ensure all our services to patients and visitors are provided in our best assets. We will ensure we provide all our staff with safe, suitable and effective working environments, whatever their role. We will aim to eliminate, minimise or adequately control risks due to the built environment at every stage. We must ensure that any investment decisions are affordable and represent good value for money and support our financial plans

Clear and defined programme governance has been followed to support the development of the preferred option. This scheme has been designed in response to the

Clinical Strategy and a number of underpinning strategies that support more efficient and sustainable processes.

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 full design pack can be found in Appendix 4.



4.1 Introduction

The Strategic Case identified that a significant redevelopment of the L&D was required due to the poor quality of existing estate which is severely compromised patient safety, staff morale, quality and efficiency. Maintaining suboptimal facilities is an inefficient use of public funds, and directly contravenes the Health Infrastructure Plan (2019), the BLMK ICS strategic plan and learning from Naylor (2017) and Carter (2016) reviews. Addressing the poor estate remains a key corporate objective for the Trust 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 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.

The Partial Redevelopment of the Luton and Dunstable University Hospital, which is the subject of this FBC, is a major project which is taking place on a busy, operational hospital campus. Planning permission was granted in March 2020. The Redevelopment Project includes the demolition of some existing hospital buildings, to allow for the construction of an Acute Services Block at the centre of the Hospital Site, providing new Maternity, Critical Care and Neonatal Services and Theatres. A New Ward Block forms part of the new build, along with a link building.

Facilitating these major investment projects, a number of smaller enabling schemes have also been implemented, including obtaining temporary planning permission for two off-site staff car parks and an on-site office block.

A number of Trust funded schemes facilitate the main redevelopment and enhance the Trust's corporate objectives, these include a new Energy Centre which is currently being erected to serve the Hospital's needs for essential energy, heating and cooling from a centralised building. In addition, a new Travel Hub close to the Hospital Entrance, including secure cycle parking and changing facilities for staff, alongside a new multi-storey visitor car park is now fully open and operational.

Alongside the Partial Redevelopment, the Trust is extending the Hospital's urgent and emergency care department and redeveloping the main Hospital entrance on Lewsey Road. Planning permission was granted in March 2021, and the scheme creates new waiting and circulation areas, additional capacity and rapid access to imaging, whilst externally creating an improved environment with new entrances, better drop-off arrangements and enhanced access.

4.2 Key Changes Since OBC Approval November 2020

- "Learning from Covid" workshops with clinical team, design team and infection control team, used to refine the design
- DQI review
- Strengthened Management and Governance arrangements following "lessons learnt from OBC" review with the Trust Executive
- Enabling work scheme development and completion
- Full planning permission from Luton Borough Council
- Development of key workstream inputs (there are four key workstreams that underpin the redevelopment programme), including;
 - Clinical Model of Care
 - workforce and implementation plans
 - Digital strategy requirements for redevelopment
- Appointment of contractor and RIBA stage 4 design development, including refinement and value engineering

4.3 Development Control Plan

Whilst a whole site redevelopment of the hospital estate is required, as identified by the site development control plan (please see strategic case), financial and operational constraints require that this is conducted in sequential phases. This business case describes the first phase in the life of the redevelopment programme and addresses the Trust's highest risk clinical areas, those with significant backlog.

4.4 Enabling the Preferred Option

A programme of Trust funded enabling projects commenced in June 2020 and will complete in December 2021. The objective of the enabling programme is to clear the north area of the site to prepare for the construction of the new hospital buildings.

Clearing the site ready for the main contractor aimed to de-risk the project, thus attracting interest from the market (soft market testing indicated that contractors wanted a "clean" site) and ultimately drive programme and value for money.

Enabling projects comprised of new facilities, refurbished facilities, the movement of services off site (into the community) and general minor works to facilitate the redevelopment. Modern methods of construction were employed as a key design and delivery principal to support programme, enhance quality of the finished product and ultimately to limit disruption on the site.

ID	Enabling Scheme Name	Description	Value (£'000)
1	New Trust Corporate Services Hub Completed March 2021	Status: Complete Typology: Modular GIA: 2,100m2	£3,000
2	OPD Facilities (Audiology) Completed October 2020	Status: Completed Typology: Modular GIA: 150m2	£125
3	Office Fit Out Completed May 2021	Status: Completed Typology: Refurbishment GIA: 2,100 m2	£1,500
4	Waste Compound relocation Completed April 2021	Status: Completed Typology: Surfacing only GIA: N/A	£500
5	Faith Room relocation Completed March 2021	Status: Completed Typology: Modular GIA: 40m2	£25
6	EBME relocation Completed May 2021	Status: Completed Typology: Refurbishment GIA: 100m2	£90
7	OPD Facilities (Bariatrics & Rheumatology) Completed April 2021	Status: Completed Typology: Refurbishment GIA: 500 m2	£1,200
8	Angel Route Completed March 2021	Status: Completed Typology: Minor Works GIA: N/A	£150
9	Service Diversions Completion Target – Aug '21	Status: On-site Typology: Refurbishment GIA: N/A	£150
10	Demolition of Trust HQ, Building 38 & Phoenix House Completion Target – Dec '21	Status: On-site Typology: Demolition GIA: N/A	£1,000
TOTAL			£7,740

Table 4.1- Enabling schemes summary



4.5 Design Management

4.5.1 Governance

To ensure effective delivery of the redevelopment programme, a clear structure was established to ensure that appropriate arrangements to support general management of the programme were made. The management case sets this out in detail, providing the programme structure, management and governance arrangements for this scheme. The Redevelopment Programme Board, with delegated authority from the Trust Board held responsibility for ensuring the design process was managed robustly and in line with central guidance. The Programme Board sought assurance that all stakeholders had been engaged in the design process and that it was aligned with the Trust's strategic objectives and national requirements for capital healthcare delivery.

Underpinning the Programme governance arrangements were a number of work groups, including the Clinical User Groups which acted as the vehicle for the Design Team to interface with the clinical teams to drive forward the design.

4.5.2 Clinical User Groups

Clinical User Groups were managed by the Trust's Delivery Team. Membership, terms of reference and a programme of inputs and outputs were agreed early on in the design development to support planning and to set clear and realistic expectations for programme delivery.

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.

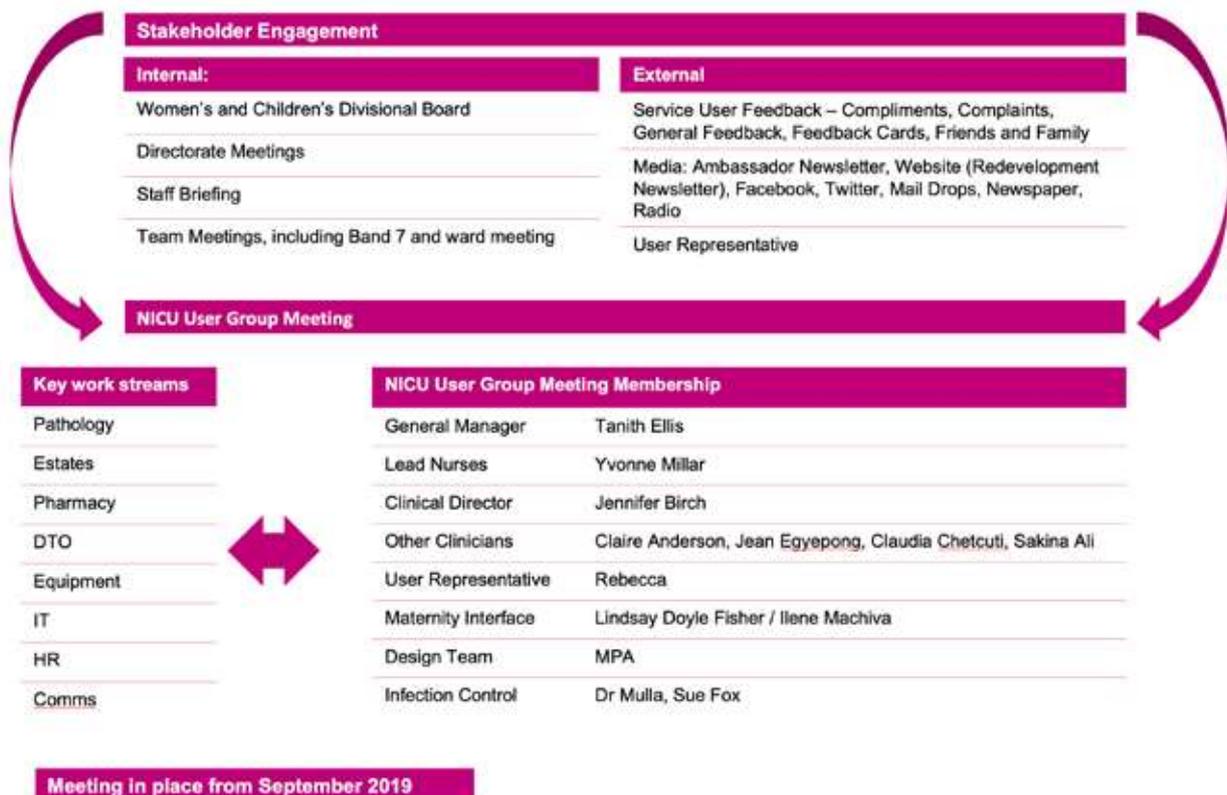


Figure 4.1- Example structure and make up of one of the clinical user groups.

Figure 4.1 shows the structure and make up of one of the clinical user groups.

During the user groups, proposed designs were presented for review and discussion. The user group meeting had a core membership which included the Trust’s Infection Control and Prevention Team. Interfacing work groups such as the Digital Work Group, provided input into the design process as and when required.

4.5.3 Design Team Management and Coordination

The Design Team was commissioned and managed by the Trust’s Redevelopment Delivery Team. The Trust’s Architect acted as Lead Consultant for the Design Team, with clear leadership provided by the Programme Director. The Trust’s Cost Consultants although part of the Design Team, reported in directly to the Programme Director. This supported design challenge and ensured a value for money solution remained a key consideration.

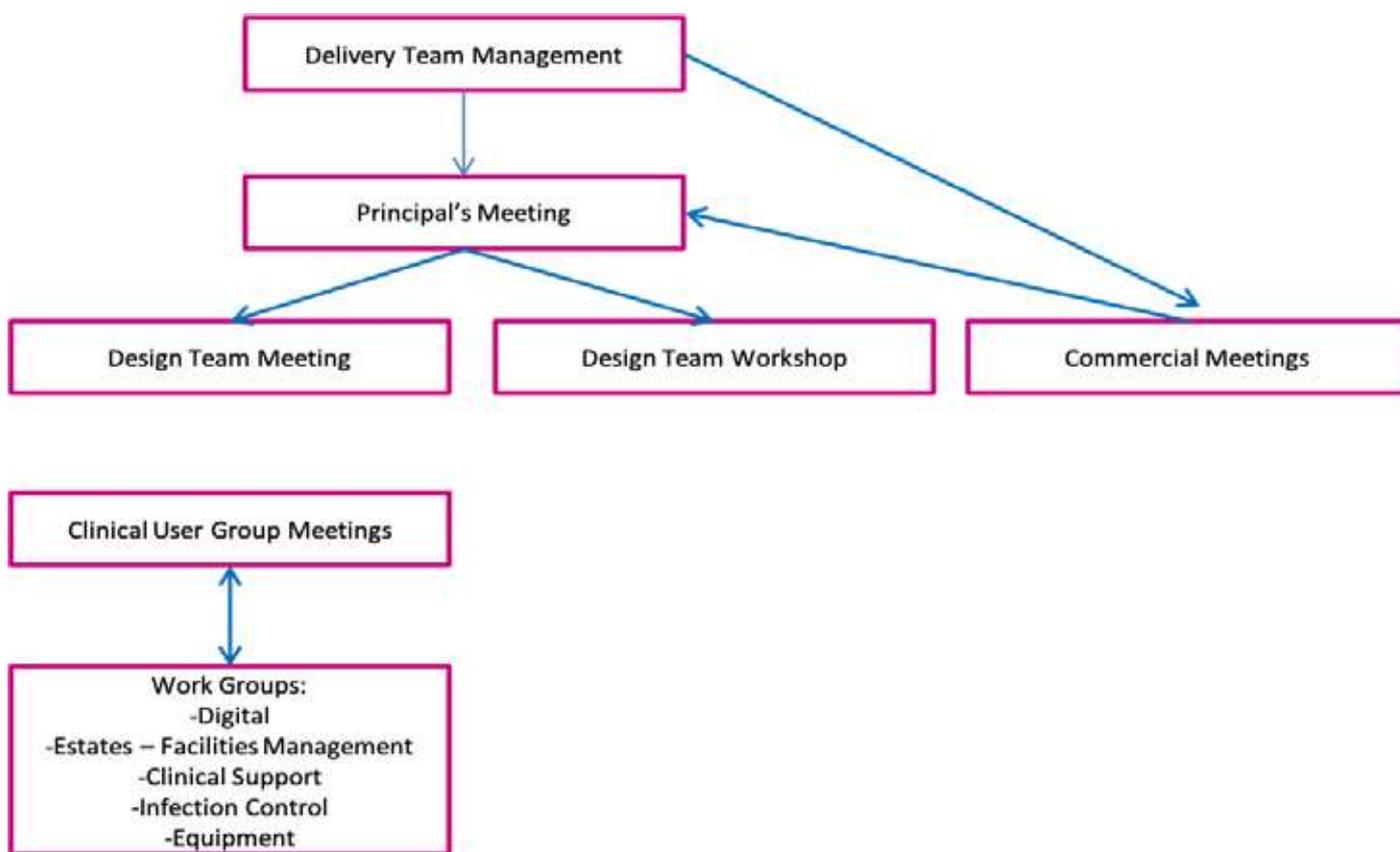


Figure 4.2- Design team management and coordination



4.6 Design Principles

4.6.1 Estate Strategy Alignment

Whilst the redevelopment fundamentally replaces old, inefficient estate with new, there has been an opportunity to use the redevelopment as a vehicle to stimulate and progress the clinical strategy. This is particularly evident in the Models of Care (MoC) that have been developed and will be adopted in the new buildings. The Models of Care strive to achieve sustainable efficiencies and improved care outcomes.

The Trust intends to continue to improve the productivity of its Estate, adopting the following principles:

- increase the utilisation of clinical space to reduce inefficiency
- reduce the amount of estate used for non-clinical activities
- bring the operating costs of the Estate to the fore with service lines, not just be a corporate overhead
- improve the efficiency of the long term assets and resolve underperforming assets through disposal, demolition or refurbishment
- support the provision of a technology led and enabled environment to enhance productivity and utilisation of resources, including space
- seek to reduce the operating costs of the Estate through effective use of resources, good management and environmental performance improvements
- reduce the operating cost (unitary charge and energy) and avoid increasing costs still further
- make best use of the capital resources and minimise the revenue consequences of such capital investments

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, whilst ensuring a greener and more sustainable future.

There have been a series of interactive workshops with Estates, Safety Groups and Specialist Advisors to ensure that service design is in accordance with central guidance documents. A series of policy documents for all new assets and developments have;

- Produced in consultation with the teams responsible for managing and maintaining them.

- Included infrastructure, plant spatial requirement, energy, vertical transportation and internal services.
- demonstrated how the new buildings will achieve compliance with Building Regulations Part L2A
- Demonstrated how the building construction and installed engineering services will perform to very high levels.
- ensured flexibility, standardisation, resilience and growth will be built into the design (as per NHS guidance)
- Ensured 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.
- utilised existing underground service ducts to bring energy efficient heating and hot water to the new buildings from the central Energy Centre
- Utilised lighting to create visual interest and a relaxing environment for all, whilst setting the standard and tone for the wider hospital redevelopment.

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

Referenced further in the Management Case, works quality will be overseen by the Trust's NEC4 Supervisor for the New Clinical Buildings project (Hicktons). The NEC Supervisor provides inspection and testing to assure that installations meet the specified quality. The appointed team will oversee and provide the Trust assurance on building fabric, and MEP Services. An Independent Commissioning Engineer and Government Soft Landings Champion will enhance confidence in the quality of the works delivered.

4.6.2 Clinically Led Design

The design has been clinically led by the Clinical Directors responsible for the service lines that will move into the new hospital buildings. At a Programme Board level, the Medical Director provides clinical oversight and scrutiny and at the Programme Team level, the Medical Director and Associate Medical Director provide oversight, scrutiny and challenge. The General Manager, Head of Nursing or Matron and Clinical Director for each service line will be responsible for service line provision in the new hospital buildings and have been responsible for developing in partnership across the Trust, and signing off;

- clinical vision
- clinical strategy
- models of care
- workforce models and implementation plans
- Benefits Realisation Plans

These elements of the strategic development have underpinned the design.

4.6.3 Stakeholder Engagement

Understanding the issues with the current facilities was key to designing facilities that improved patient outcomes and service efficiencies. Feedback was gathered from a number of sources;

- Internal sources including the Trust's Risk Register and 6 facet survey
- Patient complaints, compliments, PALS
- General Communication and Feedback (as per the Redevelopment Communications Plan)
 - Redevelopment Pages on the Trust's Website were set up and invited input and feedback
 - Newsletters (to staff, residents, FT members)
 - Facebook
- Patient and Staff feedback and Questionnaires
- Targeted patient engagement – this included;
 - patient representatives sitting on the clinical user groups
 - presentations and discussion with Governors
 - external stakeholder events including presentations to Youth 3A Groups, Pensioners Groups, Local Area Boards
 - General Consultation (held in the market square, a local supermarket, the Town Library and at the Hospital)

The service user input into the NICU and Maternity Designs was regular and invaluable. For Theatres and Critical Care, patient representation was more challenging, and feedback was provided for the most part through the Trust's existing channels e.g. patient feedback, PALS, Complaints, Patient Experience.



4.6.4 Consumerism

The design of the new hospital buildings aligns to consumerism requirements.

Criteria	Compliance
Acceptable levels of privacy and dignity at all times	✓
Gender-specific day rooms (N/A as no inpatient wards in design with the exception of maternity wards)	✓
High specification fabric/finishes to reduce lifecycle costs	✓
Natural light and ventilation	✓
Zero discomfort from solar gain	✓
Dedicated storage space to support high standards of housekeeping and user safety	✓
Dedicated storage for waste awaiting periodic removal	✓
Inpatient bed configurations of >50% single en-suite and >5 bed bays with Separate en-suite WC and showers	✓
Single-sex washing and toilet facilities	✓
Safe and accessible facilities with 3.6-metre bed centres storage of belongings including cash	✓
Immediate patient access to call points for summoning assistance	✓
Patient control of personal ambient environmental temperatures	✓
Lighting at bed head conducive to reading and close work	✓
Patient bedside communication and entertainment	✓
Elimination of mixed-sex accommodation	✓

Table 4.2- Consumerism checklist

4.6.5 Equality and Diversity

An Equality Impact Assessment (EIA) (Appendix 2) identifies 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.

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 and on NICU to allow parents to stay
- Use of the elective pod system, providing patients a private room when awaiting surgery and for final recovery before discharge. This supports segregation, privacy and dignity for many groups, children, adolescents, adults, those with learning difficulties, and sexual segregation

4.6.6 Quality

Consideration of how to optimise the quality of care for specific patient groups has been identified through the EIA and was at the forefront of the design process.

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

Circulation: To improve circulation, travel distances in new buildings will be kept to a minimum, eliminating unnecessary circulation routes. The requirement for vertical travel will be enabled through rapid access lifts, separating clinical, non-clinical and public flows wherever possible. Keeping patient and staff travel distances to a minimum will improve quality, support privacy and dignity and create workforce efficiencies through a reduced demand on escort nurses and porters.

Privacy and Dignity: 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: 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 inwards.

Outside Space: Use of open air space is another demonstrable factor in quality care improvement. To enhance the scheme, the Hospital's Charity will support a number of elements;

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

- Outside space for staff within a landscaped courtyard.

Wayfinding: 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.

4.6.7 Compliance

Health Building Notes (HBN) and Health Technical Memorandum (HTM) have been used as a guiding principle 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) and to support adequate, safe and resilient healthcare accommodation.

Future Flexibility of Design

In the clinical user groups, detailed consideration has been given to how the clinical service provision and models of care might evolve in the future. The challenge to the Design Team was to consider how the accommodation can be future proofed to support changes to demand and the cyclical operational pressures.

This has been achieved through the following measures;

- To sustain elective surgery through the winter, when there is significant pressure on surgical inpatient beds (to accommodate medical outliers), the day surgery and arrivals floor in the Acute Service Block has been designed to support 23 hour stay only.
- To support fluxes in paediatric, adolescent and adult surgical activity, as well to protecting vulnerable groups such as those with learning difficulties, the design for day surgery provides natural segregation through the formation of "surgical pods." Essentially a floor of private rooms in small clusters to achieve privacy, dignity and segregation.
- To support the development of surgical techniques, and the advancement of therapeutic procedures, two hybrid theatres have been incorporated into the design which can flex between traditional surgical and interventional requirements. These are large spaces which could support robotic surgery in the future.
- Within ward areas, including the ante-natal, post-natal and Critical Care wards, space for growth has been identified within the boundaries of the respective floor plans. This ultimately displaces softer accommodation such as storage or office space which would need to be re-provided, but gives a sensible plan for efficient bed placement.



4.6.8 Modern Methods of Construction (MMC)

Key principles underpinning the MMC agenda and aligning in part to the national/Trust's Net Zero Carbon agenda;

- Utilisation of Modern Methods of Construction, Repeatability and Aesthetic Design
- Use of Architectural "Standard Platform" for ward design, to allow future flexibility and to minimise the cost of change
- (The MPA standard platform is a generic set of principles which is not architect specific. It builds on and develops the P22 repeatable rooms work stream and provides the ability for acute and mental health, inpatient and outpatient activities to be undertaken without the need for independent grids, their transfer structures and limited future flexibility).
- Rationalised engineering services distribution routes to accommodate off site manufacture. This includes both vertical risers as well as horizontal distribution within ceiling voids
- Modularised plant rooms, with items such as water tanks and booster sets all to be prefabricated offsite (as has been achieved in the Trust's Enabling Works Projects and on the Energy Centre)
- Reflecting the strategy currently being progressed on the Trust's Surgical Block chiller replacement project, the major chilled water pipework and components will all be manufactured offsite and then fitted together on site reducing the requirement for works on site
- Utilisation where possible of the learning from DHSC P22 standard components throughout the design
- Main and sub-main electrical switchboards will be manufactured offsite and compartmentalised to ease delivery and assembly on site.
- Distribution boards will be specified to be pre-populated and complete with modular wiring headers for quick connection
- Air Handling Unit's and connections to be prefabricated and bolted together on site as well as pump sets to come on packaged skids for assembly
- Large pipework systems to be fabricated off site for chilled water and mains hot water
- Where en-suites and repeatable rooms are present in the design , these will be pre-fabricated and delivered to site in sections

4.6.9 General Design Principles

Further general principles for the design included;

- Alignment to national strategy, regional strategy (e.g. BLMK ICS Estates Strategy) and local strategies (e.g. the Trust's Clinical Vision)
- Implement learning from site visits across other healthcare redevelopments

4.6.10 Net Zero Carbon and Sustainability

The new hospital 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. This will be offset through a sustainable approach in the design 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

4.7 Workforce Strategy and Key Principles

The Trust's 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)
- Service efficiency, which affects patient care and financial performance (such as the split of Critical Care into two units, HDU and ICU).

The design principles seek to provide modern healthcare facilities that support patient care, service efficiency and staff wellbeing, education and training. Staff welfare was placed as a core principle within the design process. Examples of this include:

- Staff rest facilities within each clinical area
- A centralised staff rest area to support staff being able to leave the clinical area

- New changing facilities, appropriately sized to support demand, including shower and storage facilities. (Shower and changing facilities have also been incorporated within the new multi-storey car park, alongside secure cycle storage, to encourage more active modes of travel).
 - Rest areas, where required, for on call staff (Consultant on –call and Deanery Trainees)
 - Appropriately designed administrative space to support multi-disciplinary team working.
 - External, green spaces to support staff wellbeing
 - Good visibility of patients and thus staff to ensure a senior oversight and support
- Increasing direct electronic capture of information, for example nursing observations, to improve visibility of clinical information and reduce creation of paper-based records.
 - Integration of medical equipment to improve visibility of clinical information and reduce paper-based outputs.
 - Theatres Integration – the integration of clinical data from theatres equipment into the electronic patient record. Included in the range of theatres planned for the ASB are two state of the art fully digitised and integrated hybrid operating theatres.

4.8 Digital Strategy and Key Principles

The Trust's Digital Plan can be found in Appendix 7 and describes the approach for delivering the essential digital infrastructure and how the clinical service aspirations for better integration of clinical information will be supported. Key areas of the plan include;

- Equipping the ASB and NWB with digital infrastructure and moving/supplementing the digital equipment used by the relevant clinical services. This includes:
 - Digital infrastructure in the new facilities. The construction work includes provision of passive communications infrastructure, for example, cabling, Power Bars, Network Cabinets. Active infrastructure e.g., Switches, Wi-Fi/LAN access points and phones, must be specified, procured, installed and tested by the Trust. Future proofed infrastructure is planned to reflect clinical goals so that further IT deliverables can be added beyond commissioning of the clinical blocks.
 - Relocation of existing digital equipment as part of the transfer of services into the new build areas, for example PCs/laptops and peripherals.
 - Sourcing of new digital equipment where this is required by the relocating services. Additional digital devices/equipment will be procured to provide the extra capacity needed for the relocation process.
- Supporting the aims of clinical services for greater integration of information and reduced use of paper within the delivery of clinical care. This is primarily a range of Trust-wide requirements although there are some specific developments for the ASB and NWB,. Supporting the broader clinical service aims requires digital involvement in three main areas:
 - Digital infrastructure is essential for the operation of the building and needs to provide resilience and be future-proofed as far as possible – allowing a range of processes/services to operate over that infrastructure. Assumptions included in the redevelopment programme are that there will be Wi-Fi and 4G/5G coverage throughout the building and that the digital infrastructure will allow the addition of other digital systems, for example, new access controls or CCTV systems. This also includes the ability for staff remote and cross site working, including equipping digital meeting rooms and conference facilities
 - The core network infrastructure used by services in their current locations cannot be relocated to the new building as continuity of service is essential right up to the point of service relocation. There is also a likelihood that old equipment will fail when disconnected and moved. Therefore, new equipment will be needed to provide the fixed digital infrastructure in the ASB and NWB. Where possible existing kit will be reutilised elsewhere after the relocation.
 - The Trust is currently reviewing and upgrading much of the network provision on the Luton and Dunstable site, and this will inform decisions regarding equipment vendors and models as compatibility and standardisation, as far as possible, is sought across the digital infrastructure. Resilience is also an important consideration in planning infrastructure, including resilience of power supply. This has been taken into consideration in the Equipment Strategy.
 - The Buildings Management System (BMS) has been specified to integrate with the Trust's current BMS provider to ensure continuity and interoperability.



4.9 Design Solution

A full design pack can be found in Appendix 4. This includes the stage 2 and stage 3 designs from the Design Team. These designs have been signed off by the Clinical User Groups and approved at Board level by the Redevelopment Programme Team and Programme SRO. This is reflected in the meeting minutes, at Appendix 1.



Figure 4.3- Current site plan



Figure 4.4- Proposed site plan



Figure 4.5- ASB Elevation looking West across site



Figure 4.6- NWB Elevation looking South across site

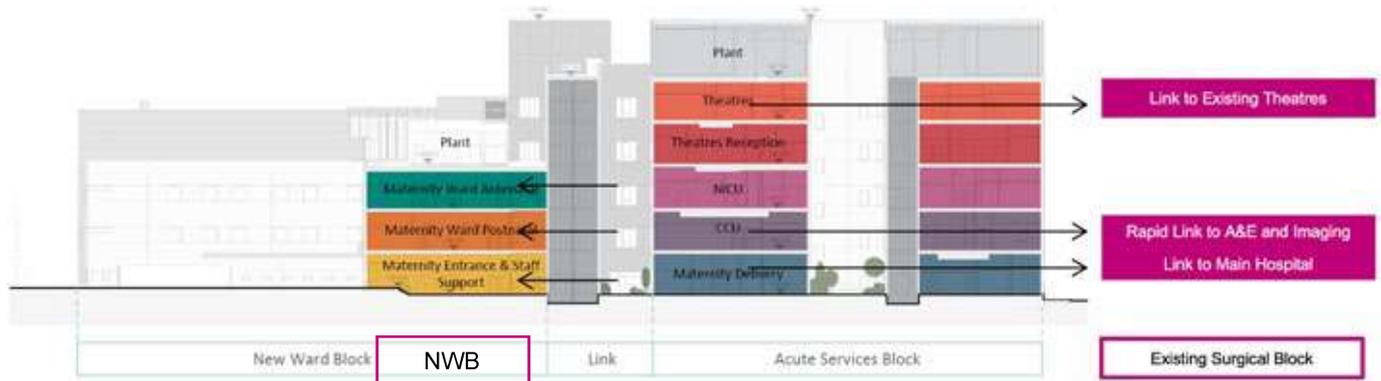


Figure 4.7- Proposed Floor Levels and Clinical Adjacencies

Level	Clinical Area m ²	Non-clinical Area m ²	Circulation m ²	Support/IT Hub/Plant m ²	
00 Ground	2,473	51	933	134	
01 First	1,878	0	1,049	74	
02 Second	2011.9	0	922.5	64.6	
03 Third	961.3	0	921.5	1087.3	
04 Fourth	1261.4	0	601.5	60.5	
05 Fifth	0	0	112.1	1786.2	
Total	8,585	51	4,540	3,206	16,381 m² total
	Percentage of total area	52.4	0.3	27.7	19.6 100.0 %

Figure 4.8- Proposed Floor Level Area Schedule

4.9.1 Schedule of Accommodation

	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

Acute Services Block		New Ward Block
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 	Plant
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
Fifth floor	Plant	N/A

Table 4.3- Summary of accommodation

4.9.2 Healthcare Accommodation Compliance

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 to support adequate, safe and resilient healthcare accommodation.

The design complies with HBN 00-09 'Infection Control in the Built Environment'. The Trust's Infection Prevention Control team and Estates Team were part of the work groups that underpinned the management and governance structure for the design. Representatives from both teams have been involved in developing the designs, ensuring best practise is considered and incorporated, and ultimately signing off designs, both at stage 2 (layout) and stage 3 (room specifications).

The formal letter of compliance from the Head of Infection Control is in Appendix 1. The derogation schedules are ultimately approved by the Trust's SRO (and CEO), with professional advice and assurance from the Director of Estates and Facilities. Please see Appendix 4.

4.9.3 Derogation Overview

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 best 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 4.5 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

Responsible, clinically-approved and fully documented derogations, based on specific operational requirements and informed by successful application elsewhere, are made in certain areas. Derogations have been presented to and signed off by the Trust Executive, accompanied by a risk assessment and management/mitigation plans.



4.9.4 HBN Derogations

The derogations reflect deviation from guidance, both an increase and a decrease to space recommendations. The table summarises the rationale for the derogation and the management or mitigation put in place. The full derogation schedule can be found in Appendix 4.

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.

The derogation schedules have been developed with the clinical user groups, including the Infection Prevention Control Team. The full derogation schedule has been

presented to the Redevelopment Programme Team and approved by the membership and SRO to the project.

4.9.5 HTM Derogations

The HTM derogation schedules can be found in Appendix 4. They have been developed and agreed by the Estates and Facilities (E&F) Team and presented by the Trust's Director of E&F to the Redevelopment Programme Team, with sign off by the Trust's CEO and SRO to the project.

4.9.6 Works Installation Compliance

The Trust has appointed Hicktons as the NEC4 Supervisor for the New Clinical Buildings project. The NEC Supervisor provides inspection and testing to assure that installations meet the specified quality. Hickton have appointed two individuals, one with a specialism in building fabric, the other in MEP Services to cover the spectrum. Both have experience of working in hospitals and the high standards required

to be met. The Trust consider the role to be an essential element to achieving a successful delivery of the Project who, along with the Independent Commissioning Engineer and Government Soft Landings Champion, will enhance confidence that the works delivered are compliant with the necessary standards and Health Technical Memoranda.

4.9.7 Government Soft Landings

The Trust fully believes in and is committed to realising the benefits to be generated from implementation of a Soft Landings approach to the handover, occupation and preliminary running of the New Clinical Buildings. We have recognised that the clinical services relocating in to the new facilities are currently operating in locations which have a dearth of modern systems and technologies supporting them. As such the potential for “shell shock of the new” is very real and present. Further, both the estates and facilities teams will need to operate, clean and maintain new technologies, systems and installations far more advanced than their current day-to-day experience. Establishing and tracing the “golden thread” is therefore essential and is recognised as such by the Trust.

In recognition of this, the Trust has appointed the Director of Estates & Facilities, Dean Goodrum, as the GSL Champion for the Project who will, together with the Redevelopment Project Director, Kyle McClelland, implement a GSL Strategy for the Project. Both individuals have extensive knowledge of delivering and operationalising complex NHS facilities and bring with them a range of post occupation evaluation and project lessons learned.

The Trust has also utilised existing NHS knowledge bases and both the exemplar ProCure22 toolkit and the ProCure22 Project Share database of lessons learned to inform and structure our approach. A facilitated Design Quality Indicator review with input from the Estates and FM teams was also undertaken to secure further operational input into the design phase, outside of the user groups.

A key element of the Trust’s implementation approach during the Works is the utilisation of a “reality capture” service, from Multivista. This provides a number of benefits, including 360 degree photogrammetry of the construction process, recording and capturing measurable photos which are mapped to the BIM model and ultimately provide a mobile-enabled, readily accessible record of the precise installation and “as built”, including photographs of the “as commissioned” settings of equipment and plant. However, the service also allows for the professional video recording and electronic storage (and again tagging into the BIM model) of handover training and presentations from the Works Contractor to Trust estates staff. This again provides the opportunity for ready access to operational information for both reference and the induction of new starters within the estates team.

We will be implementing the following in order to secure and realise the benefits of Soft Landings and a smooth transition in to the operation and clinical use of the new estate:

1. Project has started with the end and transition to operational, in mind at the outset
2. Highly experienced health design team appointed
3. Selected Contractor is implementing a “day in the life” programme to shadow and work with Estates and clinical users and understand more about how facility design and implementation impacts on their working life
4. Independent Commissioning Engineer to be appointed
5. Full spectrum NEC Supervisor role appointed already. Working with Contractor in advance to ensure with clear statements of inspections and testing regimen to be implemented and demonstrated before Completion is certified
6. Experienced specialist Mechanical & Electrical NEC Supervisor being used for Project. Individual has first-hand experience of the selected Works Contractor (and their proposed M&E installer) on a recent major health project
7. Involvement of end-users in selection process for systems and controls they will interface with regularly (Nurse call/ temperature control/ lighting controls etc.)
8. Timeframe for technical commissioning and operational commissioning of the facility embedded in to Trust master-programme from outset
9. Selection of a Contractor (one of the P22 PSCP’s who will therefore be familiar with the P22 GSL protocol) and specific delivery team with significant experience of constructing and operationalising NHS clinical facilities
10. Clinical user groups to be engaged in detail design (RIBA 4)
11. Preparation of a commissioning and performance testing schedule
12. Involvement of Principal Designer and Estates leads in design and specification of electronic O&M Manuals and Health & Safety Files
13. Access & Maintenance design workshops held with significant senior input
14. Put contracts in place to provide for any specialist access requirements, including Mobile Elevated Working Platforms etc.
15. Procure and implement any specialist maintenance contracts



16. Implement training (noted in Workforce development) for Estates teams on new systems and maintenance requirements
17. Named Trust team leader (Caroline Roberts) for both clinical transition and operationalisation appointed already and working to generate plans with clinical teams
18. Review and finalise handover plans, including training for estates and clinical end user teams
19. 24-month defects period
20. For first 2 weeks post-handover – daily site presence of contractor and MEP sub-contractor – provide roving patrols
21. For first month post-handover, hold a weekly action meeting
22. For months 2-3 post-handover hold a monthly action meeting
23. Quarterly action/ review meeting after 3rd month
24. Post-project evaluation to occur in a phased manner, with a preliminary project review and capture of lessons learned at 3-months. 6-months – complete the project completion report. Then at 12, 24 and 36 month anniversaries of Completion evaluate facility performance and review against benchmarks set at design stage

While at this stage of the Project, our GSL Strategy is continuing to evolve, we consider that we have a robust platform and suite of experiences from which to deliver a smooth transition of the New Clinical Buildings into clinical operation.

4.9.8 Independent Design Appraisal

a. Design Appraisal Tool (DAT) March 2020

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.

The decision to proceed with a procurement route via the Crown Commercial Services (CCS) framework was made after the first stage independent design appraisal. As such, the Procure 22 design appraisal toolkit (DAT) process was selected to enable a review of designs at OBC stage, with peer user groups evaluating designs of the preferred option.

Due to COVID 19 and the agile working arrangements put in place, the DAT process was adapted to enable it to happen virtually.

The DAT evaluation is included in Appendix 6; summary results are in Figures 4.9 and 4.10 with the scoring matrix in Figure 4.11. Some areas of design are not fully detailed at this stage with the scoring reflecting this.

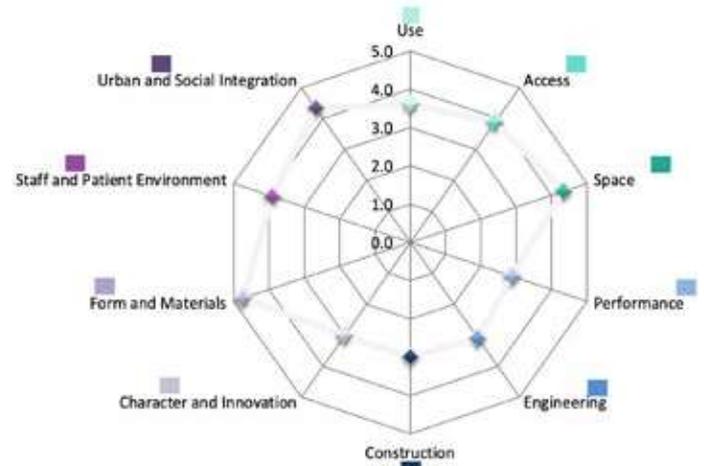


Figure 4.9- DAT assessment of Maternity and NICU

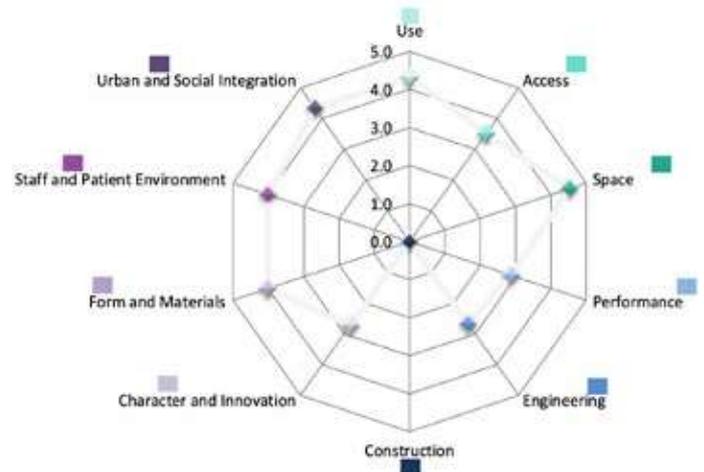


Figure 4.10- DAT assessment of Critical Care and Theatres

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 4.11- DAT scoring matrix

b. Design Quality Indication (DQI)

Post selection of the CCS framework, the Trust made the decision to employ the Design Quality Indicator (DQI) for FBC. DQI was carried out during the FBC development during the RIBA stage 3 design development. Further DQI

will be carried out at the end of the RIBA stage 4 design development in November 2021. The DQI workshop in September 2020 was attended by the design team, the redevelopment project team and a range of stakeholders from the clinical user groups.

DQI Stage 3 (September 2020):

The Stage 3 DQI report can be found in Appendix 6 and reflects the assessment mid-way through the RIBA stage 3 design process (room layouts). The spider diagram below gives an idea of how well a building or design is thought to have performed in each section. The scheme scored an average of 5 on many of the elements which demonstrate a good performance in every section at this stage of a project.

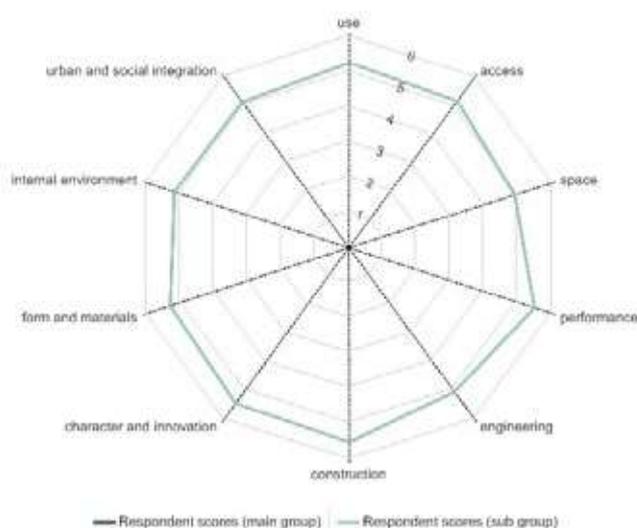


Figure 4.12- DQI/H2 Graph

The Section Scores graph is a spider diagram scaled between 0 and 6. This graph displays the average of all the selected respondents' answers to each section. The higher the score (the further out) the better the respondents felt the design or building was achieving that characteristic. An average of 4 and above for a section is considered a reasonable score.

