



**University Hospitals
Bristol and Weston**

NHS Foundation Trust

Produced on behalf of University Hospitals Bristol and Weston NHS FT by

Archus

The healthcare infrastructure specialist

Strategic Outline Case for the Marlborough Hill Development

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Document control

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Glossary of Abbreviations and Acronyms

AMU	Acute Medical Unit	HTM	Health Technical Memorandum
AQP	Any Qualified Provider	HW2	Healthy Weston 2
BAU	Business As Usual	HPB	Hepato-Pancreato-Biliary
BIM	Building Information Modelling	ICP	Integrated Care Providers
BREEAM	Building Research Establishment Environmental Assessment Method	ICS	Integrated Care System
CAMHS	Child And Adolescent Mental Health Services	IDM	Investment Decision Maker
CCG	Clinical Commissioning Group	IP	Inpatient
CEPOD	Confidential Enquiries into Perioperative Deaths (Dedicated Theatre List for Emergencies)	IT	Information Technology
CIA	Comprehensive Investment Appraisal	JSNA	Joint Strategic Needs Assessment
CLCC	CCG Clinical and Lay Commissioning Committee	JAG	Joint Advisory Group
CRB	Cash Releasing Benefits	LA	Local Authority
C&S	Civil and Structural	LTP	Long Term Plan
CSF	Critical Success Factors	LEF	Local Estates Forum
CT	Computed Tomography	M&E	Mechanical and Electrical
CQC	Care Quality Commission	MMC	Modern Methods of Constructions
DC	Day Case	MRI	Magnetic Resonance Imaging
DHSC	Department of Health and Social Care	NCRB	Non-Cash Releasing Benefits
DQI	Design Quality Indicator	NHSEI	National Health Service England Improvement
ED	Emergency Department	OBC	Outline Business Case
ENT	Ear, Nose and Throat	OMFS	Oral and Maxillofacial Surgery
ERIC	Estates Return Information Collection	OPAU	Older Persons Assessment Unit
EPSG	Estates Prioritisation Steering Group	P22	ProCure22
FAC	Fundamental Assessment Criteria	P23	ProCure23
FBC	Full Business Case	PAM	Premises Assurance Model
FFT	Friends and Family Test	PCR	Project Completion Report
GI	Gastrointestinal	PFI	Private Finance Initiative
GP	General Practitioner	PPE	Post Project Evaluation
HBN	Health Building Note	PRINCE2	Projects In Controlled Environments
		PSCP	Principal Supply Chain Partners
		PUBSEC	Public Sector Price and Cost Indices
		QALY	Quality Adjusted Life Years
		QDU	Queens Day Unit

QIPP	Quality, Innovation, Productivity and Prevention	SOC	Strategic Outline Case
UEAC	Urgent Emergency Assessment Centre	SRO	Senior Responsible Officer
RAG	Red Amber Green	SSS	Somerset Surgical Service
RTT	Referral to Treatment	STAU	Surgical and Trauma Assessment Unit
SDAT	Sustainable Development Assessment Tool	STP	Sustainability and Transformation Partnership
SLT	Senior Leadership Team	UGI	Upper Gastrointestinal
SMART	Specific, Measurable, Achievable, Realistic, And Timely	VFM	Value for Money

1 Executive Summary

1.1 Overview

This Strategic Outline Case (SOC) has been developed following the feasibility study in September 2020, formerly known as Urgent Emergency Assessment Centre (UEAC), now referred to as Marlborough Hill Development at University Hospitals Bristol and Weston NHS Foundation Trust (UHBW). Other supporting documents for this SOC include the 'Estates Strategy' (Appendix 1), 'Theatre Expansion 2019 Internal Business Case' (Appendix 2), 'Strategic Capital Review' (Appendix 3) completed by Archus in 2021 and internal business case 'Adult Emergency Floor including Radiology' (Appendix 4) also completed in 2019.

Following the Senior Leadership Team (SLT) meeting in August 2020, where the Feasibility Study options were reviewed, the optimum design for the Marlborough Hill site was identified to be further investigated at SOC.

This SOC explores the opportunities for development on the Marlborough Hill site to address known risks within the organisation. Resulting from this, the following options will be explored

- Transfer of the Adult Emergency Department (ED) from its current estate in the Queen's Building, releasing space adjacent to the Children's Hospital for potential expansion;
- Provision of emergency connections with the existing Queens Building;
- Construction of 3 new assessment units, to accommodate the Acute Medical Unit (AMU), Older Persons Assessment Unit (OPAU) and Surgical and Trauma Assessment Unit (STAU). This will release capacity in some of the existing inpatient areas, which are in poor condition and inflexible in design;
- Provision of supporting facilities, including radiology;
- Provision of fit for purpose theatres on the Bristol site, along with rightsizing facilities to match current and future demand;
- Construction of a new JAG compliant Endoscopy department, with the potential to release capacity in the Queens Day Unit (QDU).

There is a clear rationale for this scheme which fits within the wider system wide clinical and operational requirements, strategic development objectives and clinical drivers. The project fully aligns with the Trust and local strategies, such as the **BNSSG Integrated Care System** (ICS) and **Healthy Weston 2** (HW2) and addresses the growing demand on emergency and elective services with the development at Marlborough Hill being a significant proposal within the UHBW strategic capital programme, representing the last significant development in the 20-year programme for the a constrained city-centre site.

Key priorities and challenges for UHBW that directly drive the proposals of this scheme include:

- Providing modernised, rightsized city centre adult urgent and emergency assessment and admission facilities to deliver innovative models of care as part of a system solution and address the current Adult ED environment as unfit for purpose and adding to performance challenges i.e. ambulance handover times, national league table position, 4 hour and 12 hour waits and elective recovery;

- Providing timely and responsive treatment for our populations by addressing high risks associated with poor environment and out of date facilities for staff and patients across Bristol sites.
- Creating space within the existing estate to enable the expansion and renovation of the Bristol Royal Hospital for Children to create the capacity and timely patient pathways for paediatric population across the south-west.
- Provide recurring system elective capacity, particularly relating to complex cancer and cardiac surgery and to endoscopy within JAG compliant facilities, to reduce waiting lists and maintain appropriate waiting times.
- Addressing the poor condition and lack of suitable theatres, that are contributing to elective waiting lists and constraining backlog recovery and the strategic ambitions of the Trust to drive regional/tertiary service delivery and growth.
- Improving the poor working environment in theatre and endoscopy facilities where evidence demonstrates impact on staff health and well-being and consequent impact on retention and recruitment.
- Addressing the challenges faced within the current environment and facilities and their impact on staffing efficiencies, patient pathways and opportunities for co-locations or adjacencies;
- Addressing delayed discharge
- **Creating space within the existing estate to enable the expansion and renovation of the Bristol Royal Hospital for Children to create the capacity and timely patient pathways for paediatric population across the wider system.**

To proceed to Outline Business Case (OBC), approval of this SOC is sought internally from:

- Marlborough Hill Project Board;
- Strategic Estates Development Programme Board
- Capital Programme Steering Group
- Executive Committee
- Finance and Digital Committee;
- Trust Board.
- Council of Governors.

External approval will also be required throughout the system, following review by System Directors of Finance (DoFs) via Integrated Care Board (ICB) Finance, Estates and Digital Committee, the Integrated Care Board and following their approval, the SOC will then be submitted to NHS England (NHSE) and HM Treasury.

1.2 Strategic Case

1.2.1 Introduction

UHBW is the newly merged Trust comprising University Hospitals Bristol NHS Foundation Trust and Weston Area Health NHS Trust. Bringing together a combined workforce of over 13,000 staff, the new Trust delivers over 100 different clinical services across 10 different sites serving a core population of more than 500,000 people and for a range of tertiary services, serving a wider population across the South West region

The ***UHBW Trust Vision for 2025*** is focussed on:

- Building on our role as a major specialist service centre, leading in the South West;
- Improving population health through integrated care partnerships;
- Be a beacon of excellence for education;
- Be a world class clinical research and innovation centre;

The Trusts' mission is to improve the health of the people they serve by delivering exceptional care, teaching and research. Building on the impressive track record of investment in hospital facilities, completing in September 2019, the Trust approved funding for a major five-year strategic investment programme. This is currently progressing a number of schemes across the main hospital campus.

The Estate strategy was developed in parallel with strategies for clinical services, people, digital technology, improvement and innovation, finance, quality and communications. The purpose of the estate strategy is to provide enabling support to the delivery of the Trust clinical strategy. It considers site planning options for a range of service delivery proposals and aims to ensure that the use of the limited available site capacity is used in an efficient way. In addition to this careful planning of site options, lessons learned from the Covid-19 pandemic are being considered and incorporated into new hospital designs, for example buildings require flexible as possible design, to better respond to future pandemics and/or changes in demand.

The Trust Feasibility Study and this Strategic Outline Business Case (SOC), focus on the case for change including clinical and strategic drivers for the project, a cost summary, detailed site analysis and overall, recommend a preferred way forward to provide a sound basis for the proposed reprovision of Adult ED, Theatres, Endoscopy and other supporting services.

As previously outlined in the overview and within the management case, the SOC will be submitted for approval to the required internal and external stakeholders and approving bodies. BNSSG ICS have not yet directly been required to support or input into this business case, however, this scheme aims to support the needs of the local population, in line with local plans. Commissioners will need to be consulted and provide approval for both Outline Business Case (OBC) and Full Business Case (FBC) stages.

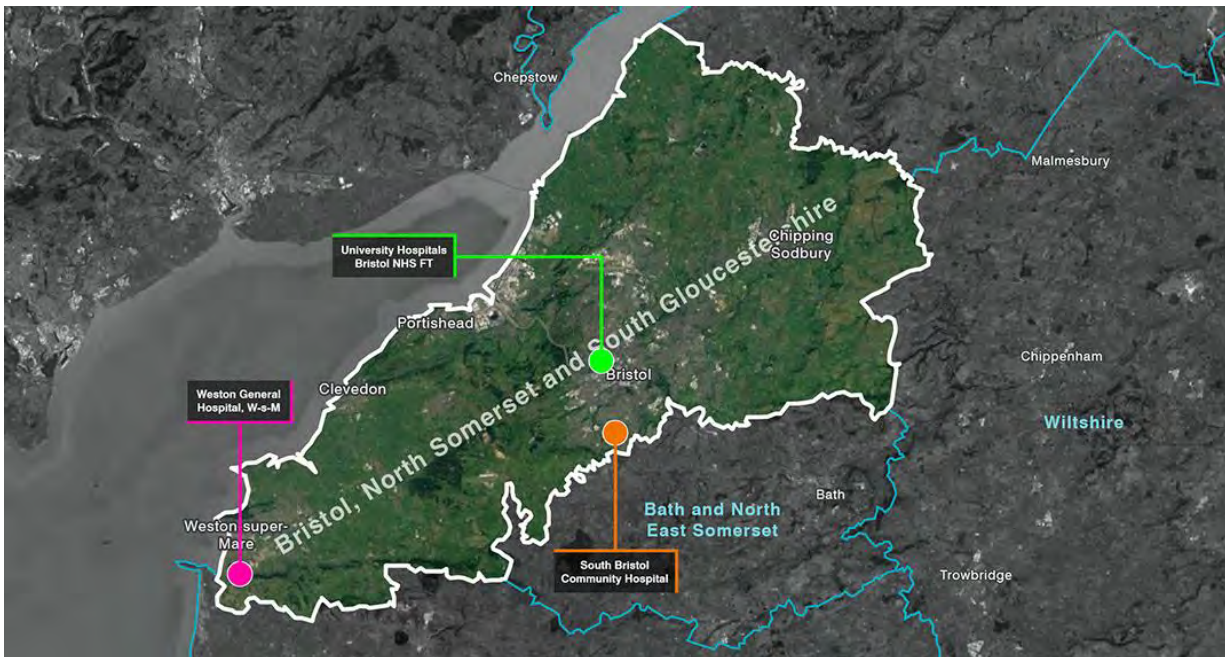
1.2.2 Health System Overview

In reviewing the population that impacts the future requirements of UHBW it is necessary to look at the wider geographic area, related to the Bristol, North Somerset and South Gloucestershire ICS, of which the catchment area is shown in Bristol itself is a diverse city with thriving and growing communities, but also with areas of deprivation, and is understood in terms of three localities i.e. Inner City and East, North and West and South Bristol. The other localities within BNSSG ICS include North Somerset, Woodspring, Weston and Villages and South Gloucestershire.

Figure 1.

Bristol itself is a diverse city with thriving and growing communities, but also with areas of deprivation, and is understood in terms of three localities i.e. Inner City and East, North and West and South Bristol. The other localities within BNSSG ICS include North Somerset, Woodspring, Weston and Villages and South Gloucestershire.

Figure 1 – BNSSG Catchment Area and main UHBW hospital sites



Based on the most recent data from the Office of National Statistics (ONS) population projections (2019), it is forecast the BNSSG population will grow by 16% between 2019 and 2040. This clearly indicates demand on health services will continue to increase and we know within BNSSG, there are complex health needs, such as cancer, heart disease, stroke, liver and lung disease. There are also serious social factors affecting people's health in the Bristol area, for example, councils across BNSSG report a high level of 'homeless households'.

Across BNSSG there is unwarranted variation in service access and provision, indicating that the population are not being provided for in the best way possible. Inequalities can have very real and serious consequences and there is an average life expectancy gap of around six years between people living in the most and least deprived areas, in the worst areas this can be as much as 15 years. Working together across public sector organisations is essential if this unacceptable variation is to be addressed. The Marlborough Hill development aims to better meet population need for acute health care in an accessible city centre location by repurposing and increasing capacity in line with growing demand, particularly within Adult ED, Theatres and Endoscopy services.

1.2.3 Strategies

There are various national, local and regional strategies, which relate directly to this scheme, outlined within this section.

National Strategies

The *NHS Long Term Plan (LTP)*, published in January 2019, sets out five major, practical changes to the NHS service model, to be delivered over the following five years:

- Boosting 'out-of-hospital' care, and joining up primary and community health services;
- Redesigning and reducing pressure on emergency hospital services;
- More personalised care to give people more control over their health when they need it;
- Digitally enabled primary and outpatient care;

- Increasing focus by local NHS organisations on population health and local partnerships with LA-funded services, through Integrated Care Systems (ICS).

The plan builds on the policy platform laid out in the previous *NHS Five Year Forward View* (5YFV), which articulated the need to integrate care to meet the needs of a changing population.

We are the NHS: People Plan 2020/21

An Interim People Plan (IPP) was developed in 2019, setting out the vision for people who work for the NHS to enable them to deliver the LTP. Following the COVID-19 pandemic this has been further developed and refined into two key documents for NHS workers; the NHS Our People Promise and the We are the NHS: People Plan 2020/21.

NHS National Patient Safety Strategy

Published in 2019, the NHS National Patient Safety Strategy aims to continuously improve patient safety. To do this the NHS will build on two foundations: a patient safety culture and a patient safety system. Three strategic aims will support the development of both:

- Improving understanding of safety by drawing intelligence from multiple sources of patient safety information (Insight);
- Equipping patients, staff and partners with the skills and opportunities to improve patient safety throughout the whole system (Involvement);
- Designing and supporting programmes that deliver effective and sustainable change in the most important areas (Improvement).

Delivering a “Net Zero” NHS

In October 2020 the NHS published the *‘Delivering a Net Zero National Health Service’* in response to the health emergency that climate change will bring. More intense storms and floods, more frequent heat waves and the spread of infectious disease from climate change threaten to undermine years of health gains.

The four key aims of the UHBW Sustainable Development Strategy (Appendix 6) are summarised as:

- Carbon neutral by 2030; benchmarked against UHBW’s operating expenditure;
- Contributing to all the UN Sustainable development Goals; benchmarked by achieving 70% rating in the UHBW Sustainable Development Assessment tool by 2025;
- Cutting air pollution; benchmarked by achieving excellent rating on the Clean Air Hospital framework by 2025;
- Resource efficiency; zero waste to landfill by 2025 and reducing our consumption of energy and water.

All of the above can be strongly linked to the Marlborough Hill Development benefits e.g. cutting air pollution links to the reducing ambulance emissions outside A&E and carbon neutral by 2030/resource efficiency links to the modern methods of construction and new build ‘fit for purpose’ development.

Health Infrastructure Programme (includes the New Hospital Programme)

The Department of Health and Social Care (DHSC) published the Health Infrastructure Plan (HIP) in September 2019. HIP is designed to deliver a long-term, rolling programme of investment in health infrastructure.

At the centre of the HIP is a new hospital building programme, to ensure the NHS' hospital estate supports the provision of world-class healthcare services. Under this approach, the Government has committed to build and fund 40 new hospitals over the next 10 years. In October 2020 the government confirmed that 40 hospitals will be built by 2030 as part of a package worth £3.7 billion, with eight further new schemes invited to bid for funding.

In relation to this SOC, an expression of interest was submitted in September 2021, further detail can be provided upon request and further confirmation of funding will be explored at OBC.

The Naylor Review

The Naylor Review, undertaken in 2017, identified that the NHS estate and its correct management and use would be key to delivering the NHS LTP. Sir Robert Naylor's 'NHS Property and Estates: Why the estate matters for patients' sets out the vision for how the NHS could make best use of its estate and provided the government with recommendations to take the vision forward.

The Carter Report

Lord Carter of Coles' report sets out how non-specialist acute trusts can reduce unwarranted variation in productivity and efficiency across every area in the hospital, to save the NHS £5 billion each year by 2020/2021. The final report builds on the findings of the interim report and sets out further findings of variation across 32 non-specialist acute trusts.

As part of the review, a 'Model Hospital' reporting system has been developed which advises NHS trusts on the most efficient allocation of resources and allows hospitals to compare and measure their performance against other peer organisations.

The Government Construction Playbook

The Construction Playbook (Dec 2020) sets out key policies and guidance for how public works projects and programmes are assessed, procured and delivered. Overall, the playbook is a 'compact' between government and industry setting out how they will work together in future. The key aims of which are to, enable projects to improve building and workplace safety, work towards the 2050 net zero plan and promote social value.

For further information use this link: [The Construction Playbook – December 2020 \(publishing.service.gov.uk\)](https://publishing.service.gov.uk)

Modern Methods of Construction

As noted in section 2 and 4.3 of the Commercial Case in greater detail, MMC encompass a variety of prefabricated and / or modular initiatives, which can be used singularly or in combination depending upon the requirements of the project and can also be used in conjunction with traditional methods of construction where these are more suitable. The benefits of an MMC approach include a reduction in programme on site leading to earlier first patient/treatment dates.

Repeatable areas such as wards, outpatient rooms and similar departments are ideal for a modular solution, whilst it is recognised that areas which require high degrees of structural stability, such as imaging, are potentially best built traditionally. Hybrid approaches are also available which combine concrete cores and lower floors to provide stability for sensitive areas together with mass repeatable areas of modular and / or panelised construction for upper floors and other areas.

SMART / Intelligent Hospitals

A “smart building” is one in which the central ICT infrastructure provides the hub or spine upon which other interoperable open-source systems connect and exchange data related to the management and / or use of the building.

The Intelligent Hospital principle has been introduced to support delivery of facilities via MMC and streamline design to ensure maximum value for money via the procurement process. It is not a ‘one size fits all’ template approach.