4.9.9 Modern Methods of Construction (MMC) in the Design

When The members of the Trust's Redevelopment Team can demonstrate extensive track records in the delivery of modular solutions, including delivery of off-site constructed radiotherapy bunkers and multiple wards, theatres, outpatient and administration spaces.

The Trust team therefore recognises and understands the significant contribution that MMC (as defined by various UK Construction bodies and in the UK Construction

Strategy) makes to multiple strategic agendas for the Construction Industry and Health Sector, including but not limited to:

1. Reducing the size of on-site construction teams
2. Reducing disruption to operational sites
3. Reducing health & safety risks
4. Enabling a reduced on-site component assembly time
5. Achieving off-site factory production to a pre-agreed quality standard
6. Fewer post completion defects
7. Overcoming skills shortages
8. Enhancing productivity in the construction industry

As a matter of principle, the Trust adopted an "MMC first" approach when considering the built form strategy for all constituent projects within the wider redevelopment programme. MMC principles were a guiding design consideration, from the outset during the design of the new clinical facilities for the Luton & Dunstable site. Indeed the New Ward Block was originally scoped to be a "perfect candidate" for volumetric modular construction.

Whilst the team acknowledges the clear benefits of a volumetric modular approach, it has subsequently been discounted for the New Ward Block, largely due to the need, following an exhaustive options study by the Trust's MEP Designer, TB&A, to locate shared infrastructure (new electrical substation, chillers and UPS system + batteries), supporting both the New Ward Block and the Acute Services Block, on the roof of the New Ward Block. This clearly added an abnormal and significant structural load.

Advice from the Trust's Structural Engineers, Peregá, regarding the structural loads and then market testing through engagement with various modular providers, resulted in the decision that modular volumetric would not be viable. In addition to the structural challenge, the following site-specific constraints and abnormalities also had to be acknowledged:

1. Reduced level of the ground around the ward block. Meaning the detailing needed to construct the foundations and edge details whilst still integrating to existing hospital buildings was more complex (and costly) with an independent modular structure
2. Detailing needed to construct the foundations and edge details whilst allowing connections to existing service tunnels and ducts was more complex (and costly) with an independent modular structure



3. Need for enhanced levels of flexibility to accommodate Trust future activities and requirements drove a wider structural grid spacing than a modular unit could support. This provides greater adaptability and resilience to accommodate future clinical change
4. Requirement to achieve 4-hour fire resistance in the UPS and plant rooms. This presents significant challenges for modular volumetric structures.
5. Requirement for vertical and horizontal connections achieving identical finished floor levels across the buildings (new and existing), requires a bespoke solution rather than a standardised approach. This prevents ramping between levels, between buildings, thus supporting functionality and maximising space for clinical use.

Critically, the appointment of two separate contractors (the Acute Services Block Contractor and the New Ward Block Contractor), one traditional and one modular, with their respective supply chains on site at the same time, would present a substantial and significant increase in the site establishment and co-ordination requirements on what is already a very compressed and densely populated hospital and Works site. Whilst the alternative option of engaging the ASB contractor to sub-contract the NWB project, was available, this would have come at a significant cost premium and, from the Trust Team's experience, introduces a series of complex relationships between large contracting entities, which can become unproductive and on occasion disruptive to the delivery of the overall Project objectives.

However, an MMC approach continues to be explored through the RIBA 4 design development which now benefits from Kier's active input and extensive experience. Kier have identified, amongst others, the following as key target areas for "off-site added value" and modularisation:

1. External Service Risers [see images from Kier Tender overleaf/ below]
2. Panellised Façade/ cladding assemblies
3. Pre-cast concrete columns and other structural elements
4. Off-site "carpet" concrete reinforcement
5. Engineering services distribution, including both vertical risers as well as horizontal distribution within ceiling voids
6. IPS Panels
7. Main and sub-main electrical switchboards will be manufactured offsite and compartmentalised to ease

delivery and assembly on site

8. Distribution boards will be specified to be pre-populated and complete with modular wiring headers for quick connection
9. Modular wiring looms for lighting
10. Skid mounted and packaged plant
11. Reflecting the strategy currently being progressed on the Trust's Surgical Block chiller replacement project, the major chilled water pipework and components will all be manufactured offsite and then fitted together on site
12. Pre-assembled door sets
13. Opportunity for receipt and 2nd stage recovery "pods" at L3
14. Modularised plant rooms, with items such as water tanks and booster sets all to be prefabricated offsite (as has been achieved in the Trust's Enabling Works Projects and on the Energy Centre)
15. Large pipework systems to be fabricated off site for chilled water and mains hot water
16. Air Handling Unit's and connections to be prefabricated and bolted together on site as well as pump sets to come on packaged skids for assembly
17. Review, consideration and implementation where achievable of the learning from DHSC P22 standard components throughout the design

The Trust's analysis of the financial parameters of the opportunity for MMC at OBC is considered to remain robust, but is being explored, tested and challenged with the benefit of Kier's extensive experience of MMC delivery as well as their Supply Chain's capabilities and demonstrable delivery of MMC Projects.

Therefore at FBC our targets remain as:

Title	Publication Date
Manufactured [0m ² as these are systems/ elements of build within the GIA]	0m ² (£27,995,000)
Component [0m ² as these are systems/ elements of build within the GIA]	0m ² (£27,735,000)
Traditional	16,378m ² (£45,000,000)

£100,730,000 @ PUBSEC250 and OUT-TURN cost, not Works package cost

Combining Manufactured & Component = 55,730/100,730 = 55.3%.

NB – The financial parameters reported are out-turn costs based at PUBSEC250 (excl VAT and Inflation) for consistency with the OBC and other project reporting.

These figures have been calculated following input from the specialist design teams and used the following percentages to calculate the overall contribution across MEP and Building Fabric/ Structure.

MEP

50% of spend anticipated to be “Manufactured” (e.g. off-site manufactured/ pre-fabrication of risers, corridor modules, plant such as booster sets which are delivered and installed on skids, etc.)

0% of spend anticipated to be Volumetric

30% of spend anticipated to be Componentised

20% of spend anticipated to be Traditional

Fabric/ Structure

5% of spend anticipated to be Manufactured

0% of spend anticipated to be Volumetric

25% of spend anticipated to be Componentised

70% of spend anticipated to be Traditional

These percentages have then been applied to the AECOM cost plan on an elemental basis (noting use of PUBSEC250) in order to generate the anticipated spends through each quadrant of the matrix.

ID	Scheme Name	Description	Value (£k)
1	New Trust Corporate Services Hub	Status: Complete Typology: Modular GIA: 1,200m2	£3,000
2	Audiology OPD Facilities	Status: Complete Typology: Modular GIA: 150m2	£500
3	Trust Central Linen Store	Status: Procuring Typology: Modular GIA: 115m2	£400
4	Estates Welfare Facilities	Status: Complete Typology: Modular GIA: 28m2	£100
5	Energy Centre* [Packaged CHP]	Status: On-site Typology: Modular GIA: 27m2	£1,000
6	Energy Centre [Packaged boilers 4nr; packaged Plate Heat Exchangers; pre-fab pipework]	Status: On-site Typology: Modular GIA: 55m2	£2,200
7	Energy Centre [Skid mounted Generators x2 + Containerised generator + Fuel tanks]	Status: On-site Typology: Modular GIA: 90m2	£3,300
8	Energy Centre [Off-site fabricated Chimney/ Flues]	Status: Complete Typology: Manufactured GIA: N/A	£400
9	Energy Centre [Packaged Steam Generators]	Status: On-site Typology: Modular GIA: 10m2	£150
10	Electrical Infrastructure [Componentised Switches & Sub-station]	Status: On-site Typology: Component GIA: N/A	£2,900
11	Multi-Storey Car Park [offsite manufactured decks, ramps and structure]	Status: Complete Typology: Manufactured GIA: N/A	£4,000
TOTAL		GIA: 4,225m ²	£29,250

Table 4.6- Approach to construction typology



4.9.10 MMC Matrix - Proportion of Projects using MMC and Pre Manufactured Value

The Trust's updated MMC Matrix for the centrally-funded FBC elements of the scheme, evaluated prior to receipt of Kier's confirmed Supply Chain selections and capabilities with MMC, is provided below:

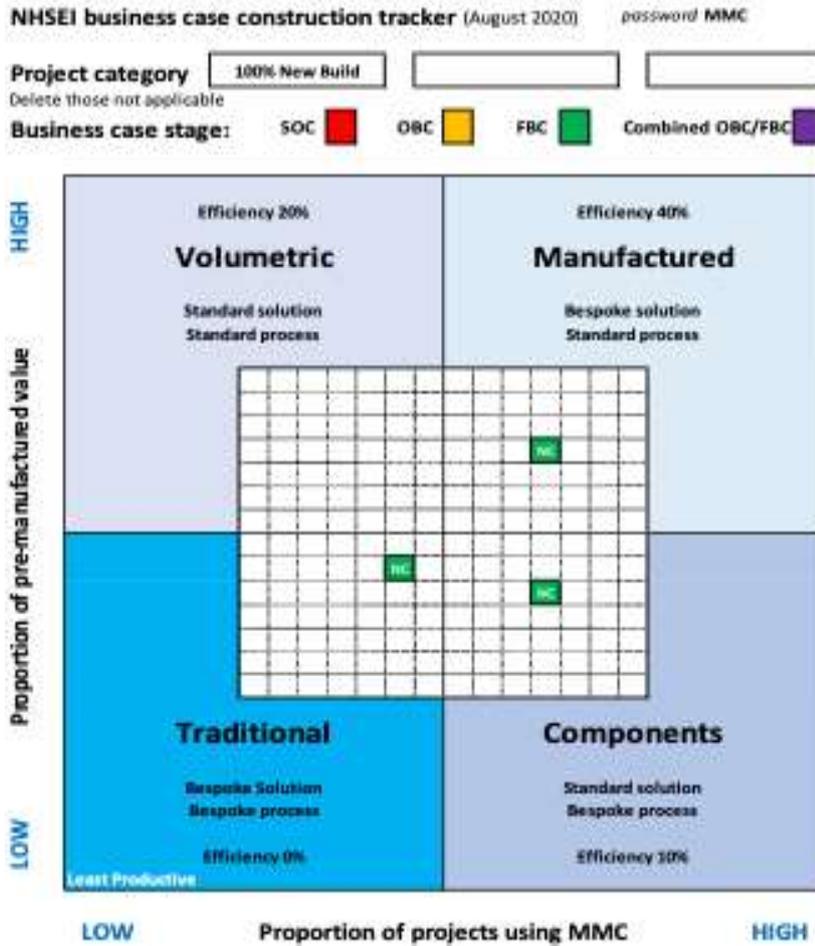
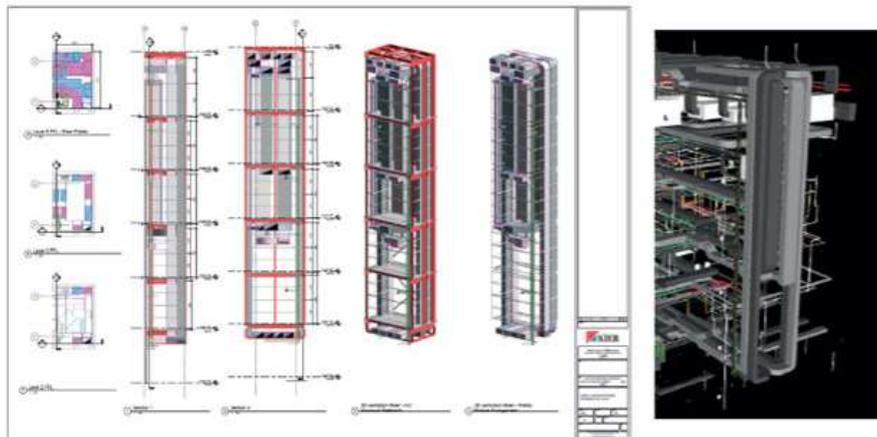


Figure 4.13- Proportion of projects using MMC and pre manufactured value

The Trust will re-visit this with Kier's input as the RIBA stage 4 design progresses and understanding of the selected Supply Chain's capabilities increases.



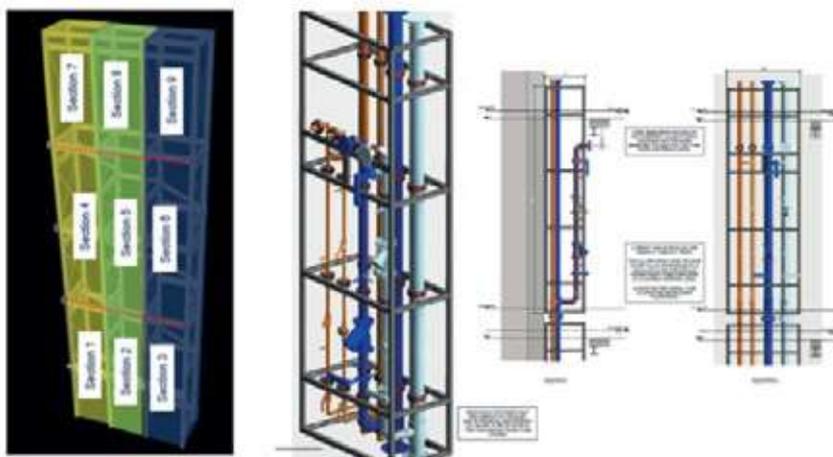
Luton and Dunstable



Pre-fabricated elements early investigation of Stage 3 Design



Luton and Dunstable



Pre-fabricated elements development



4.9.11 Benefits of Construction Route

In parallel with discussions regarding the structural loading and the ability of modular volumetric to accommodate proposed loads, the Trust's architects (Murphy Philipps) also ran through considerations regarding flexibility and adaptability of the built estate. It has been identified that the design with a larger structural grid (not having the modular constraint of having to be transported to site by road) provides:

- Greater clinical adjacencies
- Greater hospital wide integration, allowing level links to existing clinical buildings
- Greater FM efficiencies
- General levels of Compliance for the Gross Internal Area
- Additional resilience (rather than have three individual buildings with individual MEP/Fire/FM provision, by treating the new buildings as one and combining them to the existing adjacent building, the surgical block, we are able to achieve resilience which would come at a spatial and cost demand if each was considered in isolation)
- MEP strategy benefits through combining service needs of the existing and new buildings, releasing spatial budget for clinical activity and reducing the overall required GIA (as per the previous point, we are able to achieve greater efficiency resulting in satisfying clinical spatial needs whilst minimising the GIA)

- Fire Strategy benefits across the existing and new buildings, freeing up area for clinical activity and reducing the required GIA (the benefits of considering the ASB/NWB as one with the adjacent surgical block provides spatial efficiencies which in turn, permit the clinical planning and area requirements to be met within the cost parameters).

4.10 Delivering the Case for Change

This chapter has so far considered the general design approach and principles and the design solution. This section will seek to provide clarity on specific department designs and how they will ultimately deliver the case for change.

4.10.1 Improving Clinical Adjacencies

The design will provide considerably improved clinical adjacencies. The NWB and ASB are adjoined through a shared lift core with joint lobby area, enabling direct links on each floor between buildings (see Figure 4.14). There will be a direct link between the existing Surgical Block and ASB/ NWB on the ground, first and fourth floor. This will internally connect the ASB/ NWB to the remainder of the hospital and in particular the Emergency Department, Imaging Department, Operating Theatres and Wards.

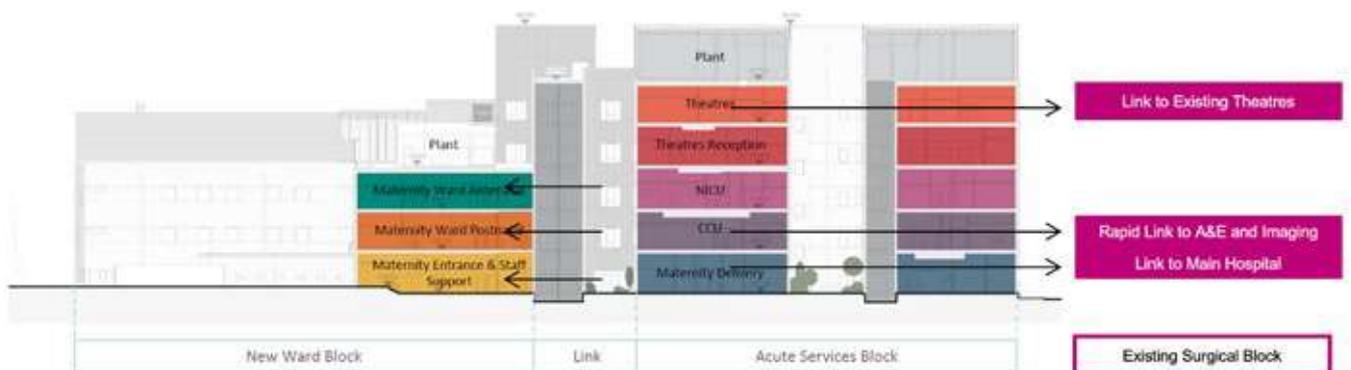


Figure 4.14- Preferred option adjacencies

4.10.2 Improving Maternity Service Provision

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, women birthing at the L&D require more obstetric intervention. The current delivery suite has 2 substandard operating theatres. Advice taken from medium sized maternity units at neighbouring Trusts strongly indicates that at 6,000 births, or for a higher than average risk maternity service, there is a clinical requirement for 3 dedicated operating theatres or 2

dedicated operating theatres with 1 procedure room able to flex up in an emergency. This will eliminate the number of interventions inappropriately happening outside of the operating theatres.

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.



Figure 4.15- Bereavement Delivery Room

a. Re-capping the 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 4.16).
- 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.

b. Existing Patient Flow

Clinical adjacencies are poor and clinical routes are severely comprised, visibility of patients is poor and there is no opportunity for central monitoring. Patients have to traverse public corridors to access various zones within the maternity department and the bereavement suite is situated in the middle of a busy, noisy and public delivery suite.



Figure 4.16- Existing external patient journey from Maternity and NICU to the main hospital (used for accessing Imaging, Critical Care and the Mortuary)

c. Design Response to Key Issues:

- A dedicated entrance into the Maternity Service, with a shared reception for the assessment unit, triage unit, delivery suite, and maternity wards, to improve efficiency
- The poor clinical adjacencies of the existing department have been addressed (see Figure 4.16) 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 co-located within the same building
- Maternity and Theatres- now co-located 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 entrance and exit. The bereavement suite has a private external space which the Charity will fundraise for to create a garden.
- All birthing rooms have en-suite facilities, improving privacy and dignity for patients.
- An increase in clinical accommodation (see Table 4.7). This includes:
 - An additional procedure room to support the two obstetric theatres, removing the necessity of using Anaesthetic rooms for clinical procedures.
 - Additional birthing room capacity to ensure births happen in the right place wherever possible
 - More birthing rooms with pools to promote the “normality” agenda
 - Incorporation of new high risk induction facilities, not required by HBN but reflecting modern guidance
 - All clinical rooms sized appropriately to support function
- Maternity wards
 - Utilise a repeatable design approach for standard inpatient wards
 - Achieve over 50% side rooms as per HBN requirements
 - En-suite facilities
 - Designed for partners to stay
- HTM compliance to ensure a comfortable birthing and working environment
- Dedicated storage areas to prevent equipment and supplies being stored in corridors
- Opportunities for improved multi-disciplinary team working with open plan office space with associated seminar/multi-disciplinary space to support training, education, governance and patient care

- On-call facility to reflect current requirements

d. Proposed Capacity

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 4.7- Current vs proposed maternity accommodation

The obvious swing in capacity is around maternity beds. It is important to note that the existing maternity service accommodates transitional care beds which will move to the NICU floor plate. In addition to this, new models of care will support more ante natal care to be provided outside of hospital and a reduction in postnatal length of stay.

e. Workforce Impact of Proposed Model of Care

The physical changes to the maternity facilities prompt some specific workforce changes;

- **Triage Unit** – In the new design, Triage is split into two; for high risk patients this is within the delivery suite area and for low risk patients within the day patient areas (noting patients may arrive as low risk but become high risk). The bed numbers remain the same, but the layout which is a significant improvement in terms of patient experience and clinical flow will require an increase to the establishment to ensure safe staffing.
- **Relocation of Transitional Care to the NICU** – this aligns towards the delivery of National standards such as BPAM and Saving Babies lives. This will require a change to the overarching staffing plan in order to optimise postnatal care for women with babies requiring neonatal expertise.

A Trust wide maternity workforce strategy is under development in response to national requirements. Associated staff costs are anticipated to be offset by marginal income from demographic growth, procurement savings and cost improvement plans.

	WTE	2022/23 £'000	2023/24 £'000	2024/25 £'000	2025/26 £'000	2026/27 £'000	Total £'000
Transitional Care Nurse - B6	5.32				257	257	513
Triage HCA - B2	0.60				15	15	29
Rebanding of B3 to B4					47	47	93
Backfill for Training					22	22	45
Total	5.92	0	0	0	340	340	680

Table 4.8- Maternity Workforce Impact over 5 years

4.10.3 Improving Neonatal Service Facilities

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. Whilst the birth rate in the local area is not increasing significantly, the acuity of birthing women (and their babies) is 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.



Figure 4.17- Existing NICU

a. Re-capping the Case for Change:

- Poor clinical adjacencies (see Figure 4.16)
- 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 or express comfortably in order to feed their baby
- Undersized, inefficient, non-compliant clinical accommodation
- Segregated ITU and HDU preventing flexing to support demand
- Poor facilities for staff and parents
- Poor privacy and dignity for parents
- 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

b. Existing Patient Flow:

The neonatal nurseries are small and segregated (ITU, HDU, SCBU), linked by congested and convoluted corridors due to poor storage, capacity and general flow.



Figure 4.18- Convoluted and congested NICU corridors linking various nurseries



c. Design Response to Key Issues:

- HTM compliance to support environmental factors
- A dedicated and discreet entrance for maternity and neonatal services, with a shared reception to improve efficiency.
- Dedicated blue light drop off/pick up
- Improved clinical adjacencies (see Figure 4.14)
 - NICU and maternity wards- the ante natal ward (where NICU mothers will be admitted to) is on the same floor as NICU, allowing direct access for Mothers visiting their baby
 - 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 with a rapid access link between the two units
- Increase in overall clinical capacity (see Table 4.9) 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 support parents soon to go home with their babies
- Increased cot space that will allow adequate functionality, parents and staff at the bedside, and mothers in beds to see their baby
- Flexibility to allow capacity to be flexed up and down to support demand
- 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.
- HBN compliant storage levels, either on the unit or in the adjacent NWB floor.
- Access to on-call rooms on the adjacent NWB floor

- 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 a 5 minute 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.

d. Proposed Capacity:

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

*beds currently in maternity

Table 4.9- Current vs proposed neonatal accommodation

e. Workforce Impact of Proposed Model of Care

The redevelopment sits within a much wider strategic plan for the NICU service; the core of which requires workforce innovation and transformation to enable the service to move towards compliance with BAPM standards, ensure medical workforce resilience, introduce new team roles and resource specialist AHP input to the multi-disciplinary team. This development is described in an ambitious service plan for neonates that will now be further developed in partnership with commissioners and will inform the Trust's quality investment priorities in the coming years.

The fundamental impact of the re-provision of the NICU is the increase in the number of cots which requires a pro-rate uplift in the specialist workforce required to support. The team have taken the opportunity to redesign the medical rota further incorporating the role of the ANNP which has been extremely effective over the last two years. Additional AHP support is also an important feature of limiting the necessary growth in capacity by reducing beddays and therefore this forms part of the workforce uplift plan.

Table sets out the workforce changes associated specifically with the redevelopment incorporating the impact of the additional cots (changes related to the integration of transitional care are detailed under maternity). This growth is incorporated into the economic case and sits within the wider neonatal workforce transformation and

implementation plan linked to delivery of the NICU strategy following work with commissioners and agreement of the local quality investment priorities.

		2021/22	2022/23	2023/24	2024/25	2025/26	2026/27
		WTE	£'000	£'000	£'000	£'000	£'000
Medics	ANNP's	3.00				214	214
	Junior Clinical Fellows	-1.00				-77	-77
Nursing	Nursing (Cots 37 -->40*)	13.13				445	688
STT	Dieticians (Bd 6)	0.12				5	5
	Physiotherapy (Bd 7)	0.15				8	8
	Occ Therapist (Bd 7)	0.43				22	22
	Pharmacy (Bd 8a)	0.80				46	46
Non Pay	Clinical Supplies					40	80
Total	5.92	16.63	0	0	0	703	966

*Cot numbers will move to 12 ITU, 12 HDU and 16 SCBU = 40 Cots
Current cot numbers are 11ITU, 8 HDU and 18 SCBU = 37 Cots

Table 4.10- NICU workforce impact over 5 years

4.10.4 Improving Critical Care Provision

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. The 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.

a. Re-capping the Case for Change:

- Segregated critical care unit across 2 floors with 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 no isolation facilities
- Lack of space around the bedside to support equipment and staffing
- Lack of appropriate and compliant infrastructure including ventilation and digital infrastructure
- Undersized, inefficient, non-compliant clinical accommodation

- Poor facilities for staff, patients and relatives
- 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

b. Existing Patient Flow

Critical care is currently provided in two separate locations – ITU and HDU, both wards are on separate floors, separated by a public vertical and horizontal route. Access from the Emergency Department and to/from Theatres is convoluted and public.

c. Design Response to Key Issues:

- HTM compliance to support environmental factors
- Integration of Level 3 (ITU) and Level 2 (HDU) wards into one combined Critical Care Unit. This will enable significant improvements in staffing efficiencies and provision of significantly improved quality of care, such as preventing transfer of patients as they step down. This is in accordance with national guidance such as the Faculty of Intensive Care Medicine 'Critical Futures'



- Increase in overall numbers of beds from 16 to 22 beds (see Table 4.11). This exceeds GPICS baseline requirements but takes into account additional capacity and takes specialist tertiary services.
- Increased resilience as all beds designed to be flexed which supports fluctuations in demand
- More streamlined transfer of patients from operating theatres, maternity, ED and wards
- A mixture of isolation rooms, side rooms and 4 bed bays to support patient profile/demand and in recognition of workforce challenges (national shortage of intensivists and level 3 trained nursing staff)
- 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). Sex segregation however can be achieved for many patients.
- 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.

d. Proposed Capacity

Critical Care Accommodation	Current	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 4.11- 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.

e. Workforce Impact of Proposed Model of Care

Integration of the teams brings significant benefits in terms of flexibility in workforce and capacity terms and reduces non-value-adding moves between units for patients. A detailed implementation plan setting out the training and development plan to bring the critical care nursing teams together and ensure all staff have L3 specialist training can be found in appendix 5, Clinical Strategy and Models of Care.

The additional workforce requirements linked to the new unit are summarised in the following table and relate to an increase in the number of siderooms for which a slightly extended HCA establishment will be required and uplift of the supernumerary Nurse in Charge role.

	Y1	Y2	Y3	Y4	Y1	Y2	Y3	Y4
	WTE	WTE	WTE	WTE	£'000	£'000	£'000	£'000
Supernumerary	3.32	3.32	3.32	3.32	195	195	195	195
HCA - Extended day to 11.5hrs, nights and weekends	3.57	3.57	3.57	3.57	102	102	102	102
Admin clerk - covered in budget setting								
Total Increase	6.89	6.89	6.89	6.89	297	297	297	297

Table 4.12- Critical Care Workforce Impact over 5 years

4.10.5 Improving Operating Theatre and Support Accommodation Provision

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 five different locations. The preferred option will consolidate this to two locations.

a. Re-capping the 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 4.20.



b. Existing Patient Flow:

Poor clinical adjacencies with surgery carried out in five different locations across the site. Convoluted and public routes between surgical arrivals, wards, operating theatres and recovery. This requires a significant amount of logistic planning and escort nursing/portering to facilitate and impacts operational efficiency.

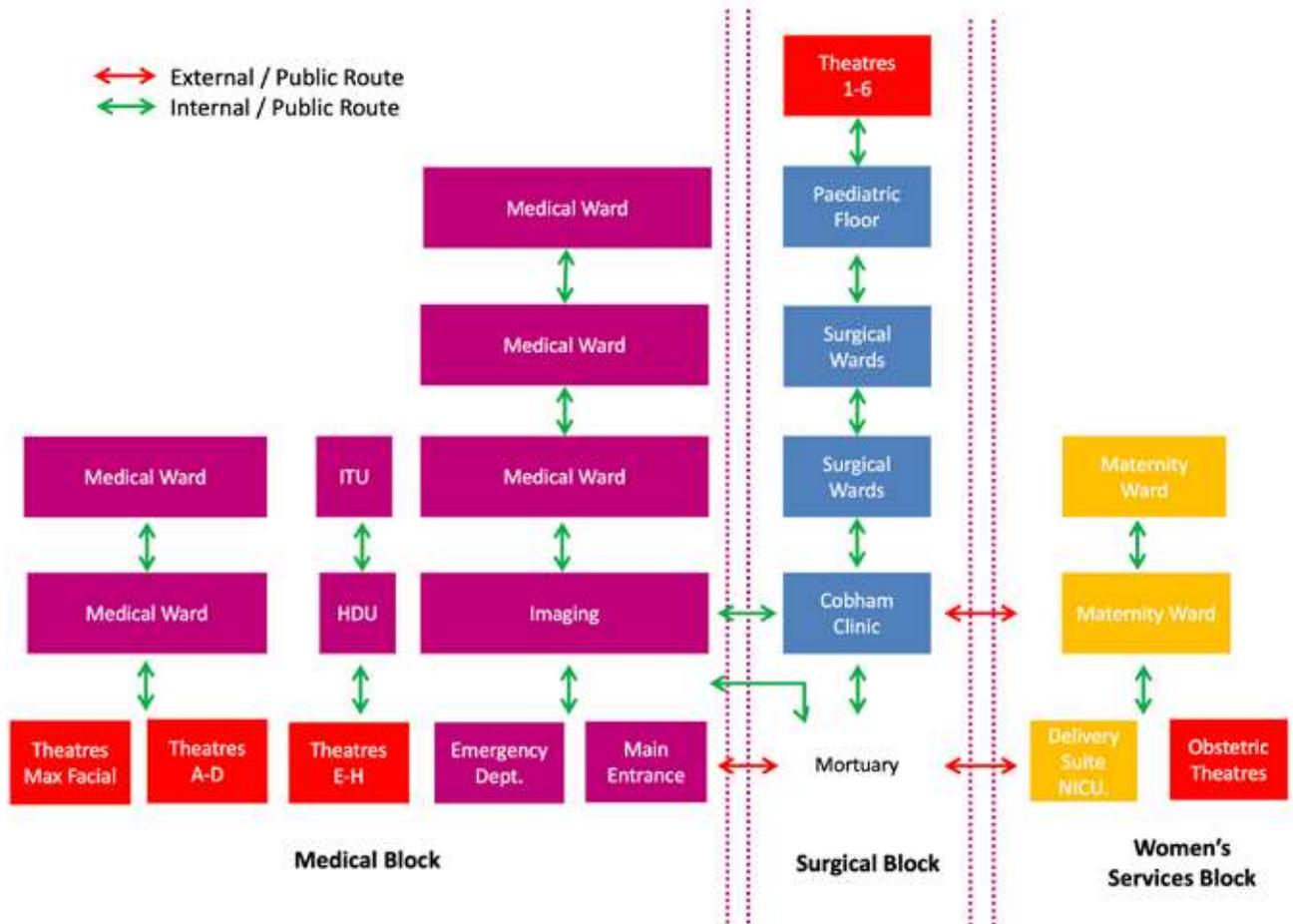


Figure 4.19- Existing patient journey through Theatres

c. Design Response to Key Issues:

- 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 4.12):
 - 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 with minimal derogations.
- 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 preparation rooms no longer required for these theatres (best practice is to set out under the laminar canopy rather than in preparation rooms).
- Table 4.13 demonstrates current versus proposed accommodation. The new design will provide a total of 3.4 additional Theatres which will meet proposed demand and requirements.
- 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 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 pods supports segregation (sex, age, ability etc.)
- Design of support accommodation to facilitate multi-disciplinary working.
- Design of storage facilities to prevent equipment and supply build-up in corridors.

d. Proposed Capacity:

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 4.13- 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.

e. Workforce Impact of Proposed Model of Care

Detailed modelling has been undertaken to map the impact of additional and transferring theatres capacity:

- The increase in theatres staff is in relation to 3.4 additional theatres including the normal cross cover for periods of leave. This covers Anaesthetists, surgeons, scrub nurses, ODPs and Theatres Support Workers (TSWs).
- The increase in recovery nurses is in relation to the increase in 1st stage recovery beds from the current 21 to the proposed 27 upon completion of the ASB.
- There will be a considerable efficiency saving in Escort Nursing costs due to the new models of care, the physical layouts and clinical adjacencies. This is reflected in the Benefits modelling.
- The current Surgical Arrivals unit will close upon the opening of the new ASB and staff will transfer to the new clinical buildings
- The proposed movement of the vascular service from the Bedford hospital site (subject to public consultation) will be accommodated through a reciprocal elective service swap to free up capacity and the net impact on Trust staffing is expected to be neutral.

The following table shows the workforce impact of opening the additional theatres:

Staff Group	H/C	Hours	Days	20% A/L	Theatres	WTE	Band	Salary	£
Scrub	2	10.25	5	3.28	3.4	11.15	B5	36,389	405,810
ODP	1	10.25	5	1.64	3.4	5.58	B5	36,389	202,905
Recovery	1.5	10.25	5	2.46	3.4	8.36	B6	44,289	370,433
TSW	1	10.25	5	1.64	3.4	5.58	B2	25,308	141,117
Total Increase									

Table 4.14- Theatre workforce impact over 5 years



4.10.6 Alignment to Estates Strategy

The proposed development has a positive impact on the efficiency of the Estate with improved running costs anticipated for the new buildings which are planned to be demonstrated by the forthcoming ERIC return.

a. Facilities Management:

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 DHSC 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.
- Provision of appropriate numbers of dirty utility rooms on each floor which have been appropriately sized to meet requirements.
- All disposal holds, with large wheeled waste bins for each waste type, will be near the dedicated FM lifts and external to, or on the periphery of, clinical space. This will minimise the FM movements within the clinical areas.
- Dedicated storage for waste awaiting periodic removal
- Dedicated storage space to support high standards of housekeeping and user safety.
- Appropriately sized and equipped patient catering facilities.
- Adequate storage space to support the Trust's proposed FM strategy (a Just In Time model with some buffer to provide resilience)
- 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.
- Dedicated FM flows external to the building to support health and safety principles

b. Security and Secure By Design:

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). Officer at Bedfordshire Police and have been certified to achieve 'Secure by Design' status Appendix 4. Further a Security Needs Assessment Audit was undertaken on the RIBA 3 designs as part of the BREEAM evaluation Appendix 4. The audit findings have been shared with the Design Team and Kier for consideration and inclusion at the RIBA4 design stage, albeit most were already included into the design, given the extensive experience of the design team. Key principles include a minimum of two secure entrance/egress points to each clinical area. Public and clinical interfaces will benefit from managed CCTV.

c. PLACE:

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

d. Quality:

As noted in the Management Case, the Trust has appointed Hickton as the NEC4 Supervisor for the New Clinical Buildings project. The NEC Supervisor provides inspection and testing to assure that installations meet the specified quality. Hickton have appointed two individuals, one with a specialism in building fabric, the other in MEP Services to cover the spectrum. Both have experience of working in hospitals and the high standards required to be met. The Trust considers the role to be an essential element to achieving a successful delivery of the Project who, along with the Independent Commissioning Engineer and Government Soft Landings Champion, will enhance confidence in the quality of the works delivered.

e. Independent Commissioning Engineer and Government Soft Landings Champion:

The Trust has appointed the Director of Estates & Facilities, Dean Goodrum, as the GSL Champion for the Project who will, together with the Redevelopment Project Director, Kyle McClelland, to implement a GSL Strategy for the Project. Both individuals have extensive knowledge of delivering

and operationalising complex NHS facilities and bring with them a range of post occupation evaluation and project lessons learned.

f. Fire:

The Trust appointed an independent Fire Engineering Consultant to review the fire strategy for the building.

The Trust 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 letter of endorsement from the Trust Fire Officer dated 21/09/21 is at Appendix 1 with the proposed fire strategy contained in the Architectural Design Pack at Appendix 4.

4.10.7 Net Zero Carbon and Sustainability:

The new hospital buildings will introduce highly serviced clinical facilities, in replacement of lower serviced accommodation. The new buildings therefore have the potential to increase energy consumption and therefore carbon usage.

Recognising the potential negative impacts of highly serviced buildings, from the outset the Trust adopted a sustainable approach in the design 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

The 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 required to therefore be a sealed building and requires full mechanical ventilation.

The Trust is committed to reducing the impact of its operations on the environment, both locally and in contributions to global

climate change drivers. The Trust's approach has been and will continue to be focussed on reducing throughout the lifetime of the project the energy demands of the newly constructed assets. However, the Trust has also had to recognise that both the ASB and NWB, as identified above, are filled with highly acute, inpatient and technical clinical Services, without the lower intensity areas (receptions; out-patients; admin spaces etc.) normally accommodated in a wider general hospital building, which would otherwise "dilute" the energy consumption within the facility. This means the ASB requires a significantly higher degree of energy consuming infrastructure than would normally be the case in a building of this Gross Internal Area or a New Hospital programme.

The Energy Strategy '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.

4.10.8 BREEAM

New hospital builds are required to have a BREEAM rating of >70% requiring the scheme to target Excellent. The Redevelopment at the L&D is not a new hospital, providing two new hospital buildings supporting acute services across the site and actually, only making up a small proportion of the overall Hospital function – in effect the Project is an extension of existing facilities.

The Trust has developed its approach on the basis of striving to achieve Excellent. This target is, however, challenging due both to the almost solely acute nature of the clinical content of the facility being created (as noted above) and the fact that only a small proportion of the estate is being redeveloped. As the Trust progresses its future developments of the Luton site, more can and will be done to support the Trust in achieving even higher BREEAM ratings and ultimately the Net Zero Carbon target.

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 both the M1 motorway and A505 dual carriageway) and will therefore require full mechanical ventilation. Careful selection of building materials and techniques for both buildings, plus the associated energy centre for this new building has helped ensure sustainability.

The Trust is committed to the achievement of an Excellent BREEAM rating for the project.



It has been working with its design team throughout the development of the scheme to deliver proposals for the new buildings which are sustainable and which deliver value for money. Troup, Bywaters & Anders were appointed at an early stage to manage this process. Their involvement has been extended through the current stage of design and on into the construction phase

The BREEAM feasibility study in March 2020 targeted 60.77%. This means the scheme is expected to comfortably achieve 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 4.

4.10.9 Carbon Reduction:

The Trust is changing the balance of its energy provision through the creation of a site wide Energy Centre. This is a Trust funded capital scheme that sits outside and independent of this FBC. The Energy Centre will utilise a gas-fired CHP and 3 dual-fuelled boilers which will see the replacement of >70 individual gas-boilers currently across the site. These will be linked to provide the equivalent of a District Heating scheme on the site. The new Energy Centre has also been designed to allow the incorporation of absorption chillers, allowing a centralised chilled water system to provide further efficiencies and reductions in carbon impact. This project will complete in early 2023. The Energy Centre supports a reduction in carbon and provides increased infrastructure resilience across the site, enabling the energy provision to the new clinical buildings.

4.10.10 Backlog reduction:

A number of buildings will be demolished or removed to clear the site to allow the major construction to start. This programme of demolition began in 2020 and will complete in December 2021.