NHS Digital Blueprint

The NHS Digital Blueprint establishes a set of design principles to ensure digital technology and data is considered at every stage of the design and build process. It is informed by local and international best practice, maximising safety, quality and productivity benefits in addition to delivering integrated care widely across different care settings. It’s essentiality unifies NHSX, the HIP digitally advanced hospital projects, and industry, as a collective to deliver world-class, digital first, digitally advanced facilities.

Local Strategies

Bristol One City Plan

The One City Plan includes a vision for health and wellbeing, redesigning the city for healthier living, giving people more choice about how they access health and care services, personalised medicine, the eradication of obesity and taking a holistic approach to health and wellbeing, which also includes schools, businesses, faith groups, charities, clubs and our communities, as well as existing health and social care services.

Healthier Together

Healthier Together is the ICS for Bristol, North Somerset and South Gloucestershire, which involved 10 local health and care organisations. The main purpose of Healthier Together is to enable these organisations to work together towards creating an integrated care system for the population that is affordable and sustainable. The ICS are currently developing a long-term strategy with a focus on the following 5 areas.

ICS Elective Recovery

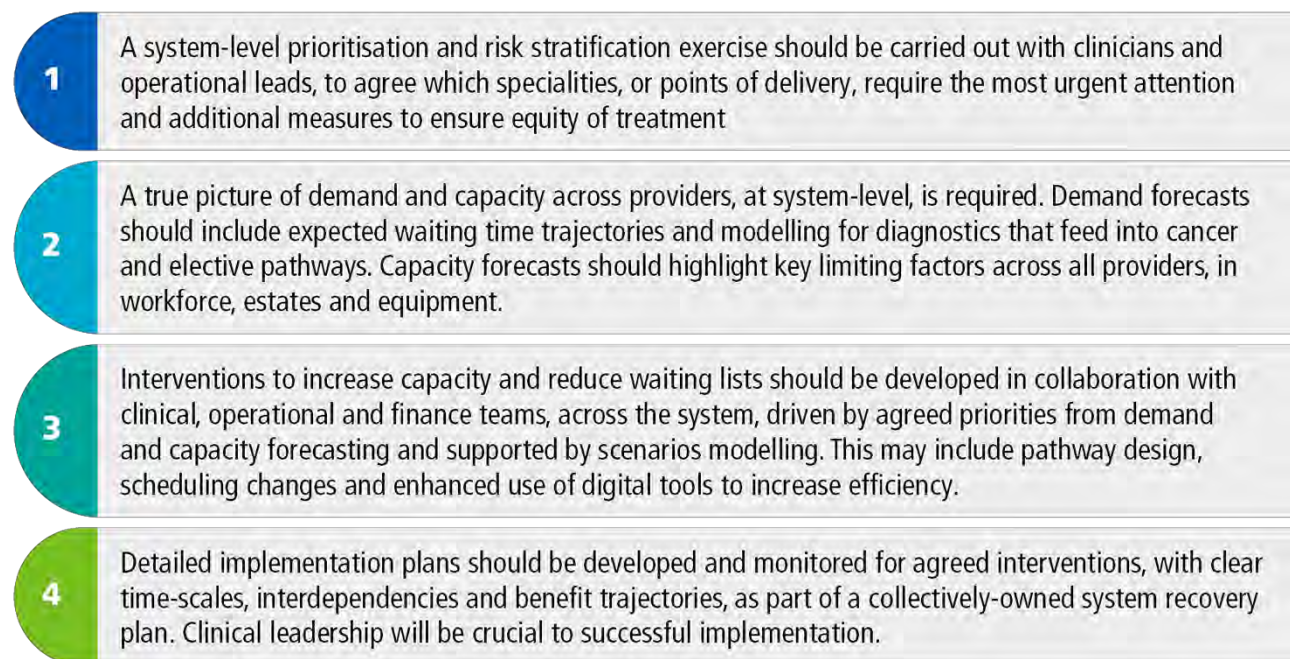
Embracing and building upon the momentum of collaboration created during the pandemic and a continued focus on developing and sharing innovative ways of working will be key to recovering waiting times as quickly as possible and minimising the risk of further harm to patients.

Of the 5.3m of consultant-led elective patients (May 2021), 336,733 have been waiting for more than a year, compared to less than 2,000 before the start of the pandemic¹. With waiting lists at this already unprecedented level, there is also a concern that a reduction in the number of people seeking medical advice during the pandemic could result in additional pressures, e.g. Cancer Research UK estimates that between March 2020 and February 2021, urgent suspected cancer referrals were 15% (total of 430,000) lower than the previous year².

To add to the challenge, the NHS workforce and its long-term sustainability is a cause for concern. Many of those working in critical care have been showing signs of anxiety and post-traumatic stress disorder (PTSD). 80% of nurses responding to the Nursing Standard survey in November 2020 reported that their mental health had been affected during the pandemic.⁵ It is therefore imperative that restoration plans and developments in services continue to support the health and wellbeing of staff.

Given the scale of the problem, traditional approaches to optimising efficiency within providers alone are unlikely to be enough³. The figure below highlights some of the requirements for system level change within integrated care systems.

Figure 2 – Requirements of ICSs for system level change



Clinical Strategy

The Trust clinical strategy Embracing Change, Proud to Care Our 2025 Strategy⁴ supports the health and care system with a move more towards integration and collaboration. In 2016, the Bristol, North Somerset and South Gloucestershire (BNSSG) Sustainability and Transformation Partnership (STP) was established. This has now changed and known as 'Healthier Together' (as per section 2.7.2).

1 Referral to Treatment (RTT) Waiting Times, England – April 2007 – May 2021, NHS England and NHS Improvement, <https://www.england.nhs.uk/statistics/statistical-work-areas/rtt-waiting-times/rtt-data-2021-22/>

2 Evidence of the impact of COVID-19 across the cancer pathway: Key Stats, Cancer Intelligence Team (Cancer Research UK), last updated 15/04/2021, https://www.cancerresearchuk.org/sites/default/files/covid_and_cancer_key_stats-16-04.pdf

3 NHS 2021/22 priorities and operational planning guidance, <https://www.england.nhs.uk/wp-content/uploads/2021/03/BO468-nhs-operational-planning-and-contracting-guidance.pdf>

4 Embracing change, Proud to Care – Our Strategy 2025 UHBW

UHBW have contributed significantly to leading within the STP and continue with a commitment to ensure that improving the health and well-being of the local population is a core part of strategic plans alongside the further development of specialist services such as complex paediatrics, oncology and cardiology.

Following the analysis and extensive engagement with patients and staff, reviewing successes, and understanding more about the challenges ahead, the main focus of the clinical strategy is to enable staff to provide the 'best care in the best environment'.

The Trust's current quality strategy ambitions directly support the development for a new UEAC, enabling emergency and urgent care ambitions to be achieved, and expansion and improvement so theatres are achieved meaning fewer operations are cancelled, patient wait times are reduced and patient safety is improved.

Through the Acute Provider Collaborative UHBW and North Bristol Trust (NBT) are also working together to formalise a joint system clinical strategy which will include a focus on a number of key strategies. This important collaborative approach to development of services will be likely to have an impact on elective and emergency pathways of care across the system.

Some early examples of this include the BNSSG elective care centre at Southmead Hospital to provide increased capacity and access to non-urgent care, the impact of planning for community diagnostic centres to provide increased capacity and ease of access to diagnostics across Bristol and Weston. This work will be detailed and described further in the OBC.

1.2.4 Operational Priorities

As well as the Trusts estates and clinical strategies, there are a number of key operational priorities for service delivery that are intrinsically linked to wider strategic objectives described above and also to the Covid driven backlog and subsequent 'Elective Review and Recovery' programme. The operational needs of the service need to respond to demographic growth and increasing emergency and elective demand. In order to meet these challenges, there is a growing requirement for pathways of care to be delivered differently, with more streamlined adjacencies and in an environment which supports transformation, meeting the changing health needs of the population.

The Trust's operational priorities for service delivery are fully aligned to the national requirements; to provide premises that will not only meet future service demands, but those that drive quality and allow ease of collaborative working across the ICS. Furthermore, estate changes that will allow patients to receive treatments in the right place and at the right time; directly supporting the development of new roles so that patients see the right person first time, when they need to, through ease of access, reduced wait times, and in an environment conducive to world class service and care.

The changes required in the estate have been considered based on operational priorities and the target outcomes and outputs to demonstrate how the organisations goals, values and vision fully align as a clear 'golden thread' that sits behind a series of stepped changes to deliver the sustainable, safe and high-quality environment that will be realised as a result of this project.

In line with the national standards set to tackle the backlog for elective care the Trust is required to ensure waits of longer than a year for elective care is eliminated by March 2025, ensure that long-waiting patients will be offered further choice about their care, and over time as the longest waits from over two years reduce to under one year, this will be offered sooner. Diagnostic tests are a key part of many elective care pathways, and in line with the national ambition, 95% of patients needing a diagnostic test should receive it within six weeks by March 2025.

Outside of managing this backlog the Trust has several other priorities for elective care to ensure that the increasing numbers of new patients requiring treatment can be managed effectively; by implementing new pathways of care and facilities that support services to treat more people in different ways will ensure the current waiting list does not just keep getting longer and facilities are inadequate to support the changes required.

Prioritising key treatments will also be a part of this plan; the Trust, as with many large acute hospitals are consistently seeing record levels of urgent suspected cancer referrals since March 2021, a result of people not accessing treatment during the pandemic. In line with national targets, by March 2024, 75% of patients who have been urgently referred by their GP for suspected cancer are required to be diagnosed or have cancer ruled out within 28 days. This links directly to the ambitions of the NHS Long Term Plan ambitions on facilities that support pathways of care that enable early diagnosis and effectiveness of early treatment. For patients who need an outpatient appointment, the time they wait can be reduced by transforming the model of care and making greater use of technology.

1.2.5 Existing Estate and Service Provision and the drivers for change

The Marlborough Hill site is c. 12 Hectares offers the last major zone for development of the city centre campus. It currently has a low density of historic and piecemeal development offering a unique opportunity for strategic development, expanding existing services and releasing capacity within the existing estate.

The Estate has a number of significant, longstanding and operational risks that will be addressed by this project include:

- Physical space constraints for delivering modern and timely adult urgent and emergency care services to improve patient and staff experience
- Poor condition of the theatre estate affecting safety and quality of patient care
- Unsustainable capacity to underpin the elective and planned care services to assist recovery post pandemic and meet national standards for waiting times
- Deliver the improvements required that will enable the Trust to attain the required quality standard for endoscopy JAG (Joint Advisory Group) accreditation
- Address the capacity constraints within paediatric services to improve access to care for children across the region.

Along with the need to deliver on our strategic estates plan to:

- Address high backlog maintenance costs associated with old estate
- Improve the efficiency and environmental sustainability of the ageing estates

- Enable the creation of additional theatre capacity to support a refurbishment of ageing theatres.

The site is steeply sloping and currently houses the Trust HQ, Staff Residences, Pharmacy, the Old School building and a multi-storey car park housing the transport hub for cyclists. The city centre location and proximity areas of local residential neighbourhoods requires careful planning of the site zoning and construction logistics to minimise the impact of the development both in construction and operation.

The existing buildings on the site comprise largely of support functions. Pharmacy offers clinical support function and links into the existing hospital circulation network at Level 3 whilst also receiving vehicular deliveries. The accommodation is low rise and has a high volume of road infrastructure supporting it, resulting in a low density for the city centre location. Early clearance of the site will be key to achieving the project programme. A decant strategy will be developed where necessary to ensure all accommodation can be relocated appropriately. Currently it is planned that Pharmacy will remain on site and options will be explored to locate this in an optimal position. The figure below shows the current site layout.

Figure 3 – Current site layout



CQC Inspection

The most recent CQC inspection (2021) has raised some requirements and recommendations pertaining to the current services/service areas which would be accommodated within the new build. The requirements/recommendations included items such as air quality and vehicle emissions in ambulance waiting areas, all premises and equipment backlog maintenance and infection control issues in endoscopy.

Emergency

The current ED comprises the following accommodation:

- A306 for 'Fast Flow Minors', including 11 cubicles, reception, waiting area, NHS 111 and EDST booths
- A300 for 'Majors' has 16 cubicles. eight resus, eight observation trollies, a 'fit to sit' area, security hub, mental health room, seven escalation spaces
- A302 (Reverse Queue B) accommodates four escalation or reverse queue spaces
- A303 houses the RATT (Rapid Assessment Treatment and Triage) and the Incident Triage Area, which has three trollies.

The key current challenges and limitations within the Adult ED include:

- Unsuitable environment in the BRI for delivery of modern models of care for Urgent and Emergency care – resulting in delays and poor patient flow
- Centre of site location restricts access and flexibility
- Significant infection control risks
- Layout causes significant challenges to delivering rapid services; the lack of flexible space and assessment beds means that admissions are often not avoided
- Lack of capacity causing ambulance queues and there are consistent performance issues, such as the 4-hour wait not being met
- Arrangement currently not fit for purpose; staff inefficiency due to location, inflexible spaces (no universal cubicles); significantly affecting staff and patient experience
- Opportunities for key vulnerable groups such as those with mental health issues and patients with learning disabilities are not assessed and cared for in an appropriate environment
- These challenges have also been highlighted by multiple reviews and improvement inputs by NHSE teams e.g. Emergency Care Improvement Support Team (ECIST)

Radiology

The current coadjacent radiology services (with ED) are as follows:

- One CT room shared with inpatients/ITU
- Radiology reporting hub
- supported by office and seminar room accommodation.
- Three plain imaging rooms (one currently not functioning)

Current challenges within Radiology include:

- Backlogs in treatment and poor patient flow causing delays in care
- Physical capacity leading to clinical quality and safety concerns
- Poor equipment availability i.e. 1 plain imaging room not currently working
- Lack of dedicated CT, increasing emergency and elective &/ outpatient waiting times.

AMU, OPAU, STAU and SDEC

- **AMU** (Acute Medical Unit) current layout includes ward A515, which is the main assessment unit, with 25 beds and 3 escalation trollies and ward A518, which is the short stay unit for stays less than 72 hours and has 14 beds.
- **OPAU** (Older Persons Assessment Unit) is solely based in A400, which is a 30-bed ward, with four escalation trollies.
- **STAU** (Surgical Trauma Assessment Unit) current working capacity includes 23 beds, three assessment area trollies (open 07:00–22:30), with capacity to isolate one patient and 6 assessment areas chairs (open 07:00–22:30). There is no escalation or boarding capacity on the unit currently.
- **Medical SDEC** (Same Day Emergency Care) currently uses A307 and has 8 cubicles, 1 triage room, 1 reception desk, 1 waiting room.

The key current challenges and limitations within AMU, OPAU, STAU and SDEC include:

- Recurring capacity constraints being driven by demographic growth, changes in the times of presentation, increasing acuity, increasing age profile and increased number of complex patients and mental health concerns
- Layout constraints of the departments cause diseconomy and complexity of staffing
- Constraints of the environment impede effective delivery of the acute medical and frailty model with consequent impact on reductions in length of stay to accommodate increased demand productively and to enact the Healthy Weston system vision
- Poor environment requiring upgrade across many areas with layouts causing difficulties to delivery of rapid turnaround services

Theatres and Endoscopy

The Trust has a total of 39 operating theatres split across 10 theatre units and 7 hospital sites including the Bristol Royal Infirmary (BRI), St Michaels Hospital (STMH), the Dental Hospital (BDH), the Eye Hospital (BEH), South Bristol Community Hospital (SBCH), Bristol Royal Hospital for Children (BRHC) and Weston General Hospital (WGH).

In addition, the Trust has 8 endoscopy rooms split across three sites (BRI has 4, SBCH has 2 and WGH has 2) that are used exclusively for adult patients. Paediatric endoscopy activity is undertaken in BRHC theatres as patients receive a general anaesthetic.

Current challenges and limitations within the Theatres and Endoscopy estate include:

- Aging, unreliable and poor ventilation within theatres and lack of flow (currently only 2 laminar flow theatres);
- Poor electrical resilience of supporting power supply systems for theatres;
- Inadequate number of endoscopy rooms to cope with demand and loss of JAG compliance due to environmental issues;
- Poor equipment provision within both main theatres and endoscopy;
- Distributed clinical model of theatres;
- Structural limitations of buildings where theatres are located;
- General poor condition of theatres including scrub areas, lighting, inadequate radiation protection, poor temperature regulation

- Lack of emergency call system in STMH theatres;
- A risk that there is inadequate BRI operating availability and timely access to HDU.

The issues above result in:

- Recurring theatre capacity deficits in a number of specialities causing poor access, and challenges to quality and performance
- Endoscopy capacity gap, this is predicted to widen further with the known and expected growth
- High levels of cancellations, poor staff recruitment and retention and poor performance against quality indicators
- Specific issue relating to complexity of case mix and lack of adjacencies which manifests in cancellations of high-risk cases and poor patient experience
- Strategically the above constrains the Trust's ability to innovate and develop the specialist cancer surgery portfolio

Furthermore, from an environmental issue, there are risks related to poor electrical resilience in theatres and endoscopy departments across the Trust, which have been logged on the Trust wide Risk Register. For example:

- Lack of UPS backup in BDH, BEH, HGT and QDU theatres;
- Lack of electrical resilience for known high risk clinical areas.

Immediate works were carried out by the Estates Team to mitigate immediate concerns, however, the underlying issues regarding age, condition and reliability of the systems require investment, as outlined below.

Ventilation System Review

In March 2018, the Trust commissioned an Authorised Engineer (AE) to undertake an independent, Trust-wide review of the current condition of theatre ventilation systems. The review found that a number of elements tested, either had significant issues or were rated as critical. In response to this survey, the Estates team undertook some minor works to the ventilation systems to address immediate concerns. Although these works addressed the immediate risk of ventilation system failure, they did not resolve the underlying issues regarding the age, condition and reliability of the systems.

Electrical Resilience

In April 2018, the Trust also commissioned an independent review of its electrical resilience systems supporting our operating theatre estate. This report identified a number of areas where the existing UPS (uninterruptable power supply) and IPS (instant power supply) resilience requires improvement to mitigate risks associated with interruptions to electrical power supply. Following the review, the Estates team undertook works supported by capital investment to resolve immediate concerns and risks.

1.2.6 Activity, Capacity and Demand

In July 2021, Archus submitted their Strategic Capital Review to the Trust, of which the key objective was to support the Trust in reviewing the Strategic Capital Programme. Three of the main activities were:

- a) Collating the capacity requirements across the range of proposed schemes and service developments;
- b) Testing anticipated capacity and demand requirements, based on a consistent set of assumptions across the existing business cases;
- c) Outlining and evaluating a range of scenarios, based on the scope of the schemes in the programme and the available physical estate options, to deliver the required benefits of the overall programme.

A demand and capacity model was created using the Trust's baseline data, using agreed demographic and non-demographic factors. The outcome was a series of projections of the future activity and capacity requirements at 5-, 10- and 20- year periods for:

- Emergency department and non-elective services
- Elective services
- Paediatric services
- Ophthalmic services
- Oncology and Haematology.

Completion of the demand and capacity model enabled a review of the business cases to test the activity, assumptions and capacity projections against the model findings. For a full list of business cases reviewed please see [Appendix 3; Strategic Capital Review].