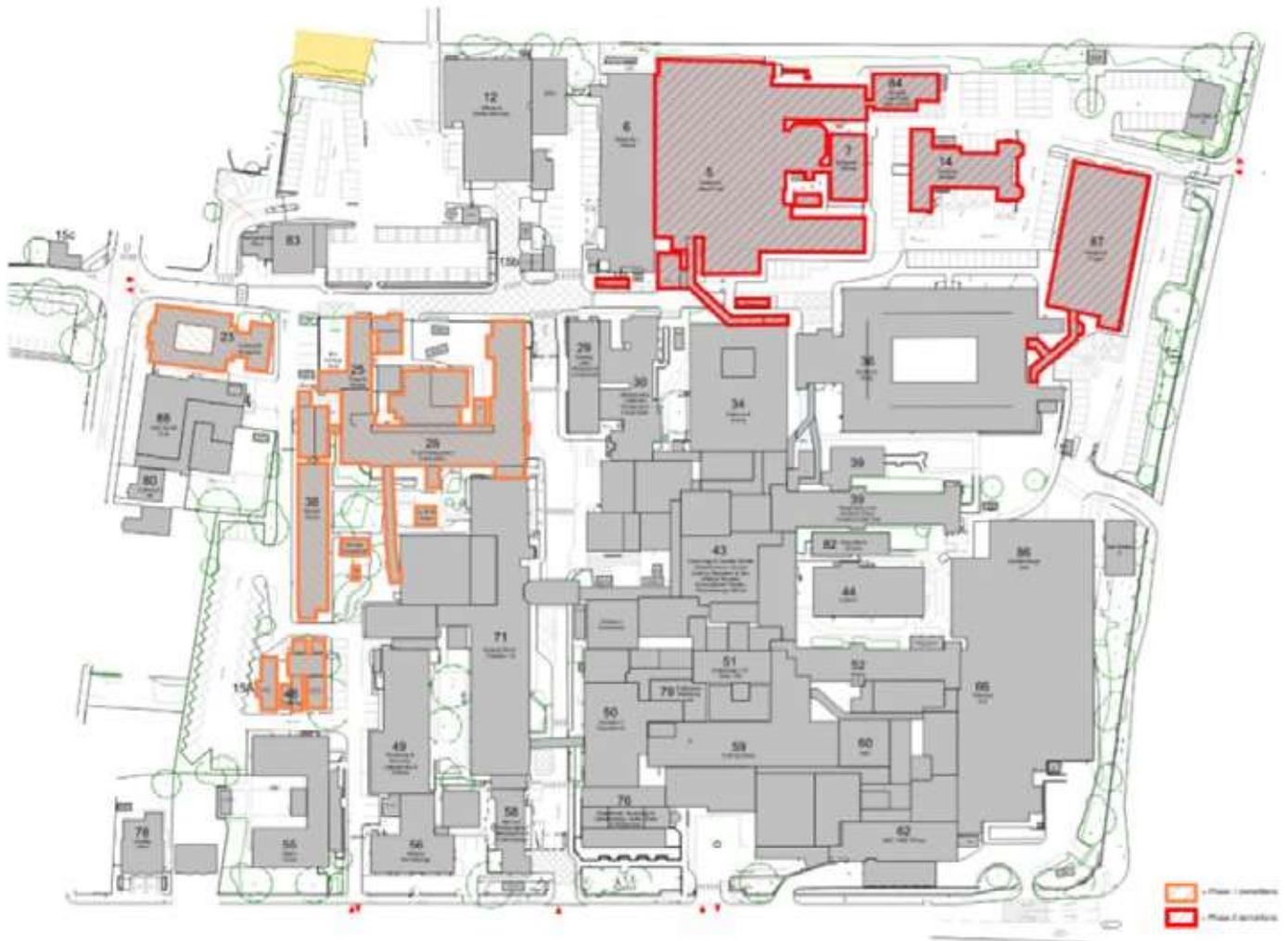


Figure 4.20- Phase 1 and 2 site demolition plan

In total, £23.4m will be removed from the backlog maintenance as a result of this site clearance and investment in phase 1. An £8m reduction has already been seen as a result of enabling work across the site, and a further £15.4m will be delivered when the new clinical buildings are completed. A further £33m of backlog can be cleared as part of the Hospital's phase 2 plans, described in the Strategic Case.

4.10.11 Workforce Requirements

There are over 4,400 staff working at the L&D. Step change increases in activity and workforce requirements are not assumed in this business case. However, there is some growth in workforce numbers as set out in the financial case, which reflects population growth and proposed demand, alignment to new care pathways, additional and more complex infrastructure and also the opportunity to address workforce challenges through the redevelopment;

- **Theatres:** To match rising demand theatre provision at both sites will be maintained with the number of Theatres in Luton increasing by 3.4. and first stage recovery beds increase from 21 to the proposed 27. The current set up, across the estate at Luton and Dunstable Hospital results in an inefficient staffing model. As a result providing care and maintaining flow of patients through the hospital can be challenging.

The improved environment coupled with new Theatre pathways will support flexible, effective booking of lists and increase in-session utilisation make optimal use of specialist staff. This additional capacity will require additional staffing including scrub nurses, ODPs, Theatres Support Workers (TSWs), recovery nurses, anaesthetic consultants. Efficiency saving will be achieved in Escort Nursing costs due to the new models of care and the physical layout of the ASB.

- **Critical Care:** Critical care is to provide integrated level 2 and 3 critical care from a single facility with access to all required multidisciplinary specialists. Pathway design and quality improvement priorities are focussed on streamlining patient journeys and maximising both efficiency and flexibility of resources. Critical Care capacity is a major constraint nationally and locally, the acute services block provision increases the number of critical care beds and side-rooms and increases the flexibility in the way the facilities can be used to meet changing demands.

To enable such significant benefits in flexibility and capacity and to eliminate unnecessary moves for patients, the Trust will rely on fully integrating existing teams, a highly skilled, adaptable workforce and a small number of additional posts.

- **Neonatal Intensive Care:** a priority for the Trust is to maintain a level 3 NICU on the L&D site. The unit will also continue to provide high quality specialist emergency services for babies requiring intensive care. The integration of transitional care with NICU and the expansion of overall cot numbers require uplift in the number of staff and some workforce reconfiguration.

This will ensure; workforce innovation and transformation moving towards BAPM standards; ongoing development of multi-disciplinary teams including AHP's, medical workforce resilience and rota redesign to include ANNP and; introduction and expansion of new roles for example specialist AHP's.

- **Maternity:** improving access for a vulnerable population is central to the Trust's clinical vision. The development of the poor maternity infrastructure and facilities at the Luton & Dunstable hospital site is a key enabler to reducing inequalities and meeting the diverse needs of our service users. This together with the physical changes to the maternity care pathways including the split in Triaging and the relocation of Transitional Care means that the maternity workforce will increase slightly, will be required to deliver innovative and adaptive service models and to maintain flexibility.

Detailed planning has been undertaken within clinical user groups to define the workforce required for the new way of delivering services. Descriptions of the clinical strategies and workforce implications for each of these services, including the coordinated plans to recruit, train and retain staff, are provided in 'Clinical Vision Models of Care - Workforce and Implementation plans' in Appendix 5.

The associated activity-related staff costs are anticipated to be offset mainly by marginal income from demographic growth, procurement savings and additional staffing cost improvement plans per year. The financial case sets this out in further detail.



The following Table 4.15 summarises the impact of these workforce changes over the next 5 years:

	Wte	2022/23 £'000	2023-24 £'000	2024-25 £'000	2025-26 £'000	2026/27 £'000	Total £'000
NICU- Relocation of Transitional Care							
Transitional Care Nurse B6	5.32				257	257	513
Triage HCA – B2	.60				15	15	29
Re-banding of B3 to B4					47	47	93
Backfill for training					22	22	45
Total	5.92				340	340	680

NICU - Redevelopment costs							
Medics:							
■ ANNP's		3				214	214
■ Junior Clinical Fellows		-1				-77	-77
STT:							
■ Dietician - B6		0.12				5	5
■ Physiotherapist - B7		0.15				8	8
■ Occ therapist - B7						22	22
■ Pharmacist - 8a						46	46
Nursing (cots 37 -> 40)	13.13					455	455
Total	5.92					663	886

Critical Care - Redevelopment costs		Yr 1	Yr 2	Y3	Yr 4	Total
Supernumerary	3.32	195	195	195	195	780
HCA – extended day to 11.5 hrs, nights & weekends	3.57	102	102	102	102	408
Total	6.89	297	297	297	297	1188

Theatres – Additional Theatres		Total
Scrub – B5	11.15	405,810
ODP– B5	5.58	202,905
Recovery– B6	8.36	370,433
TSW– B2	5.58	141,117
Total	30.67	1,120,266

Table 4.15- Clinical staff workforce modelling

- **Support Staff:** The redevelopment programme will have an impact in particular on the estates and facilities teams both during the build and at such time as the new estate is operational. The site has significant backlog issues and the aging estate has made effective maintenance, cleaning and the delivery of suitable infection control measures extremely challenging. The new, modern environment will impact how the team works and the skills needed to deliver a different service (due to the nature of the new buildings). Management and reactive maintenance of the current estates services are delivered by Trust staff. Mandatory and planned preventative maintenance on plant and equipment are provided by specialist contractors. This future developed and specialist workforce will provide an increased in-house maintenance service.

The Trust has struggled to recruit and retain maintenance staff. Staff shortages have been partly addressed post-merger as the Luton and Bedford teams integrate. The Acute Services Block will require additional managerial, technical and trade staff due to the size, the highly serviced nature of the building and the management systems within the building. Recruitment of additional and appropriately skilled staff leading up to the completion of the new development will be a priority. Prior to the operational delivery of new building, it will be necessary to train and upskill the existing team. The impact overall is described in the Workforce Implementation plans in Appendix 5, and a summary is provided below;

- Due to the highly technical nature of the building, there will be a shift from trade-skilled staff to technical staff as most of the plant and equipment will be controlled by the Building Management System (BMS). This will require upskilled maintenance staff to be able to adopt a fault finding and technical skills approach, without which the site will be reliant on expensive external contractors.
- Additional workforce will be required for the management of the increased estate and specialist systems. The additional area of 18,024m², will need additional estates staff calculated as 1 WTE per 2000m² (derived from the Chartered Institute of Building Services guidance).
- The additional medical equipment being installed will require the training and upskilling of current staff and recruitment of additional staff. This will reduce the reliance on external contractors.
- The additional activity arising from additional theatres will proportionately increase the workload of HSSD and will require extended service hours with the resultant impact on working hours.
- The current soft FM services at L&D are predominantly outsourced. The additional floor space means that there will be a need for additional cleaning and housekeeping staff. Working in partnership with service providers, a new Domestic and Housekeeper Training Academy will be completed in the summer of 2021 to ensure that contractor staff fully understand, and are competent to reach, Trust standards.
- The Trust will change its approach to Porterage, staff will be managed centrally

The following Table 4.16 summarises the impact of these workforce changes over the next 5 years. The uplift in workforce associated with the new asset and capacity growth will be funded through a combination of annual growth monies and CIPs and therefore are not specifically included in the financial model.

Area	Category	WTE	£'000	2024/25	2025/26	2026/27	2027/28
Maintenance	BMS manager Band 6	1	47.35	48.29	49.26	50.25	51.25
	BIM Manager Band 6	1	47.35	48.29	49.26	50.25	51.25
	Band 5 technicians	4	155.75	158.86	162.04	165.28	168.59
	Band 4 Level 2	4	122.64	125.09	127.59	130.14	132.75
	Band 3	1	21.14	21.56	22.00	22.44	22.88
EBME	B7 Equipment Project Manager	1	55.82	56.94	58.08	59.24	60.43
	B5 Technicians	2	77.26	78.81	80.39	81.99	83.63
HSSD	Supervisor Band 3	1	25.88	26.40	26.93	27.46	28.01
	Technicians Band 2 (working from 00:00 to 08:00)	3	48.35	49.32	50.31	51.31	52.34
Portering	Band 2 (4 shifts over 24 hours)	4	97.93	99.88	101.88	103.92	106.00
Total		22	699.47	713.46	727.72	742.28	757.13

Table 4.16- Support staff workforce modelling



4.11 Maintaining Business As Usual

The Trust Project Team has significant experience of Works delivery on operational hospital sites, including specifically at the Luton & Dunstable. It has been a fundamental requirement during our selection of a Contractor, that Business as Usual activities must be allowed to continue and be maintained throughout the construction.

The Trust has implemented a strategy of separating the demolition and service diversions aspects of wider project delivery from the new build element. This deliberately recognises the Trust's ownership of managing these key interfaces and is intended to reduce both project risk and clinical risk. As a result of this strategy, the site within which the New Clinical Buildings are to be constructed will be clear of live services, reducing the likelihood of an impact on the wider hospital site. Clearly this does not mitigate against the risk of disruption arising from the additional vehicle, personnel and materials movements which will come with construction of a building of this size and complexity, nor will it address the risk of impacts on clinical services from noise, vibration and dust arising from the construction activities.

Therefore, during the procurement process for our Works Delivery Partner, a significant degree of focus was maintained on the mechanisms and measures successfully deployed by bidders and explained in their case studies and reference schemes. This was a key selection criteria, against which bidders were evaluated.

The selected Construction Partner, Kier has an extensive track record of Works delivery on and within operational hospital sites and facilities. Most recently significant work was undertaken at Wexham Park by the same Kier leadership Team who are now appointed to deliver this Project. A further example of the Kier experience in operational and constrained sites is the delivery of the new Nuffield Health private hospital at Bart's, where the works had to be managed and delivered from within a very small courtyard bounded by a Grade 1 listed building of national importance, as well as further listed buildings and an operational hospital estate.

Just one example of the approach adopted by Kier for the Luton site, is their lease of a nearby, off-site location to act as a Contractors' parking compound. Another is the mandated use of noise, dust and vibration monitoring with a live link and reporting to the Construction Director's desk. Clinical Teams in adjoining areas are also fully briefed and a primary objective during the Works phase has been stated as "no-unplanned disruption" to either the Works Delivery or Clinical Services.

To support delivery of this objective, the Trust already operates a weekly "What Works, Where & When" meeting, to support communication of the nature of the works being undertaken, their location, timing and the probable impacts arising from those works. In addition, the Trust already runs a fortnightly Contractors' Liaison Meeting, hosted by the Trust with representation from all Contractors operating on site so as to allow forecasting of expected immediate, near and medium-term impacts on other Contractors, the Site and clinical users, arising from the Works activity.

4.12 Town Planning

The 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 and the Hospital environment.

4.12.1 2015 Planning Application for Site Redevelopment

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.

4.12.2 2020 Planning Application for Site Redevelopment

Following the public announcement in August 2019 that the L&D had received a central funding allocation, the Trust re launched their OBC development. As part of this, a subsequent public consultation was held in November 2019 to re communicate the Trust's Redevelopment plans and to better understand if this impacted the community.

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 remained 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 remained 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 1. Please note, this group moved to a virtual platform at the start of the Global Pandemic, regular residents newsletters regarding the Redevelopment are distributed to residents in the local streets (circa 2,000 newsletters).

In parallel with the main application which included a new car park on the site for patients and visitors, a number of additional planning applications were made. These included a specific application for the provision of car parking close to the hospital site. Regarding car parking, all applications were positively received, planning permission granted and towards the end of 2020/21, all new car parks were opened to patients, visitors and staff. A formal opening of the patient and visitor car park was held on the 19th May 21 and received overwhelming praise.

4.12.3 2020 Planning Approval for Site Redevelopment

There is overwhelming public support for the Hospital's redevelopment and planning consent was granted by LBC at the Development Control Committee on the 26th March 2020. Planning consent was for the preferred option as described in this FBC and included planning permission for the Acute Service Block, New Ward Block and the Multi Story Car Park, opposite the Hospital.

4.12.4 Design Revisions and Section 73

There have been a number of design revisions since the planning submission in January 2020. It was agreed with the Council that these would be dealt with through a section 73 notice, this was presented in September 20.

The Section 73 application for minor material amendment to the Main Hospital Redevelopment was received and validated on 10 December 2020 by LBC, Application Ref. 20/01541/MMAMD. The design revisions were considered to be insignificant and the Section 73 was granted on the 19th February 2021.

A shared vision and partnership approach between the Trust's Planning Team and the Borough Council has been fundamental to enabling a timely and effective planning strategy.

Full details of the planning award can be found on the Luton Borough Council planning portal under reference 20/00100/FUL. For completeness, we have included the last iteration of the Conditions tracker (as at August 21) maintained by our Town Planning Consultant with input from Kier, Appendix 4. The Trust has already successfully achieved discharge of a number of conditions. The remaining items are considered to be within the gift of Kier and as such, have been allocated to them within the PCSA (1st stage) and ECC (2nd stage) contracts, to achieve their satisfactory discharge.

4.13 Conclusion to the Preferred Option

The Luton and Dunstable University Hospital is situated on a constrained site, land-locked within a residential area. Many of the buildings have become outdated, at a time when demand for services has grown significantly. Whilst some healthcare services have been restructured to reduce the number of patients attending the Hospital Site to receive their care, some patients require services only found within an acute hospital facility. The Partial Redevelopment will deliver major improvements to the Hospital, with the new clinical buildings facilitating excellence in healthcare delivery.

The Redevelopment delivers the case for change, it supports and enables the Clinical Strategy, mitigates corporate risk, increases benefits to patients, staff and ultimately the health care system, and, supports service and estate efficiency.

The design solution is underpinned by core principles that align with national, regional and local strategy and key estates drivers. The design delivers the Critical Success Factors and Spending Objectives for the scheme. Minimal derogations exist in the design and where they do, they have been informed by modern guidance, best practise and clinical learning.

All of the identified shortfalls in the current clinical accommodation outlined in the case for change are improved upon or enhanced to drive quality. The shortfalls in Maternity, NICU and Theatres will be eradicated through this development.

The enabling schemes clear the site for the main redevelopment and also deliver significant improvements in other areas such as car parking, clinic accommodation, office accommodation and estates infrastructure.

The Models of Care have been delivered over 12 months with key input from leaders across the organisation. Furthermore, workforce models have been developed with implementation plans, to guide business planning and financial planning. All of this work feeds into the affordability assessment within the Finance Case.

5 COMMERCIAL CASE



COMMERCIAL CASE SUMMARY

A robust and legally sound procurement process to select a preferred bidder has been undertaken, with process being assured by the Trust's Legal Adviser (Ward Hadaway) participating in all stages. The Trust is able to demonstrate that they have achieved a value for money solution, one that supports the defined programme and cost plan and ensures the hospital will continue to function safely while the construction works take place.

The Crown Commercial Services (CCS) Framework for Construction Works and Associated Services (CWAS) was used to approach the market. A two-stage tender procedure to select a preferred bidder was conducted. The Invitation to Tender (ITT) detailed the proposed contract documents prepared by AECOM and Ward Hadaway with input from the Trust.

The Trust entered into a Professional Services Contract (PSC) to develop the design (RIBA stage 4) and a fixed price for the New Clinical Buildings (Stage 1). Following this, they will then undertake the Works Delivery via an Engineering & Construction Contract (Stage 2) at the Luton & Dunstable University Hospital site.

The tender response from Kier Construction Limited provided the most economically advantageous tender based on the scoring methodology and criteria set out in the Invitation to Tender. Accordingly, the recommendation to the Trust Board on the 19th May 2021 was to appoint Kier Construction Limited for the Professional Services Contract, with the expectation being that, subject to satisfactory performance and achievement of an affordable Lump Sum Contract Price and FBC approval, they would be awarded the main Works Contract under an NEC4 Engineering & Construction Contract, Main Option A. The design team were novated to Kier Construction Ltd concurrently with their appointment under the PSC to commence RIBA Stage 4.

The initial appointment for the Pre-Construction Services was made via the NEC4 Option A Professional Services Contract, in the sum of £ [REDACTED] (made up of the Tender Price of £ [REDACTED] plus the £ [REDACTED] main contractor discount which was offered in the event the project proceeds to construction with Kier).

The balance of the tender price (£ [REDACTED]) was agreed to be committed should the Pre-Construction Services culminate in an acceptable Contract Sum offer for the Construction Works and Construction Stage Services. This will be let via the NEC 4 Option A Engineering and Construction Contract.

The remainder of the overall Project Cost is embedded in the Works Packages. In August 2021 the Trust received a not to exceed price from Kier, which fell within the current cost plan allowance. This is the capital cost which feeds into the FB forms which can be found in Appendix Pack 3 and forms the basis of the FBC approval which is sought from this document. The final contract cost continues to be negotiated with a target date of 29th November 2021.

The Not to Exceed (NTE) price has replaced cost plan figures with the actual sums from Kier's Works Package tender activity. Kier, AECOM and the Trust continue to run a weekly commercial meeting to transparently review and agree commercial matters.

In terms of the design and construction, the Trust has adopted a "Modern Methods of Construction (MMC) first" approach when considering the built form strategy for all constituent projects within the wider redevelopment programme. The enabling schemes delivered on the site throughout 2020/21 have followed this approach.

Full Planning approval has been given by Luton Borough Council (LBC) for the project and the Trust maintain a good track record of delivering against broader LBC objectives – working to eliminate poverty and promoting sustainability. In partnership with the Trust's Contractor and the local community, there are a number of items pre- construction and during construction that will be adopted to support the wider social value agenda, these include engagement with local education providers and small, medium enterprises (SMEs).

The new buildings require a significant level of equipping. A detailed equipment strategy is presented in this chapter and fed into the capital costs.



5.1 Introduction

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.

A robust and legally sound procurement process to select a preferred bidder has been undertaken, with proper process being assured by legal adviser (Ward Hadaway) participation in all stages. The Trust is able to demonstrate that they have achieved a value for money solution, one that supports the defined programme and cost plan and ensures the hospital will continue to function safely while the construction works take place.

This chapter summarises the two-stage tender procedure to select a preferred bidder with whom the Trust will enter into a Professional Services Contract to develop the design and fixed price for the New Clinical Buildings (Stage 1) and then undertake the Works Delivery via an Engineering & Construction Contract (Stage 2) at the Luton & Dunstable University Hospital site. The Chapter goes on to summarise the Equipment strategy that will be adopted as part of this scheme.

The tender response from Kier Construction Limited

provided the most economically advantageous tender based on the scoring methodology and criteria set out in the Invitation to Tender. Accordingly, the recommendation to the Trust Board on the 19th May 2021 was to appoint Kier Construction Limited for the Professional Services Contract, with the expectation being that, subject to satisfactory performance and achievement of an affordable Lump Sum Contract Price, they would be awarded the main Works Contract under an NEC4 Engineering & Construction Contract, Main Option A, as amended.

5.2 Key Changes Since OBC Approval November 2020

- Enabling work scheme development and completion
- Change to procurement and holistic programme (9 month delay to programme to reflect request to hold procurement until after HM Treasury OBC approval, granted in November 2020)
- Formal procurement and appointment of contractor May 2021
- Value engineering and design development - Novation of Design Team to develop RIBA stage 4 design with Contractor and Trust

5.3 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 to add social value, such as supporting local employment and stimulating the local economy

The Trust carried out a comprehensive review of options to support procurement of a contractor to deliver the scheme. Its key drivers were to ensure broad exposure to potential contracting partners, the ability to engage at length with

tenderers before selection and the balance between tendering works in a competitive market as against a need to select and engage with a construction partner during development of the construction design. After an extensive review, the Trust elected to pursue procurement via the Crown Commercial Services framework. The issue of the Invitation to Tender underpinned the ability to negotiate the contract terms, the contract preliminaries cost and the Overheads & Profit mark-up within a competitive market. The construction works packages, supported by the construction design, will be tendered on a transparent basis giving the Trust the assurance that the cost of the works properly reflect the current level of pricing for construction works.

The procurement approach was endorsed by the Gateway 3 review as being consistent with best practice.

A legal report has been provided by Ward Hadaway, the Trust's Legal Advisors, which underwrites the approach. This can be found in appendix 9.

The Trust's approach to procurement has been shared with NHSE/I and DHSC colleagues during the monthly progress meetings set up by the Trust. A formal letter from the Trust described procurement arrangements in detail; this was issued to Commercial Leads at NHSE/I and DHSC in summer 2020. This reference can be found in Appendix 9.

5.3.1 Methodology for Developing the Programme Procurement

The Redevelopment Programme Board established a Working Group at the beginning of the OBC development. During the work shop on the 27th February 2020, the following key aspects of the procurement strategy were considered;

- Works Package structure
- Contract strategy
- Procurement Strategy including programme, evaluation criteria and evaluation scores
- Route to Market

A summary paper can be found in Appendix 9 identifying the Working Group's recommendations which were endorsed by the Redevelopment Programme Board on the 18th March 2020 (minutes can be found in Appendix 1).

5.3.2 Procurement Plan

In March 2020, the Trust Redevelopment Programme Board endorsed a series of recommendations from the delegated Procurement Strategy Workshop to proceed on the following basis:

- Decouple the demolitions and service diversions works package from the construction of the New Clinical Buildings.
- A single stage lump sum demolition tender be put to mini-competition for the demolitions and service diversions works via Lot 10 (Demolition and Decommissioning) of the Crown Commercial Services Construction Works and Ancillary Services (CWAS) framework (RM6088) – to utilise an appropriate contract from the NEC suite. This process is complete and demolition contractor has commenced on site.
- A two-stage design and build strategy should be adopted for the New Clinical Buildings.
- The Crown Commercial Services CWAS framework (Lot 5) should be used as the route to market
- An appropriate NEC contract would be utilised – either Option A (priced lump sum contract) or Option C (target price contract) to strike the optimum 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. Option C was subsequently chosen.
- The design team should be novated to the selected contractor after sign-off of RIBA Stage 3 and pursuant to a contractor first stage competitive tender process. (However, the timeframe for OBC approval allowed the Trust to continue developing the designs to a full RIBA 3, which allowed re-evaluation of the original Option C (Target price) approach, with the Programme Board agreeing an "Option A" (Lump Sum) approach to recognise the increased Price certainty that would be achievable from the enhanced design information available).

5.3.3 Framework Selection CCS vs P22

The Trust undertook a procurement workshop (summary output is provided in Appendix 9 of the Business Case) using a weighted evaluation approach to assess and consider options on the most appropriate route to market for this project. The ultimate conclusion of the assessment was that either route would be capable of delivering the Project but that, after further detailed discussion between the Trust's leads, the Crown Commercial Services (CCS) Framework for Construction Works and Associated Services (CWAS) was the preferred way forward compared to NHSProcure22 for the following key reasons:

1. The Trust had a significant concern regarding selection



of a P22 PSCP, who if they were then not to secure a place on the successor NHSP2020 framework (which was to have been awarded in October 2020 at that point), may lose interest in the health marketplace

2. Recognition of importance of “people” in the Construction Industry and therefore the CCS ability to design and implement a more project specific Contractor selection and evaluation process (CCS were also able to advise of the pre-tendered capped OH&P/ Fee the Main Contractor would apply, whereas P22 would not do so, until the point of selection of a PSCP)
3. The Trust recognised that the health sector is getting very busy and wanted to select from as large a pool of Contractors as possible. CCS has 14 incumbents on the Lot utilised by the Trust vs the 6 PSCP’s of P22. In reviewing the P22 PSCPs, the Trust also considered that Interserve (now Tilbury Douglas) could struggle to demonstrate adequate financial stability and that Galliford Try would be unlikely to bid given their previous unhappy experience at the Trust. Further, it was considered that BAM and Graham had the potential not to bid given their regional strengths are not necessarily aligned to our location and the forthcoming volume of health sector investments.
4. Additionally, the Trust’s cost management team, AECOM and Trust Delivery Team had previous experience of PSCPs on the P21 and P21+ framework losing interest in the health sector and having no driver to maintain a positive relationship with NHS clients after not securing a place on the successor “ProCure” framework. This was considered to be a significant risk to the project.

Therefore, in order to maintain strong commercial tension, the Trust selected the CCS framework as the optimum route to market.

Other, less significant factors were also considered, these included;

1. Ability to use NEC4
2. Ability to write bespoke z-clauses to bring some of P22’s learnings into the Trust’s contract;
 - a. creation of a GMP
 - b. zero defects at Completion
 - c. 2-year defects correction period

3. Ability to use z-clauses to develop beyond P22, with the Trust’s Delivery team’s experience and knowledge (enhanced programme reporting requirements; deduction from Amount Due if Contractor’s Programme is not maintained throughout the project lifecycle, not just for the first programme)

All of the above factors supported the use of the CCS and the Contract selection of the NEC4 (the form NHSP2020 is understood to be upgrading to). The use of CCS was discussed with Mr Simon Corben (Director and Head of Profession, NHS Estates and Facilities, NHSE/I, Commercial Directorate) prior to the submission of the OBC in April 2020 and, as this is a publicly procured framework, there were no concerns raised about this as a route to market.

Finally, 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

The Trust’s legal adviser, Ward Hadaway also endorsed the Trust’s route to market and participated in the drafting of procurement and contract documentation, along with AECOM, as quantity surveyor/cost adviser.

5.3.4 Trust Procurement Scope

The project comprises of the RIBA 4 technical design and construction of approximately 16,700m² of new accommodation. The development will deliver a new Acute Service Block, a new Ward Block and a connecting link and lift core (collectively the ‘New Clinical Buildings’). As has been noted previously, the Trust has procured an independent demolition contract and undertaken service diversions directly. These are therefore outside of the Scope of the Works procured via this FBC.

Building:	Composition:
The Acute Services Block Provides five storeys of accommodation and totals 11,568m ² of gross internal floor area.	Maternity Delivery on the ground floor Critical Care on the first floor Neonatal Intensive Care Unit on the second floor Theatre Reception on the third floor Theatres on the fourth floor The fifth floor shall house the plant rooms which services all of the above facilities.
The New Ward Block provides three storeys of accommodation which totals 4,422m ² of gross internal floor area.	Maternity and Support services. Postnatal Care ward. Antenatal Care ward; and The above areas are serviced from the third-floor plant room and roof top plant areas.
The link building is five storeys which totals 704m ² of gross internal floor area.	3 passenger lifts, which blends the Acute Services and New Ward blocks with the existing Surgical Block (Block 71).

Table 5.1- Trust Procurement Scope

5.3.5 Procurement Route

The selected procurement strategy is two-stage design and build, with the brief and design having been developed to RIBA Stage 3. The design team have been novated to the successful contractor concurrently with their appointment under the NEC4 PSC to commence RIBA Stage 4. Subject to satisfactory completion of the PSC, including delivery of an affordable Option A Price, within the Not to Exceed, the Contractor and novated design team will complete the design and undertake construction through all subsequent RIBA Stages to Completion and handover. These requirements were detailed in the proposed contract documents included within the ITT, prepared by AECOM and Ward Hadaway, with input from the Trust. A key criteria for the tender process was acceptance of those terms and conditions.

5.3.6 Contract Terms

Having already agreed the use of the NEC4 Suite of Contracts as the basis for appointments and Works Contracts on the Redevelopment Programme, the Trust team undertook a comparison and evaluation of a suite of amendments to the standard form, known as “Z-clauses” after the mechanism by which the NEC Contract requires any such changes to be incorporated.

1. A series of workshops to compare and contrast these potential amendments were held with input from Ward Hadaway, AECOM and the Trust’s lead. The sources of these proposed amendments were:
2. Published P22 Z-clauses
3. A suite of Ward Hadaway’s z-clauses informed by their commercial experience

4. AECOM’s experiences of delivering both successful procurements and works delivery

Trust lead’s previous experiences utilising NEC3 and NEC4, as well as NHSP21, P21+ and P22

A key matter to note in terms of the review undertaken is that the P22 contract utilises the NEC3 Suite. A large number of the standard P22 Z-clauses have been “baked in” to the NEC4 Suite, recognising the good practice which P22 was encouraging. Another key point is that where two clauses addressed the same issue (examples would be Copyright; Modern Slavery; Anti Bribery & Corruption etc.) the CCS template was to be used, as these had been drafted and endorsed centrally, significantly more recently than those for P22.

Following debate at the Workshops and consensus selection of the optimum z-clause for incorporation, Ward Hadaway undertook a consistency review and assured that all cross referencing and language had been made consistent across and between the standard contract and the suite of amendments.

5.3.7 Contractual Risk Apportionment

The Trust has pursued an NEC4 Main Option A contract pricing strategy, providing for a Lump Sum Price. The rationale for the switch from target price to lump sum has been discussed elsewhere in this FBC, but in summary, our market engagement identified that there would be increased competitiveness from the Supply Chain on the basis of both the increased design information available and the less administratively burdensome nature of Option A vs Option C, which is acknowledged to require substantial QS and Contractor administration effort to identify and reimburse actual costs up to the target/ GMP figure.



An Option A contract allocates price risk on the defined Scope to the Contractor. The adapted NEC4 form agreed with Kier allocates risk in the following manner:

What	Why	Mitigation
1 Weather	Kier	Up to a 10-year event defined with actual weather data in Contract is Kier's risk. For anything beyond that a Compensation Event will arise, but only the marginal cost and time is assessed by the PM
2 Design co-ordination	Kier	Wholly owned by Kier
3 Works co-ordination	Kier	Wholly owned by Kier
4 Sub-contractor quality and time performance	Kier	Wholly owned by Kier
5 Sub-contractor business failure	Kier	Wholly owned by Kier
6 Ground conditions	Kier	Up to what a competent Contractor would have assessed as being reasonable. For any Compensation Event arising only the marginal is assessed by the PM
7 Asbestos	Trust	Only locations possible will be if asbestos found in ground [unlikely on this site] and in the limited sections of work in existing premises for service connectivity.
8 Unexpected ground contamination	Trust	Beyond what a competent contractor would have assessed as being reasonable For any Compensation Event arising only the marginal is assessed by the PM
9 Kier Parent Company failure	Trust	Parent Company Guarantee would become inoperable. Contract covers the eventuality and provides for appointment of new Contractor or Trust step-in to Works package ownership
10 Clinical services disrupting Works activity	Trust [but see right]	Unless Works activities are exceeding agreed time/ disruption thresholds
11 Costs arising from Delay over and above the Delay Damages	Trust	Project ECC Contract states £10,000/ day
12 Brexit & COVID/ Pandemic	Shared	No Delay Damages to be claimed for explicitly Brexit/ COVID caused delay, but in return Contractor will not be reimbursed for any extended preliminaries

Table 5.2- Kier Risk Allocation

Kier's pricing of these risks falls within the NTE price received from Kier in August 2021. This reflects the actual tender returns from the Supply Chain which have been made transparent to the Trust with an explicit declaration, package by package, of the risk premium being applied to buy the above stated risks.

The Trust has been and will continue to operate a contingency at both the Project and Programme levels. Clear management approaches to control draw-down from those contingency pots have been and will continue to be exercised. Contingency levels are reflected in the FB forms found in appendix 3.

5.3.8 Examples of Strengthened Contract Terms

Set out below are a few examples of the strengthened clauses incorporated:

- The Trust’s lead expressed a strong desire to have a more powerful influence on the Contractor’s production and maintenance of the Works Programme and to further have greater detail and transparency in the production of the Programme for Acceptance. In response to this, the clause regarding withholding of 25% of Price for Work Done to Date if a first Programme has not been published has been broadened to allow the Project Manager to deduct that same 25% (up to a cap) in ANY month of the Project where a PfA capable of Acceptance, has NOT been submitted by the Contractor.
- Defect Free at Completion and 104 weeks Defects Period
- The Trust has implemented the P22 approach to the Works being Defect Free at Completion and having a 2-year Defects Period

The review also incorporated a number of the AECOM and

Trust lead learnings into the Scope document, which makes them legally binding. Examples of this are:

- The Contractor has to supply the Trust team (+NEC4PM and Supervisor) with a laptop and licence to the programming software utilised by the Contractor – purpose, to allow analysis and tracking of the changes
- The Programme for Acceptance has to incorporate a narrative regarding changes made to the logic network – purpose to encourage and achieve transparency and consideration of the drivers behind changes
- The narrative accompanying the Programme for Acceptance has to flag forthcoming Client Decisions and actions which are critical to the Programme – purpose, to raise awareness and allow sufficient time for client decision making
- The narrative accompanying the Programme for Acceptance has to identify the current critical path (using unique identifiers) activities as well as red flag those which are close to the Critical Path – purpose, to enhance transparency and allow greater Client understanding of the critical path

5.3.9 Tender Process

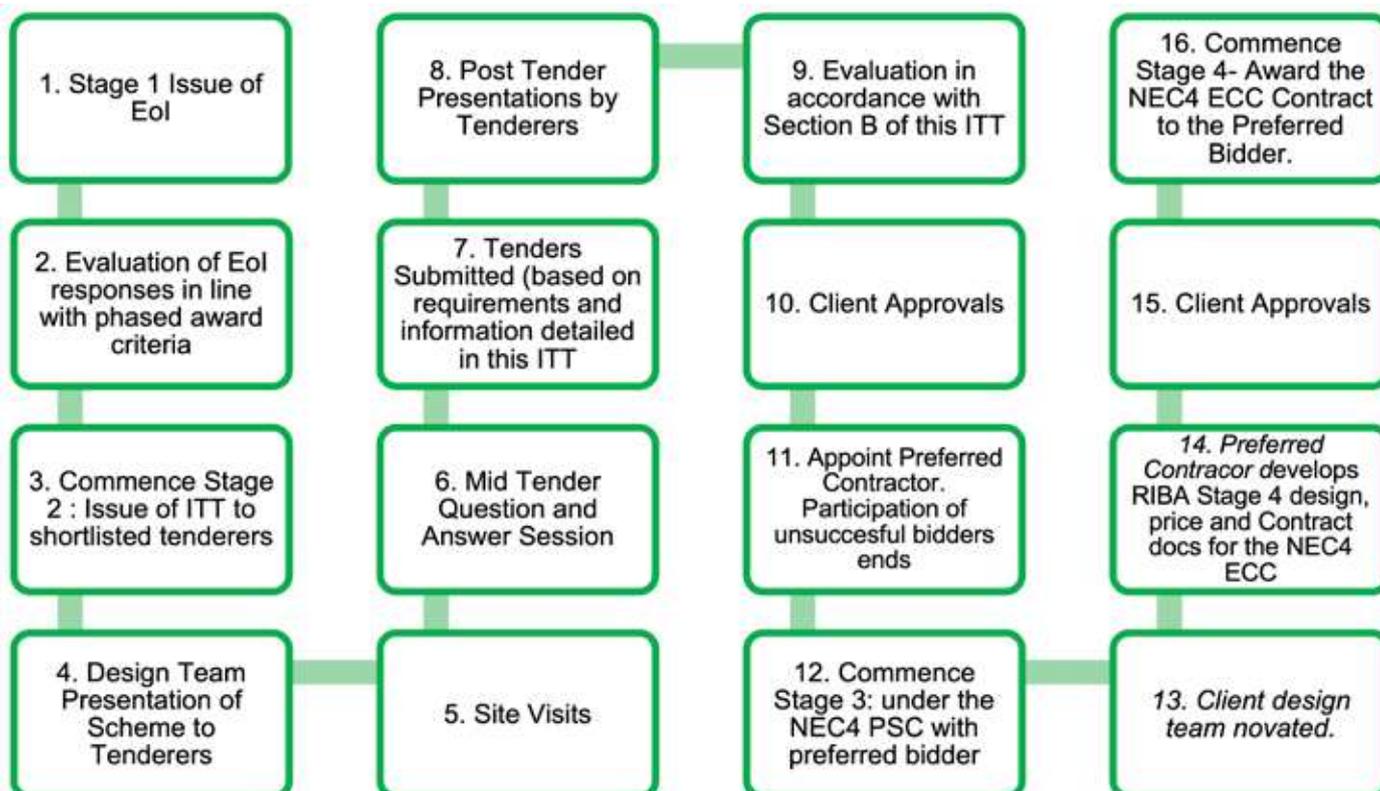


Figure 5.1- Trust tender process



The Trust registered the scheme with Crown Commercial Services (CCS) in April 2020 under CCS reference CWAS-029-2020. The Trust then commenced its procurement process with an Expression of Interest ('EOI') published on the Trust's Delta e-sourcing web-tool in May 2020 with the tender being made available to all contractors on Lot 5 of the CCS framework.

Contractors tendered on the basis of entering into an NEC4 Option A Professional Services Contract (PSC) initially for the pre-construction services, encompassing fixed prices for pre-construction services for both the contractor and its proposed MEP contracting partner. The tender also encompassed obtaining fixed prices for the construction stage for both the contractor and MEP contracting partner for construction stage design and preliminaries, as well as fixed overheads and profit percentages which will be applied to the net package values procured at the next stage. These construction stage fixed prices and percentages will be incorporated into the agreed price for the purposes of the NEC4 Option A Engineering and Construction Contract ('ECC'), subject to satisfactory completion of the pre-construction services period.

5.3.10 Tender Response

a. May 2020 EOI and June 2020 Tender:

Four contractors submitted positive responses by the deadline of 5th June 2020 and confirmed interest in participating in the procurement process.

1. ISG Engineering Services Limited ('ISG')
2. John Graham Construction Limited ('Graham')
3. Bouygues (UK) Limited ('Bouygues')
4. Kier Construction Limited ('Kier')

Laing O'Rourke registered interest in the opportunity but confirmed it would not participate in a competitive tendering process. If the Trust was to reconsider the approach and proceed with a negotiated direct award process via the CCS framework, Laing O'Rourke would welcome the opportunity to work with the Trust.

EOI responses from the four contractors who submitted were evaluated in accordance with the prescribed criteria. The Trust notified all four contractors on 12th June 2020 that they would be invited to tender.

On the same date, the Trust wrote to Laing O'Rourke and acknowledged its interest in the opportunity. However, as the submission was not compliant with the requirements of the EOI, Laing O'Rourke was not invited to participate in the next stage of the tender process.

The Trust wrote to the shortlisted bidders on 24th June 2020 to confirm that NHS England had instructed the Trust to pause the launch of the competitive tender process until the OBC was approved. Due to the passage of time associated with the approvals process the Trust took the opportunity to further its design (complete RIBA Stage 3) and adopt an NEC4 ECC Option A (fixed price) contract to take account of the further design completed during the extended OBC approvals process. Under the guidance of Department of Health and CCS, the Trust abandoned the original CCS EOI process (CCS reference CWAS-029-2020) and chose to run a fresh opportunity. Consequently, another EOI was made available (again via the Trust's Delta e-sourcing tool) in November 2020 (CCS reference CWAS – 110-2020) to all contractors on Lot 5 of the CCS framework.

b. November 2020 EOI and March 2021 Tender:

The restart of Stage 1 of the tender procedure, was undertaken by the Trust again in accordance with CCS framework requirements. The additional Expression of Interest was issued by the Trust on 16th November 2020 (CCS reference CWAS-110-2020). 4nr positive responses were received. All of these responders were shortlisted for Stage 2 of the tender process and invited to tender.

Stage 2 of the tender procedure, namely the Invitation to Tender ('ITT') was issued to the following shortlisted contractors on 1st February 2021 via the Trusts Delta e-tendering platform:

1. ISG Engineering Services Limited ('ISG').
2. John Graham Construction Limited ('Graham').
3. Bouygues (UK) Limited ('Bouygues')
4. Kier Construction Limited ('Kier').

The ITT required tenders to be submitted by 17:00 on 15th March 2021. Part way through the tender period, this was amended to 17:00 on 29th March 2021. This was a consequence of various requests for additional time in order to adequately prepare and submit responses to the comprehensive tender deliverables. Tenderers also cited that a delay in executing the novated designer team appointments and making them available for tenderers to review and incorporate into their tenders was also cause for the requested extension.