The review looked at the potential impact of any clinical mitigation and innovation opportunities, specifically looking at how services can be delivered differently to reduce the demand on physical space, which will have to be adopted as the Trust moves forward with its strategic planning. Schedules of accommodation were produced for all functional content, resulting from the activity and capacity modelling. These schedules were then used by BDP for the current functional content shown in the UEAC Feasibility [Appendix 7].

Following the conclusions of the report, it became clear the Adult ED requirement could not easily be accommodated in the current core site and its relocation to the Marlborough Hill is therefore the "key-stone" to unlocking capacity across the rest of the site for service strategic developments for the Trust.

1.2.7 Investment Objectives

NHSE's recommended SMART objective plan to ensure that project objectives are:

- **Specific:** Focus precisely on what is required.
- **Measurable:** Ensure set objectives can be measured to determine the scheme's success.
- **Achievable:** The objectives set are agreed by all and attainable.
- **Realistic:** The project is realistic in its completion for all stakeholders involved.
- **Time Constrained:** The project can be achieved in its set and agreed timeline.

The Project Team have agreed the following spending objectives with corresponding baseline measures:

Table 1 – Investment/Spending objectives, measures and associated benefits

Investment/Spending Objective	Measure	Associated Benefit
1. Create a new Adult ED/Theatres/Endoscopy facility, improving patient access to the right service in a timelier manner, working with local providers to better coordinate care, by 2030.	4 hour wait data	Improved patient access to timely and appropriate care
2. Improve and expand Adult ED/Theatres/Endoscopy, provision and support spaces, ensuring they are in line with current best practice, improving patient safety, by 2030.	Increase in number of patients seen / demand being met	Improved patient flow and experience, improved staff retention
3. To work with our system partners to improve patient experience and future proof services (including consideration of pandemic resilience and local health complexities) for the population we serve, until at least 2035.	Patient survey	Improved patient experience, meeting needs of population better
4. Create opportunities to develop improved clinical pathways and models of care, leading to better patient outcomes, by 2035.	Patient outcomes data	Improved clinical pathways for improved patient flow/experience
5. Provision of best practice JAG compliant endoscopy service to meet demand, by 2035.	Compliance inspection by JAG	Improved patient experience, improved staff retention
6. Release additional capacity to meet the Trust strategic objectives for expanding specialist services, by 2030.	Sq/m available once services have moved	Improved staff environment and therefore retention, better served population for specialist treatment
7. To put in place and maintain estates that enable the Trust to achieve compliance and conformance with modern healthcare standards and sustainability net zero carbon targets by 2030.	Backlog maintenance six facet survey	Improved staff and patient areas, sustainable future proof buildings
8. To develop services and environments staff want to work in and become an employer of choice by 2030.	Staff survey	Staff retention

1.2.8 Stakeholder Engagement

There has been some initial engagement with Trust clinical representatives in various departments of UHBW involving discussion regarding which services are to be provided within the new centre, however, furthermore detailed discussions are planned for OBC.

Development proposals have been discussed at system level via existing Chief Operating Officer forum including partners within North Bristol Trust (NBT), Bristol North Somerset and South Gloucester ICS and Avon and Wiltshire Partnership (AWP). There is broad understanding of the need for the scheme with support subject to scrutiny of the scheme by the Integrated Care Board (ICB), as required.

1.2.9 Local Sensitivities

The city centre location and proximity areas of local residential neighbourhoods requires careful planning of the site zoning and construction logistics to minimise the impact of the development both in construction and operation. Modern methods of construction will be considered for use in the scheme e.g. off-site manufacture, to reduce disruption on site.

1.2.10 Integrated working

In late 2015, NHS England announced plans to bring NHS healthcare providers and commissioners, together with local authorities that provide social services, to form Sustainability and Transformation Partnerships (STPs). STPs are now known as ICS (Integrated Care System) and Healthier Together is the ICS for Bristol, North Somerset and South Gloucestershire (BNSSG). This has now been established as a statutory entity, BNSSG Integrated Care Board (ICB) following legislative changes from July 1st, 2022. The main purpose of Healthier Together is to enable these organisations to work together towards creating an integrated care system for the population, that is affordable and sustainable.

BNSSG ICS and UHBW have an ambitious vision for Weston General Hospital to lead the country as a successful small hospital delivering truly integrated, safe and high-quality services that meet the specific needs of local people, now and in the future. We will do this by working in new and innovative ways with health and care partners.

Healthy Weston Phase 2 builds on the Healthy Weston work published in October 2019, which recognised that the reforms it proposed were urgent and important, but further work was required, to deliver the vision of Weston as a dynamic hospital at the heart of its community.

Following an 8 week period of public engagement, the future vision of care at Weston Hospital has been agreed by the ICB and phased implementation plans will be developed aligned to the final stages of clinical service integration across UHBW.

1.2.11 Design Strategies

The ability to add value to a project is at its peak during the early stages of design. The design team has explored opportunities to add best practice and innovation from other projects and sectors. Design strategies include:

- Patient focussed design
- Evidence based design
- Locating cohorts of assessment beds adjacent to ED
- Flexibility
- The separation of planned and unplanned care
- Massing and site efficiency
- Connection to the city
- Maintain business as usual.

1.2.12 Equality and Diversity

As a provider of public services, UHBW has a statutory and legal duty to ensure fair and equitable treatment of all people, with respect to promoting equality as required in the Equality Act 2010, and to address health inequalities as required by the Health and Social Care Act 2012.

To ensure that the impact of our proposal is understood and that there is no adverse impact on any particular group of individuals, including those of protected characteristics and groups who may be most impacted by health inequality, an Equality and Health Inequality Impact Assessment (EHIA) will be undertaken at OBC.

1.2.13 Four Key Tests for Service Reconfiguration

Some engagement has been carried out regarding the emerging clinical model, the case for change and challenges facing the services, as well as potential solutions and service options. Further engagement and clarification of the service model, clinical pathways and models of care will be carried out at OBC. Discussions so far indicate there may be some change to the models of care and clinical pathways, with improvements expected for both staff and patients.

The proposed development will meet the four tests mandated in the “Planning and delivering service changes for service users” guidance:

1. Strong public and patient engagement.
2. Consistency with current and prospective need for patient choice.
3. Clear clinical evidence base.
4. Support for proposals from clinical commissioners.

1.2.14 Risks, Constraints and Dependencies

Risks

The main risks of this investment are shown in the risks table of this document, together with their counter mitigations. Further detail on risk, is covered in the Economic, Commercial and Management Cases.

Constraints

The Bristol campus is constrained for development, particularly around existing Adult Emergency Department and Children’s Hospital, Emergency Department, PICU, outpatients, theatres, and inpatient wards. The Trust are cognisant that they must achieve the best possible value for money in capital redevelopments and each scheme must deliver the outcomes of both estates and services objectives.

The Trust currently has a significant constraint regarding workforce i.e., recruitment and staff retention. The associated benefits of this scheme could assist with addressing these issues, but also could constrain the progression of the potential options.

The wider constraints of having poor condition and restricted capacity in theatres impacts on the Trust’s ability to provide the capacity required for the provision of specialist services to the region for complex and tertiary services

Dependencies

The cost/benefit of refurbishing and relocating departments within the existing footprint against that of new build development at Marlborough Hill has been tested at this feasibility stage. To ‘unlock’ space for developing the prioritised Strategic Estates Development list, where there are major capacity constraints including Children’s Services, development of an

Urgent Emergency Assessment Centre (UEAC), Theatres and Endoscopy facility at Marlborough Hill is the cornerstone for enabling the planned redevelopment programme.

There are a number of system wide dependencies that are reliant on this development, which include sustainable provision of specialist services, particularly oncology, cardiology and specialist paediatrics which are provided for the Southwest and beyond. Maintaining this provision as a centre of excellence for specialist services requires this development to further ensure these services are not disrupted and acute integrated care is delivered in the right place, at the right time for patients

We want to continue to be beacon for research, education and innovation

1.3 Economic Case

A longlist of options assessed against the critical success factors and investment objectives and a shortlist of four have been identified within this SOC. The long list was derived from the previous feasibility study [see appendix 7]. The shortlist has been costed and the preferred way forward includes a new build to encompass the entire Marlborough Hill site, utilising all available space, which will accommodate Adult ED, Theatres, Endoscopy suites and support functions such as Radiology, Pharmacy and assessment units.

1.3.1 Critical Success Factors

The Critical Success Factors (CSFs) are the attributes essential for successful delivery of the project against which the initial assessment of the options for the delivery of the project will be appraised, alongside the spending objectives. The CSFs for the project are crucial, not merely desirable, and not set at a level that could exclude important options at an early stage of identification an appraisal.

HM Treasury/Central Government's best practice approach suggests a standard list of CSFs, which have been employed for this project as follows:

CSF	How well the option:
1. Strategic fit and meets business needs	<ul style="list-style-type: none"> Meets the agreed spending objectives, related business needs and service requirements Provides holistic fit with other local/regional strategies/programmes/projects e.g. Healthy Weston 2, D2A business case, SDEC visions, amongst other acute collaboration programmes.
2. Potential value for money	<ul style="list-style-type: none"> Optimises social value (social, economic and environmental), in terms of potential costs, benefits and risks. Specific outcomes include for example; improved performance on LoS, 4 hour waits, 12-hour breaches, improved staffing efficiencies.
3. Supplier capacity and capability	<ul style="list-style-type: none"> Matches the ability of potential suppliers to deliver the required services Appeals to supply side
4. Potential affordability	<ul style="list-style-type: none"> Can be financed from available funds Aligns with sourcing constraints
5. Potential achievability	<ul style="list-style-type: none"> Is likely to be delivered given an organisation's ability to respond to the changes required Matches the level of available skills required for successful delivery

1.3.2 Options Framework

Methodology

In accordance with the Capital Investment Manual and requirements of HM Treasury's Green Book (A Guide to Investment Appraisal in the Public Sector), this section of the business case documents the wide range of options that have been considered that could deliver the agreed investment objectives for five categories of choice:

- Scope (service and geographical coverage).
- Solution (including services and required infrastructure).
- Service delivery (who will deliver the required services).
- Implementation (timing and phasing of delivery).
- Funding (type of funding for the investment).

The Long List and Assessment of Options

The long list must include an option that provides the baseline for measuring improvement and value for money. This option is known as 'Business as Usual'. It must also include a realistic 'Do Minimum' based on the core functionality and essential requirements for the project.

This process results in an assessment of each option in terms of how well it will deliver each investment objective and CSF and is assessed as either:



This results in an overall assessment of each option, which determines whether the option is either discounted, carried forward or noted as the preferred way forward.

The preferred way forward and options that are carried forward are taken into the short list for economic appraisal.

A high-level assessment of each of the options was undertaken by the Design Team and the Trust project team and a SWOT analysis compiled for each. In consequence to this, it was agreed that a shortlist of at least 4 should be further developed to a level of detail which would allow departmental internal arrangements, adjacencies and flows to be considered alongside engineering overlays, site 'abnormals' and cost analysis.

Long List Summary

The table below is a summary of the long list of options using the options framework.

Project	Option 1 – BAU	Option 2 – Do Min	Option 3 – Intermediate 1	Option 4 – Intermediate 2	Option 5 – Intermediate 3	Option 6 – Intermediate 4	Option 7a – Do Max (shell)	Option 7b – Do Max	
1. Service Scope <i>As outlined in Strategic Case</i>	Existing services stay as they are	Refurbish existing buildings/areas.	New build on Marlborough Hill site, linear shaped building	New build on Marlborough Hill site, creating a courtyard.	New build on Marlborough Hill site, building at front of site	Compact new build on Marlborough Hill site with street access	New build - internal access to main hospital - use whole site available space		
	Carried forward	Carried forward	Carried forward	Carried forward	Carried forward	Carried forward	Preferred way forward		
2. Service Solution <i>In relation to the preferred scope</i>	Existing services stay as they are	Increase use of existing site	Changes to existing estate			Smaller new build on Marlborough estate	Large build on Marlborough estate – phased occupancy	Large build on Marlborough estate – full occupancy	
	Carried forward	Carried forward	Discount			Carried forward	Carried forward	Preferred way forward	
3. Service Delivery <i>In relation to the preferred scope and service solution</i>	NA	Current estates and facilities teams	Procure 2022/23 framework						
		Carried forward	Preferred way forwards						
4. Implementation <i>In relation to preferred scope, solution and method of service delivery</i>	NA	NA	3-4 year phased				5 years phased (flexible use)		
			Carried forward				Preferred way forward		
5. Funding <i>In relation to preferred scope, solution, method of service delivery and implementation</i>	NA	NA	NHS Capital						
			Preferred way forward						
Conclusion	Carried Forward	Carried Forward	Carried Forward	Discounted	Discounted	Discounted	Carried Forward	PWF	

1.3.3 Shortlisted Options

In line with guidance and best practice, the business case has identified the minimum of four short listed options for further appraisal. These include:

- Business as Usual: The benchmark for value for money.
- ‘Do Minimum’: A realistic way forward that also acts as a further benchmark for Value for Money, in terms of cost justifying further intervention.
- ‘Recommended’: The preferred way forward at this stage.
- One or more other possible options based on realistic ‘more ambitious’ and ‘less ambitious’ choices that were not discounted at the long-list stage.

The options framework has been used to filter the options considered at the long-list stage to generate the potential short-list for the project, as illustrated below.

Table 2 – Options framework summary

Options	Option 1; Business as Usual	Option 2; Do Minimum	Option 3; Intermediate 1	Option 7a; Intermediate (less ambitious PWF)	Option 7b; Do maximum (more ambitious PWF)
Project Scope	Existing remains	Refurbish existing	Linear new build	New Build – use whole site	
Project Solution	Backlog maintenance	Increase use of current site	Smaller new build	Large build on MH with <u>phased</u> occupancy	Large build on MH with <u>full</u> occupancy
Service Delivery	N/A	Current Estates and Facilities	P22/P23		
Project Implementation	N/A	N/A	3-4 year phased	5 year phased (flexi use)	
Project Funding	N/A	N/A	NHS Capital		

This short list of options will have full economic appraisal as part of the Outline Business Case. It should be noted, programmes are high level at this earlier stage of design, these will be explored in more detail and reviewed at OBC stage, including implementation timeline for each option.

1.3.4 Economic Appraisal

In accordance with the Capital Investment Manual and requirements of HM Treasury's Green Book (A Guide to Investment Appraisal in the Public Sector), this section of the SOC documents the range of options that have been considered in response to the potential scope identified within the strategic case. It identifies the investment objectives, the critical success factors, and appraises each to determine the preferred way forward.

1.3.5 Capital Costs

A copy of the capital cost reports are provided in the following appendices:

- **Option 2** (Appendix 8) Capital Costs Do Min Refurb Scheme;
- **Option 7a** (Appendix 9) Capital Costs Shell Phased Scheme; and
- **Option 7b** (Appendix 10) Capital Costs Full Scheme.

At OBC stage, a capital cost form for each option will be produced.

The resulting capital costs estimates are summarised in the table below for the key areas of Adult ED, Theatres and Endoscopy. The first option (BAU) includes addressing backlog maintenance only. Option 2 and 3 are based on an incremental estimate of costs, namely option 2 includes estimated refurbishment of all areas and option 3 includes Do Minimum costs, with a limited new build. The individual new builds (options 7a and 7b) do not include backlog maintenance or refurbishment of current areas, as per the first three options.

Table 3 – Capital Costs £000s

Functional floor space req. m ²	Incremental approach to options cost development			Individual new build options	
	7,131m ²	7,131m ²	11,866m ²	18,939m ²	18,939m ²
	Option 1 BAU; Backlog maintenance	Option 2 Do Min; Refurb all areas	Option 3; Do Min + small new build	Option 7a; Do Max (shell + phased fit out new build)	Option 7b; Do Max PWF (full fit out new build)
Construction	N/A	24,067	47,674	79,061	94,430
Fees	N/A	4,813	8,496	12,477	14,729
Non works	N/A	481	953	1,581	1,889
Equipment costs	N/A	5,671	7,779	8,432	8,432
Planning contingency	N/A	5,255	7,943	9,140	10,753
Construction Subtotal	N/A	40,287	72,845	110,691	130,232
Optimism bias	N/A	6,043	8,973	9,962	11,721
Inflation adjustment & Pubsec uplift	N/A	14,188	19,545	18,212	21,427
Inflation & Opt Bias Subtotal	N/A	20,231	28,518	28,174	33,148

Functional floor space req. m ²	Incremental approach to options cost development			Individual new build options	
	7,131m ²	7,131m ²	11,866m ²	18,939m ²	18,939m ²
	Option 1 BAU; Backlog maintenance	Option 2 Do Min; Refurb all areas	Option 3; Do Min + small new build	Option 7a; Do Max (shell + phased fit out new build)	Option 7b; Do Max PWF (full fit out new build)
Total (Ex VAT)	N/A	60,518	101,363	138,865	163,379
VAT	N/A	11,141	18,573	25,278	29,730
Estimated BLM costs	2,280	-	-	-	-
Total (Incl. VAT)	2,280	71,659	119,936	164,143	193,109

For completeness and ease of reference to capital cost forms and the Financial Case, the table includes VAT and inflation adjustments. However, it should be noted that for the purposes of the economic appraisal at the later OBC stage all costs will exclude VAT and be restated at base year prices in accordance with HM Treasury Green Book guidance.

Note that:

- Option 1 is based on a pro rata cost for 7,131m², of the total UH Bristol estate 180,000m² (approx. 4%), multiplied by total UH Bristol 'Estates Backlog Maintenance' capital allocation (£57.6m), which equates to £2.28m.
- Option 2 includes estimated refurbishment costs for all areas in scope provided by the Trust Cost Advisor (£71.6m), based on 7,131m² at c.£10k per m².
- Option 3 includes the estimated refurbishment as per option 2 (7,131m²), with an additional limited new build of 4,735m², which is approx. 25% of the full new build option 7b. The approx. value of the additional 4,735m² new build is £48.3m.
- Option 7a and 7b are a replacement new build covering the same footprint of 18,939m². 7a includes fully completed construction with phased fit out, however 7b (preferred way forward) includes full construction with complete fit out for services.

1.3.6 Estimating Life Cycle Costs

Lifecycle costs for all options have been calculated by multiplying floor area information provided by Estates and the Trust Cost Advisor, by average rates contained in the latest available New Model Hospital data (2021/22), in which Hard FM costs are £70/per m².

The results are shown in the following table:

Table 4 – Lifecycle Costs £000s

Functional floor space req. m ²	7,131	7,131	11,866	18,939	18,939
	Option 1 – BAU	Option 2 – Do Min (BAU + Refurb)	Option 3 – Do min + limited new build	Option 7a; Do Max (phased new build)	Option 7b; Do Max PWF (occupied new build)
Lifecycle Costs	499	499	831	1,326	1,326

1.3.7 Estimating Non-Recurring Revenue Costs

None identified at this SOC phase, these will need to be identified at OBC/FBC stage.

1.3.8 Estimating Recurring Revenue Costs

Recurring Revenue costs are yet to be fully scoped however indicative costs have been sourced for the functional departments based on 2021/22 BAU costs, while ERIC data for the Trust has been used to derive annual costs by floor area for ancillary services. The resulting recurring revenue cost estimates and sources are summarised below.

Table 5 – Recurring Revenue Costs 000's

Functional floor space req. m ² / Department	ERIC data - Annual £/m ²	Incremental approach to options cost development			Individual new build options		Source data 2021/22
		7,131m ² Option 1 – BAU	7,131m ² Option 2 – Do Min (BAU + Refurb)	11,866 m ² Option 3 – Do min + limited new build	18,939 m ² Option 7a; Do Max (phased new build)	18,939 m ² Option 7b; Do Max PWF (occupied new build)	
Emergency		7,549	7,549	10,515	11,863	11,863	Cubicles
AMU		6,007	6,007	6,007	6,007	6,007	BAU data
OPAU		3,898	3,898	3,898	3,898	3,898	" "
STAU		2,877	2,877	2,877	2,877	2,877	" "
Theatres		4,930	4,930	6,902	7,888	7,888	Rooms
Endoscopy		16,610	16,610	23,531	27,683	27,683	Rooms
Pharmacy		0	0	0	0	0	N/a
Hard FM	70	499	499	831	1,326	1,326	ERIC
Catering	25	175	175	292	466	466	"
Cleaning	49	348	348	579	925	925	"
Energy	27	189	189	315	503	503	"
Laundry	7	51	51	84	134	134	"
Parking	1	5	5	8	12	12	"
Portering	21	151	151	251	401	401	"
Water/Waste	9	64	64	106	170	170	"
Total Costs		£43,353	£43,353	£56,196	£64,152	£64,152	

Points to note, on the above table:

- Option 1 is based on 2021/22 cost of current services.
- Option 2 is the same as option 1, i.e. the footprint remains the same as BAU.
- Option 3 includes 2021/22 cost of current services, plus the revenue impact of a limited new build.
- Option 7a and 7b are a replacement new build of the same footprint. 7a total annual recurrent revenue costs will be the same as 7b, once phasing of fit out is complete.

1.3.9 Efficiencies

The costings presented at this SOC stage are based upon known BAU costs and floor space requirements. It is anticipated however that as the business case is developed it will be

important to appraise the intended efficiencies. It is likely that these efficiency gains will inform the scope of the intended development and in turn the associated costs. These will be developed at OBC stage.

1.3.10 Estimating Benefits

The main benefits resulting from the investment are listed in the appended benefits log. Analysis of the monetised benefits is to be developed once costings are known at OBC.

1.3.11 Estimating Risks

The risks for each option will be assessed and, as far as possible, quantified and expressed in monetary equivalent terms, including:

- Quantified risk in relation to planning contingency included in capital cost forms;
- Optimism bias factor included in capital cost forms;
- Key project risks which have not been accounted for within capital costs.
- The main risk register for the project can be found at Appendix 12, risks specific to the options will be assessed further at OBC.

1.3.12 Comprehensive Investment Appraisal (CIA)

A CIA model has been developed to appraise the options at SOC and it also again at OBC stage once the service profile has been developed and defined benefits and risks have been identified and fully costed.

The CIA model (Appendix 13) shows for each of the options:

- Discounted costs and benefits.
- Net Present Social Values
- Cost Benefit Ratios and rankings

1.4 Commercial Case

The Commercial Case outlines the proposed procurement strategy for the preferred way forward identified in the Economic Case.

1.4.1 Procurement Strategy

For the proposed works for the preferred way forward of the scheme, the Project Board will agree a Procurement Strategy which will initially assess a wide range of potential options for securing a contractor and delivering the scheme. The procurement options available to are summarised below.

- Framework procurement (ProCure22) – the Department of Health and Social Care's (DHSC) procurement framework for healthcare related projects.
- Non-framework procurement – Traditional tender or Design and Build tender.
- Traditional Procurement – UHBW manage the design and a construction partner is appointed for development.

- The chosen procurement route by UHBW will be confirmed OBC stage, currently the SOC options appraisal shows the preferred route as ProCure22/23.
- Delivering value for money will be one of the key criteria considered when selecting the most appropriate procurement strategies to deliver the proposed development. A further detailed summary of the routes the Project Board are considering at this stage are in the below sub-section.

ProCure22 features include:

- Guaranteed Maximum Price (GMP) is based on market-tested prices and detailed design at the Full Business Case (FBC) stage
- Performance on time within budget (ability to mobilise with immediate effect)
- Sustainable supply chains
- Absence of litigation
- Open book transparency and long-term relationships
- Improved risk management
- Buying gain
- Recovery of VAT (partial)
- Cost Certainty.

1.4.2 Modern Methods of Construction

NHS England (NHSEI) with the Department of Health and Social Care (DHSS), are working on progressing the approaches used to increase the use of Modern Methods of Construction (MMC) on all business cases requiring central NHSE sign off.

As part of this, an interim draft guidance has been developed for inclusion in the NHS Capital Business Case Fundamental Criteria Checklist:

- Modern Methods of Construction (MMC) is a wide term, embracing a range of offsite manufacturing and onsite techniques that provide alternatives to traditional building and forms part of the Government's recent policy;
- In line with the Government 2019 statement – 'Presumption in Favour of MMC' DHSC and NHSE assume that all schemes start out as MMC;
- In addition to enabling a reduced on-site component assemble time, due to off-site factory production to a pre-agreed quality standard, MMC also reduces the size of on-site construction teams, disruption to site, health and safety risk and post completion defects;
- The government's Infrastructure and Projects Authority (IPA) guidance 'refers to MMC as 'smart construction' defined under three categories, which cover a range of techniques with greater levels of activity taking place off site and increased levels of standardisation, underpinned by digital design and engineering;
- Manufactured: whilst not widely used this offers the greatest opportunities to improve delivery efficiency and boost productivity;
- Volumetric: e.g., fully fitted modules;
- Components: e.g., standardised design elements (WC/shower 'pods', pre-assembled bed head services etc).

A full tender specification and pack will be appended to the Outline Business Case. A selected procurement partner will be responsible for developing the building design in accordance with all relevant NHS and strategies standards. This includes Health Technical Memorandum (HTM),

Health Building Note (HBN), Fire code and Building Research Establishment Environmental Assessment Method (BREEAM) compliance and Infection Control approach.

1.4.3 Interior Design

A building of this size and complexity will have an interior with different needs and personalities. There are big, public spaces full of activity and enlivenment contrasted by restful healing spaces.

Artwork, wayfinding and interior design must work together to create a cohesive whole. Differences in the feel of the spaces will be achieved through the intensity, extent and application of colour. Colour palettes will be developed with the Trust.

Staff and patient environment will also be carefully designed and the objectives of the interior design are:

- Visual connectivity between materials and palettes of colour used externally.
- Warm, elegant and simple palette of materials and colour.

1.4.4 Infection Control

The proposed development will be designed and configured in compliance with HBN and HTM guidance to provide clean, well-designed environments within which clinical services and procedures can be carried out safely.

Infection prevention and control measures will be designed into the new building through zoning, with appropriate clinical adjacencies to facilitate clean to dirty flows and the provision of good access for cleaning and maintenance to take place.

1.4.5 Personnel Implications

It is anticipated that there will no TUPE arrangements required as staff would not be required to transfer off the existing site. Workforce implications will be reviewed at OBC.

1.4.6 Equipment Strategy

The Project Board will develop an equipment strategy as part of the OBC process, to incorporate equipment requirements, equipment that would and would not transfer to the new premises. An equipment procurement strategy, which reflects the requirements and the associated purchase and/or lease of equipment in relation to funding arrangements is key.

1.5 Finance Case

The purpose of the finance case is to outline the financial implications of the preferred way forward and assess affordability. As such, it sets out the capital requirements and revenue consequences of the proposed scheme, along with underpinning assumptions. It outlines anticipated funding arrangements and presents the impact on the overall financial statements.

1.5.1 Capital Costs

Agreed Schedules of Accommodation and 1:500 drawings in accordance with the level that is anticipated for delivery of the preferred way forward, will require capital investment of £193.1m, based on the capital cost reported by the appointed Cost Advisors, Peninsular Projects Ltd.

Table 6 – Capital Costs £000s

	Net (£)	VAT (£)	Total (£)
Construction	94,430	18,886	113,315
Fees	14,729		14,729
Non works	1,889	378	2,266
Equipment costs	8,432	1,686	10,118
Planning contingency	10,753	2,151	12,904
Subtotal	130,232	23,101	153,332
Optimism bias	11,721	2,344	14,065
Inflation adjustment	21,427	4,285	25,712
Subtotal	33,148	6,630	39,777
Total	163,379	29,730	193,109

1.5.2 Revenue Costs

Non-Recurring Revenue Costs

No non-recurring revenue costs will be developed at OBC.

Revenue Costs

The resulting recurring revenue impacts are summarised in the table below.

Functional floor space req. m ² / Department	18,939 m ²	Source data
	Option 7b Do Max (PWF)	
Emergency	11,863	Cubicles
AMU	6,007	BAU data
OPAU	3,898	" "
STAU	2,877	" "
Theatres	7,888	Rooms
Endoscopy	27,683	Rooms
Pharmacy	0	N/a
FM	1,326	ERIC 2019/20
Catering	466	" "
Cleaning	925	" "
Energy	503	" "
Laundry	134	" "
Parking	12	" "
Portering	401	" "

Functional floor space req. m ² / Department	18,939 m ²	Source data
	Option 7b Do Max (PWF)	
Water/Waste	170	" "
Total Costs	64,152	

The indicative revenue costs of Option 7b (Do Maximum PWF 18,939m² footprint) compared to Option 1 (BAU 7,131m² footprint) equates to an increase in annual revenue of c.£20.8m.

Capital Charges

The capital charges are summarised in the following table:

Table 7 – Schedule of Depreciation Costs £000s

	Initial Investment Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Years 6 – 60	Total	Equiv. annual ave.
Total Buildings and Equipment before Impairment	193,109								
Buildings	182,992								
Impairment @ 25%	-45,748								
Buildings Net	137,224								
Depreciation (straight-line 60 years)		2,287	2,287	2,287	2,287	2,287	125,807	137,244	2,287
Equipment	10,118								
Depreciation (straight-line 10 years)		1,012	1,012	1,012	1,012	1,012	5,059	10,118	1,012
Total buildings and equip't net of impairment	147,361								
Total Depreciation		3,299	3,299	3,299	3,299	3,299	130,866	147,361	3,299

PDC dividends become payable when the asset comes into use in line with DHSC Cash Regime guidance published in April 2020.

Public Dividend Capital (PDC) dividend payments are calculated using the average cost of net relevant assets at the current standard 3.5% rate of return until it is repaid. The PDC payments are summarised in the following table:

Table 8 – Schedule of Public Dividend Capital (PDC) Payments £000s

	Year 1	Year 2	Year 3	Year 4	Year 5	Years 6 – 60	Total	Equiv. annual ave.
Buildings	4,763	4,683	4,603	4,523	4,443	121,089	144,106	2,402
Equipment	336	301	266	230	195	443	1,771	177
Total	5,100	4,984	4,869	4,754	4,638	121,532	145,876	2,579

The new capital charges may be partly offset by the depreciation and PDC interest that will be released following the removal of existing assets. This will be explored at the OBC stage.

1.5.3 Revenue Consequences

This capital investment for the preferred way forward results in revenue charges (excluding depreciation and PDC payments) of approximately £64.2m per annum compared to a BAU position of c.£43.3m, a potential increase of c.£20.8m p.a. (48% increase).

1.5.4 Impact on Statement of Comprehensive Income

- Total recurring revenue impact totalling £26.7m includes:
 - ♦ annual revenue cost increase of £20.8m;
 - ♦ depreciation of £3.3m; and
 - ♦ average Public Dividend Capital charge of £2.6m.
- Income opportunities from the new development have not been explored at this SOC stage of the business plan. The assumption is, should the SOC be supported by the ICB, the Trust will receive funding matched to the recurring revenue cost described below.

1.5.5 Impact on Statement Cashflows

The operating surplus/deficit for the Trust will be impacted by increasing cash due to the non-cash items of:

- Depreciation accounting charges £3.3m p.a.
- Impairments against buildings amount to approximately £46m.
- Anticipated PDC/cash receipt of £193.1m.
- Cashflow outflow of £193.1m as a result of investment.

1.5.6 Affordability

Delivery of the preferred way forward requires capital investment of £193.1m to be funded through the national capital funding programmes. In a scenario where national capital funding is only partly available, or not available at all, then the BNSSG ICS and its partner organisations will need to undertake a system prioritisation of providers strategic capital investment plans and subsequently agree the allocation of system CDEL and the use of provider cash funding.

Operating costs are expected to be met by the ICB and initial finding suggest will result in a net incremental increase in costs of c.£24.2m including capital charges. Annual depreciation amounts to c.£3.3m which may be mitigated by savings on the redevelopment of existing buildings. This will be explored at OBC stage.

1.6 Management Case

This section details the management arrangements, which have been put in place to ensure the successful delivery of the scheme in accordance with best practice.

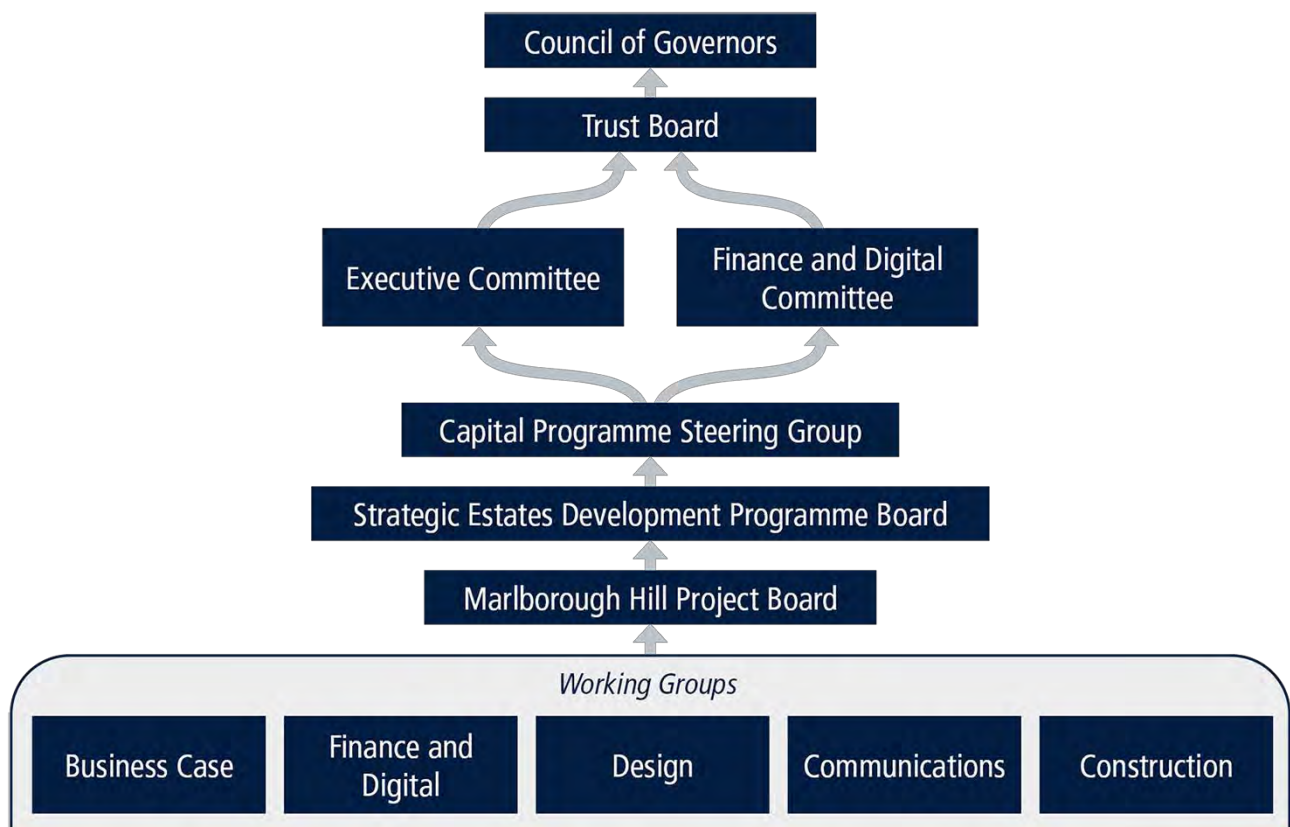
1.6.1 Project Governance Arrangements and Roles

The programme will be managed in accordance with PRINCE 2 methodology. The Strategic Estates Development Programme Board (SEDPB) has the responsibility to drive forward and deliver the outcomes and benefits of this development.

Members will provide resource and specific commitment to support the Programme Director to deliver the outline deliverables.

Project teams/working groups will feed monthly reports to the Project Manager, who will submit the monthly report for Project Board and SEDPB. These reports will include progress to date, expected progress for forthcoming weeks, decisions required, key issues/red flags, progress against project milestones. The figure below shows the management structure for the SOC stage of the development.

Figure 4 – Project Management Reporting Structure



Individual roles include

- Senior Responsible Officer is the Trust’s Strategic Capital Programme Director;
- Project Director/Manager is the Trust’s Associate Director for Capital;
- Finance Lead is the Trust’s Senior Financial Planning and Integration Consultant;
- Construction Partner is BAM and the Lead is the Trust’s Construction Director.

Special Advisors include:

- Archus UK Ltd. as business case authors;
- BAM Construction UK as construction partners;
- Alder King for Town Planning;
- BDP (Building Design Partnership Ltd) for architecture and design;
- WSP (The Williams Sale Partnership Ltd) for building services;
- Currie and Brown as cost advisors.

1.6.2 Project Plan / Programme

The key milestones relating to the business case development is shown below:

Project Milestones

Key Deliverables		Date From/To
1.	SOC submission to ICB/ICS	Dec 2022
2.	SOC submission to NHSE	Jan 2023
3.	SOC submission to HM Treasury	Aug 2023
4.	OBC submission for internal Trust approval	Aug 2023
5.	OBC submission to ICB/ICS	Sept 2023
6.	OBC submission to NHSE	Nov 2023
7.	OBC submission to HM Treasury	May 2024
8.	FBC submission for internal Trust approval	Dec 2024
9.	FBC submission to ICB/ICS	Jan 2025
10.	FBC submission to NHSE	Mar 2025
11.	FBC to HM Treasury	Sep 2025
12.	Construction Start	Apr 2026
13.	Construction end & Commissioning	Mar 2029

1.6.3 Change Control and Risk Management

Change control responsibility rests with SEDPB. A risk management framework has been implemented to provide a comprehensive risk assessment and control framework for the programme. This details who is responsible for the risks and the required counter measures.

The reporting will follow the PRINCE2 process of checkpoint, highlight and exception reports. The condition will be indicated by using red, amber or green (RAG) colour code as outlined below. The full risk register is appended to the SOC. The focus of risk management will address broadly:

- Non-delivery of project outcomes as defined in stages of the project plan;
- Threats to the completion of the project within cost and time (managed on a day-to-day basis by the members of the project delivery team).