5.3.11 Tender Deliverables

The Trust and its professional procurement team (AECOM and Ward Hadaway) identified a series of tender deliverables considered to be critical to allow robust evaluation and ultimately selection of a Works Delivery Partner.

These were requested as part of the tender returns and are scheduled out below for ready review;

1. Acceptance of the PSC Contract Conditions
2. Acceptance of the ECC Contract Conditions
3. Completed Contract Data part 2 for both the NEC4 Option A PSC and ECC forms.
4. Response to Health and Safety questions which Tenderer's had to achieve at least 70% in order to be considered for appointment.
5. Completed Form of Tender and Certificate of Bona Fide Tender.
6. Completed Certificate of Non-Canvassing.
7. Completed Certificate of Non-Collusion.
8. Comprehensively completed pricing document and resource schedules in the form set out in the ITT.
9. Signed copy of the Tender Query Acknowledgement template.
10. Signed copy of the Tender Amendment Acknowledgment Template.
11. A completed Activity Schedule for the NEC4 Option A PSC.
12. A draft Activity Schedule for the NEC4 Option A ECC.
13. List of sub-contract packages which identified the proposed work package structure and intended sub-contractors for key packages for the ECC.
14. An Endorsement of the RIBA Stage 3 Cost Plan prepared by AECOM CM.
15. A Statement confirming pricing is compliant with the CCS Framework terms and conditions and the Framework Prices (inclusive of any set rates and discounts).
16. Completion of all scored quality questions identified in the tender assessment matrix. These questions included:
 - a. **Construction Stage Methodology and Delivery**- submission of a proposed delivery programme and overview of proposals for delivery of the project.
 - b. **Pre- Construction Stage Methodology and Delivery**- submission of a proposed delivery programme and overview of proposals for delivery of the project.
 - c. **Project Team**- submission of CVs of the proposed team an organisation chart for both the Main Contractor and MEP Sub-Contractor.
 - d. **Supply Chain Management**- Proposals for management and integration of the supply chain on the project and how collaborative working will be achieved.
 - e. **Quality Management**- Proposals and demonstration of prior experience which will ensure the handover of a completed facility free from defects, fully commissioned and details of aftercare offered.
 - f. **Health and Safety Approach**- demonstration of track record of ensuring health and safety during construction and identification of key project risks and procedures for monitoring and implementing Health and Safety on this project.
 - g. **Social Value**- Proposals for monitoring and reporting against social value KPI's and identification of approaches to ensuring supply chain financial health.
 - h. **Risk and Opportunity Identification and Management**- identification of the top 5 risks and top 5 opportunities for the project and how these will be implemented and managed.

5.3.12 Tender Interviews

Following an initial review of the tender responses and draft qualitative scoring by the Trust, AECOM, and Mott MacDonald, interviews were held via Microsoft Teams on 22nd April 2021. The interviews were used as an opportunity to clarify parts of the tenders in support of the consensus qualitative scores.

5.3.13 Tender Scoring

Following the interviews, a qualitative scoring moderation session was held on 23rd April 2021. This served to reaffirm and finalise consensus qualitative scores.

Prior to and following the interviews, the Trust's Cost Consultants carried out a comprehensive process of time and cost analyses and verification exercises to assess the tenders for compliance. This included:

- **Programme review** - to determine whether tenders complied with the milestone dates identified on the Trust's programme included within the ITT. Minor anomalies were found and corrected during the post tender review process.



- **Post tender clarification queries** - collated and contributed to raising technical queries from the design team and the Trust and liaised with each tenderer to address any concerns and ambiguities in relation to time, cost and/or quality aspects of tenders.
- **Tender price gap analysis** - detailed review of the tender prices submitted by each tenderer to ensure compliance with the Scope included in the ITT and to ensure tender prices were offered on a like-for-like basis. Minor anomalies were found and corrected during the post tender review process. This process captured adjustments for both purposes of commercial evaluation (to ensure tenders are compared on a like-for-like basis) and for purposes of appointment (to ensure compliance with the ITT).
- **Contract conditions** - Acceptance of the Trust's proposed contract conditions were a gateway (pass/fail) criteria of the tender. AECOM collated and distributed comments raised by tenderers on the proposed contract conditions included in the ITT. This resulted in a revised set of contract conditions being prepared by the Trust's legal advisers, Ward Hadaway. These were subsequently circulated to all tenderers for acceptance. The result of this process meant that some tenderers did, and some did not, accept the revised conditions in their totality as shown below.

Ref	Tenderer	Response Received	Accepted Revised Conditions Resulting from Tenderer's Comments
A	ISG Engineering Services Limited	05/05/2021	✗
B	John Graham Construction Limited	05/05/2021	✓
C	Bouygues (UK) Limited	05/05/2021	✗
D	Kier Construction Limited	04/05/2021	✓

Table 5.3- Tenderers Response

5.3.14 Tender Price Adjustments

Following the analysis and review procedures identified above, the initial tender prices were adjusted in order to determine both the tender prices for the purposes of price scoring and the tender prices for the purposes of appointment. These are summarised as follows:

Ref	Description	Kier - Compliant	ISG - Compliant	Bouygues - Compliant	Graham - Compliant
1	Original tender				
2	Adjustments following GAP analysis to ensure scope priced adequately				
3	Basis of appointment under the Professional Services Contract				
4	Adjustments following GAP analysis to ensure like-for-like scope pricing				
5	Total Adjusted Tender Price for Tender Scoring Only	£20,273,463.72	£22,901,394.21	£28,441,273.75	£20,370,712.10

Table 5.4- Adjusted Tender Prices for Scoring Only

All adjustments for the purposes of price scoring and for purposes of appointment are based on numbers provided by and subsequently confirmed with each tenderer.

5.3.15 Pre-Tender Estimate – Tender Variance

Ref	Description	Kier - Compliant	ISG - Compliant	Bouygues - Compliant	Graham - Compliant
1	Pre-Construction Services (PSC) Contract Sum if Appointed (Incl. Discount)				
2	Tendered Prices for Construction Stage Services Portion of the ECC				
3	Total Tendered Prices (PSC + ECC Preliminaries)				
4	AECOM Pre-Tender Estimate				
5	Variance: Contract Sum if Appointed vs Pre-Tender Estimate				
Initial Appointment Value (PSC):					
A	ADD Back Discount to Item 1 (applies only at end of PSC if ECC proceeds)				
B	Pre-Construction Services (PSC) Contract Sum if Appointed (Excl. Discount)	£2,887,253.87	£3,057,988.02	£4,204,331.31	£2,773,176.04

Table 5.5- Pre-Tender Estimate- Tender Variance

Three of the four tenders are within the equivalent sums within the Current Baseline Budget (CBB).

5.3.16 Tender Scoring

Price scoring contributes 40 of 100 available marks. This is further split whereby tender price, adjusted for compliance, contributes 35 price marks and an assessment of a Model NEC 4 ECC Compensation Event contributes 5 marks. In both instances, and as set out in the ITT, the lowest price is awarded full marks with remaining tenders deducted marks based on the percentage difference from the lowest price.

Quality scoring contributes 60 of 100 available marks. The responses to the qualitative deliverables were evaluated by the selection panel and scored using the pre-agreed Tender Assessment Matrix included in the ITT. The scoring was collectively moderated by the selection panel following the post tender interviews.

The price and qualitative scoring complies with the method communicated to tenderers as part of the ITT.

Combining the price and qualitative scores, the outcome of the tender scoring is as follows:

Description	Kier - Compliant	ISG - Compliant	Bouygues - Compliant	Graham - Compliant
Gateway Criteria	Pass			
Price Score (out of 40)	40.00			
Quality Score (out of 60)	43.75			
Total Tender Score (out of 100)	83.75			
Ranking Based on Total Tender Score	1	2	4	3

Table 5.6- Outcome of tender scoring

5.3.17 Tenderers Response to RIBA 3 Cost Plan

All tenderers were required to comment on the RIBA Stage 3 Cost Plan included as part of the ITT. Cost Plan assessments were not included as part of the scoring but tenderers were required to endorse the cost plan as appropriate for the scope of works. Where they considered the Cost Plan not representative of the required scope of works, tenderers were required to confirm adjustments.

Kier and Graham considered the RIBA 3 cost plan adequate, whilst ISG and Bouygues consider upward adjustments needed to be made.

5.3.18 Value Engineering Proposals

Tenderers were also required to submit proposals to save a minimum of £4m to address the construction cost overspend reported in AECOM's previous Commercial Reports. All tenderers identified proposals to save at least £4m. The proposals ranged from 'easy-wins' which would have no implications on clinical services, programme or planning and would require no derogations, through to more radical proposals which would necessitate varying extents of redesign.

Value engineering proposals were not scored as part of the qualitative or price evaluation but have been reviewed and agreed between the Trust and successful contractor for incorporation into the RIBA 4 design.

5.3.19 Tenderers Impact on the Current Baseline Budget (CBB)

The commercial report issued to tenderers included an Anticipated Final Cost (AFC) of £94.2m for construction. It is the delta between the £94.2m AFC and £90.3m CBB which the value engineering intended to address. The impact on the current baseline budget of appointing any of the bidders is identified below. The first stage tendered prices and Cost Plan assessments from Kier, ISG and Graham are within the CBB. Bouygues are outside of the CBB.



Ref	Description	Current Baseline Budget	Kier	ISG	Bouygues	Graham
A	Basis of appointment for Pre-Construction Services (from section 4 of this report)	£27,690,888				
B	AECOM Cost Plan (to be tendered at the next stage)	£62,650,704				
C	Sub-Total	£90,341,590				
D	Implications of Contractor suggested adjustments to AECOM Cost Plan	N/A				
E	Total	£90,341,590				
F	Variance vs Current Baseline Budget	N/A	-£6,695,529	-£2,974,155	£12,360,025	-£7,840,592

Table 5.7- Tenderers impact on CBB

5.4 Programme

The Trust's programme, as communicated to the bidders, is summarised as follows:

Milestone	Date
Trust approval of preferred bidder	19 May 2021
Notify successful and unsuccessful bidders	20 May 2021
Commencement of Professional Services Contract (NEC4 PSC Option A)	7 June 2021
Receipt of Not to Exceed price to support Trust's FBC	27 August 2021
Agreement of fixed lump sum price for the works in their entirety	29 November 2021
Anticipated FBC approval	13 January 2022
Contract award for the construction stage (NEC4 ECC Option A)	14 January 2022
Contractor mobilisation	10 January 2022
Commencement on site	21 January 2022
Construction completes	March 24
Planned Completion	May 24
Contractual Completion	27 Sep 24

Table 5.8- Trust programme communicated to bidders

5.5 Evaluation of First Stage Tender

The evaluation of the tender responses identifies the tender from Kier Construction Limited as the most economically advantageous tender. On the balance of the Price and Quality scores, the Trust Board approved the recommendation to proceed with the tender received from Kier Construction Limited, which had been adjusted for compliance with the ITT in the sum of £21,039,577.95 (Excluding VAT) for both the Pre-Construction and Construction Stage services.

The initial appointment for the Pre-Construction Services has been made via the NEC4 Option A Professional Services Contract, in the sum of £2,887,253.87 (made up of the Tender Price of £[redacted] plus the £[redacted] main contractor discount which is offered in the event the project proceeds to construction with Kier).

The balance of the tender price (£18,152,324.08 excluding Works packages costs) was agreed to be committed should the Pre-Construction Services culminate in an acceptable

Contract Sum offer for the Construction Works and Construction Stage Services. This will be let via the NEC 4 Option A Engineering and Construction Contract.

5.6 Second Stage Tender

The second stage tender is the period when, under the Professional Services Contract (PSC), the selected Partner undertakes design and package procurement activity to assemble a Supply Chain to deliver the required facilities. This is typically known as a "Pre-Construction Services Agreement", or PCSA. The incumbent design team (Murphy Philipps Architects [Architecture]; TB&A [MEP Engineering]; Peregá [C&S Engineering]) has been formally novated across to Kier to undertake this and all future stages of design, securing continuity of design intent and maintaining the quality of the design achieved to date.

The primary objective of the second stage tender process is to get both the Client and Contractor comfortable with the Prices and risk bargains made as the Supply Chain is assembled and appointed for the Works.

This is achieved by way of a series of transparent procurement activities (with Trust and AECOM participation and observation), following the production of key design outputs for those packages. These will be reported against the works package cost plan generated by AECOM and validated by Kier during both the tender process and more formally, immediately following appointment.

Given the accelerated nature of the Project and the Business Case process, it has been agreed with NHSE/I and DHSC that the FBC can be submitted with a "Not to Exceed" price for review and endorsement as part of the business case central review and approval process. This agreement is in the knowledge that the capital "ask" will not be greater than the allocation agreed in the OBC approval.

The second stage tender process therefore has 3 main "Price" milestones:

1. RIBA Stage 3 Cost Plan endorsement by Kier – 25 June '21 - Achieved
2. Publication of a "Not to Exceed" Price – 27 August '21 – Achieved
3. Publication of a Contract Lump Sum for the Works – expected 29th November 21

5.6.1 Design & User Groups

The Trust and Kier teams have agreed to provide a continuation of the RIBA Stage 3 design and user group structures in order to secure user group and clinical team inputs in to the RIBA stage 4 design details.

5.6.2 Package Procurement Working Group

A Working Group has been established which is charged with overseeing and assuring value for money during Kier's procurement of the Supply Chain in Stage 2 of the Tender process. This Working Group has membership from Kier Construction, Kier Mechanical & Electrical as well as AECOM, Mott MacDonald and the Trust.

Kier identified a procurement programme that supports the generation of a Not to Exceed Price in August and a Contract Lump Sum by the 29th November 2021. Kier have utilised the NTE process to shortlist and, where possible select, the Contractors to receive the RIBA Stage 4 information for final pricing. Tenders have been issued to four or more alternative suppliers for each package, with the expectation being that four priced responses will be received. There is a single exception to this, being the façade package. The rationale for this is that the extent of design required from the actual package Supplier is significant and will take a substantial period to undertake.

The adopted approach is therefore to run a mini-competition amongst two or three key suppliers on the basis of design cost, overheads and profit margins and select a Partner to work with in developing the RIBA 4 designs and cost.

5.6.3 Detailed Works Package

A detailed Works Package structure has been identified and a fortnightly "shift statement", identifying where and why shifts in the continuously tracked total of prices have occurred, will be circulated to the Working Group. In this way, it is expected that the NTE can rapidly evolve to a fixed Lump Sum price by 29th November 2021. A formal addendum will be issued to JIC and HMT on this date to provide assurance of the scheme affordability.

The FBC is programmed for approval by 14th January 2022. Following approval the Contract will be awarded to Kier, if all pre-construction conditions are met under the NEC4 ECC Option A Contract. A draft Contract can be found in Appendix 9.

The Trust will hold an optimism bias of [redacted] % until the Contract Price is agreed, this is scheduled for 29th November 2021.

5.7 Contractor Payment Mechanism

The Payment mechanism is an NEC Main Option A. The Contractor is only paid for activities identified in the Activity Schedule which have been completed. The Contractor undertakes a valuation on a monthly basis and applies to the Client for the payment. The NEC Project Manager then assesses the valuation as a basis for the PM's Assessment of the amount due. For the Trust this will be delegated to AECOM as our QS/ Cost Manager.

5.8 Equipment Strategy

This section is underpinned by the Equipment and Procurement Strategy which can be found in Appendix 8. This section examines what equipment is required for the new buildings, where this equipment is coming from (e.g. new or transfer), what funding is required to procure, transfer and maintain this equipment and subsequently how it will be procured. This section also touches on the management and governance of decisions around new equipment in the Trust's overarching management of equipment. The Trust employed an Equipment Specialist Firm, MTS, to support the development of the Equipment Strategy throughout the development of the business case.



5.8.1 Management and Governance

An equipment work group was established in May 2020 at commencement of the FBC development. The work group is led by the Trust's Strategic Lead for Medical Equipment. The work group feeds into the Finance and Economic Work Stream, one of the four work streams that underpin the redevelopment programme, led by the Trust's Director of Finance. The work group has a direct line into the Trust's Medical Equipment Group (MEG) for oversight and to ensure a standard approach to equipment selection.

On a day to day basis, the Equipment Work Group fed into the Redevelopment Delivery Team PMO office. Progress reports and Risk Registers were submitted and reviewed on a monthly basis. The project risk register fed into the overarching Redevelopment Risk Register as referred to the Management Case.

A significant proportion of the capital budget funds the medical equipment requirements for what will be a highly acute hospital building. As such, this work group more than most has stimulated a significant amount of diligent planning and updated the overarching on a monthly basis.

The Equipment Work Group delivered on a number of objectives to support robust planning and assurance, including;

- Determining and identifying existing Equipment to be transferred
- Determining Equipment items that will be end of life during the construction of the new hospital buildings and verifying the rolling equipment replacement programme required to manage this
- Determining new equipment requirements
- Determining specialist equipment requirements
- Developing the equipment responsibility matrix
- Developing the procurement strategy for new equipment including key milestones
- Confirmation of the OBC equipment budget and equipment costs and linking back into FB forms to support capital costing
- Agreeing the equipment management model
- Developing the PMO and resource model and profile to support this element of the redevelopment
- Ensuring regular risk management workshops to ensure a detailed understanding of the risks associated with the equipment and procurement strategy, and plans to manage and mitigate these risks

5.8.2 Trust Approach

There are three categories of equipment – non-medical (e.g. furniture), IT hardware (e.g. computers, tablets or printers) and medical.

- The Trust's approach assumes that all non-medical equipment (e.g. furniture) will be new as furniture will need to fit defined spaces.
- The Trust's approach to IT equipment assumes that all end-user IT equipment if required in the new buildings, will transfer from their existing buildings. The new end-user IT equipment requirements will support a capacity gap and offer a "buffer" to ensure that new clinical areas are live on day 1. Core network infrastructure will be new as the existing equipment has to remain in place until areas are fully vacated.
- The Trust's approach to medical equipment has assumed that if equipment exists currently and will be no more than end of life plus two years, then it will transfer to the new facility.

5.8.3 Caveats to Trust Approach

If equipment is registered to be end of life plus 2 years before the new hospital buildings open, then it will be replaced as part of the Trust's rolling equipment replacement programme and subsequently transferred. Caveats to this include;

- If the current equipment is unlikely to be compatible with the design of the new buildings, it is deemed not suitable to transfer and new equipment has been pulled into the equipment requirement schedule.
- Where equipment is unlikely to be compatible with the design of the new buildings, not suitable for transfer and will be end of life plus 2 years before the new hospital buildings go live, the Trust will take a view on "sweating the asset." In this scenario, new equipment will be drawn into the equipment requirement schedule.
- In some instances, existing equipment may simply "fall over" if it is moved, such as some of the IT hardware. In these scenarios, new equipment will be purchased for the new buildings. Risk assessments will be carried out for all equipment considered to be at risk of "falling over" a year prior to go live.

5.8.4 Methodology

1. A detailed audit of existing equipment has been undertaken and will continue to be undertaken annually in the lead up to go live. This supports good governance and mitigates the potential risk of “over-estimated transfer list,” as drawn out in the risk workshops.
2. A detailed review of equipment requirements as defined by the clinical user groups and reflected on the room data sheets (1:50 drawings) has been undertaken.
3. Existing equipment that will be “in life” in September 2024 has been assumed to be transferring, this has been subtracted from the new equipment requirement list.
4. New equipment requirements costed with a level of contingency to support changes to equipment costs that could not have been forecast
5. Equipment costs reflected in capital costings as per the FB forms referred to in the Economic Case.
6. All Equipment schedules (per clinical department) have been developed in conjunction with the Trust’s Strategic Lead for Equipment and the Clinical User Groups. Equipment Schedules have been signed off by the Clinical User Groups and The Redevelopment Programme Team Executive.

5.8.5 Equipment Transfer

The detailed audit of existing equipment concluded that medical equipment to the value of £8,173,360 can transfer to the new hospital buildings. Of this equipment, over 50% will need replacing between 2021 and 2024 (Q3 23/34 this is when commissioning of the new hospital buildings starts). This represents a value of £4,499,084, which feeds directly into the Trust’s rolling equipment replacement programme and agreed by the Director of Finance in his role as Executive Lead for the Equipment Strategy.

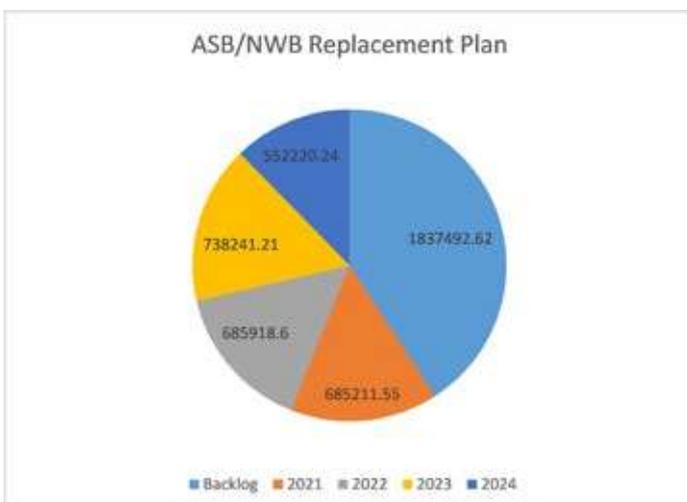


Figure 5.2- Value of equipment that will be end of life by year in the lead up to opening the new hospital buildings

5.8.6 New Equipment Costs and Budget

Group	Total
1	£0
2a	£3,663,555
2b	£176,042
3	£12,751,579
4	£240,000
IT Equipment	£689,131
Total	£17,520,307
Less Transfer	£8,173,360
Total	£9,346,947
Contingency (within project)	
VAT	£1,869,389
Overall Total	£11,216,336
Contingency (8%)	£858,230
Equipment Budget	£12,074,566

Figure 5.3- New equipment costs and budget

5.8.7 Equipment Disposal

A proportion of current equipment is considered unfit to transfer to the new hospital but will have some value for disposal. The estimated value of this will be worked through during the “Readiness to Transition” phase. Given the fluctuations in the value of disposed equipment, it is assumed that there will be no contribution to new equipment for the Redevelopment from the disposal.

5.8.8 Equipment Transition

A significant amount of medical equipment (36%) will be transferred from the old to the new estate. The transition planning as described in the Management Case will take place over an 18 month period in the lead up to opening the new buildings and will include detailed project plans for when and how equipment will transfer.

The transition will be managed by the Redevelopment Delivery Team PMO. External specialist support for logistics will be procured, this is included in the capital cost.



5.8.9 Equipment Procurement Options

Commercial Services provided in support of the Trust's Hospital Re-development programme are subject to Procurement Procedures in accordance with the Public Procurement Contract Regulations (2015) and the Trust's Standing Financial Instructions. The financial threshold above which the procurement of services is subject to a full Find a Tender Service advertisement (FTS) is £189,330.00.

Group 1 equipment is included within the construction costs. Group 2 and 3 equipment will include an element of new equipment and the remaining equipment will be transferred.

The Trust have selected two routes to market for new equipment. They include;

- **Framework** - Suitable and compliant Framework Agreements are available to public body organisations which negates the need to implement a bespoke tender process. Frameworks will be used wherever possible to support the procurement of equipment. These include the NHS Supply Chain (NHSSC), East of England (EoE), NHS Shared Business Services (SBS), HealthTrust Europe (HTE) and Crown Commercial Services (CCS).

NHSSC are a strategic procurement partner for the organisation and cover a vast range of equipment, consumable and maintenance areas.

The frameworks will facilitate either a direct award or a mini-competition approach. From a procurement perspective it is good practice however to run a mini-competition. In some circumstances, such as for standardisation purposes, it may be deemed more appropriate to direct award (if this option is available). Under these circumstances pre-agreed framework rates will apply and are not negotiable.

NHSSC can support with resource for the Procurement including requests for quotations / site visits / evaluations, however the current preferred plan is to resource the project in house.

- **Direct Supply** - A better value route for some equipment will be via direct supply. Often Trusts can and do negotiate local prices that drive value.

The Equipment Strategy available in Appendix 8 describes the resourcing profile required to support this significant undertaking and resource requirements are reflected in the finance model.

- **Charitable Funding** - There are some opportunities

for equipment to be funded by the Hospital Charity. The Hospital Charity are engaged in regular updates about the Redevelopment programme and are wedded to supporting additional benefits that fundraising often achieves. To compliment the Redevelopment programme, the Charity have committed to support a Greener Spaces Fundraising Campaign. This will include the creation of a bereavement garden for maternity, and inspiring and uplifting courtyard designs to support general wellbeing for both staff and patients. The charitable fundraising campaign is expected to achieve between £0.5-£1m and will enhance the Redevelopment Programme. The positive impact of the Greener Spaces campaign will be felt beyond the patients and staff moving into the new buildings, the courtyard will include external space for all staff to access as well as children.

5.8.10 Resourcing

- **Project Management** - Coordinating a major redevelopment of this size requires an appropriate and resourced project management office (PMO). This is described in detail in the Management Case and resource costs are reflected in the Economic Case. The Trust will employ a dedicated Equipment Project Manager and a dedicated Procurement Project Manager. This team, reporting into the PMO will work alongside the Clinical User Groups to manage the Equipment process through the various stages including equipment evaluation, selection, procurement, delivery, storage, logistics, commissioning and training. The detailed project plan will evolve over the coming years, and the PMO will be resourced up from Q4 22/23
- **EBME Technicians** - The new hospital buildings will see an increase in the number of equipment items. As such, this triggers an increase to the resourcing levels required to manage and maintain equipment. This is fully described in the Equipment Strategy and reflected in the finance case. Equipment management will continue to be provided for in house by an experienced and skilled EBME team, and for some items and general repairs, specialist equipment maintenance will continue to be procured.

5.9 Redevelopment Programme of Approvals in Relation to Procurement

It is understood that this project is classified as a significant capital investment. The project relies on central funding and therefore requires NHSE/I approval, DHSC approval and finally, HMT approval.

The Trust has been advised throughout the business case development by the NHSE/I Regional Team to allow 3-4 months for the approvals process at OBC and at FBC. The OBC review and approval period took 9 months.

During the monthly progress meeting with NHSE/I and DHSC on the 6th April 21, it was raised that the approvals process is currently taking than 3-4 months on all schemes and as such, the Trust would be wise to reconsider closer to 5 months for the business case review and approval in their programme. This urged a reconsideration of the FBC submission date and it was agreed that a draft FBC would be shared with Regional colleagues at NHSE&I in July 2021 to initiate a fundamental review. A final FBC was programmed for September 2021.

In collaboration with colleagues in the regional team and to support the review time frames, the regional team will begin their fundamentals review period in July 21, based on a "very good" draft and containing all key information with the exception of the Not to Exceed (NTE) price which will follow in September 21. A final iteration of the FBC will be published in September 21 which will include the NTE price, this is expected to change financial information in the Economic and Finance Chapter with minimal impact.

Milestones	Date
Contractor Appointment	May 21
Pre-construction contract commences	June 21
Draft FBC circulated to DHSC for Gateway Review	July 21
Draft FBC circulated to Regional Team for Fundamentals Review	July 21
Not to Exceed price agreed	Sep 21
Final FBC submitted	Sep 21
Contract Lump Sum Agreed	Nov 21
Pre-construction contract completes. Contract Lump Sum Agreed	Dec 21
FBC Approval anticipated ahead of contract award programmed for 14/01/22	Jan 22
Construction starts on site	Jan 22
Construction completes on site	Mar 24
Commissioning completes	Sep 24

Table 5.9- High level programme and approvals

5.10 Social Value

The Redevelopment of the L&D site presents significant opportunities for social value. This in turn supports the Council's (LBC) vision, to eliminate poverty from the Town and ensure a healthy, fair and sustainable town.

In partnership with the Trust's Contractor, Kier, and the local community, there are a number of steps pre- construction and during construction that will be adopted to support the wider social value agenda. Opportunities for Social Value are somewhat fluid, and opportunities to stimulate greater engagement across the community will evolve.

5.10.1 Pre-Construction (June 21 – Dec 21)

1. Invite stakeholders and partner organisations to form an Employment and Skills Steering Group that meets bi-monthly
2. Agree social value KPIs
3. Work with procurement to draft pre-amble to subcontractors including a social value pledge
4. Set up Teams page for supply chain to share social value resources and opportunities
5. Organise a meet the buyer day (planned for September 21)
6. Liaise with local community groups about potential team volunteer days
7. Organise calendar of school engagement events and ambassador training
8. Set up Data scope with staff details to include apprentices and those with low emissions vehicles to assist monitoring
9. Set up Smart waste and set targets for waste and energy usage on site

5.10.2 Construction (Jan 22 – Mar 24)

1. Start school engagement events
2. Organise work experience week and/or careers insight days
3. Liaise between subcontractors and TrAC re apprentices
4. Plan and deliver community volunteering days and fundraising opportunities
5. Supply chain workshop on social value
6. Organise training events according to subcontractor need to include environmental education with Supply Chain Sustainability School



5.10.3 Social Value Partnership Impact

COVID RECOVERY

50 new full time equivalent jobs

30 hours volunteering to local community projects and the Bedfordshire Hospitals NHS Charity

TACKLING ECONOMIC INEQUALITY

60 weeks training

£30m spent on local small, medium enterprises

25 weeks work experience placements

30 hours of careers engagement with schools

15 apprentices, circa 300 weeks

FIGHTING CLIMATE CHANGE

5000 "green" staff travel miles

7916 tonnes of waste diverted from landfill

350 hours of environmental education with supply chain

WELLBEING/COVID RECOVERY

Mental Health and Wellbeing campaign for staff and subcontractors

EQUAL OPPORTUNITIES

40 hours equality and diversity training

Table 5.10- Social Value Partnership Impact

5.11 Conclusion of the Commercial Case

A robust and legally sound procurement process to select a preferred bidder has been undertaken, with process being assured by the Trust's Legal Adviser (Ward Hadaway) participating in all stages. The Trust is able to demonstrate that they have achieved a value for money solution, one that supports the defined programme and cost plan and ensures the hospital will continue to function safely while the construction works take place.

The tender response from Kier Construction Limited provided the most economically advantageous tender based on the scoring methodology and criteria set out in the Invitation to Tender. The expectation being that, subject to satisfactory performance and achievement of an affordable Lump Sum Contract Price under the pre-construction contract, and FBC approval, they would be awarded the main Works Contract.

The Trust has adopted a "Modern Methods of Construction (MMC) first" approach when considering the built form strategy for all constituent projects within the wider redevelopment programme, to drive programme, value and to limit disruption to clinical services on the hospital site. This is clearly evidenced across the site.

This is a really interesting scheme and considered across the board to be achievable in terms of the parameters defined in this case. It is attractive to the market, and this is evidenced by the high level of interest at various engagement events (Contractors Open Day/Market Testing). There is significant opportunity to work in partnership across the local community, supporting social value and stimulating the local economy, through education, recruitment and SMEs.

6 FINANCE CASE



FINANCE CASE SUMMARY

As outlined at OBC, the L&D has been one of the best financially performing Trusts in the country, reporting a financial surplus in each of the last 21 years. The L&D reported a continued surplus position from 2016/17 through to 2020/21, with 2020/21 acting as the first full financial year of the merged organisation. The Trust, now Bedfordshire Hospitals NHS Foundation Trust (BHNHSFT), following the merger with Bedford Hospital on 1 April 2020, anticipates continuing with this financial robustness in 2021/22.

The economic case presented an explicit way forward for the redevelopment of the hospital site. On refresh of the capital costs, optimism bias, risk and benefits used at OBC stage the value for money analysis has revalidated that Option 2 remains the Preferred Option for the redevelopment of the hospital. Option 2 consists of the construction of an Acute Services Block (ASB) linked to a New Ward Block (NWB), to be delivered over 2.5 years and due to complete construction in March 2024, going live to patients in late 2024. The new services include maternity services, neonatal services, critical care and theatres. The Preferred Option continues to support the Trust's strategic vision, aligning with the Trust's Investment Objectives and Critical Success Factors.

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 BAU position. In contrast, the Preferred Option delivers significant financial benefits against the Trust's baseline and the economic modelling demonstrates that this provides the best value for money solution with a benefit-cost ratio of 5.08 over the baseline.

The Trust had submitted an OBC in April 2020 with approval granted from NHSE/I, DHSC & HMT in November 2020. At this stage the Preferred Option presented £150m in required PDC support alongside a commitment by the Trust to contribute £18.6m of Trust cash funding towards an overall scheme cost of £168.6m. The required funding includes a central allocation of £12m for IT integration and Pathology merger costs associated with the merger of the L&D and BHT, approved by NHSE/I. At FBC stage, the PDC ask remains at £150m, this is supported by the Contractor's Not To Exceed Price which forms the basis of the cost forms presented in the Economic Case.

The finance case assesses the revenue and capital affordability of the project, as well as outlining how the Preferred Option will be funded. This chapter concludes that the Preferred Option as revalidated in the Economic Case is affordable, with significant improvements above the BAU financial position.

The BAU option shows a deficit financial position for the Trust across the period FY 2022/23 - FY 2026/27, due to the inefficiencies associated with maintaining an old estate, and not realising the full level of merger benefits associated with the redevelopment plans in terms of service colocation, delivery of more streamlined pathways and better patient outcomes.

The Preferred Option, Option 2, sees the creation of an ASB linked to a NWB alongside investment into enabling schemes. The affordability analysis within this finance case demonstrates that Option 2 results in a more financially robust position for the Trust when compared to the BAU option. This option shows improvement to the cash position of the Trust in the long term and results in improved patient outcomes. This delivers the financial trajectories for the organisation.



6.1 Introduction

The Finance Case at FBC stage serves to reconfirm the analysis undertaken at OBC stage, factoring in the further information available to the Trust following the competitive tendering process and selection of a construction contractor. The Case provides an overview of the Trust's current and historical financial performance, then assesses the forecast incremental impact of the BAU Option and the Preferred Option carried forward from the Economic Case. In order to understand the impact of Option 2 on the Trust's financial statements, this case evaluates the capital and revenue affordability of the option, in addition to testing the impact of several established sensitivities.

The OBC, submitted in August 2020 and approved in November 2020, detailed the context of the awarded central funding allocation (£99.5m) in 2019 unlocking the opportunity for the L&D to merge with Bedford Hospital (BHT). The Trust merger occurred successfully on the 1st April 2020, with significant integration activities taking place across the period since then.

The L&D and BHT have identified a range of clinical and non-clinical benefits which are anticipated to arise as a result of the merger, through the enhancement and reorganisation of 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 a significant portion of the benefits associated with the merger are shown in Option 2 as an incremental change to BAU. It should be noted that some merger benefits are assumed to occur under the BAU; recognising that the merger is now enacted, the Trust has realised c.27% of steady state merger benefits in the BAU position of the organisation - an approach supported by NHSE/I colleagues.

As set out in the Commercial Case, this FBC is submitted on the basis of a "not to exceed" price. The OBC approval gave the Trust the ability to commence procurement activities. Kier Construction Ltd were appointed in May 2021 following a comprehensive procurement process and the modelled construction cost is based upon "not to exceed" pricing provided by Kier in September 2021.

6.2 Changes Since OBC

A number of assumptions included at OBC stage have been further refined as a result of information presented post OBC approval. These assumptions are outlined below:

- **COVID-19:** As a result of the global COVID-19 pandemic, the Trust faced significant cost pressures over the past year and will likely continue to do so throughout the FY 2021/22 period. The Trust received £3.6m in additional capital funding for specific COVID-19 assets in FY 2020/21 - an adjustment to net relevant assets has been made to reflect PDC funding received for COVID-19 assets in line with NHSE/I guidance. In addition to the capital monies received by the Trust, additional cost pressures have been experienced, and will continue to be experienced as a direct result of COVID-19. These COVID-19 related costs and the associated income received have been reflected in the BAU position of the organisation for the purpose of this FBC.
- **Construction Programme:** As a result of NHSE/I approvals requirements, a programme delay of 9 months has occurred. The construction of the project is therefore assumed to be undertaken over the period January 2022 being completed in March 2024, as opposed to the previously assumed completion date at end of 2023. The asset will go live to patients in late 2024. The capital costs included within this FBC represent the effects of the proposed contractual payments as per the construction cash flow submitted by the construction contractor, Kier.
- **Capital Cost Change:** In line with the delay seen on the project (referenced above), inflationary impacts were identified and mitigated through a programme of value engineering and procurement savings. The Trust can provide reassurance that the previously modelled £150m figure is still deliverable.
- **Loans to PDC Conversion:** In line with expectations, the BHT outstanding loans held have been converted to PDC, consistent with the approval conditions of the merger. The OBC financial positions were founded on the merger LTFM, in which the BHT loans were not converted to PDC - the financial analysis undertaken as part of this FBC recognises the conversion to PDC. The financial model captures a £71.1m loan to PDC conversion of capital loans during the financial year 2020/21.

Consequently, this has had a downward pressure on the forecasted surplus line compared to the OBC due to the increased net relevant asset base, which is not fully offset by the saving of interest paid on the loans. Additionally, a PDC dividend opening adjustment to the net relevant assets position has been made for debt conversion to PDC, in line with NHSE/I guidance.

- **Assets Under Construction:** Supplementary NHSE/I guidance was issued in July 2020 with regards to the application of PDC dividend charges for NHS Trusts, with a particular reference to treatment of Assets Under Construction (“AUC”). The change in guidance means AUC for specific nationally directed schemes (of which this scheme qualifies) will no longer attract a PDC dividend until they are brought into use for the purposes intended and reclassified from AUC to completed fixed assets in the Trust’s financial statements.

Recognising the timing of the guidance and the submission of the OBC, NHSE/I confirmed this guidance should be reflected in the FBC - this change has been incorporated into the financial modelling and impacts seen through this Case.

- **Impairment:** In line with engagement with the Trust’s valuer, Gerald Eve, and Trust policy, the estates assets under both Option 0 (BAU) and Option 2 are assumed to be impaired by 20% on the date of asset completion.

Additionally, although there have been some small changes between the schemes, the overall value and funding requirement is unchanged from the OBC to this FBC. In this FBC the clinical buildings have been shown as one cost line rather than being split out as seen at OBC. This is due to the lump sum contract price provided by the construction contractor through the preferred bidder stage.

6.3 Historical Financial Performance

As highlighted in the OBC, the L&D remains one of the best financially performing Trusts in the country, reporting a financial surplus in each of the last 21 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 £12.0m in 2019/20. The merger of the L&D and BHT was effective on 1 April 2020, with the combined merged Trust reporting a single financial position from FY 2020/21 onwards. BHT has historically been financially challenged, however the L&D continues to report financial robustness going forward. A summary of the Trust’s historical performance is presented in the table below, including the outturn position of 2020/21.

£m	2016/17	2017/18	2018/19	2019/20	2020/21
Operating income from patient care activities	267.7	301.2	322.6	339.4	602.9
Other operating income	41.1	32.9	40.0	31.8	82.3
Total Income	308.8	334.1	362.6	371.2	685.2
Pay costs	-188.0	-203.6	-219.7	-234.2	-439.1
Non pay costs	-94.2	-102.1	-107.3	-109.8	-219.5
Total Operating Expenses	-282.2	-305.7	-327.0	-344.0	-658.6
EBITDA	26.6	28.4	35.6	27.3	26.5
Net non-operating revenue and expenses	-13.6	-13.0	-13.0	-15.2	19.0
Net surplus / (deficit)	13.0	15.4	22.6	12.0	45.6

Table 6.1- Historical Financial Performance

As highlighted above, 2020/21 is the first financial year of operation of the merged Trust, meaning some significant movements can be seen in the financial statements between 2019/20 and 2020/21.



Of particular note is the net non-operating revenue and expenses movement which is driven through £42.9m recognised as gains from transfers by absorption. This reduces the underlying surplus to less than £3m.

It should be noted that 2020/21 is a historical financial year meaning reconciliation to actual financial results has been undertaken.

6.4 Option 0 – BAU option

The BAU option continues to see a limited capital programme on site, with the Trust utilising its cash reserves to fund a new (limited in scope) Critical Care block. While this investment would address the CQC concerns around the Critical Care accommodation, it would not resolve any issues regarding the Trust's ward stock, theatre capacity and condition, NICU condition or maternity facilities.

6.4.1 Financial Modelling

For the analysis presented below at FBC, the Trust has moved to a financial model developed by their financial advisors, PwC. At OBC stage the Trust utilised an updated version of the Long Term Financial model ("LTFM") which underpinned the merger with BHT to support the baseline position modelling. The LTFM included the impact to Option 1 (now excluded from financial analysis in line with guidance); the option underpinning the Wave 4b STP capital bids in July 2018, before in depth economic modelling to develop Option 2 (now Preferred Option) had been conducted. The baseline position in the OBC was presented by removing the incremental impact of Option 1 to create the BAU position. The revised FBC model has been structured in such a way that the BAU position is built up forming a base for the financial model, on which Option 2 is incrementally overlaid.

6.4.2 Assumptions

As per HMT Green Book guidance, the financial modelling undertaken in support of this FBC is undertaken on a full financial statement basis; the effect of this being that the incremental impact of options is layered over the BAU financial position of the organisation in order to produce full financial statements. For ease, incremental statements, showing the difference between the BAU options and the investment options, have also been provided. It should be noted that comparisons should be made using the full financial statements as the financial modelling utilised moved sunk costs and other aspects into the BAU option in order that they can be applied properly to each option. Recognising this structuring methodology, a number of assumptions are consistent across both the BAU and the Preferred Option. These assumptions are set out in the table below.