1.6.4 Post Implementation Evaluation Arrangements

The outline arrangements for post implementation review (PIR) and project evaluation review (PER) will be established in accordance with best practice. This review ascertains whether the anticipated benefits have been delivered. The review is recommended to be timed to take place immediately after the new health centre opens and then 2 years later to consider the benefits planned.

2 The Strategic Case

2.1 Introduction

The Trusts' mission is to improve the health of the people they serve by delivering exceptional care, teaching and research, every day. Building on the impressive track record of investment in hospital facilities the Trust approved funding for a major five-year strategic investment programme in September 2019 and is currently progressing a number of new build and redesign schemes across the main hospital campus.

The Estates strategy (Appendix 1) was developed in parallel with strategies for clinical services, people, digital technology, improvement and innovation, finance, quality, and communications. The purpose of the estate's strategy is to provide enabling support to the delivery of the Trust clinical strategy. It considers site planning options for a range of service delivery proposals and aims to ensure that the use of the limited available site capacity is used in an efficient way.

This Strategic Outline Case (SOC) has been developed following the completion of a feasibility study in September 2020 for the Urgent Emergency Assessment Centre (UEAC), now referred to as Marlborough Hill Development at University Hospitals Bristol and Weston NHS Foundation Trust (UHBW). Other supporting documents for this SOC include the 'Theatre Expansion 2019 Internal Business Case' (Appendix 2), 'Strategic Capital Review' (Appendix 3) completed by Archus in 2021 and internal business case 'Adult Emergency Floor including Radiology' also completed in 2019 (Appendix 4).

Following the Senior Leadership Team (SLT) meeting in August 2020 (now known as the Executive Committee), where the Feasibility Study options were reviewed, the optimum design for the Marlborough Hill site was identified to be further investigated at SOC.

This SOC explores the opportunities for development on the Marlborough Hill site to address known risks within the organisation. Resulting from this, the following options will be explored:

- Transfer of the Adult Emergency Department (ED) from its current estate in the Queen's Building, releasing space adjacent to the Children's Hospital for potential expansion;
- Provision of emergency connections with the existing Queens Building;
- Construction of 3 new assessment units, to accommodate the Acute Medical Unit (AMU), Older Persons Assessment Unit (OPAU) and Surgical and Trauma Assessment Unit (STAU). This will release capacity in some of the existing inpatient areas, which are in poor condition and inflexible in design;
- Provision of supporting facilities, including radiology;
- Provision of fit for purpose theatres on the Bristol site, along with rightsizing facilities to match current and future demand;
- Construction of a new JAG compliant Endoscopy department, with the potential to release capacity in the Queens Day Unit (QDU).

There is a clear rationale for this scheme which fits within the wider system wide clinical and operational requirements, strategic development objectives and clinical drivers. The project fully aligns with the Trust and local strategies, such as the ***BNSSG Integrated Care System***

(ICS) and **Healthy Weston 2** (HW2) and addresses the growing demand on emergency and elective services with the development at Marlborough Hill being a significant proposal within the UHBW strategic capital programme, representing the last significant development in the twenty year programme for the a constrained city-centre site.

Key priorities and challenges for UHBW that directly drive the proposals of this scheme include:

- Providing timely and responsive treatment for our populations by addressing. The poor condition and lack of suitable theatres, that are contributing to elective waiting lists and constrain backlog recovery. As well as constraining the strategic ambitions of the Trust to drive our regional/tertiary provision.
- Improving the poor working environment in our urgent care, theatre and endoscopy facilities where evidence demonstrates impact on staff health and well-being and consequent impact on retention and recruitment.
- Adult ED unfit for purpose, adding to performance challenges i.e. ED handover times, national league table position, 4 hour and 12 hour waits and elective recovery;
- Improving ambulance handover times;
- Addressing the challenges faced within the current environment and facilities and their impact on staffing efficiencies, patient pathways and opportunities for co-locations or adjacencies;
- Addressing delayed discharge
- Creating space within the existing estate to enable the expansion and renovation of the Bristol Royal Hospital for Children to create the capacity and timely patient pathways for paediatric population across the wider system.

2.2 Approvals and Support

2.2.1 Trust Approvals

To proceed to Outline Business Case (OBC), approval of this SOC is sought internally from:

- Marlborough Hill Project Board;
- Strategic Estates Development Programme Board;
- Finance and Digital Committee;
- Executive Committee (formerly SLT); and
- Trust Board.

2.2.2 External Approvals

This scheme aims to support the needs of the local population, in line with local plans. Commissioners will need to be further consulted and provide approval for OBC/FBC stages. For SOC stage, BNSSG ICS have provided their approval for this scheme in principle [Appendix 5; letter of support].

External approval for the SOC will be required throughout the system, following review by System Directors of Finance (DoFs) via Integrated Care Board (ICB) Finance, Estates and Digital Committee, the Integrated Care Board. Following all those approvals, the SOC will then be submitted to NHS England (NHSE) and HM Treasury.

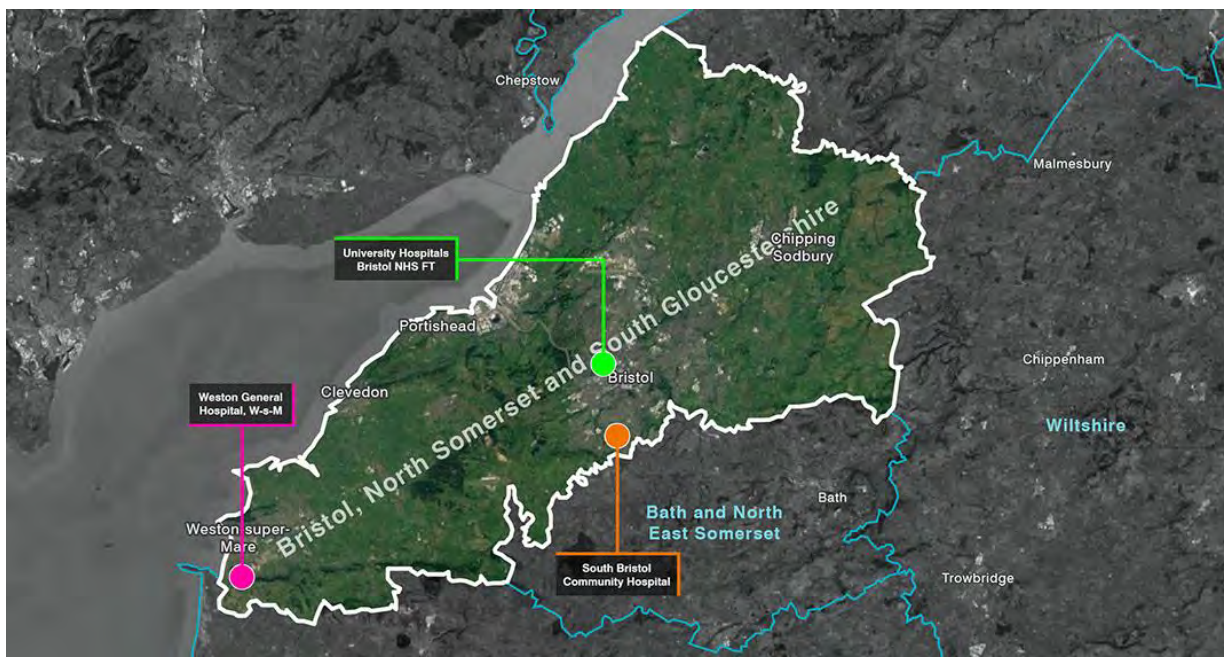
Part A: Strategic and Policy Context

2.3 Health System Overview

In reviewing the population that impacts the future requirements of UHBW it is necessary to look at the wider geographic area, related to the Bristol, North Somerset and South Gloucestershire ICS, of which the catchment area is shown in the figure below.

2.3.1 Population and locality health needs

Figure 5 – BNSSG Catchment Area and main UHBW hospital sites



Bristol itself is a diverse city with thriving and growing communities, but also with areas of deprivation, and is understood in terms of the following localities:

Inner City and East (ICE)

This area has around 175,825 residents, its diverse community has areas of high deprivation in the inner city and the highest proportions of black and minority ethnic (BAME) residents in Bristol. For example, 80% of pupils in Lawrence Hill schools are from BAME groups. In the inner city there is a rapidly growing number of children aged five and under. In East Bristol, there are growing numbers of children and a significant number of elderly people, representing a wide range of health needs.

North and West Bristol

This locality has around 207,878 residents and covers some of the most affluent parts of Bristol, where many benefit from longer life expectancy and better health. However, there is significant deprivation in some communities where people are more likely to die younger from cancer, heart disease and stroke. There is a difference in life expectancy of 9.6 years between the most deprived and the most affluent areas of this locality.

South Bristol

This area has around 171,552 residents, with the highest population concentration being found in Hartcliffe, Hengrove, Whitchurch and Withywood areas.

The mid 2016 ONS population estimates by ward shows two of the four areas within BNSSG with the greatest levels of deprivation are in Hartcliffe and Withywood. Five of the six areas with significantly higher numbers of looked after children and children currently being supported by a social care are within South Bristol (Hengrove, Whitchurch, Stockwood, Hartcliffe and Withywood). The Highest proportion of NEETs (16–17 Not in Education Employment or Training) are also found within these wards.

South Bristol has particular challenges with regard to patient access. Public transport is generally more available on North–South rather than East–West routes with the former cutting off easy pedestrian access on occasions with large busy roads. South Bristol residents are commonly agreed to be reluctant to travel to South Bristol Community Hospital.

The North Somerset and Bristol areas are shown in Figure 6 below.

Figure 6 – regions of BNSSG



North Somerset

Weston, Worle and Villages (WWV)

WWV has around 95,364 residents. Weston currently has an older demographic with pockets of significant deprivation and large health inequalities, whereas Worle has a younger population profile.

The health status of people in parts of this locality is poor compared to North Somerset overall, with about 20% reporting a long-term disability that limits day-to-day activities.

Weston–Super–Mare is undergoing a major transformation programme with significant new housing developments at Winterstoke and Parklands Villages which will result in a significant change to the population and demographic profile in the next few years.

Through the [Healthy Weston Programme](#) an opportunity exists to develop a bright future for health and care services in Weston-Super-Mare, Worle, Winscombe and the surrounding areas.

Woodspring

Woodspring has around 131,207 residents, the demographic is older with fewer young children. The health status of the population is generally good and many benefit from longer life expectancy. Even so about 17% report a long-term disability that limits day-to-day activities.

New build developments are expected near Nailsea, Yatton, Portishead and between Long Ashton and Bristol. Areas of focus are developing local solutions for isolated, frail patients and preventing ill-health and promoting well-being through patient education.

South Gloucestershire

South Gloucestershire has over 278,758 residents, it is predominately rural and most of the population live in the urban areas. The population has increased by 10% over the past decade and is projected to rise a further 17% by 2037, with the biggest increases expected in the older age groups. At least 30,000 new homes are expected in the locality planned by 2036.

The level of deprivation in South Gloucestershire is generally very low, with most areas among the least deprived nationally. However, pockets of high overall deprivation exist, and deprivation-related to access to services and education add complexity. Those living in deprived areas continue to experience comparatively poor health, with a life expectancy gap of 6.3 years for men and 5.1 for women between the 10% most and least affluent areas in South Gloucestershire.

However, overall health in South Gloucestershire is good and has been improving; life expectancy is higher than the national average and rising and mortality rates for most diseases, including cancer and heart disease, are below the national average and have fallen over the last decade.

2.3.2 Population forecasts

Working from Office of National Statistics population projections, the following tables indicate the level of growth in population for the Bristol area and for the wider BNSSG ICS.

Table 9 – Population breakdown Bristol v BNSSG areas (2019)

Area ⁵	Age Group	2019	2020	2025	2030	2035	2040
NHS Bristol ICS	All Persons	470.7	475.0	494.2	513.7	531.6	547.9
	% increase from 2019		1%	5%	9%	13%	16%
	Males	236.4	238.8	249.5	260.0	269.6	278.4
	% increase from 2019		1%	6%	10%	14%	18%
	Females	234.3	236.2	244.7	253.7	262.0	269.6
	% increase from 2019		1%	4%	8%	12%	15%

⁵ Adapted from data from the Office for National Statistics licensed under the Open Government Licence v.3.0.

Area	Age Group	2019	2020	2025	2030	2035	2040
BNSSG ICS	All Persons	972.1	980.8	1,021.9	1,061.8	1,098.1	1,131.7
	% increase from 2019		1%	5%	9%	13%	16%
	Males	483.2	487.8	509.3	530.0	548.9	566.4
	% increase from 2019		1%	5%	10%	14%	17%
	Females	143.4	144.7	151.1	157.0	162.4	167.5
	% increase from 2019		1%	5%	9%	13%	17%

2.3.3 Use and demand

Based on the most recent data from Office of National Statistics (2019) population projections, the forecast BNSSG population will grow by 16% between 2019 and 2040. This means that demand will continue to increase, and we also know, within BNSSG, there are complex health needs, such as cancer, heart disease, stroke, liver and lung disease. There are also serious social factors affecting people's health in the Bristol area, for example, councils across BNSSG report a high level of 'homeless households'.

Across BNSSG there is unwarranted variation in services access and provision, indicating that the population are not being provided for in the best way possible. Inequalities can have very real and serious consequences and there is an average life expectancy gap of around six years between people living in the most and least deprived areas, in the worst areas the difference can be as much as 15 years. Working together across public sector organisations is essential if this unacceptable variation is to be addressed. Working together across public sector organisations is essential if this unacceptable variation is to be addressed. The Marlborough Hill development aims to better meet population need for health care by increasing capacity in line with growing demand, particularly within Adult ED, Theatres and Endoscopy services.

2.4 Organisational Overview

2.4.1 University Hospitals Bristol and Weston NHS FT

University Hospitals Bristol and Weston NHS Foundation Trust (UHBW) is one of the country's largest acute NHS Trusts with an annual income of close to a billion pounds, with planned annual turnover of c.£1bn in 2022/23. The Trust provides general hospital services to the people of central and south Bristol and North Somerset. This includes a combined core population of over 500,000, with specialist regional tertiary services for the wider population throughout the Southwest and beyond, serving typically between one and five million people.

The Trust was formed in April 2020, by the merger of University Hospitals Bristol NHS Foundation Trust (UH Bristol) and Weston Area Health NHS Trust (WGH); this new organisation brings together more than 13,000 staff and delivers 100 clinical services across 10 different sites, serving a core population of more than 500,000 people and comprises a total estate of 215,624m². In support of the **UHBW Vision for 2025**, the Trust's vision includes:

- Aiming to become a major specialist service centre, leading in South West;
- Improving population health through integrated care partnerships;
- Be a beacon of excellence for education;
- Be a world class clinical research and innovation centre.

The work the Trust does, would not be possible without the support, dedication, and hard work of a range of organisations, volunteers and charities. The generosity, time and support helps the Trust provide extra equipment and facilities for patients, their families, and staff.

Each year millions of pounds are invested in projects that make a real difference to patients in the local communities. This also assists funding innovative research, support, capital projects and training of hospital staff and providing state of the art equipment. In addition to this, the Trust approved funding for a major five-year strategic investment programme in September 2019 and is currently progressing a number of schemes across the main hospital campus.

2.5 Trust Strategies and Priorities

2.5.1 Trust Mission and Vision

The Trust's mission is to improve the health of the people in the area by delivering exceptional care, teaching and research every day. The Trust vision for 2025 is to:

- Grow specialist hospital services and its position as a leading provider in Southwest England and beyond;
- Work more closely with other health and care partners to provide more joined up local healthcare services and support the improvement of the health and wellbeing of the local communities;
- Become a beacon for outstanding education and research and encourage a culture of innovation.

2.5.2 Trust Values

The Trust values are:

- We are supportive; we're always there for each other. We try and do the right thing for patients and colleagues every day.
- We are innovative; We're full of bright ideas. We're open to using research, learning and finding new ways of working.
- We are respectful; We always look for the best in people. We are inclusive, welcoming and treat everybody fairly.
- We are collaborative; We do things together. We share our experience and expertise for the benefit of the Trust and our communities.

The values support the direction the Trust wish to take with their estate and as such the Marlborough Hill Project, in particular the 'We are innovative' and 'We are collaborative' which strongly link to the local ICS and ICB plans.

2.5.3 Trust Strategies & Operational Priorities

Operational Priorities

As well as the Trusts estates and clinical strategies, there are a number of key operational priorities for service delivery that are intrinsically linked to wider strategic objectives described above and also to the Covid driven backlog and subsequent 'Elective Review and

Recovery' programme. The operational needs of the service are complicated by the demographic growth and increasing activity being seen for both overall emergency and elective demand. In order to meet these challenges, there is a growing requirement for pathways of care to be delivered differently, with more streamlined adjacencies and in an environment supports transformation and meets the changing health needs of the population.

The Trust's operational priorities for service delivery are fully aligned to the national requirements; to provide premises that will not only meet future service demands but those that drive quality and allow ease of conversion to collaborative working across the integrated care system (ICS). Furthermore, estate changes that will allow patients to receive treatments in the right place and at the right time; directly supporting the development of new roles so that patients see the right person first time, when they need to, through ease of access, reduced wait times, and in an environment conducive to world class service and care.

The changes required in the estate have been considered based on operational priorities and can be seen linked to the above outputs which demonstrate how the organisations goals, values and vision are fully aligned along a clear pathway 'the golden thread' that sits behind the stepped changes for the sustainable, safe and high-quality environment that will be realised as a result of this project.

In line with the national standards set to tackle the backlog for elective care the Trust is required to ensure waits of longer than a year for elective care is eliminated by March 2025, ensure that long-waiting patients will be offered further choice about their care, and over time as the longest waits from over two years reduce to under one year, this will be offered sooner. Diagnostic tests are a key part of many elective care pathways, and in line with the national ambition, 95% of patients needing a diagnostic test should receive it within six weeks by March 2025.

Outside of managing this backlog the Trust has several other priorities for elective care to ensure that the increasing numbers of new patients requiring treatment can be managed effectively; by implementing new pathways of care and facilities that support services to treat more people in different ways will ensure the current waiting list does not just keep getting longer and facilities are inadequate to support the changes required.

Prioritising key treatments will also be a part of this plan; the Trust, as with many large acute hospitals are consistently seeing record levels of urgent suspected cancer referrals since March 2021, a result of people not accessing treatment during the pandemic. In line with national targets, by March 2024, 75% of patients who have been urgently referred by their GP for suspected cancer are required to be diagnosed or have cancer ruled out within 28 days. This links directly to the ambitions of the NHS Long Term Plan ambitions on facilities that support pathways of care that enable early diagnosis and effectiveness of early treatment. For patients who need an outpatient appointment, the time they wait can be reduced by transforming the model of care and making greater use of technology.

Estate Strategy

The Trust Estate Strategy sets the Trust's strategic direction for estates development over five years from 2021–2026 and describes the opportunities open to UHBW to facilitate key clinical service developments, maintain high quality environments, create space for expansion,

facilitate better access and transport into and out of the site and release space for future resilience and sustainability.

A key objective is to create a strategy for delivering sustainable, fit-for-future estate provision, where buildings and equipment are in the right place, in the right condition, of the right type and able to respond to future service and population needs.

The Bristol Hospital sites covered within the strategy are mostly based within the centre of Bristol, where a cluster of Hospitals are located within very busy areas of the city with restricted roadside parking. The Hospitals include:

- Bristol Royal Infirmary
- Bristol Royal Hospital for Children
- Bristol Haematology and Oncology Centre
- Bristol Eye Hospital
- Bristol Heart Institute Clinical Services
- St Michael's Hospital
- Unity Sexual Health

Figure 7 – Hospital Site Map Aug 2022



The estate strategy supports the Trust's mission to provide exceptional care, teaching and research for the benefit of the people we serve. Funding the delivery of major strategic developments remains one of the largest risks to achieving the estates strategy implementation and delivery plan.

The key actions the strategy seeks to deliver are as follows:

1. Support the enablement of Trust's clinical and service strategies and "Healthy Weston 2" and "The Acute Provider Collaborative"
2. Implementation of the SEDP including development on the Marlborough Hill site to unlock the Bristol Campus site for development.
3. Improved access, environment and transport for our patients, visitors and staff

4. Reduction in our back-log maintenance and investment in the infrastructure supporting our estate.
5. Support our sustainability strategy by adopting a road map to achieving net zero carbon
6. Exploration of the commercial opportunities associated with the potential disposal of Central Health Clinic and Tyndall's Park Road.
7. Continue to explore strategic real estate acquisitions such as the current dental hospital.
8. Consolidation of our administration functions and adoption of an agile working methodology post covid.
9. Enable opportunities for offsite working alongside our partners in the ICS and Healthier Together membership.
10. Development of an accommodation strategy for staff, overnight accommodation and parents.
11. Adoption of a digital strategy, implementing the opportunities for digital appointments, virtual wards, joined up care and self-care.
12. Creation of a master plan for Weston General Hospital.

The estate priorities are identified as:

- Ensure statutory compliance of existing estate and maximise utilisation;
- In line with the Five Year Forward View, develop plans for sustainable provision of health and care services to the populations UHBW serves;
- Consider the potential for sharing/consolidating service delivery locations and office buildings to ensure effective utilisation of public estate across the geographies;
- Prioritise a programme of schemes with the biggest impact on safety and patient experience, including critical backlog maintenance and compliance works;
- Align the strategic estates plan with business and service objectives, including maintaining the delivery of high-quality services, growing our specialist hospital services and maintaining our position as a leading acute provider in South West England and beyond;
- Implement the "Sustainable Development Strategy 2020-2025"
00929_uhb_sustainability_report_web.pdf (uhbristol.nhs.uk) and develop the required "Green Plan".

Impact of Covid-19

The Covid-19 pandemic has had an unprecedented impact across the NHS. Enormous changes were made to manage the surge of critically ill patients, many of whom required ventilation, and to adapt operating models to enhance infection control and mitigate the risks of further spreading the virus in hospitals.

Most elective surgery was cancelled, freeing up both space and staff to support critically ill patients, and avoiding the need for patients without Covid-19 to attend hospital appointments.

The Trust is actively managing the post-Covid-19 pandemic through its consideration of how the service changes required this will affect the future provision of hospital services and the estates infrastructure required to meet likely future clinical and operational needs. The response will impact on how the system needs to deliver services and the way in which it utilises the premises; it is too early to determine the exact long-term impact on use of space, but, given the increased use of digital technology and telemedicine, it is not unrealistic to assume there will be greater opportunity for efficiency and less reliance on physical assets (in certain circumstances and aspects of the delivery of care).

While BNSSG ICB and the wider NHS structure do not yet know the long-term impact of Covid-19 and what future pressures the NHS will face, it is known that there are several lessons learnt that are important to incorporate into new hospital designs:

- Where possible, access and clinical spaces should be separate/segregated. Departments should, as much as possible, have dual access and exit routes. It is accepted that this might not be possible in a refurbishment.
- Buildings need to be designed to be flexible. To respond to future pandemics and/or changes in demand, healthcare buildings need to be designed so they can be used in different ways.
- Greater capacity and staffing resilience are required to support planned care. In future pandemics, UHBW would want to be able to continue with planned care, which previously had to stop during the COVID-19 pandemic. Pandemic resilience requires better facilities and consolidation of staffing to enable greater workforce flexibility.
- Digital supporting infrastructure/capability needs to be embedded in the hospital design. To maintain the shift to virtual care, dedicated facilities and systems will be needed alongside clinic rooms for face-to-face care – including the ability to review outpatient/ambulatory patients virtually and for staff to work remotely. Moreover, the facility should maximise the opportunity offered by digital.

These areas will be explored further throughout the business case process for development on the Marlborough Hill site.

Clinical Strategy

The Trust has a clinical strategy *Embracing Change, Proud to Care Our 2025 Strategy*⁶ Over recent years the aim of health and care systems has moved more towards collaboration rather than competition. In 2016, the Bristol, North Somerset and South Gloucestershire (BNSSG) Sustainability and Transformation Partnership (STP) was established, now known as 'Healthier Together' (as per section 2.7.2).

UHBW have contributed significantly to leading local and regional System and we are committed to ensuring that improving the health and well-being of the local population is a core part of strategic plans.

Following the analysis and engagement with patients and staff, reviewing successes and understanding more about the challenges ahead, the main focus of the clinical strategy is enabling staff to provide the best care in the best environment.

⁶ Embracing Change Proud to Care – our 2025 vision UHBW (2019)

There are some key emerging themes, which the clinical strategy needs to address:

- As recognised in our people strategy, staff are the most important part of all the hospitals; investment needs to be made in training and diversifying roles to ensure the Trust can adapt as the future brings about change;
- Become a beacon of education which motivates and inspires staff and brings direct benefit to patient care; respond to future health and care needs of the population;
- Continue to develop the right capacity and clinical pathways to protect delivery of the specialist services only UHBW can deliver;
- Maintain and build as specialist regional centres of excellence for key services and maximise the opportunities for clinical academic research;
- Work differently to integrate hospital services with local communities;
- Stay focused on delivering strong operational performance to deliver constitutional standards, which patients have the right to expect;
- Promote health and wellbeing of local populations to prevent illness or injury and reduce health inequalities.

To achieve the Trust's vision, there are a number of key changes to patient pathways and treatment options are in the process of, or have been, implemented including:

- Integrated models of care for frailty, long-term conditions and peri-operative care for elective surgery
- Development of surgical and acute medical same day emergency care services to maintain and increase the number of people who can be appropriately treated and supported to go home
- Trust partnerships around the provision of community child health/child and adolescent mental health services;
- Redesign of outpatient services to enable access to specialist expertise out of hospital, using digital options and working with locality teams;
- Explore the development of local diagnostic hubs across BNSSG.

The Trust's current quality strategy ambitions directly support the development of the Marlborough Hill site to support the delivery of new care pathways in adult acute medical care, surgical, endoscopy and main theatres by expansion and co-location of services with key improvements to:

- Cancel fewer operations
- Reduce patient wait times
- Reduce ambulance wait times
- Upgrade, expand and improve theatre and endoscopy capacity
- Expand and modernise the emergency care department
- Ensure SDEC is supported by the appropriate infrastructure for one-stop consultation and rapid treatment.

2.5.4 Trust Financial Position

The Trust has a strong track record of delivering excellent financial performance and value for money. The Trust's 2021/22 audited income and expenditure (I&E) position is a surplus of

£5.1m compared with a planned position of break-even. The Trust has successfully delivered a break-even or surplus position every year since the Trust became a Foundation Trust in 2008.

The table below shows the current Trust financial position for financial year 2021/22.

Table 10 – Trust Financial Position 2021/22

Trust Income/Expenditure 2021/22	Plan £m	Actual £m	Variance Favourable / (Adverse) £m
Income from Patient Care activities	914.690	937.560	22.870
Other Operating Income	131.097	134.259	3.162
Total Operating Income	1,045.787	1,071.819	26.032
Employee Expenses	(590.227)	(621.693)	(31.466)
Other Operating Expenses	(405.206)	(396.298)	8.908
Depreciation (owned and leased)	(28.072)	(32.042)	(3.970)
Total Operating Expenditure	(1,023.505)	(1,050.033)	(26.528)
PDC	(12.084)	(11.929)	0.155
Interest Payable	(2.161)	(2.068)	0.093
Interest Receivable	0.000	0.090	0.090
Other Gains/(Losses)	0.000	(0.066)	(0.066)
Gains/(Losses) on Transfer by Absorption	0.000	(0.100)	(0.100)
Net Surplus/(Deficit) per Annual Accounts	8.038	7.713	(0.324)
Remove Capital Donations, Grants and Donated Asset Depreciation	(8.038)	(2.643)	5.395
Adjusted Financial Performance Surplus/(Deficit) Reported to NHSEI	0.000	5.071	5.071

2.6 National Strategies

The NHS, the world's largest publicly funded health service, is undergoing strategic transformation in order to improve clinical outcomes across the UK and this presents many opportunities, as well as challenges, for providers of care services. The key national drivers underpinning the case for change in service delivery and supporting safe practice include:

- The NHS Long Term Plan
- We are the NHS: People Plan 2020/21
- NHS National Patient Safety Strategy
- Delivering a "Net Zero" NHS
- Health Infrastructure Programme
- The Naylor Review
- The Carter Report
- The Government Construction Playbook
- Modern Methods of Construction
- SMART/Intelligent Hospitals
- NHS Digital Blueprint.

2.6.1 NHS Long Term Plan

The *NHS Long Term Plan* (LTP), published in January 2019, sets out five major, practical changes to the NHS service model, to be delivered over the following five years:

- Boosting 'out-of-hospital' care, and joining up primary and community health services;

- Redesigning and reducing pressure on emergency hospital services;
- More personalised care to give people more control over their health when they need it;
- Digitally enabled primary and outpatient care;
- Increasing focus by local NHS organisations on population health and local partnerships with LA-funded services, through Integrated Care Systems (ICS).

The plan builds on the policy platform laid out in the *NHS Five Year Forward View (5YFV)*, which articulated the need to integrate care to meet the needs of a changing population.

Boosting 'out-of-hospital' care, and joining up primary and community health services

Over a five-year period, country-wide, the NHS will be asked to increase the capacity and responsiveness of community and intermediate care services to those who are clinically judged to benefit most.

Urgent response and recovery support will be delivered by flexible teams working across primary care and local hospitals, developed to meet local needs, including GPs, allied health professionals (AHPs), district nurses, mental health nurses, therapists and reablement teams. Extra recovery, reablement and rehabilitation support will wrap around core services to support people with the highest needs.

Redesigning and reducing pressure on emergency hospital services

Over the period of the plan, the practical goal is to ensure patients get the care they need fast, relieve pressure on A&E departments and better offset winter demand spikes, by expanding and reforming urgent and emergency care services.

To help patients navigate to the optimal service 'channel', the NHS will embed a single, multidisciplinary Clinical Assessment Service (CAS) within integrated NHS 111, ambulance dispatch and GP out of hours services from 2019/20. CAS will provide specialist advice, treatment and referral from a wide array of healthcare professionals, encompassing both physical and mental health, supported by collaboration plans with all secondary care providers.

The NHS will fully implement the Urgent Treatment Centre (UTC) model, so that all localities have a consistent offering for out-of-hospital urgent care, with the option of appointments booked through a call to NHS 111. UTCs will work alongside other parts of the urgent care network, including primary care, community pharmacists, ambulance and other community-based services, to provide a locally accessible and convenient alternative to A&E for patients who do not need to attend hospital.

The NHS and social care services will continue to improve its performance in getting people home without unnecessary delay when they are ready to leave hospital, reducing risk of harm to patients from physical and cognitive deconditioning complications.

More personalised care to give people control over their health when they need it

As part of a wider move to 'shared responsibility for health', the NHS will increase support for people to manage their own health. This will start with diabetes prevention and management, asthma and respiratory conditions, maternity and parenting support and online therapies for common mental health problems.

Digitally enabled primary and outpatient care

Building on progress already made in digitising appointments and prescriptions, a digital NHS ‘front door’ through the NHS App will provide advice, check symptoms and connect people with healthcare professionals – including through telephone and video consultations. Patients will be able to access virtual services alongside face-to-face services via a computer or smart phone.

The NHS will continue to invest in the **nhs.uk** platform so that everyone can find helpful advice and information regarding their conditions. As technology advances, the NHS will trial the use of innovative devices, such as smart inhalers, for better patient care and remote monitoring of conditions and will continue to support the development of apps and online resources to support good mental health and enable recovery. Over the five years of the plan every patient in England will have a right to choose the option of having ‘digital-first’ contact through telephone or online consultations – usually from their own practice or, if they prefer, from one of the new digital GP providers.

Increasing focus by local NHS organisations on population health and local partnerships with LA-funded services, through Integrated Care Systems (ICS)

Integrated Care Systems (ICS) have now replaced Sustainability and Transformation Partnerships (STPs). Within BNSSG ICS this is known as ‘The Healthier Together Partnership’. This partnership is comprised of 10 partner organisations seeking to improve health and wellbeing across the local population of BNSSG. Further information on Healthier Together can be found at section 2.7.2.

Every ICS has streamlined commissioning arrangements to enable a single set of commissioning decisions at system level, resulting in leaner, more strategic organisations that support providers to partner with local government and other community organisations on population health, service redesign and Long Term Plan (LTP) implementation. The LTP also outlines how care and quality plans for the next 10 years will focus improvement on:

- Cancer care and diagnostics in particular;
- Cardiovascular disease (including stroke);
- Diabetes;
- Learning disabilities and autism;
- Adult mental health services;
- Maternity and neonatal services;
- Respiratory;
- Services for children and young people, particularly in relation to mental health and cancer.

Research, innovation and ensuring the right people are available in the workforce, are highlighted as essential to support the improvements sought. UHBW is well placed to respond to much of the vision of the LTP, building on our successes and continuing to work hard to build partnerships and collaborate for change.

Climate Change Resilience and Adaptation

The 2016 Carter Report highlighted the inefficient use of energy and natural resources as a major area for improvement and addressing these simultaneously supports adaptation and mitigation measures. The **Long-Term Plan** sets out key requirements in order that the NHS leads by example in sustainable development and reduces use of natural resource in line with government commitments.

The NHS has restated its commitment to the carbon targets in the UK government Climate Change Act (2008), reducing carbon emissions (on a 1990 baseline), by 34% by 2020 and 51% by 2025. The NHS has also committed to improving air quality by cutting business mileage by 20% by 2023/24 and ensuring that at least 90% of the NHS automobile fleet uses low-emission engines (including 25% ultra-low emissions) by 2028. Other priorities include phasing out coal and oil fuel primary heating from NHS sites, redesigning care and greater use of 'virtual' appointments to reduce the need for patient and staff travel.

Public Health England and NHS England have identified 35 interventions which Lord Carter of Coles has promoted under the Carter review. The interventions taken from the Sustainable Development Unit's Securing Healthy Returns report are ranked showing the carbon reduction and financial savings possible across England, they are also applicable locally. Whilst capital funding is required for the larger initiatives e.g., combined heat and power facilities, many are achievable without such investment. The NHS has been identified as the largest public sector contributor to climate change. As such the Government has stated that it is critical that the NHS takes action to reduce its carbon emissions and contributes to achieving the wider carbon reduction targets:

- **Energy consumption** is the single biggest contributor to carbon emissions, in the NHS carbon footprint of 18 million tons of CO₂ per year, energy is responsible for 22% of this, travel 18% and procurement 60%. HM Treasury forecast that energy prices will increase above inflation to 2020, so both direct and supply chain efficiency gains will be essential to keep costs down.
- **Waste management and Water consumption** are costly, contribute significantly to carbon emissions and are subject to legislation requirements.
- **Transport** – BNSSG comprises a significant rural area and community transport plays a key part in accessing and delivering NHS services. The commissioner's strategic aim is to have an increased focus on supporting our population to maintain good health, supporting patients to stay independent for as long as possible and providing services in out-of-hospital settings.
- **Procurement** has been identified as being responsible for 60% of carbon emissions; it impacts on many areas of estate and related areas from facilities management (waste, catering, linen, fleet vehicles) to major capital expenditure (new developments, refurbishments and maintenance).
- **Facilities management, building maintenance and capital planning** – main providers will adopt the BREEAM Healthcare methodology to demonstrate that projects are built with sustainability in mind, achieving BREEAM Excellent standard for new build and Very Good for refurbishments. Health Technical Memorandum 07-07 encourages the improved sustainability of our buildings through planning, design, construction and refurbishment. There are various issues to be considered at each stage, with flood prevention and Sustainable Urban Drainage, futureproofing, health and wellbeing (health effects of climate change), energy and carbon emissions, pollution, land use and ecology, water use, and materials all being linked, either directly or indirectly, to our ability to manage the risks, implications and opportunities from a changing climate.

UHBW collaborate with their healthcare partners such as North Bristol NHS Trust and have developed a board approved Sustainable Development Strategy in 2020.

UHBW will continue to work with stakeholders to ensure we are aligned to deliver a shared set of goals for minimising our impact on the environment. They are also committed to working in partnership to deliver Bristol's **One City Plan** and the vision for a "*fair, healthy and sustainable city*".

The Lancet commission declared climate change is the greatest threat to global health. UHBW recognise the urgency of the threat that climate breakdown poses to public health and wish to be leaders in fast tracking plans to achieve carbon neutrality – improving the health of the local population in the process.

NHS England and Improvement have issued the "Delivering a Net Zero National Health Service" report which provides a national-level framework for action on climate change and sustainability. Every NHS organisation has an essential role to play in meeting this ambition.

Green Plans

To Support the net zero carbon ambition, each trust and integrated care system should have a **Green Plan** which sets out their aims, objectives and delivery plans for carbon reduction. In each case this should be signed off by the Trust Board, with board level 'net zero lead' responsible for overseeing its delivery. In addition to our Sustainable Development Strategy, the Trust is working on the delivery of a Green Plan.

2.6.2 We are the NHS: People Plan 2020/21

An Interim People Plan (IPP) was developed in 2019, setting out the vision for people who work for the NHS to enable them to deliver the LTP. Following the COVID-19 pandemic this has been further developed and refined into two key documents for NHS workers; the NHS Our People Promise and the We are the NHS: People Plan 2020/21.

The NHS Our People Promise sets out the key strengths of the NHS workforce and makes a commitment to work together to improve the experience of everyone working in the NHS. The NHS Staff Survey will be re-aligned to the People Promise from 2021.

The People Plan 2020/21 sets out to build a greater culture of inclusion and belonging and develops the IPP commitments to invest more in staff development and training. The plan sets out the NHS' need for "*more people, working differently, in a compassionate and inclusive culture*".

This includes a strong commitment to transforming the way the entire workforce including doctors, nurses, allied health professionals (AHPs), pharmacists, healthcare scientists, dentists, non-clinical professions, social workers in the NHS, commissioners, non-executives and volunteers, work together in ever more integrated ways.

The People Plan 2020/21 reflects on the enormous challenges the NHS has faced, and continues to face, during the COVID-19 pandemic and has a strong emphasis on the health and wellbeing of staff and the requirement to provide improved support, including psychological support.

The IPP and the People Plan 2020/21 recognise that there is important work to be done in attracting people to careers in the NHS and retaining them there with work packages that reflect the increasing demand for more flexible approaches to career development and work life balance. This has only been emphasised by the pandemic where the NHS workforce was supported by the return to work from retirement, academia and other industries and the

increased student direct support time which occurred in early 2020 to help the NHS cope with the enormous pressures placed on the system.