The assumptions have remained consistent with those made at OBC stage and are founded in the merger LTFM utilised to support the merger business case process. The assumptions have been revalidated by the Trust, and are deemed to represent the up-to-date position of the organisation:

Assumption	Description
Financial modelling start date	Inputs represent FY 2019/20, with Year 1 of the modelling/ forecasts being 2020/21.
Demographic growth	Demographic growth is based on historical trends, in line with the planned activity growth assumptions for the BLMK ICS, which are predicted to be 2.8%.
Tariff and Inflation	Additional tariff and inflation assumptions have been included in line with the NHS Long Term Implementation Framework 2019 and consistent with the Trust's LTFM.
BAU CIP	1.5% in 2020/21 and 2% onwards annual CIP is assumed in the baseline position of the Trust. 2% is in line with the assumption made under the merger LTFM modelling and with national expectations.
Activity related Pay 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.
Additional Pay Costs	It is assumed that additional staff related costs are incorporated within the cost of growth assumptions made, those being in line with growth in income seen.

Assumption	Description
Capital costs	Capital costs have been developed by specialist advisors at AECOM and “not to exceed” pricing provided through the tender process.
Capital Cost inflation	[Indexation - PUBSEC 250.
Sunk Costs	As outlined within the Economic Case and following OBC approval a small portion of the capital required in relation to IT Merger and Pathology Joint Venture Costs has been spent. This totals £6.9m across years 2019/20 - 2020/21. For the purposes of the financial modelling these costs have been moved into the baseline financial position of the Trust.
VAT Treatment	It is assumed that VAT is only recoverable on professional fees, as such the VAT impact of these are excluded from this Case and the FB Forms provided.
Impairment	The estate assets are assumed to be impaired on completion in FY 2024/25, at a rate of 20%.

Table 6.2- Assumptions

6.4.3 Statement of Comprehensive Income (SoCI)

The impact of the BAU position on the SoCI of the Trust is set out below in Table 6.3. Option 0 requires a substantially lower capital investment than Option 2, and therefore, does not see the significant capital charges when compared to Option 2.

As per the assertions made at OBC stage, although Option 0 – BAU does not incur these significant capital charges associated with the ASB, it also does not deliver the benefits associated with the ASB, nor the majority of the benefits associated with the merger (c. 27% of merger benefits are assumed to be deliverable under the BAU position).

The limited merger and asset related benefits delivered from the new Critical Care block are not adequate in order to offset the associated capital charges, as a result Option 0 falls into a deficit position across the period FY 2022/23 - FY 2026/27. From FY 2026/27, a smaller deficit is incurred due to falling capital charges and the recognition of some merger benefits offsetting these charges. This I&E position over the period analysed, does not deliver the required Financial Trajectory for the Trust and is not a sustainable solution.

£m	20/21	21/22	22/23	23/24	24/25	25/26	26/27
	FOT						
Operating income from patient care activities	602.9	597.5	622.4	648.6	670.1	698.8	728.9
Other operating income	82.3	47.7	46.9	46.1	46.1	47.5	48.9
Total Income	685.1	645.2	669.3	694.7	716.2	746.2	777.8
Pay costs	-439.1	-407.8	-428.8	-451.1	-474.3	-495.0	-512.3
Non pay costs	-219.5	-199.2	-201.4	-207.0	-208.5	-219.0	-232.0
Total Operating Expenses	-658.6	-606.7	-630.3	-658.1	-682.8	-714.0	-744.2
EBITDA	26.5	38.4	39.1	36.6	33.4	32.3	33.5
Net non-operating revenue and expenses	18.6	-34.9	-37.9	-40.1	-40.9	-38.1	-37.3
Net surplus/(deficit)	45.2	3.5	1.2	-3.5	-7.5	-5.8	-3.8
Financial Recovery Fund	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net surplus/(deficit)	45.2	3.5	1.2	-3.5	-7.5	-5.8	-3.8
Impairment	0.0	0.0	-5.0	0.0	0.0	0.0	0.0
Net surplus/(deficit) after impairment	45.2	3.5	-3.8	-3.5	-7.5	-5.8	-3.8

Table 6.3- SOCI - BAU



6.4.4 Statement of Financial Position (SoFP)

The SoFP for Option 0 has been shown in Table 6.5 below. It should be noted that the SoFP has changed substantially from that presented at OBC due to a £71m loan write-off which has been converted to Public Dividend Capital as per the merger condition. The impact of this conversion is a significant downward movement in the value of borrowings, while Public Dividend Capital has increased.

The SoFP demonstrates the impact of the capital expenditure associated with the Critical Care block on the position of the Trust. The statement shows that unless PDC funding is made available for schemes other than the critical care block, these other schemes will be undeliverable - seen through the significant drop in the cash position from FY 2020/21 through to 2026/27. This fall is a result of underlying capital expenditure planned by the Trust and the small amount of PDC funding available - see details on the movement in the cash position below.

£m	20/21	21/22	22/23	23/24	24/25	25/26	26/27
Non-current assets	296.4	359.0	367.5	367.6	363.3	360.7	357.5
Current assets (excl Cash)	36.0	51.3	67.1	68.6	70.1	71.6	73.1
Cash	119.4	33.7	-3.6	-12.2	-22.5	-33.0	-40.9
Current liabilities	-92.0	-77.2	-62.9	-61.3	-59.9	-58.2	-56.6
Total assets less current liabilities	359.8	366.8	368.1	362.7	351.1	341.1	333.1
Non-current liabilities	-34.1	-34.0	-37.1	-33.1	-29.0	-24.8	-20.7
Total net assets employed	325.7	332.8	331.1	329.6	322.1	316.3	312.4
Financed by							
Public dividend capital	221.1	224.7	226.7	228.7	228.7	228.7	228.7
Revaluation reserve	23.7	23.7	23.7	23.7	23.7	23.7	23.7
Income and expenditure reserve	80.9	84.4	80.7	77.1	69.7	63.8	60.0
Total taxpayers' and others' equity	325.7	332.8	331.1	329.6	322.1	316.3	312.4

Table 6.4- SoFP - BAU

6.4.5 Cash Flow Statement (SoCF)

The following Table 6.5 shows how the cash position of the Trust changes over the period under the BAU option. As shown in both the SoFP and this cash flow statement, cash falls substantially over the second year from £119.4m to £33.7m. This is largely driven by the underlying capital expenditure in the BAU position over and above the expenditure on the critical care block. This is shown on the statement under purchase of PP&E and investment property, driving the substantial decrease in the Trust's cash position. The cash position of the Trust decreases year on year from FY 2021/22 as capital works are required to be funded from the cash reserves of the Trust. When compared to Option 2, cash surpluses are recognised year on year due to the PDC funding available which offsets the expenditure in Option 2.

£m	20/21	21/22	22/23	23/24	24/25	25/26	26/27
	FOT						
Operating surplus / (deficit) from continuing operations	10.6	15.2	12.3	8.0	3.6	4.9	6.6
Depreciation and amortisation	16.0	23.3	26.7	28.6	29.8	27.4	26.9
Other Non-cash items	74.5	-29.8	-32.3	-3.6	-3.3	-3.8	-3.8
Net cash generated / (used in) operations	101.0	8.6	6.8	33.0	30.1	28.5	29.8
Interest received	0.0	0.1	0.1	0.1	0.1	0.1	0.1
Purchase of intangible assets	0.0	-0.5	-0.3	-0.3	-0.3	-0.3	-0.3
Purchase of PP&E and investment property	-51.8	-86.4	-40.2	-28.6	-25.8	-24.5	-23.5
Sales of PP&E and investment property	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Receipt of cash donations to purchase capital assets	0.0	0.6	0.6	0.6	0.6	0.6	0.6
Net cash generated / (used in) investing activities	-51.7	-86.1	-39.7	-28.1	-25.3	-24.0	-23.0
Public dividend capital received	103.8	3.6	2.0	2.0	0.0	0.0	0.0
Loans received/(repaid)	0.0	2.0	7.0	-1.8	-1.8	-1.8	-1.8
Other loans received	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other loans repaid	-71.8	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8
Capital element of finance lease rental payments	-0.9	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3
Capital element of PFI, LIFT and other service concession payments	-1.5	-1.0	-1.1	-1.0	-1.0	-1.2	-1.2
Interest paid	-0.6	-1.5	-1.4	-1.3	-1.2	-1.2	-1.1
PDC dividend paid	-7.2	-10.3	-9.8	-10.3	-9.9	-9.7	-9.5
Net cash generated from financing activities	21.7	-8.3	-4.4	-13.5	-15.1	-15.0	-14.7
Increase / (decrease) in cash and cash equivalents	71.0	-85.7	-37.3	-8.6	-10.3	-10.5	-7.9
Cash transferred by absorption	6.0	0.0	0.0	0.0	0.0	0.0	0.0
Cash and cash equivalents at 1 April	42.4	119.4	33.7	-3.6	-12.2	-22.5	-33.0
Cash and cash equivalents at 31 March	119.4	33.7	-3.6	-12.2	-22.5	-33.0	-40.9

Table 6.5- SoCF – BAU

6.4.6 Capital Plans for the Trust

The L&D have agreed a DCP as described in the Strategic Case, which articulates the level of site development required to bring the estate up to a modern, more efficient and functional standard. Phase 1 of the redevelopment addresses 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.

The capital plan has been updated as agreed by the Financial Improvement Programme (FIP) in February 2021. The capital investment linked to this business case under the BAU remains unchanged from OBC. The BAU option only includes a small portion of the required investment into the estate and assumes the new build of critical care accommodation block.



The baseline planned capital expenditure is set out in a summary Table 6.6 below.

£m	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	Total
	FOT								
L&D									
Day-to-day capital needs	18.7	21.4	42.8	16.6	16.0	9.7	15.3	14.7	155.2
Generators and Electrical Infrastructure	5.4	2.7	2.3	0.1	0.0	0.0	0.0	0.0	10.5
Energy Centre Building	0.3	2.0	13.9	0.5	1.1	0.0	0.0	0.0	17.8
Energy Conservation Measures	0.2	2.0	7.0	0.0	0.0	0.0	0.0	0.0	9.2
IT Merger Enabling	0.0	1.5	2.5	2.0	2.0	0.0	0.0	0.0	8.0
Pathology Joint Venture	1.8	0.8	1.0	0.0	0.0	0.0	0.0	0.0	3.6
New Clinical Buildings	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other Enabling	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Critical Care	0.0	0.0	12.5	12.5	0.0	0.0	0.0	0.0	25.0
Car Park	0.1	5.5	0.1	0.0	0.0	0.0	0.0	0.0	5.7
Total	26.5	35.9	82.2	31.7	19.1	9.7	15.3	14.7	235.0
BHT									
Day-to-day capital needs	4.1	4.1	3.4	8.0	9.0	15.7	8.7	8.3	61.2
Fast Follower Funds (PDC)	2.9	1.5	0.0	0.0	0.0	0.0	0.0	0.0	4.4
GHH Hub (PDC)	2.1	7.3	0.0	0.0	0.0	0.0	0.0	0.0	9.4
Ward Refurbishment	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other	0.6	1.8	8.1	0.5	0.5	0.5	0.5	0.5	12.7
Total	9.7	14.7	11.5	8.5	9.5	16.2	9.2	8.7	87.7
Combined BAU capital plan	36.2	50.6	93.6	40.1	28.6	25.8	24.5	23.4	322.7

Table 6.6- Capital Plans for Trust - BAU

6.4.7 Funding Table and Financing the BAU Option

The funding required for capital expenditure in the BAU as part of this FBC is anticipated to be predominantly through the Trust's cash reserves with some receipt of PDC. The total funding requirement remains unchanged from the OBC. In line with NHS/E guidance a source and application of funds tables are provided below outlining financing of the BAU option.

Capital (£m)	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	Total
Funding Source									
National - Central PDC funding	1.8	2.3	3.5	2.0	2.0	0.0	0.0	0.0	11.6
Trust cash contribution	0.0	0.0	12.5	12.5	0.0	0.0	0.0	0.0	25.0
Total	1.8	2.3	16.0	14.5	2.0	0.0	0.0	0.0	36.6
Application of Funding									
Critical Care Block	0.0	0.0	12.5	12.5	0.0	0.0	0.0	0.0	25.0
IT Merger Enabling	0.0	1.5	2.5	2.0	2.0	0.0	0.0	0.0	8.0
Pathology JV	1.8	0.8	1.0	0.0	0.0	0.0	0.0	0.0	3.6
Total	1.8	2.3	16.0	14.5	2.0	0.0	0.0	0.0	36.6
Source less Application	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Table 6.7- Funding and Financing Table - BAU

CDEL	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	Total
Gross Capex (approval value)	1.8	2.3	16.0	14.5	2.0	0.0	0.0	0.0	36.6
Less NBV of Disposals	0	0	0	0	0	0	0	0	0
Less Grants and Donations (must be in the same financial year as the capex)	0	0	0	0	0	0	0	0	0
CDEL	1.8	2.3	16.0	14.5	2.0	0.0	0.0	0.0	36.6

Table 6.8- CDEL - BAU

6.5 Option 2 – “Do More” Option

Option 2 is the Preferred Option as determined at OBC stage and revalidated in the economic case. This option involves the build of an ASB linked to a NWB. The NWB contains three floors of maternity accommodation including assessment wards and inpatient wards. The design supports benefit delivery through efficient clinical adjacencies and 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 total capital requirement is broken down as follows:

Scheme	July 18 STP	October 21- FBC
Spend 19/20-24/25	Bid £m	Preferred Option £m
IT Merger Enabling	8	8
Pathology Joint Venture	4	3.6
Acute Services Block Clinical Buildings	87.5	142.6
	(Acute Services Block only)	(Acute Services Block, New Ward Block and Lift Core)
Other enabling	-	14.4
Trust Contribution	-	-18.6
Funding Required	99.5	150.0

Table 6.9- Capital Trust Requirement - Option 2



6.5.1 Financial Modelling

As stated in the above sections, the FBC financial model overlays incremental cost and benefit assumptions over the BAU position in arriving at a forecasted financial position of the proposed option. As such the majority of assumptions are consistent with the BAU position. The assumptions specific to Option 2 are provided below.

6.5.2 Assumptions

Option 2 brings a number of option specific assumptions, over and above those made in the BAU position and set out at section 1.3.3 of this Finance Case. Table 6.10 below sets out the assumptions utilised, and the sources of these:

Assumption	Description
Asset go live	The tendered contract is based on a 2.5 year construction programme running from January 2022 through to March 2024, with the building being commissioned and going live to patients at the end of 2024.
Inflation	Figures provided by AECOM have been inflated using PUBSEC 250 reporting levels, with inflation to the midpoint of construction shown separately.
Optimism Bias	Optimism bias has been included in the costs provided by AECOM and the Contractor. An Optimism bias rate of 7.4% has been used.
Planning Contingency	Planning contingency has been included in the costs provided by AECOM. Planning contingency has been set at a rate of 7.1%.
VAT recovery	In line with the assumption made in the BAU position, it is assumed that VAT is only recoverable on professional fees, as such the VAT impact of these are excluded from this case and the FB Forms provided. This has been confirmed by the Trust's external advisors.
Finance Leases	No additional leases have been assumed under Option 2. IFRS-16 Lease accounting for NHS Trusts is not required until April 2022 and therefore, current leases held by the Trust are still reported using IAS 17 and IFRIC 4 (operating and finance leases).
Impairment	The estate assets are assumed to be impaired on completion in FY 2024/25, at a rate of 20%.
Option Specific Cash Releasing Benefits	The Option 2 cash releasing benefits are identified as part of the Economic Case and are found in the Benefits Log as part of the CIA Model. The option specific benefits have been subject to a revalidation exercise post OBC approval and are deemed to represent realistic assumptions of efficiencies.
Procurement Costs	Procurement costs are capitalised and included within other enabling costs.

Table 6.10- Assumptions - Option 2

6.5.3 Statement of Comprehensive Income (SoCI)

The option's impact on the Trust's SoCI is set out below in Table 6.12.

A surplus position is seen from FY 2021/22 to FY 2023/24, in comparison to the BAU position which sees a deficit delivered from FY 2022/23. The surpluses are largely driven by additional merger benefits and option specific cash releasing benefits compared to the BAU option. The surplus positions achieved throughout the shown periods meets the required financial trajectory whilst also addressing the Trust's clinical needs.

£m	20/21	21/22	22/23	23/24	24/25	25/26	26/27
	FOT						
Operating income from patient care activities	602.9	597.5	622.4	648.6	670.1	707.8	728.9
Other operating income	82.3	47.7	46.9	46.1	46.1	47.5	48.9
Total Income	685.1	645.2	669.3	694.7	716.2	755.2	777.8
Pay costs	-439.1	-406.3	-427.1	-449.0	-471.1	-489.4	-506.6
Non pay costs	-219.5	-196.5	-197.8	-202.5	-199.4	-209.8	-222.6
Total Operating Expenses	-658.6	-602.7	-624.8	-651.5	-670.5	-699.2	-729.2
EBITDA	26.6	42.4	44.5	43.2	45.7	56.1	48.6
Net non-operating revenue and expenses	18.6	-35.5	-38.0	-39.0	-44.6	-45.3	-44.4
Net surplus/(deficit)	45.2	7.0	6.5	4.2	1.1	10.8	4.2
Financial Recovery Fund	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net surplus/(deficit)	45.2	7.0	6.5	4.2	1.1	10.8	4.2
Impairment	0.0	0.0	0.0	0.0	-28.2	0.0	0.0
Net surplus/(deficit) after impairment	45.2	7.0	6.5	4.2	-27.0	10.8	4.2

Table 6.11- SoCI - Option 2

6.5.4 Statement of Financial Position (SoFP)

The SoFP for Option 2 has been shown in Table 6.12 below. Similarly, to the BAU option a fall in the value of borrowings and an increase to PDC has been adjusted for since OBC following the £71m loan write-off as a result of the merger condition. Although cash falls from FY 2020/21 to FY 2021/22, the decrease is not as substantial as seen in the BAU option - the cash position is analysed further in the next section. This is due to the higher amount of funding assumed under option 2 which is shown through the increase in Public Dividend Capital. The PDC funding available allows the additional schemes under the option to be financed which ultimately increases the asset base and size of the Trust. It is also important to note that the new asset is impaired on construction completion in FY 2024/25 at 20%. Therefore, the income and expenditure reserve falls considerably as a result from £98.6m to £71.65m.

£m	20/21	21/22	22/23	23/24	24/25	25/26	26/27
Non-current assets	296.4	360.3	423.5	485.9	460.6	457.1	451.3
Current assets (excl Cash)	36.0	51.3	67.1	68.6	70.1	71.6	73.1
Cash	119.4	49.9	30.6	17.1	8.3	15.3	18.0
Current liabilities	-92.0	-77.2	-62.9	-61.3	-59.9	-58.2	-56.6
Total assets less current liabilities	359.8	384.4	458.3	510.3	479.1	485.8	485.9
Non-current liabilities	-34.1	-34.0	-37.1	-33.1	-29.0	-24.8	-20.7
Total net assets employed	325.7	350.4	421.3	477.2	450.2	461.0	465.2
Financed by							
Public dividend capital	221.1	238.8	303.1	354.9	354.9	354.9	354.9
Revaluation reserve	23.7	23.7	23.7	23.7	23.7	23.7	23.7
Income and expenditure reserve	80.9	87.9	94.4	98.6	71.6	82.3	86.6
Total taxpayers' and others' equity	325.7	350.4	421.3	477.2	450.2	461.0	465.2

Table 6.12- Option 2 - SoFP



6.5.5 Statement of Cash Flow (CF)

Table 6.13 below shows how the cash position changes in Option 2. The cash flow statement shows a sharp fall in the cash position from FY 2020/21 to FY 2021/22 due to the expenditure on PP&E in part being financed by the Trust's own reserves. However, compared to the BAU option this fall in cash is much lower due to the higher level of PDC funding available. A higher amount of PDC funding is also available in FY 2022/23 and 2023/24 which means a smaller reduction in cash is seen compared to FY 2021/22 of £19.3m and £13.5m respectively. In FY 2024/25, the cash position decreases by £8.8m due to the underlying expenditure on PP&E and reduction in PDC received. Overall, a cash surplus is experienced throughout the years shown below compared to the BAU option.

£m	20/21	21/22	22/23	23/24	24/25	25/26	26/27
	FOT						
Operating surplus / (deficit) from continuing operations	10.6	18.9	17.5	14.8	14.4	26.1	19.1
Depreciation and amortisation	16.0	23.5	27.0	28.4	31.2	30.0	29.5
Other Non-cash items	74.5	-29.8	-32.3	-3.6	-3.3	-3.8	-3.8
Net cash generated / (used in) operations	101.0	12.6	12.3	39.6	42.4	52.3	44.8
Interest received	0.0	0.1	0.1	0.1	0.1	0.1	0.1
Purchase of intangible assets	0.0	-0.5	-0.3	-0.3	-0.3	-0.3	-0.3
Purchase of PP&E and investment property	-51.8	-88.0	-90.0	-90.7	-34.3	-26.2	-23.5
Sales of PP&E and investment property	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Receipt of cash donations to purchase capital assets	0.0	0.6	0.6	0.6	0.6	0.6	0.6
Net cash generated / (used in) investing activities	-51.7	-87.7	-89.6	-90.3	-33.8	-25.7	-23.0
Public dividend capital received	103.8	17.7	64.3	19.8	0.0	0.0	0.0
Emergency Capital Loan Funding	0.0	0.0	0.0	32.0	0.0	0.0	0.0
Loans received/(repaid)	0.0	2.0	7.0	-1.8	-1.8	-1.8	-1.8
Other loans received	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other loans repaid	-71.8	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8
Capital element of finance lease rental payments	-0.9	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3
Capital element of PFI, LIFT and other service concession payments	-1.5	-1.0	-1.1	-1.0	-1.0	-1.2	-1.2
Interest paid	-0.6	-1.5	-1.4	-1.3	-1.2	-1.2	-1.1
PDC dividend paid	-7.2	-10.6	-9.7	-9.4	-12.2	-14.2	-13.9
Net cash generated from financing activities	21.7	5.6	58.0	37.2	-17.4	-19.6	-19.2
	0.0						
Increase / (decrease) in cash and cash equivalents	71.0	-69.5	-19.3	-13.5	-8.8	7.0	2.7
Cash transferred by absorption	6.0	0.0	0.0	0.0	0.0	0.0	0.0
Cash and cash equivalents at 1 April	42.4	119.4	49.9	30.6	17.1	8.3	15.3
Cash and cash equivalents at 31 March	119.4	49.9	30.6	17.1	8.3	15.3	18.0

Table 6.13- Option 2 – SoCF

6.5.6 Incremental Difference Between BAU and Option 2

As requested as part of regional and national feedback, the below tables set out the incremental differences between BAU and Option 2 for each of the financial statements.

£m	20/21	21/22	22/23	23/24	24/25	25/26	26/27
	FOT	FOT	FOT	FOT	FOT	FOT	FOT
Operating income from patient care activities	0.0	0.0	0.0	0.0	0.0	9.0	0.0
Other operating income	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Income	0.0	0.0	0.0	0.0	0.0	9.0	0.0
Pay costs	0.0	1.3	1.8	2.1	3.2	5.6	5.7
Non pay costs	0.0	2.7	3.7	4.5	9.1	9.2	9.4
Total Operating Expenses	0.0	4.0	5.4	6.6	12.3	14.8	15.1
EBITDA	0.0	4.0	5.4	6.6	12.3	23.8	15.1
Net non-operating revenue and expenses	0.0	-0.5	-0.2	1.1	-3.7	-7.2	-7.1
Net surplus/(deficit)	0.0	3.5	5.3	7.7	8.6	16.6	8.0
Financial Recovery Fund	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net surplus/(deficit)	0.0	3.5	5.3	7.7	8.6	16.6	8.0
Impairment	0.0	0.0	0.0	0.0	-28.2	0.0	0.0
Net surplus/(deficit) after impairment	0.0	3.5	10.3	7.7	-19.6	16.6	8.0

Table 6.14- Incremental SoCI

£m	20/21	21/22	22/23	23/24	24/25	25/26	26/27
	Non-current assets	0.0	1.4	56.0	118.3	97.2	96.4
Current assets (excl Cash)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cash	0.0	16.2	34.2	29.3	30.9	48.3	59.0
Current liabilities	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total assets less current liabilities	0.0	17.6	90.2	147.7	128.1	144.7	152.8
Non-current liabilities	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total net assets employed	0.0	17.6	90.2	147.7	128.1	144.7	152.8
Financed by	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public dividend capital	0.0	14.1	76.4	126.2	126.2	126.2	126.2
Revaluation reserve	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Income and expenditure reserve	0.0	3.5	13.7	21.4	1.9	18.5	26.5
Total taxpayers' and others' equity	0.0	17.6	90.2	147.7	128.1	144.7	152.8

Table 6.15- Incremental SFP



£m	20/21	21/22	22/23	23/24	24/25	25/26	26/27
	FOT	FOT	FOT	FOT	FOT	FOT	FOT
Operating surplus / (deficit) from continuing operations	0.0	3.8	5.2	6.8	10.9	21.2	12.5
Depreciation and amortisation	0.0	0.2	0.2	-0.2	1.4	2.6	2.6
Other Non-cash items	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net cash generated / (used in) operations	0.0	4.0	5.4	6.6	12.3	23.8	15.1
Interest received	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Purchase of intangible assets	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Purchase of PP&E and investment property	0.0	-1.6	-49.8	-62.2	-8.5	-1.8	0.0
Sales of PP&E and investment property	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Receipt of cash donations to purchase capital assets	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net cash generated / (used in) investing activities	0.0	-1.6	-49.8	-62.2	-8.5	-1.8	0.0
Public dividend capital received	0.0	14.1	62.3	17.8	0.0	0.0	0.0
Emergency Capital Loan Funding	0.0	0.0	0.0	32.0	0.0	0.0	0.0
Loans received/(repaid)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other loans received	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other loans repaid	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital element of finance lease rental payments	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital element of PFI, LIFT and other service concession payments	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Interest paid	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PDC dividend paid	0.0	-0.3	0.1	0.9	-2.3	-4.6	-4.5
Net cash generated from financing activities	0.0	13.8	62.4	50.7	-2.3	-4.6	-4.5
Increase / (decrease) in cash and cash equivalents	0.0	16.2	18.0	-4.9	1.5	17.5	10.6
Cash transferred by absorption	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cash and cash equivalents at 1 April	0.0	0.0	16.2	34.2	29.3	30.9	48.3
Cash and cash equivalents at 31 March	0.0	16.2	34.2	29.3	30.9	48.3	59.0

Table 6.16- Incremental SoCF

6.5.7 Capital Plans for the Trust – Option 2

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 capital plan, in line with the requirements of the six-facet survey and equipment replacement plans.

A summary of the Trust's planned capital expenditure in Option 2 is outlined in the table below. Other enabling costs include the procurement costs, internal team costs and the costs of advisers and technical support.

£m	19/20 FOT	20/21 FOT	21/22 FOT	22/23 FOT	23/24 FOT	24/25 FOT	25/26 FOT	26/27 FOT	Total
L&D									
Day-to-day capital needs	18.7	21.4	33.2	8.6	6.0	-13.7	74.2	0.0	148.4
Generators and Electrical Infrastructure	5.4	2.7	2.3	0.1	0.0	0.0	10.5	0.0	21.0
Energy Centre Building	0.3	2.0	13.9	0.5	1.1	0.0	17.8	0.0	35.6
Energy Conservation Measures	0.2	2.0	7.0	0.0	0.0	0.0	9.2	0.0	18.4
IT Merger Enabling	0.0	1.5	2.5	2.0	2.0	0.0	0.0	0.0	8.0
Pathology Joint Venture	1.8	0.8	1.0	0.0	0.0	0.0	0.0	0.0	3.6
Clinical Buildings - Acute Services Block, New Ward Block and Lift Core	0.0	3.3	8.7	62.2	62.2	4.5	1.8	0.0	142.6
Other Enabling	0.0	8.9	5.4	0.1	0.0	0.0	0.0	0.0	14.4
Equipment	0.0	0.0	0.0	0.0	4.0	0.0	0.0	0.0	4.0
Car Park	0.1	5.5	0.1	0.0	0.0	0.0	8.9	0.0	5.7
Total	26.5	48.1	74.1	73.5	75.3	-9.2	113.5	0.0	401.8
BHT									
Day-to-day capital needs	4.1	4.1	3.4	8.0	9.0	15.7	8.7	8.3	61.2
Fast Follower Funds (PDC)	2.9	1.5	0.0	0.0	0.0	0.0	0.0	0.0	4.4
Other- MRI, endoscopy (PDC funded)	2.1	7.3	0.0	0.0	0.0	0.0	0.0	0.0	9.4
Ward Refurbishment	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other (internal funding)	0.6	1.8	8.1	0.5	0.5	0.5	0.5	0.5	12.7
Total	9.7	14.7	11.5	8.5	9.5	16.2	9.1	8.7	87.7
Combined BAU capital plan	36.2	62.8	85.5	82.0	84.7	6.9	122.6	8.7	489.5

Table 6.17- Option 2 – Capital Plans for the Trust



6.5.8 Funding Table and Financing - Option 2

In line with NHSE/I guidance a source and application of funds tables are provided below outlining financing of Option 2. The below funding profile is confirmed to be affordable to both the Trust and ICS.

Capital (£m)	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	Total
Funding Source									
National - Central PDC funding	1.8	14.5	17.6	64.3	19.8	0.0	0.0	0.0	118.0
Emergency Capital Loan Funding	0.0	0.0	0.0	0.0	32.0	0.0	0.0	0.0	32.0
Trust cash contribution	0.0	0.0	0.0	0.0	12.4	4.5	1.8	0.0	18.6
Total	1.8	14.5	17.6	16.43	64.2	4.5	1.8	0	168.6
Application of Funding									
Clinical Buildings - Acute Services Block, New Ward Block and Lift Core	0.0	3.3	8.7	62.2	62.2	4.5	1.8	0.0	142.6
Lift Core and Other Enabling	0.0	8.9	5.4	0.1	0.0	0.0	0.0	0.0	14.4
IT Merger Enabling	0.0	1.5	2.5	2.0	2.0	0.0	0.0	0.0	8.0
Pathology Joint Venture	1.8	0.8	1.0	0.0	0.0	0.0	0.0	0.0	3.6
Total	1.8	14.5	17.6	64.3	64.2	4.5	1.8	0.0	168.6
Source less Application	0	0	0	0	0	0	0	0	0

Table 6.18- Option 2 - Funding and Financing

CDEL	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	Total
Gross Capex (approval value)	1.8	14.5	17.6	64.3	64.2	4.5	1.8	0.0	168.6
Less NBV of Disposals	0	0	0	0	0	0	0	0	0
Less Grants and Donations (must be in the same financial year as the capex)	0	0	0	0	0	0	0	0	0
CDEL	1.8	14.5	17.6	64.3	64.2	4.5	1.8	0.0	168.6
Source of CDEL									
Central	0.0	0.0	5.6	60.3	52.1	0.0	0.0	0.0	118.0
Trust	1.8	14.5	0.0	0.0	12.1	4.5	1.8	0.0	34.6
Region	0.0	0.0	12.0	4.0	0.0	0.0	0.0	0.0	16
TOTAL	1.8	14.5	17.6	64.3	64.2	4.5	1.8	0.0	168.6

Table 6.19- Option 2 - CDEL

The above tables show a profile of spend which requires no further central PDC funding past FY 2023/24. The tendered contract is based on a 2.5 year construction programme running from January 2022 through to March 2024, with the building being commissioned and going live to patients at the end of 2024. Spending incurred in 2024/25 and 2025/26 is associated with commissioning activities in the building, equipment and retention.

6.5.9 Contingency Plans

Contingency sums are included in the capital costs as per the below:

- Planning contingency of 7.1% totalling £7.8m; and
- Optimism Bias of 7.4% totalling £8.8m.

The Trust is confident in the assumptions utilised to derive these contingency sums, especially in the context of the “not to exceed” pricing. In the context of a scenario in which funding requirements exceed the contingency sums included within capital costs the Trust would first look to de-scope elements of the scope in order that the capital costs do not exceed the agreed capital envelope. In the scenario that adequate de-scoping is unable to be enacted the Trust would support the position through redirecting funds from the BAU capex plan where required, and then further through the cash reserve position. Additionally, the Trust does not note any financial interdependencies on the Acute Services Block or Maternity Ward Block from other projects.

6.5.10 Revenue Savings and Payback

The revenue savings and payback analysis undertaken at the OBC stage has been refreshed considering the updated costs and assumptions. Option 2 demonstrates strong revenue savings as a percentage of initial capex, given the high value of this investment, with payback achievable within a reasonable period of 16 years, given the significant re-provision in the option.

Option 0	20/21	21/22	22/23	23/24	24/25	25/26	26/27	...	82/83
Revenue Savings	1,893	5,063	4,157	3,923	5,154	3,245	3,420		3,898
Initial Capex	36,600								
Average annual revenue saving 20/21 - 82/83	3,876								
Revenue savings as a proportion of initial capex	11%								
Payback period 10 years	10 Years								

Table 6.20- BAU - Revenue Savings and Payback

Option 2	20/21	21/22	22/23	23/24	24/25	25/26	26/27	...	82/83
Revenue Savings	4,242	9,058	9,604	10,494	17,433	18,040	18,505		20,525
Initial Capex	168,600								
Average annual revenue saving 20/21 - 82/83	19,569								
Revenue savings as a proportion of initial capex	12%								
Payback period	12 Years								

Table 6.21- Option 2 - Revenue Savings and Payback



6.6 Accounting Treatment, Leases and Tax

The OBC set out that the new buildings will be accounted for in line with IFRS guidance, with the fair value of the asset (assumed to be the cost of the construction works and relevant impairment) recognised as property, plant and equipment on the Trust's balance sheet. Further work has been undertaken post OBC approval to assess the appropriate asset impairment assumption for inclusion. Following engagement with the District Valuer, an impairment of 20% of total asset value (cost of construction works) has been made at the point of asset completion, seen on the SoCI statements of Option 2.

In line with national policy and the assumption utilised at OBC, the asset is assumed to have a 60-year useful life, with straight-line depreciation over this period. The Trust will pay VAT on the construction costs of the new buildings, with this set out in the FB forms prepared by the Trust's technical advisors, AECOM. VAT on professional fees is expected to be recoverable and have therefore been excluded in the FB forms and in this financial analysis.

No additional leases are assumed to be required under either Option 2 or over the short term in the BAU position of the organisation. The Trust holds a number of existing leases which for the purposes of this FBC are assumed to continue to be recognised as per their existing classification under IAS 17 and IFRIC 4 (operating and finance leases). This assumption is made in the context of the delayed implementation of IFRS 16 in the NHS, expected to become effective from 1st April 2022.

PWC have undertaken a financial affordability modelling exercise in support of the FBC and confirm that:

- They have treated the capital build as normal capital expenditure within the Trust finances;

- The depreciation has been modelled on a straight line basis, utilising a 60 year useful asset life for buildings; and

There are no specific complicating matters included within the modelling, including a PFI, sale and leaseback or similar lease structure.

6.7 Sensitivity Analysis

In order to test the affordability of each option against potential downside scenarios, sensitivity analysis has been performed on the preferred and BAU option based on the following metric changes:

- Capital costs in all options - 10% increase
- Lifecycle costs in all options - 10% increase
- Benefits in all options (including BAU) - 10% decrease

Table 6.22 below presents the incremental surplus/deficit impact on each option from each sensitivity as well as the combined impact from all changes occurring at once. As expected, the cumulative impact of each downside sensitivity causes the BAU I&E and Option 2's I&E to worsen due to the increased PDC charge on higher capital costs and lower benefits. The incremental impact from each individual sensitivity is greater in magnitude for Option 2 due to the higher capital costs and benefits assumed in this option. Therefore, the cumulative impact is more significant. Despite this, the Trust remains in a surplus position across all years under option 2 apart from in FY 2024/25. This year sees a deficit position delivered due to the additional capital charges associated with the investment. The BAU SoCI sees a consistent deficit position from FY 2023/24 onwards.

£m	20/21 FOT	21/22 FOT	22/23 FOT	23/24 FOT	24/25 FOT	25/26 FOT
Option 0	3.5	1.2	-3.5	-7.5	-5.8	-3.8
Capital Cost increase by 10%	-0.1	-0.1	-0.3	-0.3	-0.2	-0.2
Lifecycle costs increase by 10%	0.0	0.0	0.0	0.0	0.0	0.0
Benefits decrease by 10%	-0.5	-0.4	-0.3	-0.5	-0.3	-0.3
Option 0 downside	2.9	0.7	-4.2	-8.2	-6.3	-4.2
Option 2	7.0	6.5	4.2	1.1	10.8	4.2
Capital Cost increase by 10%	-0.1	-0.1	-0.2	-0.6	-0.9	-0.8
Lifecycle costs increase by 10%	0.0	0.0	0.0	0.0	0.0	0.0
Benefits decrease by 10%	-0.9	-0.9	-1.0	-1.7	-1.7	-1.8
Option 2 downside	6.0	5.4	3.0	-1.2	8.2	1.6

Table 6.22- Sensitivity Analysis

6.8 Switching Analysis

In addition to the above sensitivities, a switching analysis has been undertaken in line with NHSE/I requirements. Switching analysis is designed to assess the maximum and minimum movements required in a number of key variables under which the scheme remains affordable.

As per central guidance, switching analysis has been undertaken on the defined variables as per the below table:

Key Variable	% movement in variable required to bring 2026/27 into a deficit position
Activity charges / income parameters	5.3% decrease in Income Growth rate
Efficiency gains	28.0% decrease in CRBs
Cost improvements / CIP	0.6% decrease (as a percentage of Trust turnover) in BAU CIP
Pay costs	3.1% increase in Pay cost Inflation

Table 6.23- Switching Analysis Variables

6.9 Conclusion

The financial analysis has demonstrated that Option 2 continues to provide long term financial benefits and greater value for money compared to the BAU option given a number of updates to the assumptions as at OBC stage. Option 2 consists of investment into a new build ASB and NWB over a 2.5 year construction period, opening to patients in late 2024. The affordability analysis undertaken within this finance case has illustrated revenue affordability and requires a PDC allocation of £118.0m as well as a £32m from local capital envelopes. The financial analysis has shown a sustained surplus position with benefits outweighing additional capital charges and a steady growth to the forecasted cash position of the Trust.

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.



7 MANAGEMENT CASE

MANAGEMENT CASE SUMMARY

The Programme management arrangements are fundamental to ensuring the programme is well managed well governed and ultimately, delivers the programme objectives and benefits on time and within the affordability envelope.

The redevelopment of the L&D site is considered to be a relatively large construction project with an ambitious programme. The scheme has been supported by a number of Trust funded enabling schemes, which commenced in January 2020 and are due to complete in December 2021. These schemes, including car parking, outpatient accommodation and office accommodation have been delivered on a critical path that runs through the overarching programme. The enabling schemes support the best value for money solution for the Trust and for the NHS. The enabling schemes aimed to de-risk the programme at every stage, reduce the main scheme programme and thus cost and ensuring that the Trust handed over a “clean and clear” site to the main contractor.

Project management arrangements underpinning the overarching programme delivery were put in place in May 2020 to support the delivery of the enabling works package, valued at £18m. The redevelopment programme is supported by highly experienced and skilled personnel employed by the Trust. Amongst the core team which includes the Programme Director, Deputy Programme Director, Construction Director and Senior Programme Manager are individuals trained and skilled in PRINCE2, MSP and NEC. These individuals will lead and deliver the redevelopment programme for the Trust. Where skills gaps exist, external partners have been bought in to fulfil the resource plan as required to deliver the programme.

The programme SRO is the Trust’s Chief Executive Officer and there are clear reporting lines to and from the SRO. The programme employs standard project management tools and the programme is governed at a senior level by the Hospital’s Executive, with non-executive oversight. The Programme Team meets weekly; with each meeting having a different core purpose, including a Risk Board, Change Board, FBC development and Progress Review. Post project evaluation will feature as a core process towards the end of the construction programme and will be paramount to assuring the Trust that the objectives and benefits of the programme have been realised. As determined by the DHSC Gateway 3 Review Risk Profile Assessment tool, the scheme is considered medium risk. The output from the Gate 3 Review that took place in July 2021 have been included in Appendix Pack 6.

Clear, consistent and sustained communication has played an integral part in the success of the hospital’s redevelopment to date, and will continue to be adapted and strengthened to suit the dynamic programme of works on site. The redevelopment has moved from

strategic planning into enabling phase Works delivery and procurement of a Strategic Partner for the Works delivery of the ASB and NWB. As we prepare to move into a large scale construction programme, it is imperative that communication remains clear and consistent. A joined up approach between the Trust and the multiple Contractors working on site has been agreed and implemented since May 2021 to support a strengthened communications plan. Key stakeholders will continue to receive high quality and timely information to promote a sense of clarity, ownership and pride throughout the project.

Further, with specific regard to Contract Management and communication, the Trust has adopted the approach of holding a monthly EWN review and has implemented the SyPro NEC Contract Admin tool to record and authorise decisions and the potentially burdensome administrative aspects of the NEC4 Contract.

It is recognised that large projects must be broken down into manageable work streams, with their own objectives and agreed outputs. The redevelopment programme is underpinned by four key work streams, each with their own set of work groups, delivering shared objectives. Each work stream is led by an Executive Director of the Trust. Around 12-months before Planned Works Completion, the Trust will implement a further Workstream to manage the operationalisation of the built assets and the clinical transition into the new facilities. This will include input from the Estates and FM functions as well as the clinical services themselves. In terms of the programme, the Trust has allowed a “Trust Time Risk Allowance” of 8 weeks (to accommodate any unavoidable delay caused by the Trust to the Contractor’s delivery) after the current Completion Date, followed by a 4-week decanting/ transition period.