There is also a need for positive, compassionate and inclusive cultures in the NHS which can only be brought about by leadership which reflects these ideals.

The People Plan 2020/21 aims to build on the momentum of the recent increase in interest in NHS careers to maximise the opportunities to fill severe staff shortages such as nursing.

This is to be done through the retention of existing nursing staff, increasing the numbers of those undertaking undergraduate nursing qualifications and a rapid increase in clinical placement capacity.

There is also evidence that workforce development has fallen sharply and needs to be reversed through a return to previous funding levels (a national requirement for an additional £85m).

The NHS workforce will be much more multidisciplinary in nature with staff who have a wider range or different set of skills to the current mix. The IPP and the People Plan 2020/21 sets out an intention to develop multi-professional credentials to enable people to widen their knowledge and recognises the importance of expanding the workforce across all clinical staff groups.

There is also a need for the NHS workforce to be more digitally capable and knowledgeable, reflecting the increased need to invest in digital systems to allow clinicians and those in support roles to work more efficiently, releasing more time to care. There is now an expectation that workforce planning will become the increasing responsibility of the ICS and that whilst pensions and regulation will remain set at a national level area such as non-medical training and bank staff pay rates can be dealt with more locally.

2.6.3 NHS National Patient Safety Strategy

Published in 2019, the NHS National Patient Safety Strategy aims to continuously improve patient safety. To do this the NHS will build on two foundations: a patient safety culture and a patient safety system. Three strategic aims will support the development of both:

- improving understanding of safety by drawing intelligence from multiple sources of patient safety information (Insight)
- equipping patients, staff and partners with the skills and opportunities to improve patient safety throughout the whole system (Involvement)
- designing and supporting programmes that deliver effective and sustainable change in the most important areas (Improvement).

The actions the NHS will take under each of these aims are set out below.

Insight – the NHS will:

- adopt and promote key safety measurement principles and use culture metrics to better understand how safe care is
- use new digital technologies to support learning from what does and does not go well, by replacing the National Reporting and Learning System with a new safety learning system

- introduce the Patient Safety Incident Response Framework to improve the response to and investigation of incidents
- implement a new medical examiner system to scrutinise deaths
- improve the response to new and emerging risks, supported by the new National Patient Safety Alerts Committee
- share insight from litigation to prevent harm.

Involvement – the NHS will:

- establish principles and expectations for the involvement of patients, families, carers and other lay people in providing safer care
- create the first system-wide and consistent patient safety syllabus, training and education framework for the NHS
- establish patient safety specialists to lead safety improvement across the system
- ensure people are equipped to learn from what goes well as well as to respond appropriately to things going wrong
- ensure the whole healthcare system is involved in the safety agenda.

Improvement – the NHS will:

- deliver the National Patient Safety Improvement Programme, building on the existing focus on preventing avoidable deterioration and adopting and spreading safety interventions
- deliver the Maternity and Neonatal Safety Improvement Programme to support reduction in stillbirth, neonatal and maternal death and neonatal brain injury by 50% by 2025
- develop the Medicines Safety Improvement Programme to increase the safety of those areas of medication use currently considered highest risk
- deliver a Mental Health Safety Improvement Programme to tackle priority areas, including restrictive practice and sexual safety
- work with partners across the NHS to support safety improvement in priority areas such as the safety of older people, the safety of those with learning disabilities and the continuing threat of antimicrobial resistance
- work to ensure research and innovation support safety improvement.

The Strategy was updated in 2021 to address:

- patient safety inequalities, particularly with regard to the safety issues faced by older people and people with a learning disability.
- the impact of Covid-19 on strategy implementation. Several of the original timelines have been adjusted to reflect the disruption arising from the pandemic.

2.6.4 Delivering a ‘Net Zero’ NHS

In October 2020 the NHS published the ‘*Delivering a Net Zero National Health Service*’ in response to the health emergency that climate change will bring. More intense storms and floods, more frequent heat waves and the spread of infectious disease from climate change threaten to undermine years of health gains.

Two clear and feasible targets emerge 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 the NHS controls directly (the NHS Carbon Footprint), net zero by 2040, with an ambition to reach an 80% reduction by 2028 to 2032;
- For the emissions that can be influenced (the NHS Carbon Footprint Plus), net zero by 2045, with an ambition to reach an 80% reduction by 2036 to 2039.

Several early steps will be taken to decarbonise across the NHS, as shown in the table below.

Table 11: Steps towards decarbonisation and a 'Net Zero' NHS

Step	Description
1 Our Care	By developing a framework to evaluate carbon reduction associated with new models of care being considered and implemented as part of the NHS Long Term Plan.
2 Our Medicines and Supply Chain	By working with our suppliers to ensure that all of them meet or exceed our commitment on net zero emissions before the end of the decade.
3 Our Transport and Travel	By working towards road-testing for what would be the world's first zero-emission ambulance by 2022, with a shift to zero emission vehicles by 2032 feasible for the rest of the fleet.
4 Our Innovation	By ensuring the digital transformation agenda aligns with our ambition to be a net zero health service and implementing a net zero horizon scanning function to identify future pipeline innovations.
5 Our Hospitals	By supporting the construction of 40 new 'net zero hospitals' as part of the government's Health Infrastructure Plan with a new Net Zero Carbon Hospital Standard
6 Our Heating and Lighting	By completing a £50 million LED lighting replacement programme, which, expanded across the entire NHS, would improve patient comfort and save over £3 billion during the coming three decades.
7 Our Adaptation Efforts	By building resilience and adaptation into the heart of our net zero agenda, and vice versa, with the third Health and Social Care Sector Climate Change Adaptation Report in the coming months.
8 Our values and our governance	By supporting an update to the NHS Constitution to include the response to climate change, launching a new national programme For a greener NHS, and ensuring that every NHS organisation has a board-level net zero lead, making it clear that this is a key responsibility for all our staff.

UHBW's Sustainable Development Strategy (Appendix 6) aims to reduce the Trusts' environmental impact, protect the natural environment, empower staff to operate responsibly, enhance social value and work with partners across the system to improve the health and wellbeing for all who live and work in the surrounding communities. The 4 key aims are summarised:

- Carbon neutral by 2030; benchmarked against UHBW's operating expenditure;

- Contributing to all the UN Sustainable development Goals; benchmarked by achieving 70% rating in the UHBW Sustainable Development Assessment tool by 2025;
- Cutting air pollution; benchmarked by achieving excellent rating on the Clean Air Hospital framework by 2025;
- Resource efficiency; zero waste to landfill by 2025 and reducing our consumption of energy and water.

All of the above can be strongly linked to the Marlborough Hill Development benefits e.g. cutting air pollution links to the reducing ambulance emissions outside A&E and carbon neutral by 2030/resource efficiency links to the modern methods of construction and new build 'fit for purpose' development.

2.6.5 Health Infrastructure Programme

The Department of Health and Social Care (DHSC) published the Health Infrastructure Plan (HIP) in September 2019. HIP is designed to deliver a long-term, rolling programme of investment in health infrastructure, including capital to build new hospitals, modernise primary care estate, invest in new diagnostics and technology, and help eradicate critical safety issues in the NHS estate.

At the centre of the HIP is a new hospital building programme, to ensure the NHS' hospital estate supports the provision of world-class healthcare services. Under this approach, the Government has committed to build and fund 40 new hospitals over the next 10 years.

In October 2020 the government confirmed that 40 hospitals will be built by 2030 as part of a package worth £3.7 billion, with eight further new schemes invited to bid for funding.

The Government has already recognised the need for further capital investment in the NHS by announcing over summer 2019 a £1.8 billion increase to NHS capital spending over five years starting in the 2019/20 financial year, £250m for AI over the next three years, £200m for new diagnostic screening equipment, and confirming that the DHSC will receive a new multi-year capital settlement at the next capital review. This is in addition to the £3.9bn extra capital funding announced at the 2017 Spring and Autumn Budgets.

2.6.6 The Naylor Review

The Naylor Review, undertaken in 2017, identified that the NHS estate and its correct management and use would be key to delivering the then Five Year Forward View (FYFV), now replaced by the NHS LTP. The NHS LTP continues to develop the themes and ambitions of the FYFV and therefore the Naylor Report findings are still relevant to any NHS estate programme of works.

Sir Robert Naylor's 'NHS Property and Estates: Why the estate matters for patients' sets out the vision for how the NHS could make best use of its estate and provided the government with recommendations to take the vision forward. The review highlighted the need to:

- Tackle backlog maintenance to improve the quality of the estate.
- Look at the future needs of the estate given new care models, increased demand and the impact of technology.
- Create a robust capital investment plan with potential sources coming from property disposals, private investment and public funding.

- Further explore the opportunity to release value from the estate.

2.6.7 The Carter Report

Lord Carter of Coles' report sets out how non-specialist acute trusts can reduce unwarranted variation in productivity and efficiency across every area in the hospital, to save the NHS £5 billion each year by 2020/2021. The final report builds on the findings of the interim report and sets out further findings of variation across 32 non-specialist acute trusts.

The final report details how hospitals must standardise procedures, be more transparent and work more closely with neighbouring NHS trusts. Lord Carter's review found unwarranted variation in running costs, sickness absence, infection rates and prices paid for supplies and services. Implementing the recommendations will help end variations in quality of care and finances.

As part of the review, a 'Model Hospital' reporting system has been developed which advises NHS trusts on the most efficient allocation of resources and allows hospitals to compare and measure their performance against other peer organisations. Other areas covered by the report include:

- Staffing: the review calls for an improvement in the way the NHS deploys its staff, ending the use of outdated and inefficient paper rosters.
- Procurement: as part of the review, from April 2016, Trusts will publish their receipts on a monthly basis for the top 100 items bought by the NHS such as bandages, needles and rubber gloves.
- Use of Floor Space: Trusts' unused floor space should not exceed 2.5% and floor space used for non-clinical purposes should not exceed 35%.
- Administration Costs: these should not exceed 7% by 2018 and 6% by 2020.
- Delayed Transfer of Care: Lord Carter has called for action to be taken on the 'major problem' of delayed transfers of care, which affects hospitals and trusts' earning and spending capacity.
- Working with Neighbourhood Hospitals: Lord Carter advises Trusts to work closely with their neighbouring hospitals, sharing services and resources to improve efficiency and reduce costs.

2.6.8 The Government Construction Playbook

The Construction Playbook (Dec 2020) sets out key policies and guidance for how public works projects and programmes are assessed, procured and delivered. The playbook is the result of extensive collaboration from across the public and private sectors to bring together expertise and best practices. It focuses on getting projects and programmes right from the start. The approach for 'front end loading' (spending more time on the project initiation parts) will improve the potential for successful outcomes. By adopting the policies in the playbook, projects will:

- Set clear outcome-based specifications
- Favour long-term contracting across portfolios (where appropriate);
- Standardise designs, components and interfaces;
- Drive innovation and MMC (Modern Methods of Construction);

- Create sustainable contracting arrangements, which incentivise better outcomes;
- Strengthen financial assessment of suppliers and support the preparation of contingency plans;
- Increase the speed of end-to-end project and programme delivery, by investing up front with time and resources available for the project's success.

Overall, the playbook is a 'compact' between government and industry setting out how they will work together in future. The key aims of which are to, enable projects to improve building and workplace safety, work towards the 2050 net zero plan and promote social value.

For further information use this link: [The Construction Playbook – December 2020 \(publishing.service.gov.uk\)](https://publishing.service.gov.uk).

2.6.9 Modern Methods of Construction

As noted in the Commercial Case in greater detail, MMC encompass a variety of prefabricated and / or modular initiatives which can be used singularly or in combination depending upon the requirements of the project and can also be used in conjunction with traditional methods of construction where these are more suitable.

The benefits of an MMC approach include a reduction in programme on site leading to earlier first patient/treatment dates. Whilst the first health schemes using MMC have had slightly higher capital costs than traditional build, this is typically compensated by programme improvements and time related savings which on average can be 25–35% quicker from starting on site to occupation.

Repeatable areas such as wards, outpatient rooms and similar departments are ideal for a modular solution, whilst it is recognised that areas which require high degrees of structural stability, such as imaging, are potentially best built traditionally. Hybrid approaches are also available which combine concrete cores and lower floors to provide stability for sensitive areas together with mass repeatable areas of modular and / or panelised construction for upper floors and other areas.

2.6.10 SMART / Intelligent Hospitals

A "smart building" is one in which the central ICT infrastructure provides the hub or spine upon which other interoperable open-source systems connect and exchange data related to the management and / or use of the building.

Smart buildings should:

- Enhance patient experience – empowering patients, enabling healing and enhancing comfort levels
- Support clinical provision – allowing healthcare professionals to focus on people
- Enable close built environment control – Estates/Facilities Management should be able to change heating, lighting, humidity and noise
- Reduce cost – including backlog maintenance
- Reduce carbon footprint

The Intelligent Hospital principle has been introduced to support delivery of facilities via MMC and streamline design to ensure maximum value for money via the procurement process. It is not a 'one size fits all' template approach. The Intelligent Hospital is based on a kit of parts approach, assembling the hospital from a set of standard elements that can be identified as:

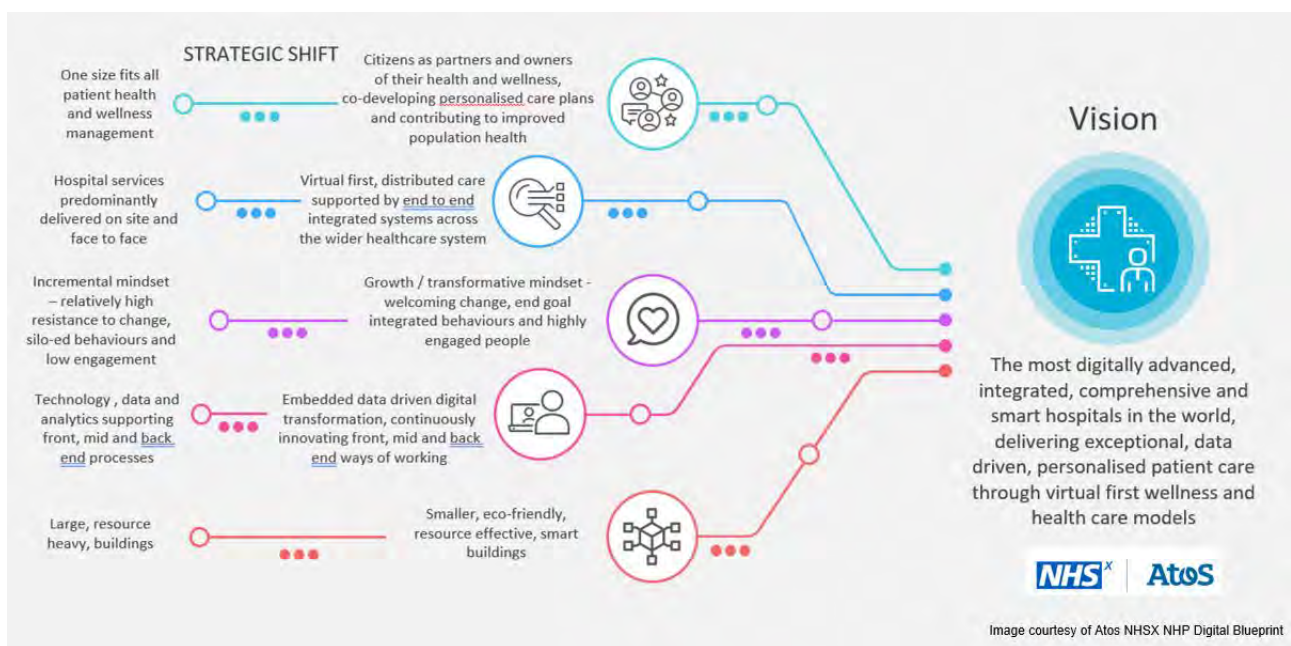
- Rooms
- Clusters
- Zones
- Floorplates

It is the way in which these are assembled and the scale of these assemblies that will determine the operational policies for the component parts, some of which vary from organisation to organisation and shape the way in which departments are set out and used. The Intelligent Hospital is closely linked to MMC principles of design.

2.6.11 NHS Digital Blueprint

The NHS Digital Blueprint establishes a set of design principles to ensure digital technology and data is considered at every stage of the design and build process. It is informed by local and international best practice, maximising safety, quality and productivity benefits in addition to delivering integrated care widely across different care settings. It's essentiality unifies NHSX, the HIP digitally advanced hospital projects, and industry, as a collective to deliver world-class, digital first, digitally advanced facilities.

Figure 8 – NHS Digital Blueprint Roadmap



2.6.12 Other National Policies and Strategies

Other national policies and strategies, which are considered relevant to this scheme and underpin the case for change, particularly regarding integrated service delivery and supporting best practice include:

- One Public Estate
- Cavell Centres
- Diagnostic Hubs
- Single bedrooms for inpatients

One Public Estate

One Public Estate (OPE) is an established national programme delivered in partnership by the Office of Government Property (OGP), within the Cabinet Office and the Local Government Association (LGA). It provides practical and technical support and funding to councils to deliver ambitious, property-focused programmes in collaboration with central government and other public sector partners.

OPE partnerships work across the public sector and take a strategic approach to asset management. At its heart, the programme is about getting more from our collective assets – whether that's catalysing major service transformation, such as health and social care integration and benefits reform; unlocking land for new homes and commercial space; or creating new opportunities to save on running costs or generate income.

The aims are encompassed in three core OPE objectives:

- Creating economic growth (new homes and jobs);
- Delivering more integrated, customer-focused services;
- Generating efficiencies, through capital receipts and reduced running costs.

Cavell Centres

NHS policy initiatives in recent years have sought to respond to the fundamental changes in Primary Care service delivery, such as the PCN (Primary Care Network) agenda and the new multi-disciplinary team workforce associated with it. Policy has been consistent in promoting a greater level of care in the community, delivering outpatient services away from hospital settings, and introducing 'wrap around' support staff to help GPs manage increasing workloads.

'Cavell Centres' could be considered the emerging flagship assets of ICSs, enabling genuine system change, and transformative service delivery in line with consistent policy ambitions. The Centres were designed to be funded centrally with capital allocated to cover a period of three years. The exact allocation is currently unknown, but it is hoped there will eventually be sufficient capital allocated over the next 10 years to cover the development of more than 420 Cavell Centres across England (roughly 1 per 120,000 population). The total capital value of this programme would be in the region of £10b. A National Programme Business Case is currently underway to achieve approval for the roll out of the programme. There are six Cavell Centre pilots in England (October 2021).

The Trust will work with the ICS, PCN and other system partners to realise opportunities to co-develop Health and Wellbeing Centres for the benefit of Bristol's population in. It is understood that they can be existing assets repurposed and potentially include step down beds.

Diagnostics Hubs

In July 2021 NHS England and Improvement have looked to establish a multi-year framework agreement worth up to £10bn to provide services at around 150 planned new community diagnostic hubs. The objective of the framework is to support the contracting authorities' ability to improve population health: increase diagnostic capacity: improve productivity and efficiency of diagnostic activity, contribute to reducing health inequalities, deliver a better and more personalised diagnostic experience for patients and support integration of care.