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. In addition to this, residents remain a key stakeholder in the programme and have provided practical input to logistics plans and general communications.

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. The OBC was submitted in April 2020 and approved in November 2020. The FBC progressed from May 2020, with completion of the RIBA stage 3 design in November 2020. Between May 2020 and completion of the FBC, the primary focus of the redevelopment team, with the support of the Trust Executive, has been to develop strategic thinking to support a smooth transition to the new clinical buildings and to deliver the significant programme of critical enabling schemes.



7.1 Introduction

This chapter describes the programme and project management arrangements that are in place to plan for, deliver, monitor and evaluate the L&D's redevelopment. The programme management arrangements are presented in detail for construction and post project arrangements. This chapter demonstrates that the preferred option as identified in the Economic modelling at OBC and ratified in this FBC, can be successfully delivered by;

- Managing in accordance with robust governance arrangements, with particular emphasis on early warning review, risk management, change management and lessons learnt at every stage
- Managing in accordance with recognised programme and project management methodologies, including PRINCE 2, MSP and the use of the NEC4 form of Contract for Works Delivery
- 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 through HMT Gateway Review, Independent Review and DAT

The scale and scope of delivered and proposed changes to the L&D site between 2020 and 2024, coupled with the interlinked nature of various projects, qualifies the business change described in this FBC as a Programme of Works, as opposed to a single Project. The Trust inherently recognises the need for both Programme and Project management methodologies to be adopted and has tried, tested and improved on these since the submission of the OBC. Whilst the current model of management and governance is considered to be effective, a culture of learning will continue to be adopted throughout the life of the redevelopment, to ensure the Trust remain responsive to opportunities and challenges that present themselves, and to respond to the changing environment.

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 a pure approach, as is enabled through the methodology itself.

Set out below are the programme and project disciplines and methodologies being implemented in this business change.

7.2 Key Changes Since OBC Approval November 2020

- Management and governance arrangements strengthened
- Significant progression of operational programme considerations
- Enabling work scheme development and completion
- Change to procurement and holistic programme (9 month delay to programme to reflect request to hold procurement until after HM Treasury OBC approval, granted in November 2020)
- Design development Novation to the Contractor and development of RIBA stage 4 design

7.3 OBC Development

The OBC was developed between September 2019 and April 2020, over a period of 7 months. This was considered in the industry to be ambitious, but acknowledged that the Trust had originally developed its strategic thinking and an initial OBC in 2015. This was submitted to Monitor at the time and subsequently put on hold pending a review of capital requirements across the NHS. STPs put in collective capital bids in 2018, this included the development of an Acute Services Block for the Trust. A funding allocation was received in August 2019. The Trust retained its core internal team and its Design Team, both of whom had significant knowledge of the Trust's vision to redevelop the site. An OBC was submitted to NHSE/I in April 2020 and approved in November 2020. The OBC approval supported the OBC preferred option, with permission to spend £168m, comprising £118m PDC, £32m emergency capital loan and £18.6m Trust contribution. A number of conditions were specified as part of the OBC approval. A summary of these conditions can be found in Appendix Pack 1 (Approval conditions for FBC) and all conditions have been adhered to.

7.3.1 OBC Review Self-Assessment

The table below provides a self-assessment of the Trust's OBC in line with the NHSE/I checklist. This was debated and ratified by the Redevelopment Programme Team in May 2020. Learning from the OBC development was carried forward into the management and governance planning for the FBC and construction.

ID	OBC Checklist Requirement	Self-Assessment
1	Estates Strategy	No formal Trust Board Approval. Does not include an estates management plan showing how the preferred option will impact the running of the estate. Link to efficiencies could be strengthened. Maintenance of the estate throughout the redevelopment not referenced
2	Sustainable Development Management Plan (SDMP)	The development of Trust thinking in response to the National Agenda did not support the OBC delivery dates and was not included in the OBC
3	Activity and Capacity Modelling	Assumptions in finance case around activity could have been more robust with a clear link or triangulation between activity modelling, proposed capacity and workforce planning
4	Revenue assumptions	Assumptions in finance case around revenue could have been more robust with a clear link or triangulation to clinical strategy and workforce planning
5	Benefits	Source of data work up not provided, urgent piece of work required with operational teams to develop the benefits realisation at the outset of the FBC
6	Workforce strategy	Weak alignment to the clinical strategy, with no articulation of workforce requirements, implementation plans and revenue impact. Developing the models of care needs to drive the FBC development.
7	IT strategy	This needs to be developed for the merged organisation and at the onset of the FBC development to understand if there is any response required from the design
8	Design/Commercial	Design section should have focused on the Modern Methods of Construction agenda, which had been explored throughout OBC development. This was requested part way through the OBC approval process.
9	Economic model	The link between the merger of the L&D Hospital with Bedford Hospital was difficult to describe and quantify, including the link to benefits realisation

Table 7.1- Self assessment of OBC and where chapters could have been strengthened

7.4 FBC Development

The FBC has been developed in house. The Deputy Programme Director acts as the Development Director, working with work group and work stream leads to ensure shared objectives and agreeing and developing the input to the FBC. The FBC 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”)



7.4.1 Lessons Learnt

In the spirit of continuous learning to support improvements in healthcare delivery, a Lessons Learnt session was held with the Redevelopment Programme Team on the 5th May 2020. The session was used to reflect on the OBC development, to learn from it and to agree an improved approach for the FBC development.

Key reflections included;

- The ability of the Trust to develop and deliver an OBC in 7 months. This was not insignificant as;
 - The preferred option development changed 4 months into the 7 month development programme, to reflect a better solution for the Trust.
 - Following a number of site visits to various new build Hospitals, including University College Hospital, Barts Health, Papworth and The Royal Bristol Infirmary, the design for the surgical arrivals floor changed from a traditional model, to an American model.
- The changes incorporated and the speed at which they were incorporated are credit to a dedicated Design Team, aligned to the Trust's objectives and to the Clinical User Groups and Executive who embed a culture of constant learning to ensure improved healthcare delivery.
- Close working between design team partners, circa 50 staff, across 10 teams/organisations, with the last 5 weeks of the Design and FBC development being managed virtually as a result of the Pandemic and restrictions put on travel.
- Service users have been invaluable in the design process
- NHSE/I, DHSC and HMT want to be part of the development process, important to engage with them early to gain advice and support
- Sub-consultants are invaluable to fill the skills and capacity gap. Scope of works must be pre-defined to ensure a platform to manage from.
- Programme requires more executive time, support and leadership, to enhance communication throughout the organisation and to stimulate the right level of challenge and scrutiny on plans. Recognised that a number of significant decisions need to be made rapidly to support the rapid pace of the programme development
- Programmes are challenging and need appropriate resourcing. The internal team is dedicated and skilled but comprised of 3 key staff who delivered the OBC – Programme Director, Deputy Programme Director, Senior Programme Manager. A Construction Director joined the team during the last 3 months of the OBC development, driving forward the commercial arrangements.
- Detailed information on plans and designs are not always being disseminated to teams on the ground. Communication within teams must be strengthened to ensure stakeholder involvement
- Clinical strategy must come first, plans must respond to strategy
 - Traditional surgical arrivals floor changed into a “pod” floor mid-February 2020 following a site visit to the Bristol Royal Infirmary – design led strategy. Design could be considered to be stimulating strategic thinking.
 - Theatre floor, second hybrid theatre and larger first stage recovery introduced in January 2020, removing a certain amount of support space (theatre storage) – design will lead strategy as the design now requires a “just in time” storage solution.

7.4.2 FBC Development Objectives

Business Case Chapter	Objective	Overview	Actions	Responsible Officer	Workstream alignment
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 ■ Progress models of care, workforce models and plans. Link back to finance case. ■ Finalise benefits realisation arrangements and plans ■ Finalise change management arrangements and plans 	Deputy Chief Executive	<ul style="list-style-type: none"> Strategic work stream IT work group HR work group Estates work group Net Zero Carbon work group Finance work stream
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	<ul style="list-style-type: none"> ■ Management works stream ■ Commercial work stream ■ Economic work group ■ Finance Work group Equipment work group ■ Procurement work group
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 in the CIA model and any changes to VFM ■ Progress design and cost of preferred option, to include tender evaluation 	Director of Finance	<ul style="list-style-type: none"> ■ Design work group ■ Commercial work group ■ Risk work group ■ Benefits work group ■ Procurement work group ■ IT work group ■ Equipment work group
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 ■ Include further refined costs as developed by the strategic work stream ■ Reconfirm affordability 	Director of Finance	<ul style="list-style-type: none"> ■ Strategic work stream ■ IT work group ■ HR work group ■ Estates work group ■ Net Zero Carbon work group ■ Equipment work group
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	<ul style="list-style-type: none"> ■ Estates work group ■ Design work group ■ Clinical User Groups ■ Risk management ■ Contract management ■ Project management & governance ■ Post project evaluation ■ Communications
The Estate – the Preferred Solution	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 design and cost certainty and novation to the appointed contractor in May 2021 	Redevelopment Director	(Link in above)

Table 7.2- FBC Development Objectives



7.4.3 FBC Tracker

An FBC Tracker was developed at the onset of the FBC delivery in May 2020. The tracker essentially reflects the NHSE/I checklist in a condensed format to support the inputs required to develop the FBC.

The FBC tracker has executive accountable leads associated with each input, and identifies those that are responsible for delivery. Each input is time critical in the development of the case and the tracker identifies when inputs need to be presented to the Redevelopment Programme Team and the Redevelopment Programme Board.

A summary of the FBC development is presented to the Redevelopment Programme Board on a monthly basis.

From February 2021, a monthly FBC tracker meeting was set up with the Redevelopment Programme Team to discuss progress against key milestones and to understand any potential risks in FBC delivery. Where risks were identified, support was considered and planned for to maintain progress.

7.5 Programme Management Structure

To support the effective delivery of the Redevelopment Programme, the Trust established a detailed set of delegated roles and responsibilities during the development of the OBC. These remain in place to support decision making. The Redevelopment Programme Board forms a sub-committee of the Trust Board (see Figure 7.1).

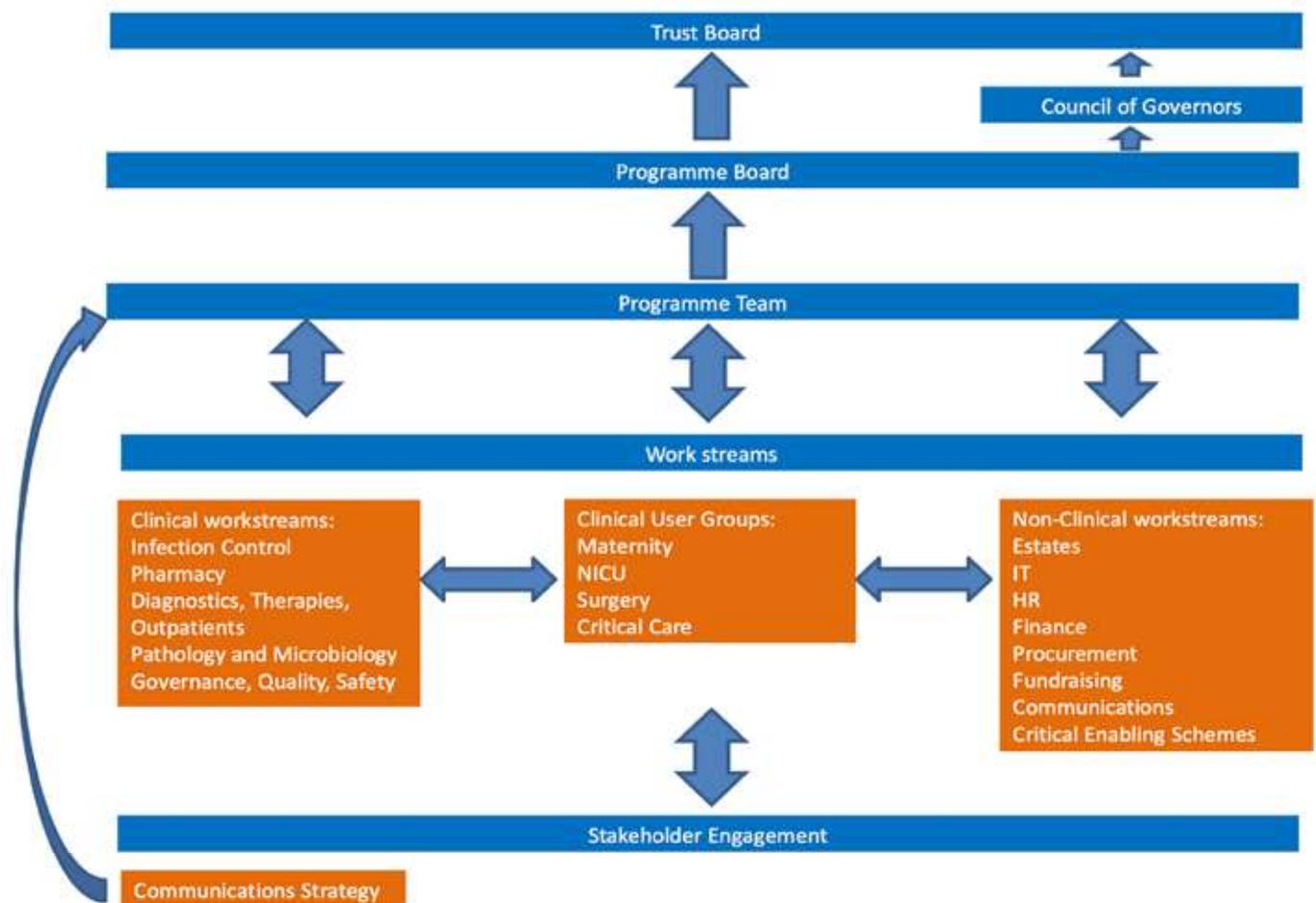


Figure 7.1- Programme structure and governance

7.5.1 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 FBC 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 as defined in the investment objectives and benefits realisation plan.

The Trust Board will seek assurance that all stakeholders have been fully engaged and are aligned with the Trust's redevelopment proposals. The Trust Board ultimate responsibility for;

1. Agreement and delivery of the Programme's Strategic Investment Objectives, Critical Success Factors and Benefits
2. Establishing the necessary teams and setting a culture for the organisation to support the delivery of objectives for this investment
3. Ensuring alignment of the Trust's corporate objectives and strategies, including the Trust's Estates Strategy; Sustainability Development Management Plan/Net Zero Carbon Plan; and the Trust's Digital Strategy
4. Approval of the Business Case (OBC/FBC) and the strategies and management plans that underpin successful delivery
5. Delivery of the overall scheme within the agreed parameters, including scope, time and budget
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 1. The majority of the Trust's Executive Directors sit on both the Trust Board and Redevelopment Programme Board. This supports oversight and ownership of the programme at a senior level and importantly, supports engagement throughout the organisation and across organisation boundaries.

7.5.2 Council of Governors

As a Foundation Trust, the organisation has a constitutional obligation to seek the endorsement of the Trust's Governors for any single investment of more than £3m. Governors have been actively involved in the Redevelopment Programme over many years. Supporting and scrutinising to ensure that the wider community has been considered and engaged. The Governors have been an asset to the Programme, bringing with them a "patient" perspective as well as a local perspective. Two Governors have sat on the Redevelopment Programme Board in a non-voting capacity since 2014. The Governors play an active role in supporting the Programme Communication Plan through facilitating community stakeholder engagement events.

7.5.3 Redevelopment Programme Board

The Redevelopment Programme Board has direct responsibility, delegated by the Trust Board, for overseeing the management and delivery of all aspects of the Trust's redevelopment programme. 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 previous Quantity Surveyor.

The terms of reference for the Hospital Redevelopment Programme Board set out the key responsibilities for the Board and can be found in Appendix 1. 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 established a management and governance structure for the wider Programme.

A review of the management and governance arrangements was carried out by the Trust Auditors, PWC, in September 2020, the conclusion reflected good line of sight between the Trust Board and the Redevelopment Project and praised the internal governance arrangements.

7.5.4 Redevelopment Programme Team

Critical to the success of the overall redevelopment scheme is the timely delivery of all elements of the programme. To this end, a Hospital Redevelopment Programme Team led by the Chief Executive in his role as Senior Responsible Owner, and chaired by the Deputy Director for Redevelopment, has been retained. 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 Redevelopment Programme is a core strategic objective for the Trust and one which the senior team remain committed to. This is reflected in the amount of management time this scheme receives. During the development of the OBC, the Redevelopment Programme Team met once a month ahead of the Redevelopment Programme Board to agree the strategic development of the programme and to discuss operational issues affecting programme delivery. Following a formal review of the OBC from a Lessons Learnt perspective, it was agreed with the Executive that the Redevelopment Programme was one the most important objectives for the Trust, and as such should benefit from additional Executive time and leadership. Additional Executive time has ensured greater knowledge and input at a senior level, to scrutinise and debate plans, to foster a better solution.

Since May 2020, the Redevelopment Programme Team has met weekly. The chart below describes the focus of each weekly meeting. There is a clear emphasis on early warnings, rapid decision making, a detailed understanding of risk and opportunity and importantly, change. These meetings aim to inform, update, challenge, assure and progress the redevelopment programme, and ultimately, the Trust's strategic vision. All meetings have ToR and are managed and minuted. ToR can be found in Appendix 1.

The Programme Team membership is reflective of the importance put on interfacing the project with each service line in the Trust.

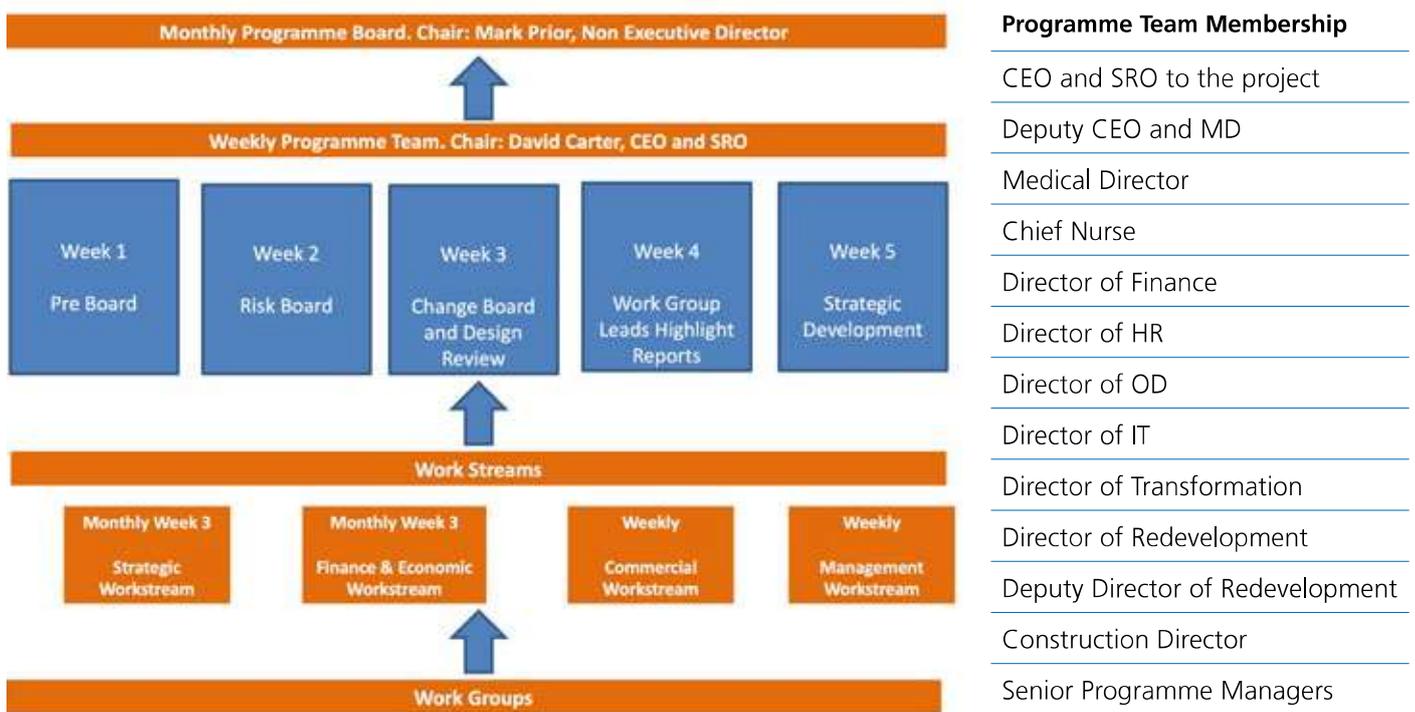


Figure 7.2- Programme Team Reporting and Governance Arrangements

Various project management tools are used to support the programme management (described in the next section). Key reports that feed into the Redevelopment Team include;

Programme Team Cycle	Programme Team Focus	Key Reports
Week 1	Pre-Board	Programme Highlight Reports Risk Report Change Report Communications Plan
Week 2	Risk Board	Project Risk Register Risk Report /Issues Log
Week 3	Change Board	Change Request Forms Change Log
	Design Review	Design Principles Designs Derogations Schedules Compliance Reports
Week 4	Progress Review	Project Progress Reports Business Case Tracker Business Case Inputs

Figure 7.3- Programme Team Cycle

7.5.5 Work Streams

The redevelopment programme is underpinned by four work streams. Each work stream has a number of work groups reporting in. All work streams and work groups are led by Executive Directors at the Trust. This provides leadership, seniority and join-up throughout the organisation. The established work streams were used as a platform to develop and progress the full business case. Each Work Stream had clear terms of reference (see Appendix 1) and responsibility for the delivery of a sub set of Work Groups.

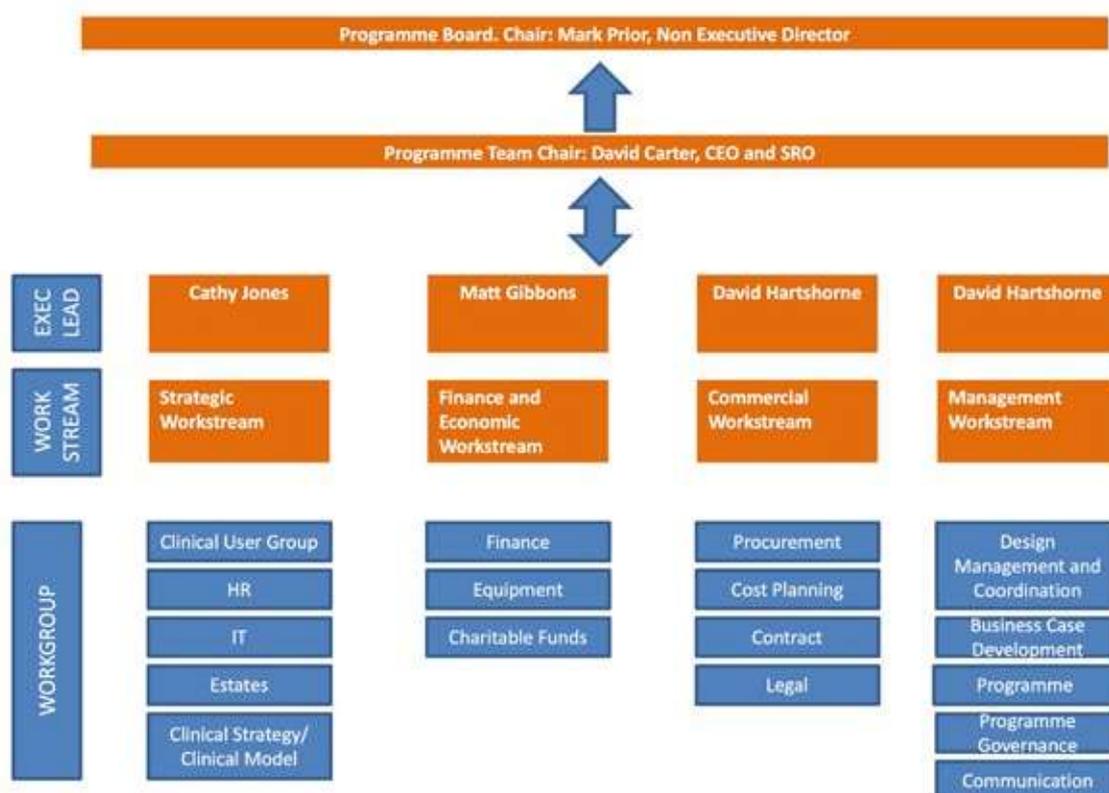


Figure 7.3- Redevelopment Programme Structure and Governance Arrangements



7.5.6 Work Groups

Reporting into each of the four Work Streams are a number of Work Groups. Each Work Group has defined and agreed outputs. Appendix 1 details the terms of reference for these groups.

Work Stream	Work Group	Executive Lead
Strategic	Clinical User Groups	Deputy Director Redevelopment
	Human Resources, People Planning and OD	Director of HR
	Digital	Director of OD and Culture
	Estates (including Sustainability, Net Zero Carbon)	Director of IT
	Clinical Strategy/Clinical Models of Care	Director of Estates
Economic and Finance	Finance – Capital, Risk and Benefits	Chief Operating Officer
	Equipment	Director of Finance
	Equipment Procurement	Head of Equipment Management
	Charity	Head of Procurement
Commercial	Procurement	Head of Charities
	Cost Planning	Construction Director
	Contract development, management and administration	Director of Redevelopment
	Legal	Construction Director
	Works Delivery	Director of Redevelopment
	Town Planning	Director of Redevelopment
Management	Design Team	Director of Redevelopment
	Clinical User Groups	Deputy Director Redevelopment
	Business Case Development and Management	Deputy Director Redevelopment
	Programme and Programme Governance	Deputy Director Redevelopment
	Communications and Stakeholder Engagement	Deputy Director Redevelopment

Table 7.3- Executive Leadership for programme delivery

The figures below reflect the membership and governance lines for two of the Work Groups – a Clinical User Group and the Estates Work Group.

Strategic Work Stream – Clinical User Groups - NICU User Group:



Figure 7.4- NICU User Group



Strategic Work Stream – Estates Work Group:

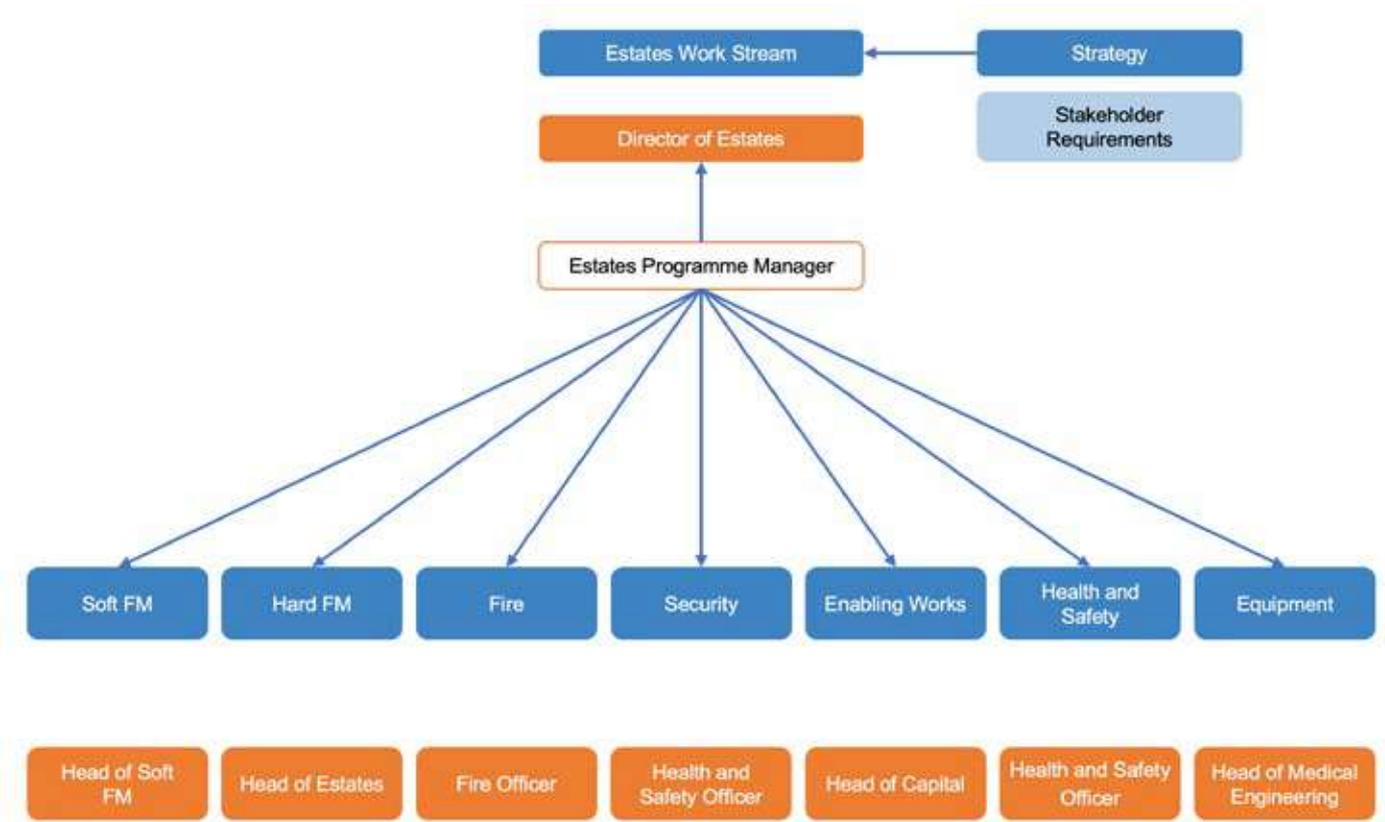


Figure 7.5- Estates work stream structure

7.6 The Redevelopment Delivery 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 delivery 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 redevelopment delivery team will actively manage the redevelopment programme using an in-house team, and use specialist advisors only when and where there is a skills gap.

7.6.1 Redevelopment Delivery Team Responsibilities

Key responsibilities of the Delivery 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
- Appoint and work with a Principal Designer across all constituent project schemes, to ensure compliance with Client duties under CDM 2015 regulations
- 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.
- Receive assurance from the appointed Principal Designer (AECOM), both pre and post Contract that Principal Contractors are capable of fulfilling and are then delivering on their roles under CDM 2015

7.6.2 Team Structure

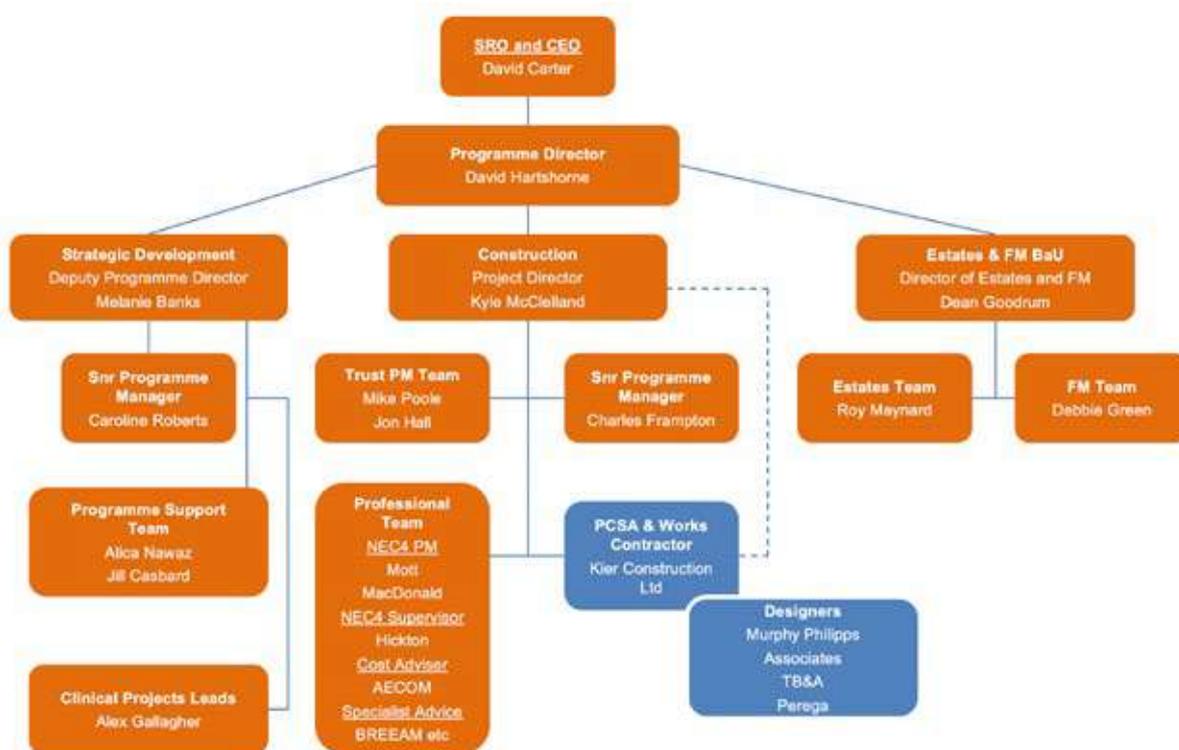


Figure 7.6- Project Management Structure



7.6.3 Programme Team Key Roles

Role	Name	Experience and Responsibility
SRO	David Carter	David has been 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.
Programme Director	David Hartshorne	The Redevelopment team has been led by David Hartshorne since 2015. David is an experienced Programme Director 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.
Deputy Programme Director	Melanie Banks	Melanie joined the team in 2015. Melanie is an experienced NHS manager with 18 years of NHS experience. Melanie has worked as a Senior General Manager in the organisation and as the Chief of Staff, leading the Trust's financial recovery programme 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. 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 Investment Objectives, and will act as the main link to the organisation, leading the programme work streams and the development of the business case.
Construction Project Director	Kyle McClelland	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 20 years. Kyle is a full member of the Association of Project Managers and 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.
Senior (Delivery) Programme Manager	Charles Frampton	Charles joined the team in November 2018 after a career in NHS operational management, and previous to that, a 8 year career as an Officer in the Royal Navy. Charles is a full member of the Association of Project Managers and is a PRINCE2 and NEC4 accredited project manager. Charles has been responsible for delivering the Trust's critical enabling schemes as part of the Redevelopment Programme and is leading the Demolition Contract to deliver a "clean" site to the main contractor before January 2022.
Senior (Operational) Programme Manager	Caroline Roberts	Caroline joined the Redevelopment team in February 2021. Caroline is an experienced NHS Manager with 33 years NHS experience. Caroline started life as a nurse before moving into management. She has 20 years of operational management experience. Caroline has led multidisciplinary teams through complex situations and her roles have included working in both the Acute and Community sector. More recently, Caroline has worked in a leadership position within the Integrated Care Provider strategic development. Caroline is a qualified Nurse maintaining her NMC registration and has an MSc in Organisational Knowledge. Caroline will be responsible for operationalising the new clinical buildings, preparing the workforce and delivering this significant change.

Senior Team CV's can be found in Appendix 10.

Table 7.4- Programme Team

7.6.4 Programme Team Resource Plan and Budget

The redevelopment programme at the Trust is led and managed by an internal team as described above. External project managers are bought in as and when required to support the resourcing requirements of projects.

Role	WTE
Programme Director	1
Deputy Programme Director	1
Construction Director	1
Senior Programme Manager	2
Project Manager	2
Clinical Project Manager	1
Assistant Project Manager	1
Project Support	1
Project Administrator	1
Finance Manager	0.6
Total Headcount:	11.6

Table 7.5- Internal Programme Team (WTE)

The programme team budget is shown below, this reflects the 20/21 out turn position and the proposed budget from 2021 through to scheme completion.

20/21	21/22	22/23	23/24	24/25
£887,200	£1,010,015	£981,126	£955,348	£955,348

Table 7.6- Internal Programme Team Budget (£)

7.6.5 Project Managers

All Projects have a named Project Director and Project manager. The project managers interface with the user groups (clinical and non-clinical), the design team and the construction team. Project managers are responsible to the Project Director (typically the Trust's Construction Director) and are accountable to the Programme Director. All project managers are experienced in healthcare delivery projects, have a formal project management qualification and are NEC trained. To support any shortage in resourcing projects, to date, external project managers have been bought in through Mott MacDonald.

Moving forward, the Trust will continue to develop internal staff, through an internal development and support programme.

a. NEC Project Managers

The Construction Director will be supported by a formally accredited NEC Project Manager, via Mott MacDonald who will also have Programme/ Scheduling support also via Mott MacDonald at a varying resource level to suit demands. Under the NEC4 Contract, the Project Manager is also responsible for assessing costs

b. NEC Supervisor

The NEC Project Manager and Construction Project Director will jointly benefit from the Trust's appointment of Hickton, a Construction Quality Control practice with formally accredited NEC Supervisors (two individuals, one specialising in building fabric and the other Mechanical/ Electrical/ Public Health systems. Both have extensive experience of health project delivery. This will be an external appointment and flexed to suit programme demands.

c. Independent 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 Construction 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.

e. Web Based Project Management Tools

The Redevelopment Team's experience from other NEC projects has resulted in the decision to implement a purpose designed web based tool – Sypro.

This has been used to support robust management of key NEC based projects at the Trust, and is to be deployed on the both the pre-contract services agreement (an NEC4 Professional Services Contract) and the Works Delivery contract (an NEC4 Engineering & Construction Contract) for the New Clinical Buildings (ASB/ NWB) within the Redevelopment Programme.



A further web based tool, "Project Place" has also been purchased by the Trust as a platform for sharing information.

Typically the Trust has used this to share design information between the Trust and Design teams. The tool has allowed for robust sharing, version control and audit and allowed the Trust team to operate remotely throughout COVID lockdowns in 2020 and 2021.

As the Trust's selected Construction Partner (Kier Construction Ltd) becomes fully embedded in the team and processes, they will implement Viewpoint 4P, which will replace and supplement the Trust's Project Place tool for the specific aspects of the Programme they are appointed to.

7.6.6 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 as well as professional advisor/consultancy support is needed.

7.6.7 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 an 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.

7.6.8 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 to support robust management, governance and organisational knowledge.

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 OBC and FBC. 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: Peregá (rebranded from Thomason's)
- 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;

- Building Control: Luton Borough Council
- Fire Consultant: OFR Consultants
- Transportation advisor: Stantec
- Air and Noise Advisor: Stantec/ AECOM
- Ecology: Stantec
- Arboriculture: Stantec
- BREEAM advisors: Troup, Bywaters & Anders
- Equipment planning: MTS
- FBC advisor: Brierley Advisory
- Clinical project management and Healthcare Planning: Clinical Guardians
- Legal Support: Ward Hadaway
- Project Management: Mott MacDonald

7.6.9 Specialist Consultant Fees

Fees have been managed based on fee proposals for each element of the redevelopment programme, these elements include;

- 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.

Principal Design Consultant Fees:

		RIBA Work Stages		
Discipline	Consultant	Stage 0 - 2	Stage 3	Combined
		Total	Total	Total
Architect, Lead Consultant Design Fees	MPA	██████████	██████████	██████████
MEP Design Services	TB&A	██████████	██████████	██████████
Structural Engineer Design Services	Perega	██████████	██████████	██████████
QS Services	AECOM	██████████	██████████	██████████
		466,220.38	1,976,747.04	2,848,717.42

Table 7.7- Programme budget- principal design fees

The OBC predicted the level of lead design fees to be at £2.4m to develop the stage 3 designs. The out turn figure was £2.85m. This is reflective of the change in development strategy. The OBC assumed that procurement could progress whilst the OBC was being reviewed and that the Design Team would be Novated to the successful Contractor.

Advice from the centre received in May 2020 asked that procurement be put on hold pending formal OBC approval by HM Treasury. To mitigate the programme risk and risk to undoing the good partnership working and knowledge build up within the Design Team, the Trust retained the Design Team to progress the stage 3 design and Design Team novation to the Contractor was pushed back from August 2020 to May 2021. During this time further design work has been progressed to support programme and reduce risk. A series of value engineering workshops have progressed to support the affordability envelope.



Sub Consultant Fees:

Discipline	Consultant	Stage 0 - 2	Stage 3	Combined
Arboriculture & Ecology	Stantec	██████████		██████████
Acoustic Engineering Services	AECOM		██████████	██████████
Air Quality & Acoustic	Stantec	██████████		██████████
BREEAM	TB&A	██████████	██████████	██████████
Crime Prevention	Cripsol	██████████		██████████
Council Consultation Fees	LBC	██████████		██████████
Council Fees (Planning portal)	LBC	██████████		██████████
Design & Access Statement	Barton Willmore	██████████		██████████
DQI Assessment	CIS	██████████		██████████
Equipment Strategy Audit	MTS Health	██████████	██████████	██████████
Estates Strategy Review	MKJ Advisory	██████████		██████████
Fire Engineering Services	OFR	██████████	██████████	██████████
IT Project Management Services	Rob Ryan Consultancy	██████████	██████████	██████████
Feasibility Study for innovative UPS	PowerStar	██████████		██████████
Legal Advisors/Solicitors	Ward Hadaway	██████████	██████████	██████████
Project Manager NEC4	Mott Macdonald		██████████	██████████
Project Manager Services - Business Case Review/Assurance	Brierley Advisory	██████████	██████████	██████████
Project Manager Services - Clinical Lead	Clinical Guardians	██████████	██████████	██████████
Principal Designer	AECOM	██████████		██████████
Planning Advisor	Barton Willmore	██████████	██████████	██████████
Photography	David McIntosh	██████████	██████████	██████████
Noise & Data Survey	BT	██████████		██████████
Sustainability Action Plan	TB&A	██████████		██████████
Travel and Transport consultant	Stantec	██████████		██████████
Tunnel & CCTV surveys	Topscan	██████████		██████████
NEC Supervisor Clerk of Works	Hicktons			-
Total		534,803.84	400,267.09	935,070.92

Table 7.8- Sub-Consultant Fees

7.6.10 Total Fee Expenditure to Stage 3/FBC

	RIBA 0-2 OBC	RIBA 3 FBC	TOTAL
Principal Consultant Fee Total	██████████	██████████	██████████
Sub Consultant Fee Total	██████████	██████████	██████████
Fee Total (excluding VAT) £	1,406,774.22	2,377,014.13	3,783,788.34

Table 7.9- Total Fee Expenditure to Stage 3/OBC

Fee expenditure as a percentage of overall project cost:

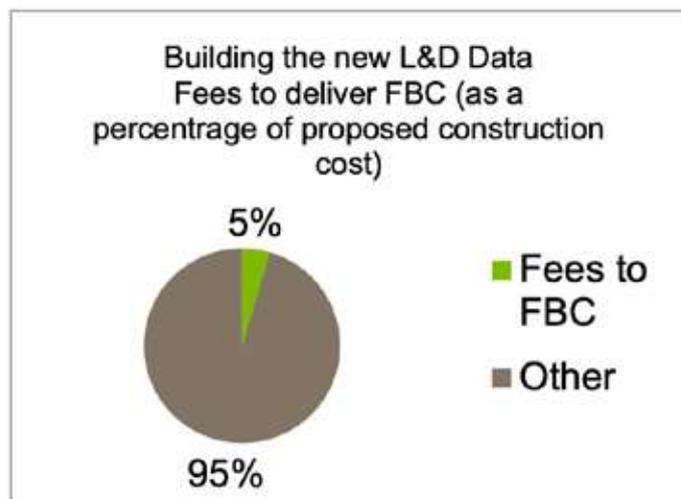


Figure 7.7- Fee expenditure as a percentage of overall project cost

7.7 Project Management

7.7.1 Project Management Methodology

The scale and scope of proposed changes to support the Trust’s Redevelopment Programme, coupled with their interlinked nature, qualify this business change effort as a programme made up of a number of projects. 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 “light” version, as is enabled through the methodology itself.

The project management team are utilising a number of PRINCE2 standard products such as highlight reports, risk registers, change forms and issues logs. These reports and logs feed into the management structure and ultimately the Programme Board. Terms of reference have been established for all key work groups supporting the programme, with clear records maintained of all relevant discussions.

The nature and cycle of Programme Team meetings (week 1 Pre Board, week 2 Risk Board, week 3 Change Board and Design Review, week 4 Progress reports), ensures that the Trust Executive are well sighted on key issues impacting the redevelopment programme, and importantly have an opportunity to challenge and influence progress.

7.7.2 Information Sharing

To enhance Programme and Project Management capabilities, the Trust implemented an internet based Project Extranet (www.projectplace.com) at the beginning of 2020, which enables document management, version control and provides additional valuable project management tools across the multiple organisational and geographic boundaries involved in the Programme. This proved to be fundamental during the Covid restrictions when all teams, across all organisations, were working remotely.

Further, given the nature of the selected Construction Contract (NEC4), a web-enabled Contract Administration tool, Sypro, has been procured and is being utilised on the key NEC enabling projects (Demolition and Energy Centre). This use will be expanded to incorporate both the Pre-Contract Services Agreement (an NEC4 Professional Services Contract) and the NEC4 Engineering & Construction Contract (the Works Contract).

Our selected Contractor is deploying Viewpoint 4P a web-enabled construction specialist document and tendering management system, which can also operate as the Common Data Environment for the projects BIM model.

7.7.3 Master Programme

The Redevelopment Programme Team has developed a holistic programme to include all enabling works, pre-construction activities and construction activities for the main scheme. 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 12.

7.7.4 Key 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 agreed at the outset or through the lifecycle 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 Team and Programme Board on a monthly basis.



The detail behind these milestones is available and presented in a summary and a rolled up GANTT chart, both of which have been made available in Appendix 12.

7.7.5 Programme Level Highlight Report

The Redevelopment Delivery Team issue a “Programme Highlight Report” (in the proposed format in Appendix 11 to the Redevelopment Programme Board on a monthly basis. Each Programme Highlight Report provides;

- 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

7.7.6 Project Level Highlight Report

The Redevelopment Delivery Team will receive per Project, a “Highlight Report” (in the proposed format in Appendix 11) from the relevant Project Manager and Work group lead, on a monthly basis. Each Project Highlight Report will provide;

- key progress summary
- a RAG status of each Project
- an assessment of the percentage completion of each sub-task, to inform the overall percentage completion updates in each iteration of the “holistic programme”
- risks and issues and mitigation/management plans
- change requests
- matters for escalation

Progress Highlight Reports will be submitted to the Redevelopment Delivery Team and either shared directly with, or summarised (if conducive) with the Redevelopment Programme Team.

7.8 Change Management (Project Specific)

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. This has been evident throughout the Design and pre construction phase. As the project moves from pre-construction to construction, the existing and embedded process will remain in place.

There are two types of project change;

1. Contractual works management change
2. Trust requested change to scope or function

Under the terms of the NEC contract, contractual works management change and Trust driven change (scope or function) will inevitably be flagged as an “early warning” for discussion and agreement between the Trust and Contractor. A management plan, mitigation and action will be agreed. Where appropriate this will subsequently be managed as a “Compensation Event.”

It is important that the organisation is sighted on all change to ensure that the programme remains deliverable within the parameters agreed by the Trust Board, including scope, programme and cost. The Change Board attended on a monthly basis by the Redevelopment Programme Team will have a Change Report submitted to them and will be responsible for agreeing change if it is outside of the responsibilities devolved to the Delivery Team and within the contingencies agreed by the Trust Board.

7.8.1 Works Management Changes

As has been discussed in the Commercial Case, the Trust has selected the NEC4 Professional Services Contract (PSC) for delivery of the Pre-Contract Services Agreement phase (Stage 1 of the 2-stage D&B); and the NEC4 Engineering & Construction Contract [ECC] Main Option A form of Contract for both the New Clinical Buildings and the Demolition project. 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 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) benefits from clearly defined delegations of authority to make such decisions.

7.8.2 Client Requested Scope or Functionality Change

Client requested changes 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 11. All Client requested changes will be presented to the Change Board for executive led decisions and then reported up to the Programme Board as necessary.

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 NEC Project Manager. Where a priced “proposed Compensation Event” is not enacted, the Contractor is entitled to recover their costs incurred in preparing the quote.

All such change requests will be registered in the Programme Change Management Log, along with the decision reached and rationale for that decision. This is intended to log and monitor change, and the cost of change; reduce the potential for repeated requests for the same change, and furthermore, provides an opportunity to review previous decisions.

7.8.3 Change Management Board

In order to provide a coordinated mechanism for rapid and authoritative decisions on such change requests, the Redevelopment Programme Board established a Change Management Board during the FBC development and enabling 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 1.

For user generated changes, the Change Management Board will be empowered to make decisions (within delegated limits agreed by the Trust’s Financial, Investment and Procurement Committee) 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 11.

7.8.4 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.

7.8.5 Change Management and Contract Management Arrangements

The Redevelopment Programme 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.

7.9 Communications Strategy and Stakeholder Engagement

Clear, consistent and sustained communication continues to play an integral part in the communication strategy for the Redevelopment Programme. As the redevelopment programme has moved through strategic development and planning, to pre-construction and subsequently construction, it has remained imperative to sustain communication with stakeholders and evolve the communication platform to suit varying requirements.

The communications strategy aims to provide key stakeholders with a sense of clarity, ownership and pride throughout the project. It also aims to ensure that stakeholders have a clear understanding on how the project may affect them or the organisation/group that they represent.



The communications plan is reviewed annually by the Redevelopment Programme Board, and can be found in Appendix 13. The plan sets out an approach to actively engage stakeholders, to include the general public, patients, staff, visitors and local residents..

7.9.1 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;

- Actively 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 programme and how it will positively and negatively impact 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 and constructive feedback
- Provide credible, timely and well-coordinated information to all key stakeholders

7.9.2 Communication Objectives

Core objectives of the communication plan will ensure;

- Key stakeholders are identified
- Stakeholders are informed about the redevelopment scheme in a timely way
- Stakeholders share in scheme objectives and benefits
- Expectations of stakeholders are understood and met
- Design development and approval process is shared and understood
- Stakeholders know how to access information, get involved and share ideas
- Negativity is understood and addressed
- The Trusts reputation is upheld

- Statutory obligations are met
- Programme challenges will be managed robustly to minimise any negative effects

7.9.3 Communication Plan

The communication plan (Appendix 13) is annually reviewed and agreed by the Redevelopment Programme Board. The plan defines who the key stakeholders are, and the planned method, or forum, for communication to take place. The Communication Plan is led by the Deputy Director for Redevelopment.

The Programme Board and Programme Team members act as ambassadors to the Redevelopment programme. As ambassadors the programme benefits from a proactive and wide reaching sharing of information and key messages.

There is a multitude of communication and engagement platforms across the local health economy, the Redevelopment team has accessed these and further developed platforms to support robust and timely sharing of information.

The staff engagement events organised at the Trust is attended by almost all employees, including Governors and volunteers. It was at this event in 2018 that staff were asked to consider and prioritise the redevelopment requirements of the estate. This feedback directed and influenced the Trust's strategic investment objectives for the redevelopment programme.



Figure 7.8- Modes of communication

7.10 Risk & Issue Management

7.10.1 Management

The Strategic Case described the risk associated with the current estate and the positive impact of the proposed site redevelopment. The CIA model reviews risk associated with the proposed options to support the economic modelling and ultimately assurance on value for money. The risk section in this case describes the project risks associated with the preferred option for developing the hospital site.

The risk register is managed and maintained on a weekly basis by the Delivery 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 Risk Register is formally reviewed at a monthly risk workshop. The risk register is shared with the Redevelopment Programme Team at the monthly Risk Board. The Risk Board produce an SRO Risk Report for the Redevelopment Programme Board, this is a standing item.

7.10.2 Risk Board

The Risk Board meets monthly, attended by the Redevelopment Programme Team. ToR for the Risk Board can be found in Appendix 1. The Risk Board is sighted on the full risk register, but the focus of the meeting is to review high and significant risks, new emerging risks, and the management and mitigation of these risks.

Furthermore, the Risk Board agrees the risk scoring and the risks that require escalation and discussion at the Programme Board. These are captured in the SROs Risk Report to the Programme Board.

7.10.3 Risk Workshops

A monthly risk workshop held by the Delivery Team, reviews existing risks, risk scoring, management steps that have been taken, and management steps planned. The workshop is also used to discuss new, emerging risks. The workshop is attended by;

- The Delivery Team, including representatives of all work streams and work groups underpinning the redevelopment programme
- The Design Team
- The Commercial Team

7.10.4 Risk Scoring Methodology

Risks can be identified by any stakeholder. In the first instance the subject is discussed to agree that it is a true risk. The risk is then articulated to determine the risk matter and the consequence of the risk occurring. Following this, a risk score is determined according to the likelihood of the risk occurring and the impact of the risk occurring. Following this a risk owner is agreed and a management plan put in place which is subsequently monitored.

The methodology used to assess and manage risk is in accordance with the Trust's Risk Assurance Framework.

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 7.10- Risk scoring matrix

7.10.5 Risk Register Overview

The table below provides a high-level summary of the Programme risks captured in May 2021. This is a snapshot in time, but importantly captures the end of the stage 3 RIBA design, the completion of FBC inputs, the appointment of a contractor following a compliant tender where the project cost plan and programme were agreed.



Rating	Guide	Cost	Time	Number of Risks
H	15-25	>£1m	12 months	6
M	8-12	£500k-£1m	6 months	22
L	1-6	£200k-£500k	3 months	25
Total Risks				53

Table 7.11- Programme risk register overview as of May 2021

7.10.6 Main Project Risks

A full risk register can be found in Appendix 14. The summary below in the condensed template provides an overview of current high level risks and management plans.

Risk Description	Consequence	Likelihood	Impact	Current Risk Level	Management Actions Taken	Management Actions Planned
The Trusts Digital Strategy will not support benefits realisation from 2024	Scheme benefits may not be achieved impacting patient outcomes and affordability.	4	4	16	Digital Strategy agreed April 21.	Road map for next 5 years under development to dovetail with requirements of new buildings to maximise benefits.
Cultural Change.	Resistance to change from staff who are required to work differently in new clinical space.	4	4	16	On-going engagement with staff through communications strategy. Design led by clinical teams.	Use on-going feedback to inform programme decision making.
Disruption to IT links in the demolition zone due to unknown data cable locations.	Impact to BAU service. Impact on programme and cost.	4	4	16	Virgin, Gamma and BT commissioned to migrate circuits and provide new fibres.	Existing cables to be labelled so that an impact can be managed robustly with teams affected.
Failure to manage scope creep.	Change to scope will ultimately impact programme and cost.	4	4	16	"Programme led by SRO - CEO. Monthly Change Board and robust change management process. Strong communications plan. Design clinically led and signed off at every stage by clinical and executive team."	All client driven changes to be reviewed and signed off by the Executive at the Change Board.
FBC not approved in the target 3 month review and approval period advised by NHSE/I (OBC approval took 9 months, presenting a significant delay and delay costs).	FBC not approved by Jan 2020 will delay the start of the main contractor on site, thus impacting programme completion and cost.	4	4	16	Monthly meetings with NHSE/I and DHSC hosted by the Trust to engage and support partnership working. Key recommendations (e.g. procurement and contractor appointment) communicated to the centre. Progress against FBC inputs discussed to provide assurance and offer opportunity for discussion.	"Fundamentals checklist review in place from May 2021. Regular assurance from NHSE/I that there are no concerns on FBC development process or decisions being made by the Trust."

Table 7.12- Main project risks

No high or medium risks are expected post mitigation.

7.10.7 Critical Dependences

Dependency	
1	Site clearance completion by December 2021
2	Full Business case review and approval by January 2022
3	Energy Centre commissioning and completion by December 2023

Table 7.13- Critical Dependences

7.10.8 Corporate Risk

Risks associated with the Project deemed to have an impact on the Trust's business as usual (BAU) functions will be escalated to the Redevelopment Programme Team – Risk Board, for discussion, awareness and agreement on how to progress the mitigation or management plan. The Trust's Associate Director of Corporate Affairs who has responsibility for the Trust's corporate risk management will also be made aware. BAU risks will be included within the Trust's Corporate Risk Register in line with the Trust's Risk Assurance Framework.

7.11 Business Continuity

The Trust has a duty to deliver key services to patients, in the face of a disruption from identified local risks, such as development of key infrastructure. Maintaining the safety of patients, staff and visitors is at the forefront of all business continuity procedures. Business as usual activities will continue and be maintained throughout construction.

Business Continuity is the key discipline to building and improving the resilience of the organisation. It is fundamental to the Trust's approach to managing risks and threats and ensuring critical activities continue to be delivered in the face of a disruption.

The redevelopment project by its very nature will have some impact and or disruption to business as usual, and the day to day running of the hospital.

7.11.1 Potential Disruption to Business as Usual

There are a series of potential disruptions that may be encountered during the redevelopment period and mitigations are place to ensure the Trusts critical activities can be delivered throughout. The Trusts Business Continuity Policy can be found in Appendix 7.

There may be impacts specifically related to the redevelopment that are currently unknown, in this case a business impact analysis would be undertaken to understand the mitigations required dependant on the risk.



Threat	Impact	Mitigation
Loss of Utilities	Disruption to services; increased risk to patients and staff in the hospital setting and potential need for evacuation.	The Trust has standby generator power in the event of a mains electricity failure. Large water header tanks provide some resilience should mains water be effected
Loss of, or access to buildings	Disruption to services; increased risk to patients and staff in the hospital setting	Alternate access points would be put in place Volunteers to support the re-direction of staff and patients Increased signage across the hospital site Communication to hospital teams of change Regular meetings with construction team to plan in advance of changes (6 weeks look ahead)
Loss of IT , EPR and telecommunications	Loss of data, corporate knowledge and business planning Loss of contractual activity monitoring Loss of communications Phones linked to IT systems	Secondary analogue phone network throughout the Trust. Data cabinets are protected by UPS.
Supply Chain Failure for construction - delays in materials manufactured in the European Union	Delay in build Programme	Construction Team are registered for a UK EORI with HMRC Orders placed well in advance of when they are needed Follow procurement guidance in the Government 'The Construction Playbook' on sourcing and contracting public works
Risks to existing redevelopment team and construction staff resulting from COVID or other sicknesses	Potential delay in build programme Reduced presence on site	Following Covid safe working guidelines, wearing of the appropriate PPE The Trust will at all times consider the safety of all persons on site The contractor will revert to their business continuity plans
Noise, dust, Vibration	Patient and staff health and comfort	Acoustic blankets, dirt traps will be in place and ear defenders where required will be provided to patients
Construction site security and deliveries	Loss of equipment and build materials leading to potential delay in programme	Site boundaries secured to prevent unauthorised access to live and work areas by means of site hoarding and access gates Finger print/hand scanners to ensure construction staff and authorised visitors enter build boundary at one point only Construction team will wear branded clothing with ID badges Online pre-induction for all site personnel prior to coming on-site enabling a secure site and track system from day 1 supporting automatic registers on evacuation 24 hour CCTV with 7 day playback Use of Data scope technology controlling deliveries to four lorries delivering at anytime
Increase in traffic to hospital site and surrounding areas Disruption and reduction of on-site parking for staff and visitors	Reduced car parking capacity for patients, visitors or staff Hospital reputation with neighbours	Alternative parking for construction staff identified and agreed Use of Data scope technology controlling deliveries to four lorries delivering at anytime Velocity study by contractor undertaken
Loss of Privacy, Dignity and light during construction	Patient and staff wellbeing	Double height screening to prevent construction workforce teams overlooking patient areas All scaffolding erected to covered in screening Applying temporary obscure film to surgical block buildings preserving daylight and maintaining privacy

Table 7.14- Threats presented by the Redevelopment, Impact and Mitigation strategies, developed in conjunction with the Trust's Head of Emergency Planning

7.11.2 Business Continuity Roles & Responsibilities During Redevelopment

a. Impact of the Works on Resilience:

Neither the ASB nor the NWB are to be constructed on an area anticipated as being necessary to support the Trust in the event of a major incident. Care has been taken to ensure that fire escapes from existing neighbouring buildings have been either diverted or a safe corridor maintained around the Works site.

Significant work has also been undertaken to clear all below and above ground services, ducts and conduits which run through the site of the development. By undertaking a standalone demolition project, the Trust has been able to accelerate this cleansing of the site and provide greater assurance to the Trust operational teams regarding the risk of interruption to a utility or service during the Main Works Build.

The Trust's selected Contractor Partner, Kier Construction Ltd, is well versed in working on operational hospital sites and in close proximity to operational buildings. Recent examples of such facilities are Wexham Park ED (a project completed with the same Kier management team as will be deployed on the L&D project) and the Nuffield Private Hospital at Barts Health.

b. Impact of a Major Incident on the Works:

In the event of a major incident being declared, the Trust's Construction Director, or nominated Deputy will be contacted. The situation will be discussed with the Contractor's Leadership team at the earliest possible opportunity, to assess for impact on the Works, or whether measures can be taken by the Contractor which will aid the Trust's response to the incident.

During a disruption, there will be a need for a number of people across the Trust to help in the response. The following table outlines some of the people/services required:



Individual/Team	Day to Day Role	Level of Disruption	Responsibilities
Service Leads	Normal roles and responsibilities within Business Units	Individual service or one or more services affected	Coordinate response in line with BC plan; notify upwards within Trust; maintain communication; establish Command and Control if required.
Clinical Business Unit managers/Senior managers/Directors	Normal operational management of service responsibilities	Threatened or actual disruption	If isolated to one Business Unit manage with existing resources, if more than one business unit affected escalate in line with Trust Business Continuity Policy and individual business continuity plans. Escalate to Senior Manager on-call, consider deceleration of a Business Continuity Incident if required.
Incident Management Team		Business Continuity incident may be called dependant on impact of service outage; one or more services disrupted.	Overall corporate and strategic coordination of the response. Consider; Alerting Board, Clinical Commissioning Group and NHS England Area Team of disruption; Staff welfare; responding to NHSE guidance. Establish Command and Control in line with the Trusts Business Continuity Policy.
Head of Organisational Resilience	Planning and Preparedness including Business Continuity	Any	Provided Tactical advice to the IMT. Coordinate ICC if required. Ensure decision log is completed. Support completion of business continuity analysis and design of mitigations if required.
Communications (Trust Lead)	Dealing with communications internally and externally		Providing direct support to managers and/or Incident Command team if established.
Corporate Issues (i.e. finance, legal and insurance matters)	Via normal routes	Any	Maintain finance functions; ensure adequate insurance coverage; establish cost codes; ensure any legal advice is available and taken
IT and Telecommunications	Normal roles i.e.advising the Trust on inward and out ward facing communications and media response	Any	Ensuring that IT services throughout are available to support the recovery of Services
Estates	Managing functional and safe property from which services are delivered	Threatened or actual disruption, recovery planning	Report when an estates issue threatens service provision; support the incident control team advising on impacts and corrective actions.

Table 7.15- Impact of a major incident on works- roles and responsibilities

7.12 Scheme Benefits

7.12.1 Benefits Realisation Strategy

In terms of ensuring the expected benefits are actually realised, a Benefits Realisation Strategy will be implemented, 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

Effective benefits realisation is critical to the achievement of the outcomes desired from investments. Benefits realisation is an important contributor of key information to the development of business cases, portfolio management, governance and decision making.

A benefit is the measurable improvement resulting from an outcome which is perceived as an advantage by a stakeholder. Benefits are the specific outcomes where accountability can be assigned and measurement defined. Benefits are used for defining and declaring success of an investment. Benefits are the net positive changes resulting from outcomes. It is essential to understand the outcomes before we can define and declare them as benefits.

7.12.2 Benefits Realisation Approach

The objectives of Benefits Realisation Management (BRM) are to:

- ensure benefits are identified and defined clearly at the outset, and linked to strategic outcomes
- ensure business areas are committed to realising their defined benefits with assigned ownership and responsibility for adding value through the realisation process
- drive the process of realising benefits, including benefit measurement, tracking and recording benefits as they are realised
- use the defined, intended benefits as a roadmap for the programme, providing a focus for delivering change
- provide alignment and clear links between the programme (its vision and desired benefits) and the strategic objectives of the Trust.

- Provide a mechanism for tracking and responding to variances in terms of benefit delivery.

The Trust's Benefits Realisation Framework aims to increase successful benefits realisation. It addresses typical challenges encountered in benefits realisation, including:

- ill-defined benefits
- unclear program objectives
- unclear strategic goals
- benefit measures data is unavailable or inaccurate
- unclear benefit ownership

7.12.3 Benefits Realisation Overview

The scheme benefits are referenced in the Economic Case and used in the CIA model, to determine the economic summary and provide assurance on the value for money the scheme provides.

Benefits were considered at OBC and have been drawn out of the clinical strategy and detailed work with service lines, to develop models of care and workforce models, ultimately driving improved patient outcomes and service efficiency.

Ultimately, 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, this includes the merger between L&D and Bedford Hospital



Scheme benefits have been aligned with the scheme investment objectives and categorised in the Economic Case according to the following criteria;

- Cash releasing benefits
- Non-cash releasing benefits
- Societal benefits
- Un-monetisable benefits
- FBC benefits are further refined and reflect the refinement of societal benefits that have been proposed by, and agreed with the main contractor, Kier Construction Ltd.

7.12.4 Benefits Realisation Management and Oversight

The Trust is repurposing its existing Merger Benefits Committee to become a Benefits Realisation Committee, with a primary focus on the implementation and delivery of benefits to be realised from the redevelopment of the Luton and Dunstable University Hospital site.

The Committee's Terms of Reference are being reviewed and revised, along with its membership. The Committee will continue to meet monthly, under the chairmanship of the Director of Finance.

In order to avoid any duplication of effort, this Executive Committee will also oversee the implementation and delivery of the Trust's cost efficiency programme, of which the FBC financial benefits will form a part. The Trust's FIP Committee will retain its existing scrutiny over the Trust's cost efficiency programme and are part of its oversight of the Trust's financial performance.

Each stated benefit identified in this FBC has an identified benefit owner. This individual is responsible for the realisation of the stated benefit and is accountable to the Benefits Realisation Committee for delivering the stated benefit in accordance with an agreed timetable.

On a day to day basis, benefits will be managed by the appropriate service line.

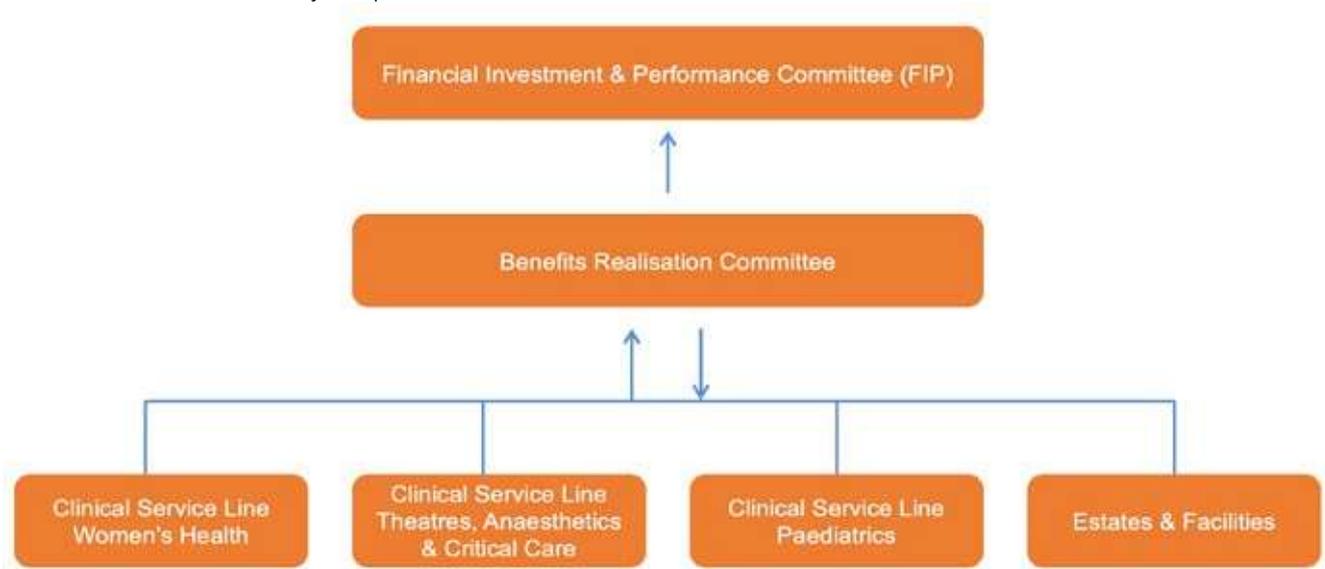


Figure 7.9- Benefits Realisation Management (BRM)

7.12.5 Benefits Realisation Plan (BRP)

The BRP can be found in Appendix 5. The BRP includes the following aspects;

1. ID
2. Benefit Category
3. Benefit Description
4. Service Feature
5. Benefit Owner
6. Responsible Officer
7. Performance Measure
8. Frequency of Reporting
9. Target Improvement
10. Type of Benefit (cash releasing, non-cash releasing, Societal, Unmonetisable)
11. Value (£)
12. Value by Service Line (£)

The summary table below provides an overview of expected benefits.

ID	Benefit Category	Benefit Description	Service Feature	Responsible Officer	Performance Measure	Target Improvement
1	improve clinical quality	Critical Care same sex accommodation compliance	Separate male and female accommodation	Chief Nurse	Same Sex Reporting	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	Ensure children are segregated from Adults
3	improve clinical quality	To provide private and dignified bathrooms facilities for patients in maternity and critical care	Ensuite facilities in delivery suite, bathroom facilities in critical care (L2 patients)	Chief Nurse	Patient Feedback scores	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 areas	Chief Nurse	Incident reporting corporate risk register	Reduce Clinical incidents to new accommodation to 0
5	To improve clinical safety	Decrease backlog maintenance requirement per annum	Backlog eliminated	Director of Estates	Service Desk Calls	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	All newly provided accommodation to be DDA complaint
7	Improve clinical safety	Health and Safety Compliance	Approved Health & Safety compliance	Director of Estates	ERIC return Corporate risk register	All newly provided accommodation to be Health & Safety compliant
8	Improve clinical quality	To maintain business continuity by providing service resilience	Compliant accommodation	Director of Estates	ERIC return Corporate risk register	Reduced number of incidents
9	Maximise space efficiency	Reduce waiting times for surgery - create capacity to manage demand	Increased Theatre capacity	Deputy Chief Executive	Theatre List utilisation Activity/ Annual Plan Waiting Times	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	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	Eliminate Ex Utero transfer to lack of L3 cots



ID	Benefit Category	Benefit Description	Service Feature	Responsible Officer	Performance Measure	Target Improvement
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	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 scores Maternity Feedback	Improve Friends and Family Feedback Scores
14	Improve clinical safety	Maintain or improve CQC rating "good"	Compliant accommodation	Director of Quality	CQC Report	Maintain good or achieve excellent score at next CQC review
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	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	Deputy Chief Executive	LoS Data	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	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 within the working week	Director of Finance	Finance Report	Reduce extra sessions to target value of 750k
19	Improve clinical safety	Higher PLACE inspection standards	Complaint Accommodation	Director of Estates	PLACE report	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 and theatre recovery	Director of Finance	Finance Report	10% improvement in staff productivity

ID	Benefit Category	Benefit Description	Service Feature	Responsible Officer	Performance Measure	Target Improvement
21	Improve clinical quality	To provide private and dignified bathrooms facilities for patients in critical care	Complaint Accommodation	Chief Nurse	Patient Feedback scores	Ensure all patients have access to bathroom facilities without crossing general circulation routes
22	Improve efficiency	Process flow and staffing efficiency from colocation of critical care within an acute service block	Combined ITU & HDU with improved visibility	Director of Finance	Finance Report	10% improvement in staff productivity
23	Improve efficiency	Lift resilience	Free up staff time responding to lift failure	Director of Estates	Finance Report	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 & staff journeys between buildings which would require additional porters & HCA's	Director of Finance	Finance Report	Reduction in WTE
25	Improve efficiency	Reduction in number of receptions for maternity	Reduction from 6 to 2 receptions	Director of Finance	Finance Report	Reduction in WTE
26	Improve efficiency	Boost to local economy through local employment during construction and after due to workforce demand	Apprenticeships related to the development, use of the local supply chain			
27	To mitigate risk that environment presents	Improved sustainability		Director of Estates	ERIC return & SDAT baseline	
28	Improve clinical safety	Shorter wait times for surgery	Reduce waiting times to below 18 weeks	Deputy Chief Executive	18 Week Report	
29	Improve efficiency	Pathology merger savings	Please refer to merger FBC for full details (Appendix 15)	Director of Finance	Finance Report	
30	Improve efficiency	Revenue saving from avoided equipment rental	Please refer to merger FBC for full details	Director of Finance	Finance Report	

Table 7.16- Overview of expected benefits



7.13 Workforce Management Plan

The Trust is a clinically led organisation, with a robust model of clinical integration formed and delivered through multi-disciplinary clinical leadership at the service level. The Trust's vision is "to attract the best people, value our staff and develop high performing teams that deliver outstanding care to our patients." The redevelopment of the site enables the Trust to attract the very best staff and ensure they are equipped and inspired to work to the highest standards. In line with workforce priorities the redevelopment enhances a model of growing talent internally and providing local career and work opportunities.

The Trust's approach to workforce planning (for implementation and transitioning) has been agreed at a high level and will be rolled out in the lead up to the transition to ensure preparedness and the safe transfer of staff to the new environment. Regular and positive staff engagement throughout the development will continue into the transition to ensure a seamless transition for staff and patients

Throughout the design development process, the Trust and in particular, clinical user groups, have been encouraged to consider and develop thinking around what the service looks like on day one in the new hospital buildings. This included developing the clinical strategy to formulate models of care, workforce models and workforce implementation plans. This thinking stretched to include staff training and development requirements and the need for standard operating procedures.

7.13.1 Models of Care

- **Maternity Services** - The model of care for maternity services supports the current strategy to provide continuity of care for women and families, provide safer, more personalised care, to reduce length of stay both antenatally and postnatally, to decrease neonatal length of stay, to support decision making, and to empower patients
- **NICU**- The re-provision of the NICU within the ASB is a key enable of the future model of care through integration of transitional care with the NICU, expansion of the overall number of cots and an increase in the number of ITU and HDU cots proportionate to SCBU. This enables the service to move towards compliance with BAPM standards, ensure medical workforce resilience, introduce new team roles and resource specialist AHP input to the multi-disciplinary team. In partnership with

commissioners this will inform the Trust's quality investment priorities in the coming years.

- **Critical Care** - The model of care for critical care includes integrated level 2 and 3 critical care from a single footprint with access to the full range of multidisciplinary specialists. Pathway design and quality improvement priorities are focussed on streamlining patient journeys and maximising efficiency and flexibility of resources. This model drives a reduction in length of stay and seamless transfer of patients into and out of critical care with optimised clinical continuity of care.
- **Theatres** - The model of care for theatres provides maximum flexibility and efficiency through well-designed and multi-functional operating and support spaces. Co-location of operating facilities improves clinical adjacencies and cross-support between theatre teams and minimises risk. The model of care is predicated on a shift towards urgent (planned) surgery to reduce unplanned admissions to hospital beds.

7.13.2 Workforce Impact of the Redevelopment

Models of care and workforce plans are described in the Preferred Option Chapter of this business case and can be found in Appendix 5. A summary of the workforce impact is described below;

- **Maternity** – whilst there is limited additional capacity built into the new layouts, the physical changes to the maternity facilities which support quality, do prompt some specific workforce changes. Additional qualified posts will be required following the birth-rate plus review. Staffing levels will be based on this national tool and built into annual business plans.
- **NICU**- The neonatal workforce is impacted by the additional cots and the integration of transitional care. Staffing levels will be based on BAPM standards and built into annual business plans.
- **Critical Care** - Integration of the teams brings significant benefits in terms of workforce upskilling, resilience and flexibility and reduces non-value-adding moves between units for patients.
- **Theatres** - The design and colocation of theatres makes optimal use of specialist staff and ensures that there are minimal constraints in support of flexible and effective booking of lists to increase theatre utilisation. There will be considerable efficiency savings in Escort Nursing costs. The increase in operating theatres (3.4 additional theatres) will require staffing.

7.14 Managing the Business Change

Successful and sustainable management of change will be a critical success factor in the movement of staff and services to the new clinical buildings. Change will be managed in line with the NHS England Change Model (see below).



Figure 7.10- The Change Model

Central to this is ensuring a **shared purpose**.



Figure 7.11- A shared purpose

- There is already extensive and regular communication, tailored to different stakeholders, to share this vision
- New organisational values being embedded into this ethos
- The new clinical buildings are co-designed through clinical working groups etc.
- The merged organisation's new operating model with autonomous clinical service lines means that change management is owned by the senior leadership triumvirates within maternity, paediatrics, critical care and theatres

7.14.1 Leadership by All

The evidence suggests that the leadership style that is most likely to deliver large scale change is one that generates a commitment to a shared purpose developed through collaboration. This has absolutely been the case within the redevelopment project. The regular Work Stream meetings that underpin the programme have had significant Executive involvement and significant clinical involvement and leadership. A robust Communications Strategy over sails the Programme.

It is envisaged that the redevelopment meetings will seamlessly transfer into a "preparedness to move" and "delivery" phase for this large operational change, led by the Trust's CEO in his role as SRO to the project. The Transition planning will be the key focus of the project as the Construction Works are delivered.

Part of the leadership role has been around setting the conditions, creating a shared purpose and deeper meaning for the change. The right underpinning values are key to this; this is covered in section 7.15 (Cultural Change).

7.14.2 Motivate and Mobilise

Motivating and mobilising is about staff and stakeholder engagement along with asking individuals to take action: to be part of the change, to collaborate in co-designing and delivering the future, to use their own power to drive change. Engaging with staff and leveraging their varied energy (see below) will be central to motivate and drive success.

- The L&D site Redevelopment is part of corporate objectives and a strategic vision across BLMK ICS.



Energy	Definition
Social	Energy of personal engagement, relationships and connections between people. It reflects a 'sense of us' and is therefore a collective concept that captures a situation where people are drawn into an improvement or change because they feel a connection to it as part of the collective group.
Spiritual	For most people, belief in the value of work, results in more passion, perseverance, effectiveness and satisfaction. When we believe that the future is powerfully connected to what we care about, we bring more energy to creating it. By co-constructing a clear, inspiring, vivid picture of the future, a new future that is better than the status quo, we become more confident about moving towards it.
Psychological	Energy of courage, trust and feeling safe to do things differently. It involves feeling supported to make a change as well as belief in self and the team, organisation or system, and trust in leadership and direction.
Physical	Energy of action, getting things done and making progress. It is the flexible, responsive drive to make things happen, with vitality and kinetic force (motion).
Intellectual	When we undertake an activity that stimulates our creativity, attention and focus, we raise our intellectual energy. The results are evidence and reasoned arguments - a rationality to help guide our behaviour. We are then able to set clear goals and objectives, which help us to focus on what's important. In an age of distraction and competing priorities, activities that allow us to raise our intellectual energy, are critical for making change happen.

Figure 7.12- Motivate and mobilise

7.14.3 System Drivers

The key to sustainable change is whether the broad conditions for change can be lined up to support the vision. System drivers might take the form of incentives for change, specific standards to be achieved (if penalties are to be avoided) or other drivers such as culture or climate.

This relocation aligns itself perfectly towards the delivery of National standards such as 'BAPM' and 'Saving Babies Lives' and links into National Screening Standards set by Public Health England, bringing the L&D site of Bedfordshire Hospitals in-line with the Bedford site and surrounding care alliance.

7.14.4 Measuring Successful Change

Clear governance to identify, track and measure benefits has been put in place to ensure management through existing service line management arrangements. Recent experiences from the merger and any lessons learnt have been and will continue to be taken into account.

Other tools will be adopted to measure successful change, including staff, patient and visitor feedback.

7.14.5 Project and Performance Management

The evidence suggests that an effective approach for the delivery of change and the monitoring of progress towards planned objectives are essential to making that

change a reality. This needs to be underpinned by a robust and resourced programme structure and governance arrangements.

A central Integration & Transformation team within the Trust enables large scale/change transformation work. Programme Management software (PM3) is being rolled out across the trust and a transition plan is in place to prepare and manage the moves into the new clinical buildings. On receipt of FBC approval, this will be translated into a robust programme structure. The Programme Structure underpinning the 'Delivery' phase will try to utilise existing forums, for example, the Children's or Perinatal Boards or existing service line business/governance meetings.

7.14.6 Improvement Tools

The change model includes the component improvement tools because there is evidence that working systematically with evidence-based quality improvement tools increases the chances of successful change (Boaden et al, 2008).

Quality improvement has been embedded into the organisation and a significant number of staff have been trained using QSIR methodology. Improvement Boards are in existence, for example in maternity services. These would be central in driving change and improvement as clinical services transition into the new buildings.

7.14.7 Spread and Adoption

The NHS Sustainability Model (below) will be used to ensure sustainable change.



Figure 7.13- NHS Sustainability Model

7.15 Cultural Change and Organisational Development

The Hospital’s redevelopment programme is a significant programme of change for the organisation. It will have an impact on all stakeholders, but particularly the workforce who are required to respond proactively to this change. For many staff groups, they will be required to change where they work, who they work with, who they are managed by, where and how they take breaks, how they access information, and importantly for some, how they provide care to patients.

For the leadership team and clinical teams involved in the planning of this significant change, it can be seen as nothing but exciting and rewarding, with huge benefits for the workforce and for the patients. For many however, the change will be extremely daunting and unsettling, and therefore must be handled with care, compassion and an understanding of the potential impact of change. An understanding of the impact on equality, diversity, quality and people has been fundamental in the planning of this project and will continue to be fundamental as the organisation plans its transition.

The new clinical buildings, 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, who can influence and build on good clinical practise and world class patient outcomes.

7.15.1 People Strategy

The NHS Interim People Plan (2019) set 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

“We are the NHS: People Plan 2020/21 – action for us all and NHS People Promise” followed and clearly illustrates 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.

Using the key themes of the People Plan 2020/21, the Trust’s People Strategy sets out the detailed work-plan to underpin all aspects of our approach to supporting and enabling our people:

1. Responding to new challenges and opportunities
2. Looking after our People
3. Belonging in the NHS
4. New ways of working and delivering care
5. Growing for the future
6. Supporting our NHS People



Figure 7.14- Our NHS People Promise

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 People Strategy provides a platform for recruitment, development and retention of Bedfordshire Hospitals’ workforce, a workforce that is fit-for-the future, supported, equipped and inspired to give their best.



7.15.2 Culture and Organisational Development

The Culture and Organisation Development Strategy – Setting the cultural tone (Appendix 7), was approved by the Board in August 2020 and sets out how the Trust will embed:

- **Our ethos:** One Team in One Trust with One Goal
- **Our vision:** To employ the best people and develop and value them, so that the teams they work in provide outstanding care to the local population.
- **Our Values:** Teamwork – Honesty and Openness – Respect – Inclusivity – Valuing People - Excellence
- **Our intention:** To be clinically led and managerially enabled

The Trust's 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 Culture and OD Strategy 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 OD Faculty created to enable, strengthen and lead the organisational development work in the Trust is central to delivering the key components of the strategy. 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.

7.15.3 HR and OD Work Group

A HR and OD Work Group was established in the autumn of 2019 and is led by the Trust's HR Director supported by the Trust's Director for Culture and OD. There are a number of sub groups to the HR and OD Work Group focussed on preparing for and leading change associated with the workforce.



Figure 7.15- HR and OD Work Group Structure

7.15.4 Workforce Transformation and Readiness

To ensure the new hospital facilities function as intended, a continuous cycle of learning is fundamental. The Trust will utilise learning from the Enabling projects, such as the move to new Office accommodation (Nova House) in March 2021, to ascertain how staff found the change (preparation, transition and go live). Furthermore, the Trust will embrace opportunities for meaningful involvement and engagement with the workforce, in the planning for transition and go live in the new facilities.

Learning from other projects will examine,

1. Preparation for relocation
2. Transition to the new facility
3. Induction and orientation
4. Go Live/Working in the new space

High level transition plans have been agreed for the clinical services moving into the new hospital buildings and the services that will support them. Detailed project plans for each stage of the transition will be developed in the lead up to 2024. The Trust will draw on the insights of stakeholders and actively listen to their views and ideas.

7.15.5 Workforce Transformation Principles

The focus of the workforce transformation is to ensure safe staff transfer to the new environment with positive staff engagement throughout. The Trust's values remain at the foundation of everything it does. The principles below underpin the Trust's 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 service lines;
- Training, developing and investing in staff to support their long-term development and to ensure that the Trust has a pipeline of talent with the skills and flexibility to maximise service provision to the benefit of patients;
- Securing the supply of the best staff to deliver outstanding health services within the local health and social care system by deploying a talent management protocol
- Creating new and innovative clinical roles designed to address known skill and capacity gaps;
- Providing a range of career pathways for front line staff to enable satisfaction and remuneration 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.

7.15.6 Managing the Transition

Throughout the life of the redevelopment project, the facilities have been co-designed with both clinical and non-clinical staff informing the choices and deliverables. Whilst there has been on-going engagement, the reality and magnitude of change to working environments cannot be fully appreciated until much nearer the time of relocation. The transition will require both behavioural and practical changes to be managed appropriately. Each person's journey will be different and we will equip our leaders to navigate their teams through the lead up to the move and transition in to the new facility.

7.15.7 Behavioural Change

To prepare our workforce to move as smoothly as possible through the transition process, we will implement a programme of planned support activities covering the five stages of change and transition. The main components of the programme are Supporting Managers, Supporting Teams and Supporting individuals and will be delivered through a variety of workshops, focus groups, 1:1 coaching and large-scale engagement events.

- **Supporting Managers** – A bespoke programme of leadership development: leading through change, understanding the impact of change on the team, managing resistance, preparation for the move, building new teams, supporting individuals' needs, nurturing their own and others' resilience, coaching for self and others
- **Supporting Teams** – Team development: effective teams, developing trust, developing a team charter, civility and creating a safe space to speak-up, team wellbeing, collaboration – working with other teams and practical arrangements
- **Supporting Individuals** – Personal development and coaching, including: thriving – resilience and wellbeing, change, emotional intelligence



7.15.8 Practical Change

The overarching induction and orientation programme for the site will be provided by the Redevelopment Team and/or Estates and Facilities Teams. Local induction and orientation will be developed through the Redevelopment Business Unit Champions utilising a generic framework to ensure all necessary steps are taken and customisable for nuances to specific local requirements. Co-ordinated centrally, the Business Unit Champions will also be on-hand throughout the move to provide practical assistance and information and support.

7.15.9 Looking After Our Workforce

The new facility is an exciting and long awaited development for the L&D site, however, the change to the physical environment and impact on the workforce is not to be underestimated. The Trust recognises that large change management programmes will impact staff in different ways. To support staff through this programme of change, the Trust have implemented a number of tools and/or processes, these include;

- Programme Board approved Communications Plan. The Communications plan has a number of platforms in which to engage and inform stakeholders
- Clinically led Clinical User Groups who act as advocates for the new models of care and the healthcare design
- Executive led Work Streams and Work Groups that underpin the redevelopment programme, ensuring communication through every Service Line
- High level Transition and Relocation Plans agreed by front line staff represented in the Clinical User Groups
- A range of support and wellbeing services accessible to all staff, should they need additional support through the preparation, relocation and orientation phase. These include our Employee Assistance Programme, Occupational Health Services, Wellbeing and social support such as;
 - Mental Health First Aiders
 - Peer2Peer Listeners
 - Chaplaincy
 - Freedom to Speak Up Guardians

7.16 Transition Planning

7.16.1 Preparing for the Move

The transition plan will be designed to provide information relating to the “preparedness to move” and the physical transfer of Maternity, NICU, Critical Care and Theatres in to the new clinical buildings. This will be informed by a series of “Transition Planning Workshops” with clinical and support teams, embedded 24 months ahead of the physical move, following formal FBC approval. Transition Planning will be led by the Trust’s Chief Operating Officer, a key member of the Redevelopment Programme Board and Programme Team.

7.16.2 Command Centre

A command centre will be set up in the new building during the operational commissioning period and will provide overall administration and communication control of all move activities on both old and new sites in the period leading up to during and after the moves.

During the operational and commissioning period and for a short period following the move, the command centre will be staffed by a commissioning team. During this period, the purpose of this centre will be to ensure that all tasks necessary to prepare the building are undertaken according to the agreed programme.

Over the period of the moves, senior staff from the clinical operational teams will direct the physical transfer process and maintain the Trust’s service provision during the transfer period. A rota will be developed for the period which will clearly identify who will be undertaking which roles. This will be circulated to the site and business unit teams for awareness.

The main role of the Command Centre is to:

- Provide overall administration and communication control for both new and old sites during each phased move period including the responsibility for escalating issues and decisions to the CEO/Deputy CEO as required.
- Make decisions and/or approve changes relating to physical transfer process and/or operational issues associated with the physical transfer process
- Act as a single point of contact for all issues related with the move.
- Monitor progress against the approved programme.

- Advise Clinical business units, wards and departmental teams on progress, changes to programme, problems etc.
- Liaise with key support services, including security, facilities management and ICT, to ensure swift action is taken to deal with any unforeseen incidents.
- Work with Clinical Business Units, wards or departments to redeploy resources where necessary.
- Maintain a log of issues and queries arising, complaints, decisions taken.
- Hold daily meetings to undertake any additional but necessary planning and monitoring activities.
- **Site Management Logistics:** During the move period there will be designated entrances and exits for patient transfer and logistics routes.
- **Traffic Management:** This will be provided by APOCA. Traffic and car parking during the transfer period of maternity services and NICU may require some internal roads and parking to close to allow removal vehicles to enter and exit freely.
- **Security:** This will be provided by APCOA. Security access cards will be updated and issued to allow access for staff and supporting services to enter buildings. All staff will be required to wear ID badges.

7.16.3 Command Centre Function

- **Command Centre Operation:** The Command Centre will operate from 08:00 and be sited within the hospital Operations Centre and will be appropriately equipped to ensure it can undertake live monitoring of the move programme and be in contact with key staff during the move duration.
- **Command Centre Team:** The team will consist of relevant clinical business unit team members for each stage, members of the operational team, redevelopment team, ICT, Communication, Medical Engineering, Facilities Management and Procurement.
- **Responsibility of Wards & Departments:** Each ward or department will have champions who will support the move team, and arrivals team along with a business as usual team. Champions will report into the Command Centre any issues that arise during the transition.
- **Site Induction & Familiarisation:** All staff will undergo an orientation period to familiarise themselves with the new working environment. This will include all supporting services. This will be led by the needs of the department and will include:
 - Emergency simulation training
 - Fire training
 - Nurse call training
 - Ward or department entry or exit
 - Changing and rest facilities
 - Workstations & Telephones
 - Crash call door access, staff attack, panic buttons etc.

7.16.4 Move Principles

- The ward and departmental moves will take place during the working week.
- Weekend moves will be avoided to ensure a good level of management teams and support teams are on site.
- The Trusts on-call system will be fully integrated into the Command Centre for the duration of the move.
- Business units will identify medical, senior nurse and management cover for both old and new sites.
- A daily briefing will be sent to all staff confirming who has moved that day and the plan for the following day including any key messages needing to be relayed.
- In the unlikely event the moves programme changes this will be communicated by the Command Centre.
- Should there be a major incident during the move the Command Centre will be briefed by the Major Incident Team regarding any relevant actions needed to be taken as a result of the incident. The Command Centre will assess the impact and consequence to the move programme and communicate as necessary actions needed to be taken.

7.16.5 Move Programme

A detailed move programme will be developed which breaks down each day, clearly identifying what should be happening and when. This programme will be used by the Command Centre and other key staff to monitor progress against each activity identified during the move period. If the move programme needs to be changed, the order will remain as agreed but with different start and end dates.



7.16.6 Non Clinical Support for Move

- **ICT:** Any desktop equipment to be moved will be labelled in line with the move plan and the ICT team will be available to connect to the network and manage any issues that arise. Telephones will already be connected to be used in the new areas.
- **Materials Management:** Ward and departmental supplies will be pre-stocked, with minimal amounts of generic items. Each Business unit will have worked with the Trust supplies team to determine requirements and all remaining stock will be part of the move plan.
- **Pharmacy:** Ward and departmental supplies of clinically urgent medications and a stock of IV fluids will be available, the Business unit teams will work with pharmacy prior to the move to determine requirements, and all remaining items will be part of the move plan supported by the medicines management technicians to ensure following patient moves medications are available for each patient. Pharmacist support will be available for the transfers of controlled drugs, ensuring transfer of registers are complete.
- **Linen:** Clean linen will be stocked in the new areas
- **PAT testing:** All portable electrical equipment for transfer will be checked to ensure it has had a valid PAT test prior to transfer.

7.16.7 Clinical Support

- **Resuscitation:** During the commissioning of the new clinical buildings, the Resuscitation team will liaise with Medical & Nursing staff to ensure teams are familiar with any changes. Drug boxes will be provided to each area prior to the moves commencing. During the move the normal service provided by the resuscitation team will be maintained.
- **Media Management:** Throughout the move period the Trust's Communication Team in close collaboration with the Redevelopment Team, will manage any media enquiries following discussion with the Executive team.

7.17 Clinical Quality Management

The Trusts vision is;

“To attract the best people, value and develop them so that the teams they work in deliver outstanding care to our patients”

This vision places significant emphasis on employing the very best staff and ensuring they are equipped and inspired to work to the highest standards. Furthermore, the organisation has a commitment to providing exemplar clinical services.

The Trust has a culture of learning and continuous quality improvement, and aspires to achieve a rating of “Outstanding” in CQC ratings. The corporate quality and safety governance functions are aligned to support the transactional elements of the quality governance agenda in terms of learning and transformation ensuring that where suboptimal clinical performance is identified, improvement action is prioritised and supported.

The joint Medical Directors and the Chief Nurse have overall accountability for Quality and Safety delivery and the Director of Quality and Safety Governance has accountability for the systems and processes that underpin that delivery together with responsibility for regulatory and compliance improvements to deliver an optimal CQC rating for the organisation.

There is a single oversight sub-committee of the Trust Board, the Quality Committee, chaired by a Non- Executive Director. A Clinical Quality Operational Board (CquOB), chaired by a Medical Director/Chief Nurse which provides an assurance and risk report to the Quality Committee.

7.17.1 Quality Priorities

■ Priority 1 – Improve Patient experience

Improving our patients' experience is very important to the Trust. To improve the patient experience, the Trust considers 'what matters most to our patients?'

■ Priority 2 – Improve Patient Safety

People assume, quite rightly, that hospitals are safe places. It is everyone's responsibility to take all possible steps to avoid harm to our patients.

■ Priority 3 – Delivering Excellent Clinical Outcomes

The Trust strives to provide the most effective, evidence-based care for patients, in order to ensure the best possible clinical outcomes.

■ Priority 4 – Prevention of Ill Health

The Trust is committed to working with staff and partner organisations to deliver improvements in the health and wellbeing of its community (patients and our staff), by engaging in a range of health prevention initiatives and strategies.

7.17.2 Quality Priorities and Redevelopment Objective Alignment

The Trust is committed to developing, coordinating and expanding its capacity and capability to continually improve. In order to support the delivery of quality priorities and ensure an excellent experience for patients, carers and staff, The Trust recognises the need to further develop and refine resources and support mechanisms.

The Trust outlined in the OBC the clinical objectives of redeveloping the L&D site. Each of these objectives supports the organisations Quality Priorities and will result in a range of clinical quality benefits.

7.17.3 Quality Priorities and Redevelopment Benefit Alignment

The creation of new clinical buildings will assist in the achievement of the quality and safety standards and improvement in patient outcomes. The Quality Priorities listed below align the Redevelopment benefits to them and show how and where they will be strengthened following the opening of new clinical buildings.

■ **Priority 1 – Improve Patient experience – Improved Clinical Quality**

- Segregated accommodation in Critical Care to support protected characteristics wherever possible
- Private and dignified bathroom facilities with en-suite facilities for single bed areas e.g. delivery suite, side rooms
- Provide access for patients, staff and visitors with disabilities (DDA compliant accommodation) giving accessibility to all
- Maintain business continuity by providing service resilience with compliant accommodation
- Improve friends and family feedback across maternity, neonates, critical care and theatres through improved and stimulating environments
- Reduce staff time responding to complaints from patients and families due to the environment by delivering better accommodation
- Children undergoing elective surgery will stay in hospital through an improved surgical pathway, having dedicated accommodation for the arrival and recovery within the new theatre complex will provide shorter pathways and decrease overall length of stay for children, thus improving their experience and outcomes and freeing up specialist paediatric nursing time

- Reduced agency staff through workforce efficiency gains, and through retaining a high performing and happy workforce able to provide the high level of care that they strive to

■ **Priority 2 – Improve Patient Safety**

- Clinical segregation in theatres for Paediatric patients including surgical arrivals and recovery by providing separate adult and child accommodation
- Reduce clinical incidents by providing ventilated clinical accommodation in line with HBN guidance
- Reduce backlog maintenance requirements thus reducing clinical incidents and service down time
- All new accommodation provided will be Health & Safety compliant
- Provide PLACE improved/compliant accommodation

■ **Priority 3 – Delivering Excellent Clinical Outcomes – Maximising space efficiencies**

- Reduction in waiting times for surgery by creating capacity to manage demand
- Birthing mums requiring level 3 neonatal beds will stay local using increased delivery suite capacity preventing in utero transfers out due to lack of capacity
- Level 3 babies will stay local using increased neonatal capacity preventing ex utero transfers
- Critical Care level 2 & 3 patients receive the right level of care in the right environment with rapid access by creating capacity to manage demand and reduce transfer times ensuring no patient is waiting for a L2 or L3 bed

■ **Priority 4 – Prevention of Ill Health**

- By coordinating and expanding our capacity and capability relieves pressure on our system partners preventing further deterioration of conditions, supporting the well-being of our patients.



7.18 Gateway Review

Following the decision to reinstate the former OGC Gateway Review process, the Trust Redevelopment Team has undertaken a Risk Potential Assessment (See Appendix 14) for the Scheme. This resulted in a Medium risk potential being identified. To assure the Trust Board and DHSC, the SRO requested that a Gate 3 Review be undertaken.

This took place the week of the 19th July 2021. The Delivery Confidence Assessment was rated as Green. Successful delivery of the programme appears highly likely and there is no major outstanding issues that at this stage appear to threaten delivery.

A copy of the report including an action plan following recommendations can be found in Appendix 6. Below is a summary of the 7 recommendations made:

Recommendation	Action
The title of the FBC is extended to refer to the first phase of the Redevelopment Programme and the Executive Summary introduction sets this phase in the context of the whole programme by identifying other dependent projects, their source of funding and their proportion of the overall benefit delivered by the Redevelopment Programme	Define within section 1.2 of the Strategic overview other phases of the Redevelopment Programme Review section 1.2, 1.3 & 1.5 and align
Bring together all the current assurance activities in an IAAP to be appended to the FBC	Complete an Integrated Assurance Approval Plan (IAPP) to cover all phases of the Redevelopment Plan Integrated Assurance Plan completed and can be found in Appendix 1
Ensure gaps, inconsistencies and other possible sources of confusion in the FBC are resolved by an independent peer review	Peer review completed by Brierley Advisory Limited and can be found in Appendix 6 Recommendations made but no significant concerns identified. Recommendations reviewed and incorporated.
Ensure service users have confidence in the availability and functionality of the IT systems and services to be required	Updated sections 2.15.2 and 4.8 User group meetings in place
Ensure the pathway to deliver NZC is set out in the FBC – for the medium to long term, with an explanation as to why this is not achievable in the short term	Section 2.9 updated
Ensure the FBC fully sets out the major contribution the programme will make towards policy objectives and government ambitions within the context of the wider redevelopment	
The Trust liaises directly with the DHSC and HMT to highlight the cost of delay and establish when they are expecting this business case and when they expect to give approval	To write to DHSC to confirm with HMT when they are expecting this business case and when they hope to complete their determination During August 21 monthly call with NHSE/I and DHSC, advised that this did not follow standard process, advised not to write to DHSC and HMT formally. DHSC representative confirmed that this would be picked up via the formal channels that exist between DHSC and NHSE/I.
Outline in the FBC the measures to optimise the use of digital technology for the efficient utilisation of the new blocks	Finalise RIBA Stage 4 design ensure MMC and repeatable design has been included To outline measures to optimise the use of digital technology – Sections 2.15.2 and 4.8 have been updated

The Trust will continue to participate in the agreed Programme for Gateway Review.

Table 7.17 – Gateway 3 Review Recommendations

7.18.1 FBC External Review

The Trust commissioned an external review of the FBC in August 2021. This was conducted by Brierley Associates. There were no significant areas of concern, but a number of recommendations and clarifications were made. These were reviewed and where appropriate, incorporated within the body of the FBC. The full report can be found in appendix 6.

7.19 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 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. PPE will also review lessons learnt throughout the life of the project. This learning will support other projects across the health sector.

PPE will be scrutinised at a local level by the Trust Board and at a regional level by the ICS. This practise of Lessons Learnt and Information sharing is already well embedded, with evidence of good practise across the ICS (BHNHSFT, Milton Keynes Hospital, BLMK CCG and Bedford Borough Council). PPE is also expected to be and at a national level, by NHSE/I, DHSC and HMT. The Trust have actively fed into Lessons Learnt and Information Sharing Sessions organised by NHSE/I. The Trust have also actively participated in a number of national pilots, including the nationally piloted derogations schedule management, now rolled out across the NHS HIP.

7.19.1 PPE Management

PPE will be managed internally. The SRO is ultimately accountable for Post project Evaluation (PPE). The Redevelopment Programme Team will act as the Evaluation Steering Group, reporting into the Redevelopment Programme Board, and ultimately, the Trust Board.

PPE will be led in partnership by the Redevelopment Delivery Team and the Trust's Integration Team. These teams will continue to work closely with the Clinical Service Lines moving into the new hospital accommodation.

7.19.2 PPE Approach

The objective of the evaluation stage is to assess how well and effectively the project was managed from planning through to delivery and beyond. PPE will be undertaken using a 360 view of the process using internal and external stakeholders. It is planned that this evaluation will take place at various stages following the opening of 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

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 Redevelopment Programme Board, and external stakeholders as required.

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 facilities have been commissioned (circa 6-12 months)
- once the facilities are well established (circa 12-24 months)
- Additionally, PPE has been undertaken during planning and business case development (OBC), this is described at the beginning of this chapter. PPE will be undertaken once more following FBC completion.

a. Evaluation at 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 which will be externally facilitated to support neutrality and openness, 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 intends to use a 360 view of the process using internal and external stakeholders. This evaluation will be internally facilitated but outside of the redevelopment delivery team to support neutrality and openness.

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.

This evaluation will be internally facilitated but outside of the redevelopment delivery team to support neutrality and openness.

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

7.20 Business Case Approvals and Programme

The redevelopment of the L&D site has the full backing and commitment of the Trust Board, the BLMK ICS and the Trust's Commissioning teams.

The OBC was commissioned in September 2019. It was completed in 7 months and submitted for approval to the centre in April 2020.

The FBC development began in May 2020; procurement was put on hold shortly thereafter following advice from DHSC not to proceed until after OBC approval by HMT. To support the overall programme and central requirement to substantially complete the scheme by March 2024, the Trust made the decision to progress the RIBA stage 3 design to support procurement and cost certainty and ultimately, to ensure mitigation of proposed and significant delays to scheme completion at this point.

The OBC was approved in November 2020 at which point procurement was re launched based on RIBA stage 3 design information (developed from May to November 2020).

The FBC development scheduled to complete in September 2021 was pulled forward by 2 months to July 2021 to support the DHSC Gateway Review process.

In preparation for this review, a "very good" draft FBC was requested. Acknowledging that the FBC would be substantially complete in July 21, the NHSE/I Regional Team committed to support an early fundamental review, acknowledging that failure to achieve final FBC approval and start construction by January 22 would push out the end date of March 24, which is a key constraint of the scheme.

Version Control	Date Issued	Approval Required	Owner
V1.0	August 20	Creation of initial template	MB
V1.1	March 21	Gap analysis	MB
V1.2	May 21	High level draft	MB
V1.3	June 21	First draft for Programme Board review	MB
V1.4	June 21	Incorporation of Board feedback	MB
V1.5	July 21	Revisions to Finance, IT and Estates sections	MB
V1.6	July 21	Final edits	Redevelopment
V1.7	July 21	Draft circulation of FBC to NHSE/I and Gateway Review Team	Redevelopment
V2.0	Sep 21	Final FBC to Redevelopment, FIP, & Trust Board , Council of Governors & NHSE/I	Redevelopment
V3.0	Nov 21	Final FBC to Trust Board, NHSE&I, JIC and HMT to include queries and clarifications raised by NHSE&I	Redevelopment

Table 7.18- FBC review/approval programme

7.21 Global Pandemic Impact

7.21.1 Impact on Business Case Development

The Trust Board maintained the redevelopment management and governance arrangements already in place, throughout the Pandemic and agreed that the Redevelopment remained a key priority for the Trust throughout the Pandemic. The Redevelopment Delivery Team put processes in place to coordinate with multiple teams, across multiple organisations, virtually, between March 2020 and present day.

The April 2020 OBC deadline came at the peak of the Pandemic, the OBC programme was maintained. Similarly for the FBC development, key milestones have been maintained throughout the Pandemic, including critical construction projects. This has meant a significant effort from design teams, sub-consultants, contractors and the Trust's Delivery and Management teams, who have all had to find new ways of working remotely to share ideas, manage the programme and take virtual walks of the hospital site. The Trust's IT team have been fundamental in supporting this huge and responsive business change.

The effects of a future global pandemic are drawn out in the CIA model as a risk (see Appendix 3). This has assumed a six month detrimental impact on programme if a pandemic risk materialises as it is assumed the biggest impact on this project will be the availability of labour and the constraints put on the supply chain.

7.21.2 Impact on Design – Learning from Covid

From May to July 2020, a number of “learning from Covid” workshops were held with the Clinical Teams that formed the User Groups for the development of the design. The primary focus was to address the following question;

“Knowing what we know about Covid, would we change the design to support safer management of patients and safeguarding of staff?”

These workshops were attended by clinical and support teams including the Trust's Infection Control Team. A series of small changes were made to the design as it developed, such as Perspex screens at reception points and between workstations. More significant changes were made following review and approval by the Redevelopment Programme Team Change Board. Key and significant changes are listed below.



Key Design Change	Rationale
Staff changing facilities previously designed to be shared between services (maternity, NICU and Critical Care), re-provided for in each clinical area	To contain staff in their service area and prevent the spread of staff (and potentially infection) throughout the new buildings.
Staff rest facilities previously designed to be shared between services (maternity, NICU and Critical Care), re-provided for in each clinical area	To contain staff in their service area and prevent the spread of staff (and potentially infection) throughout the new buildings.
Bin stores and dirty routes moved outside of clinical areas	To contain waste and manage waste outside of clinical areas to prevent movement within the clinical area.
Reconfiguration of Critical Care Unit	To allow a clear Covid/Non-Covid split to be able to better manage infection prevention control
Reconfiguration of Maternity Wards to align isolation rooms with accessible rooms	To provide further isolation capacity and a clear segregation of an isolated area

Table 7.19- Learning from Covid – Design Change

7.21.3 Impact on Operational Planning – Learning from Covid

As the NHS emerges from the Pandemic, it is important to reflect on the past year. Ways of working have transformed and Trusts have learnt lessons that will help to improve the ways in which the Acute estate is optimised in the future.

Prior to the Pandemic, the Redevelopment Delivery Team had entered into discussions with the clinical leadership team about how services would transition to the new buildings and in what order. The four services moving into the new buildings (maternity, NICU, critical care and theatres) are all interlinked. It would be challenging and present significant clinical risk to move one service without the other. A series of workshops to agree an approach are described earlier in this chapter (please see section on Transition planning).

There has been a significant amount of learning through Covid, Digital collaboration through Covid has allowed best use of clinician's time and furthermore, the Trust and wider NHS has learnt that services can move quickly when required to. The Trust's Critical Care Unit moved in a number of hours to new locations, to provide further capacity in terms of space and medical gases. This required a huge effort from various teams, and all patients, equipment and supplies were moved with minimal disruption. The granular detail of this move has been used as a benchmark to agree the high level transition plans to the new clinical facilities.

7.22 Management Case Conclusion

The programme management arrangements for successful project delivery have been tried and tested throughout the delivery of the Trust's Enabling Programme. The management arrangements have been strengthened and improved on wherever possible.

Whilst a firm foundation for managing the programme is in place, the Trust will continue to adopt a culture of continuous evaluation and learning to propose improved methods of managing all aspects of the project.

At a high level the project is managed by the Redevelopment Programme Board (which has a direct feed to the Trust Board). The programme is underpinned by four Work Streams with a number of Work Groups feeding into them. The Clinical Work Groups have been 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 throughout the two year development, from the inception of the OBC in September 2019. These arrangements were strengthened throughout the FBC development and will continue to be strengthened for the delivery of the main scheme. Governor and Non-Executive Directors at the Trust remain on the Redevelopment Programme Board to provide a level of scrutiny and ensure transparency throughout the development. 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.

The Redevelopment Delivery team are skilled and resourced to deliver this significant project and have a strong track record of project delivery, both on the L&D site and in other organisations. 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. The Trust's CEO is the SRO for the programme, who remains fully committed, providing leadership, drive and direction.

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.

This programme is strengthened by clear benefits that will be realised throughout the development, but with the majority of benefits being realised on completion of the project. Ultimately this is a project that will improve the estate from which patient care can be delivered, allowing the very best patient outcomes for the local community and furthermore, supporting a more sustainable future.

8 CONCLUSION



The redevelopment of the L&D site provides a substantial change to the estate and in the way that clinical services are delivered. This provides an opportunity to drive efficiencies and ensure a more sustainable future. The redevelopment described in this business case is the first phase in a series of developments that support the Clinical Vision for the health of the local population.

The redevelopment described in this business case is required to address the key clinical risks that the Trust currently faces in delivering Maternity services, Neonatal Intensive Care, Critical Care and Surgery, which all operate out of old and non-functional facilities across the site.

This FBC 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 FBC has guided the organisation through this process.

The business case has been built on widespread engagement with staff, patients and a wide range of 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 and ratified during development of the FBC. The OBC Preferred Option built 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 was identified during the OBC development and delivers significant benefits to the delivery of clinical services. This will also release the existing Maternity Ward Block to support a subsequent phase of backlog maintenance across the site in line with the Development Control Plan. This option continues to provide the best strategic fit for the organisation and the best value for money to the Trust and to the health economy.

The total scheme cost to develop the preferred option remains within the OBC allocation at £168.6m. The Trust has £118m of PDC approved following OBC approval in November 2020 and an emergency capital loan to the value of £32m. A further £18.6m has been contributed by the Trust for the enabling works. 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 FBC which include the pre-construction contract fees. The Trust has self-funded a range of projects that support the resilience and sustainability of the site; these include the Trust wide energy centre, which aims to dramatically reduce carbon emissions from the site.

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 providing a benefit: cost ratio of 5.08 against the BAU baseline. This is tested through sensitivity analysis which demonstrates that this conclusion is robust. 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 the Trust and delivers the financial trajectories for the organisation.

The New Clinical Buildings are a significant step along the pathway towards the Trust's long-term ambition of achieving Net Zero Carbon. They allow for the inclusion of both current technologies and future innovations to be incorporated, enabling the Trust to take the next steps with limited impact on operational facilities. The new buildings also respond substantially to the Modern Methods of Construction Agenda. Owing to specific site constraints and the abnormal structural loads necessitated by the design response to those constraints, the facilities are not being delivered via a volumetric modular approach. However, a target of 62% of Works value for delivery through the other MMC definitions (Manufactured & Component) has been set for the Project.

Construction is planned to start on site subject to an FBC approval, in January 2022 and will substantially complete in March 2024, with commissioning and training following thereafter. The Trust Board have confidence in the programme team who have a strong track record of project delivery and in the governance arrangements that have been established to guide the organisation through this major development, providing assurance to all stakeholders that objectives are being met and benefits are being delivered.

The Trust's Construction Partner, Kier, has delivered a number of acute healthcare facilities, most recently services at Frimley Park Hospital. Kier have a track record of delivering projects on time, on cost and to a high quality. Together, the Trust and their Construction Partner will stimulate the local economy, providing a significant amount of employment, opportunity, training and development, and ultimately adding value to society.

The Trust Board, Council of Governors, BLMK ICS and the wider community, fully support this 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			
AC	Air Conditioning	CIPs	Cost Improvement Plans
A&E	Accident and Emergency	CPD	Continued Professional Development
AEDET	Achieving Excellence Design Evaluation Toolkit	CQC	Care Quality Commission
AFC	Anticipated Final Cost	CQuOB	Clinical Quality Operational Board
AHPs	Allied Health Professional	CRB	Cash Releasing Benefits
ANNP	Advanced Neonatal Nurse Practitioner	CSF	Critical Success Factor
ASB	Acute Services Block	CT	Computed Tomography
AVFM	Absolute Value For Money	CV	Curriculum Vitae
B		CWAS	Construction Works and Services
BAU	Business As Usual	D	
BCR	Benefit Cost Ratio	DAT	Design Appraisal Toolkit
BHNHSFT	Bedfordshire Hospitals NHS Foundation Trust	DCF	Discounted Cash Flows
BHT	Bedford Hospital Trust	DCP	Development Control Plan
BLMK	Bedfordshire, Luton, Milton Keynes	DDA	Disability Discrimination Act
BME	Black and Minority Ethnic	DEC	Display Energy Certification
BMS	Building Management System	DGH	District General Hospital
BREEAM	Building Research Establishment Environmental Assessment Method	DH	Department of Health
BRM	Benefits Realisation Management	DHSC	Department of Health and Social Care
C		DQI	Design Quality Indicator
CBB	Current Baseline Budget	E	
CBS	Centrica Business Solutions Ltd	EBME	Electrical and Biomedical Engineering
CCC	Comprehensive Critical Care	ECC	Engineering Construction Contract
CCG	Clinical Commissioning Group	ECI	Early Contractor Involvement
CCS	Crown Commercial Services	ECSE	Engineering and Construction Short Contract
CDC	Capital Development Committee	ED	Emergency Department
CDEL	Capital Departmental Expenditure Limit	EDHR	Equality Diversity and Human Rights
CEO	Chief Executive Officer	EEAST	East of England Ambulance Services
CF	Cash Flow	EIA	Equality Impact Assessment
CHP	Combined Heat and Power	ELFT	East London Foundation Trust
CIA	Comprehensive Investment Appraisal	EoE	East of England
		Eol	Expression of Interest
		EPC	Energy Performance Contract
		ERIC	Estates Returns Information Collection
		ESM	Energy Saving Measures

EU	European Union	JIC	Joint Investment Committee
EWN	Early Warning Notification	K	
F		KPIs	Key Performance Indicators
FBC	Full Business Case	L	
FIP	Finance and Investment Performance	LBC	Luton Borough Council
FM	Facilities Management	LCR	Life Cycle Replacement
G		L&D	Luton and Dunstable
GDE	Global Digital Exemplar	LDRs	Local Digital Roadmaps
GIRFT	Get It Right First Time	LPHW	Low Pressure Hot Water
GMP	Guaranteed Maximum Price	LTFM	Long Term Financial Model
GSL	Government Soft Landings	M	
GPICS	Guidelines for the Provision of Intensive Care Service	M&E	Mechanical and Engineering
GVA	Gross Value Added	MES	Managed Equipment Services
H		MMC	Modern Methods of Construction
HBN	Health Building Note	MoC	Models of Care
HCA	Health Care Assistant	MRI	Magnetic Resonance Imaging
HDU	High Dependency Unit	MSA	Managed Service Agreement
HIMMS	Health Information and Management Systems Society	MSCP	Multi Storey Car Park
HIP	Health Infrastructure Programmes	MSP	Managing Successful Programmes
HLIP	High Level Information Pack	N	
HMT	HM Treasury	NCAs	Non-Contract Activity
HTM	Health Technical Memoranda	NCCR	Neonatal Critical Care Review
I		NCRB	Non Cash Releasing Benefits
ICE	Institute of Civil Engineers	NEC	New Engineering Contract
ICS	Integrated Care Systems	NHS	National Health Service
ICU	Intensive Care Unit	NHSE	National Health Service England
IFRS	International Financial Reporting Standards	NHSFT	National Health Service Foundation Trust
ISS	Incoming Sub Station	NHSI	National Health Service Improvement
IM&T	Information, Management and Technology	NICU	Neonatal Intensive Care Unit
IT	Information Technology	NPC	Net Present Cost
ITT	Invitation to Tender	NPSV	Net Present Social Value
ITFF	Independent Trust Financing Facility	NTE	Not to Exceed
ITU	Intensive Treatment Unit	NWB	New Ward Block
J		NZC	Net Zero Carbon
JCT	Joint Contracts Tribunal	O	
		OB	Optimism Bias
		OBC	Outline Business Case
		OD	Organisational Development



ODN	Operational Delivery Network
OJEU	Official Journal of the European Union
OMFS	Oral and Maxillofacial Surgery
ONS	Office for National Statistics
OPD	Outpatient Department

P

PALS	Patient Advice Liaison Service
PAM	Premises 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
PSC	Professional Services Contract
PSCM	Procurement Supply Chain Management
PSCP	Principal Supply Chain Partner

Q

QIPP	Quality, Innovation, Productivity and Prevention
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R

RAG	Red Amber Green
RIBA	Royal Institute of British Architects

S

SB	Social Benefits
SCBU	Special Care Baby Unit
SDAT	Sustainable Development Assessment Tool
SDMP	Sustainable Development Management Plan
SMEs	Small, Medium Enterprise
SOC	Strategic Outline Case
SoCF	Statement of Cash Flow
SoCI	Statement of Cash Income
SoFP	Statement of Financial Position
SSE	Scottish and Southern Electric
SRO	Senior Responsible Officer

STP	Strategic Transformational Plan
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T

TSWs	Theatres Support Workers
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U

UKPN	United Kingdom Power Network
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V

VAT	Value Added Tax
VDI	Virtual Desktop Infrastructure
VfM	Value for Money
VIE	Vacuum Insulated Evaporator

W

WAU	Weighted activity units
WTE	Whole Time Equivalent

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APPENDICES

APPENDIX 1- Management, Governance & Endorsements

Item / Description
1. Letters of Endorsement for OBC:
Letter of endorsement Project SRO
Letter of endorsement from BLMK ICS
Letter of endorsement from Medical Director
Letter of endorsement from Trust Fire Officer
Letter of endorsement from Head of Infection Prevention and Control
JIC Approval Letter - Luton and Dunstable OBC
2. Letters of Endorsement for FBC:
Letter(s) of endorsement Project SRO
Letter of endorsement from BLMK ICS dated 09/11/21
Letter of endorsement from Trust Fire Officer
Letter of endorsement from Head of Infection Prevention and Control
FBC Approval Conditions
3. Meeting Minutes:
Redevelopment Programme Team Workshop - October 2019
Redevelopment Programme Board minutes - March 2020
Redevelopment Programme Board Minutes - November 2020
Redevelopment Programme Team Minutes - November 2020
Redevelopment, FIP and Trust Board Meeting Minutes - September 2021 (FBC Approval)
4. ToR Package:
Redevelopment Programme Board
Redevelopment Programme Team
Residents Meetings
Clinical User Group ToR
5. Clinical User Groups:
Clinical Group Structures
Programme structure and governance arrangements June 2021



APPENDIX 2- Equality Impact Assessments

Item / Description

-
1. EAIA Accessible Information – Interpretation
 2. EAIA Critical Care and Theatres Acute Block
 3. EAIA Maternity Acute Services Block NWB
 4. EAIA Neonatal Acute Services Block NWB
 5. Equality Impact and Wider Considerations
-

APPENDIX 3- CIA Model and Cost Forms

Item / Description
1. CIA Model – Excel
2. OB Forms 1, 2, 3 & 4
3. FBC Forms 1, 2, 3 & 4
4. FBC Capital Cost Forms – cash flow
5. QCRA



APPENDIX 4- Stage 3 Design Package

Item / Description	
1.	Stage 3 Architectural, MEP and Structural Design Package (Includes 1:50s)
2.	HBN Derogations
3.	HTM Derogations
4.	BREEAM Assessment
4.1	BREEAM HEA 06 – Security Needs Assessment
4.2	Secure by Design Certificate
5.	LBC Planning Permission
5.1	Planning Condition Tracker

APPENDIX 5- Clinical Vision Models of Care – Workforce and Implementation Plans

Item / Description
1. Benefits and Investment Objectives
2. Benefits and Investment Table
3. Clinical Vision
4. Clinical Strategy
5. Workforce Implementation Plan



APPENDIX 6- Project Review

Item / Description	
1.	DAT Report
2.	DQI Report
3.	Gateway Review 3 Assurance STPW4b.04 Evaluation Report
3.1	Gateway Review 3 Recommendations Action Plan
4.	Integrated Assurance Approval Plan
4.1	IAAP Plan on a page
5.	Independent 3 Review of version 1.7 FBC for rebuilding LDH

APPENDIX 7- Trust and ICS Strategies

Item / Description
1. BLMK ICS Estates Strategy
2. Estates Strategy
Appendix 1: Six Facet Survey – Bedford Site
Appendix 2: Six Facet Survey – L&D site
Appendix 3: Development Control Plan (DCP) short-term – Bedford site
Appendix 4: Surgical Block Energy Performance Operational Rating 2020/21
Appendix 5: Medical Block Energy Performance Operational Rating 2019/20
Appendix 6: Maternity Block Energy Performance Operational Rating 2019/20
Appendix 7 & 7a: Draft Green Plan and Green Action plan
Appendix 8: Capital Cost Plan
3. Green Plan
4. Green Action Plan
5. LDH SDMP – Drawing LA5810-EC-SK-50-00-101 – SITE WIDE ENERGY CENTER LOAD CENTER LOCATIONS STARTING POINT
6. LDH SDMP – Drawing LA5810-EC-SK-50-00-103 – SITE WIDE ENERGY CENTER LOAD CENTER LOCATIONS COMPLETION
7. Travel Plan
8. IMT Strategy
9. Business Continuity Policy
10. Cultural and Organisation Development Strategy
11. OFR Fire Strategy
12. PAM NHS Premises Assurance Model Review 2021/22



APPENDIX 8- Specialist Equipment and Procurement Strategy

Item / Description

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1. Specialist Equipment and Procurement Strategy
 2. Equipment List
-

APPENDIX 9- The Commercial Information

Item / Description
1. Procurement Workshop Summary Paper February 2020
2. Letter to NHSE/I and DHSC 2020/2021
3. NEC4 Z Clause Comparison Table
4. Signed Professional Services Contract Cover Sheet
5. Legal Pack
6. C- Form of Contract ECC4- L&D



APPENDIX 10- Project Team Curriculum Vitae

Item / Description

-
1. Redevelopment Programme Director
 2. Deputy Redevelopment Programme Director
 3. Construction Programme Director
 4. Senior Programme Manager (Delivery)
 5. Senior Programme Manager (Operational)
 6. Specialist Advisor Support
-

APPENDIX 11- Management Templates

Item / Description

1. Project Highlight Report Template
 2. Change Request Form Template
 3. Change Log Template
 4. Risk Register Template
-



APPENDIX 12- Overall Redevelopment Programme

Item / Description

1. High-Level Summary Programme
 2. Kier PCSA Programme + Outline Works
 - 2.1 DRAFT Kier ECC Programme
 3. Programme Milestone Tracker
-

APPENDIX 13- Communications Strategy and Plan

Item / Description
1. Redevelopment Communication's Plan
2. 6 month Look ahead



APPENDIX 14- Redevelopment Programme Risk Package

Item / Description

1. Redevelopment Programme Risk Register
 2. Redevelopment Programme Issue's Register
 3. Site Redevelopment Revised Risk Governance Process
 4. Risk management strategy frameworks:
Risk evaluation and quantification matrix and Risk parameter evaluations
 5. Risk Potential Assessment
-

APPENDIX 15- Business Case

Item / Description

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1. OBC Cover Letter April 2020 Bedfordshire Hospitals NHS Foundation Trust
 2. Outline Business Case (OBC) Bedfordshire Hospitals NHS Foundation Trust 2020
 3. JIC Letter of Approval 2020
 4. Merger Business Case 2020
 5. NHSI Capital Regime Investment Annex 1: Business case core checklist
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