It is anticipated that the Community Diagnostic Hubs (CDH) will provide:

- Imaging capacity: including CT, MRI, ultrasound, plain X-ray;
- Cardiorespiratory capacity: including echocardiography, ECG and rhythm monitoring, spirometry and some lung function tests, support for sleep studies, blood pressure monitoring, oximetry, blood gas analysis;
- Pathology services: including Phlebotomy;
- Endoscopy facilities; and
- Consulting and reporting rooms.

The Trust will continue to work with the ICS partner organisations to realise any opportunities for a CDH's for the populations it serves. There are current proposals for a potential CDH located in central Weston super Mare but not at Weston General Hospital as well as a larger hub in the south of the city of Bristol.

Single bedrooms for inpatients

The NHS is expecting central policy guidance on the appropriate proportion of single bedrooms within a hospital environment. Studies on the subject date back to the 1980s, but the debate in England has continued and gained greater pertinence during the COVID-19 pandemic, and health services across the world have been adapting their approaches throughout.

Many European and other OECD counties have an adopted policy of installing 100% single bedrooms in all new and refurbished buildings. The evidence shows that single rooms, and isolation rooms within this arrangement, significantly reduce hospital acquired infection rates and speed recovery times. Factors contributing to this reduction include:

- Fewer bed moves (Royal College of Physicians 2012 study found patients in multi-bed bays were moved five times, on average, during their hospital stay);
- Ability to use isolation rooms where provided;
- Improved hand hygiene by clinicians and visitors;
- Avoid issues with bed spacing.

2.7 Regional and Local Strategies

Local drivers in relation to the development of this business case include;

- Local government plans; One City Plan;
- Local STP 'Healthier Together';
- Healthy Weston 2;
- 'Healthier Together Estate Strategy';
- Acute Services Review;
- Climate change resilience and adaptation.

2.7.1 Local Government Plans

Bristol published the first ever **One City Plan** in Jan 2019, setting out a vision for the city in 2050:

*"In 2050 Bristol will be a fair, healthy and sustainable city.
A city of hope and aspiration, where everyone can share in its success."*

The One City Plan includes a vision for health and wellbeing, redesigning the city for healthier living, giving people more choice about how they access health and care services, personalised medicine, the eradication of obesity and taking a holistic approach to health and wellbeing, which also includes schools, businesses, faith groups, charities, clubs and our communities, as well as existing health and social care services. The plan sets out some specific goals for health which include reducing variation in access to services, improving early cancer diagnosis, reducing the transmission of sexually transmitted diseases and making sure that no one leaves hospital to be homeless on the day of discharge.

UHBW's aim, through our future strategy, to help achieve the One City Plan and One Weston Plan goals by increasing the quality, responsiveness and resilience of the services delivered, by collaborating and integrating more with services across the city and across BNSSG ICB.

2.7.2 Integrated Care Systems in BNSSG

The NHS in England has been changing for some time. National policymakers and local service leaders are seeking to promote and embed collaborative ways of working across health and care services. This shift to system working has been driven by the need to provide better joined up care to the growing numbers of people who rely on multiple health and care services, and to:

- Improve outcomes in population health and healthcare
- Tackle inequalities in outcomes, experience and access
- Enhance productivity and value for money
- Help the NHS support broader social and economic development.

To further promote and embed collaborative ways of working across health and care services, integrated Care Systems⁷ (ICSs) became statutory bodies in England on 01 July 2022, through the Health and Care Act⁸. The shift to system working has been driven by the increasing need to provide better joined up care to the rising numbers of people who require multiple health and care services. As well as bringing a range of partner organisations together to help people stay happy, healthy, and well for longer; Integrated Care Systems are designed to ensure that health and care services join up around individual needs – breaking down the boundaries between physical health, mental health and social care services.

The ICS comprises ten partner organisations across BNSSG, including three Local Authorities, NHS Trusts, the new Integrated Care Board (ICB), and community and primary care providers.

This fundamental shift from the previous purpose of Clinical Commissioning Groups (CCGs), gives key priorities and behaviours from system partners where there is an expectation to move away from competition and organisational autonomy, and towards collaboration and integration, to improve integration and population health.

Figure 9 – our partner organisations



⁷ Integrated Care Systems: How will they work under the Health and Care Act? The Kings Fund (kingsfund.org)

⁸ The Health and Care Act: six key questions 2022. Kings Fund

An Integrated Care Board (ICB), will provide NHS planning functions, as CCGs did previously. The ICB will have leadership teams / boards, and include members from providers, primary care and local authorities.

The ICBs will be required to develop five-year plans for how their NHS services will be delivered to meet local needs. In order to do this they will contract with providers to deliver services and will be able to delegate some funding to 'place level' to support joint planning of NHS and council-led services.

An Integrated Care Partnership (ICP): This will operate as a statutory committee, bringing together NHSE and local authorities as equal partners to focus more widely on health, public health and social care. It will include representatives from the ICB, local authorities and other partners including NHS providers, public health, social care, voluntary and community enterprises. The ICP will be responsible for creating an integrated care strategy, which will set out how the wider health needs of local populations will be met, however, will not directly commission services.

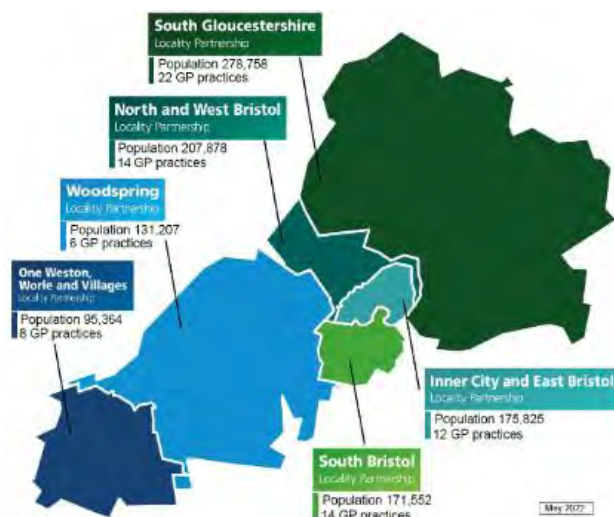
It is planned that a number of partnership and delivery structures will operate within the BNSSG ICS at system, place and neighbourhood level. These include:

- Provider Collaboratives: in BNSSG this is the Acute Provider Collaborative (APC). The provider collaborative's purpose will be to better enable members to work together to continuously improve quality, efficiency and outcomes, including:
 - Reducing unwarranted variation and inequality in health outcomes, access to services and experience
 - Improving resilience by, for example, providing mutual aid
 - Ensuring that specialisation and consolidation occur where this will provide better outcomes and value.
- Locally, the current acute provider collaboration is focused on NBT and UHBW. However, both trusts also provide wide-ranging regional services that extend beyond the BNSSG area, and there will be a continuation of these well-established networks in the delivering of key services.

Health and Wellbeing Boards (HWBs): formal committees of local authorities that bring together a range of partners to promote integration. Responsible for producing joint strategic needs assessments and joint health and wellbeing strategies for their local populations.

Place based partnerships: these operate on a smaller footprint within the ICS and are where much of the work of integration will take place through multi-agency partnerships involving the NHS, local authorities, VCSE sector and local communities.

Figure 10 – Locality partnerships



In BNSSG these are referred to as Locality Partnerships (LP) and there are six across the local footprint. These are: North and West Bristol; Inner City and East Bristol; South Bristol; Weston, Worle and Villages; Woodspring; and South Gloucestershire.

Current changes taking place from August 2022 are draft plans for each locality based on discussions about interfaces with localities as acute Trusts/an acute provider collaborative should develop.

Primary Care Networks (PCNs) bring together general practice and other primary care services (e.g., community pharmacy) to work at scale and provide wider services at neighbourhood level.

ICB immediate priorities

During 2022/2023 the new structures of BNSSG ICB will develop and a number of immediate priorities progressed including:

- Development of the Integrated Care Strategy, guided by a new public engagement exercise, which will be taking place during July and September 2022;
- The 'whole-population survey' will explore what keeps people happy, healthy and well, alongside more in-depth community engagement and workshops.

2.7.3 ICS Elective Review and Recovery

Collaborations across health systems have been accelerated during the pandemic as NHS organisations established partnerships to provide patients with the care they need in a more efficient and effective way. Embracing and building upon this momentum of collaboration and a continued focus on developing and sharing innovative ways of working will be key to recovering waiting times as quickly as possible and minimising the risk of further harm to patients.

NHS performance data shows that the waiting list for consultant-led elective care stood at over 5.3 million patients by the end of May 2021. Of these patients, 336,733 have been waiting for more than a year, compared to less than 2,000 before the start of the pandemic⁹. With waiting lists already at unprecedented levels, there is also a concern that a reduction in the number of people seeking medical advice during the pandemic could result in additional pressures further down the line. For example, Cancer Research UK estimates that between March 2020 and February 2021, urgent suspected cancer referrals were 15% (total of 430,000) lower than the previous year¹⁰.

Whilst the clinical risk for patients already on the waiting list may be understood, patients presenting later with cancer symptoms could result in more complex treatments and poorer outcomes. There are early signs of improvement as urgent referrals for suspected cancers in May 2021 are 3.2 per cent higher than the same month two years ago, but this increase is not currently enough to make up for the overall shortfall.

9 Referral to Treatment (RTT) Waiting Times, England – April 2007 – May 2021, NHS England and NHS Improvement, <https://www.england.nhs.uk/statistics/statistical-work-areas/rtt-waiting-times/rtt-data-2021-22/>

10 Evidence of the impact of COVID-19 across the cancer pathway: Key Stats, Cancer Intelligence Team (Cancer Research UK), last updated 15/04/2021, https://www.cancerresearchuk.org/sites/default/files/covid_and_cancer_key_stats-16-04.pdf

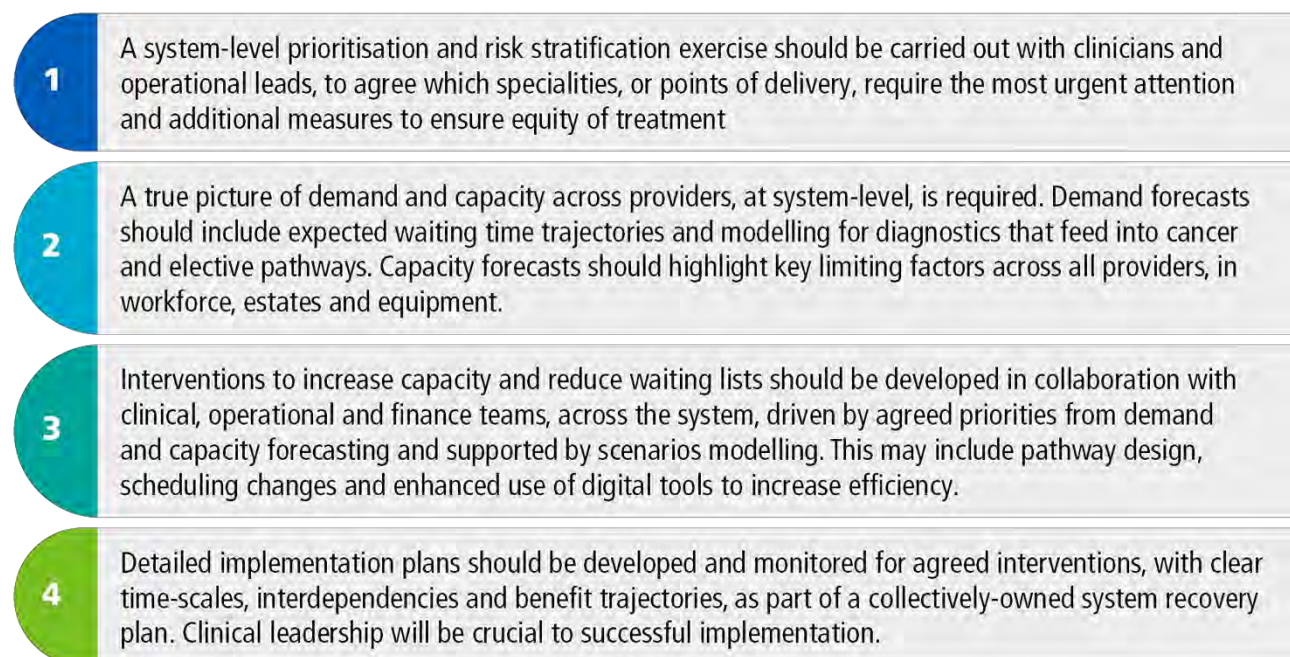
To add to the challenge, the NHS workforce and its long-term sustainability is a cause for concern. Many of those working in critical care have been showing signs of anxiety and post-traumatic stress disorder (PTSD). 80% of nurses responding to the Nursing Standard survey in November 2020 reported that their mental health had been affected during the pandemic. It is therefore imperative that restoration plans and developments in services continue to support the health and wellbeing of staff.

Given the scale of the problem, traditional approaches to optimising efficiency within providers alone are unlikely to be enough¹¹. Some examples which have already been shown to be effective in parts of the country are:

- Development of new unscheduled care pathways where patients are treated in the right place and by the right people and increase in same day diagnosis and treatment;
- Designation of COVID-free facilities and “green pathways” to support the delivery of uninterrupted services and to allow a return to higher levels productivity;
- ICS-wide collaborative approaches to referral management, demand and capacity planning, pathway redesign and supporting smooth discharges;
- Development of “focus factories” whereby priority conditions with long waiting lists are delivered on a single designated hospital site, pooling resources across the system to maximise the number of patients treated;
- Creation of diagnostic imaging networks and community diagnostic hubs to ringfence capacity and reduce waiting times for scans;
- Review and enhance the further use of digital tools implemented during the pandemic.

The figure below highlights some of the requirements for system level change within integrated care systems.

Figure 11 – Requirements of ICSs for system level change



¹¹ NHS 2021/22 priorities and operational planning guidance, <https://www.england.nhs.uk/wp-content/uploads/2021/03/BO468-nhs-operational-planning-and-contracting-guidance.pdf>

Part B: Case for Change

2.8 Existing arrangements

2.8.1 Marlborough Hill site

The site is known as the Marlborough Hill site and at c12 Hectares offers the last major zone for development of the city centre campus. It currently has a low density of historic and piecemeal development, offering a unique opportunity for strategic development, expanding existing services and releasing capacity within the existing estate. The site is situated on a steep slope and currently houses the Trust HQ, Staff Residences, Pharmacy, the Old School building and a multi-storey car park, which also houses the transport hub for cyclists. The city centre location and proximity areas of local residential neighbourhoods require careful planning of the site zoning and construction logistics, to minimise the impact of the development both in construction and future operation.

The existing buildings on the site comprise largely of support functions. Pharmacy offer clinical support function and links into the existing hospital circulation network at level 3 whilst also receiving vehicular deliveries. The accommodation is low rise and has a high volume of road infrastructure supporting it, resulting in a low density for the city centre location. Early clearance of the site will be key to achieving the project programme. A decant strategy will be developed where necessary to ensure all accommodation can be relocated appropriately. Currently it is planned that Pharmacy will remain on site and options will be explored to locate this in an optimal position.

Figure 12 –Marlborough Hill site and adjacent buildings



Figure 13 – Current Marlborough Hill Site – with areas indicated i.e. Pharmacy



Coordination with the services infrastructure and any service diversions will also be required prior to the site to be cleared in readiness for the main construction phase.

Trust Headquarters (THQ) and Multi-Storey Car Park (MSCP)

The Trust headquarters has 2 major storeys at levels 2 and 3 with a basement substation at level 1 and small amount of accommodation at level 4. It abuts the multi-storey car park, which previously housed a swimming pool and has been subsequently converted to a transport hub for cyclists.

Figure 14 – Current THQ Building – front and rear (Google Street View)



Total accommodation includes: THQ Level 4 365sqm, Level 3 1115sqm, Level 2 775sqm, Level 1 130sqm, with a total of 2385sqm.

The MSCP includes 200 cycle spaces with male and female changing areas and 140 staff parking spaces (used for out of hours staff parking).

Decant or reprovion is required, with a proposed location for off-site admin, on-site reprovion of parking and transport hub.

Eugene Street Flats

The flats offer residential accommodation in 36 flats and are locally listed. They are three storeys high and comprise three mansion blocks, including Montague, Eugene and Marlborough Flats. Total accommodation includes Montague 845sqm, Eugene 845sqm and Marlborough 845sqm. TOTAL 2535sqm. No decant or reprovion is required.

Level 2 Plantroom

The Level 2 plantroom is located below the Pharmacy delivery yard and has a single building located above it at Level 3 as part of the Pharmacy complex; it abuts Dolphin House and the King Edward Building at Level 2.

Large items of plant and major services infrastructure are routed through this space, using the network of tunnels under the site for distribution.

Total accommodation includes: THQ Level 4 365sqm, Level 3 1115sqm, Level 2 775sqm, Level 1 130sqm with a total of 2385sqm.

MSCP includes: 200 Cycle spaces with changing 170 Staff Parking spaces (used for out of hours staff parking). It is planned for this to remain where it is.

Figure 15 – Multi Storey Car Park adjacent to THQ (Google Street View)



Figure 16 – Eugene Street Flats behind THQ



Figure 17 – Existing Plant Room



Pharmacy

The Pharmacy comprises a collection of buildings accommodating admin and storage functions around the delivery yard at Level 3.

There is further accommodation at Level 4 abutting the Old School building. These facilities service the dispensing pharmacy in the Queens Building, also on Level 3 via an existing corridor, proposed for re-use as the primary access from the UEAC.

Total accommodation includes THQ Level 4 350sqm and Level 3 495sqm, giving a total of 845sqm. This area must be re-provided on the site, with possible use of temporary accommodation.

Old School Building

The Old School Building is a single storey building on the junction of Marlborough Hill and Alfred Parade. It abuts the two-storey Pharmacy building and has a linking construction to the King Edward Building.

The levels rise steeply up Marlborough Hill with access through the main door at Level 4. Alfred Parade abuts the building nearly 2m higher than floor level. Total accommodation comprises: 470sqm (excluding Pharmacy). This needs to be re-provided.

Figure 18 – Current Pharmacy Location



Figure 19 – Old School Building



2.8.2 CQC Inspection

During the most recent CQC inspection in 2021, several requirements/recommendations were set out by the CQC for UHBW to address. The requirements/recommendations most relevant to the Marlborough Hill project are:

- Bristol Emergency Department recommendation; check and risk assess the air quality and vehicle emissions within the ambulance waiting area, taking appropriate action where possible, should the air quality be considered a risk to patients and staff:
- This has been monitored (report received January 2022), with the monitoring period extended for a further 3 months. A suggested solution would be to provide 'hook up' or 'shorelines' for ambulances, avoiding the need for engines to be continually running.
- SWASFT have installed air quality monitors in the ambulance waiting areas and will share findings.
- An SBAR was prepared in May 2022 to further outline current issues.

- All premises and equipment requirement; all premises and equipment used by the service provider must be properly maintained, a significant backlog of estates maintenance was noted by the CQC:
- Strategic infrastructure programme is now in place for c£50m over the next 5–7 years to improve estate infrastructure.
- Backlog was reviewed and submitted as part of the ERIC return 21/22 and has reduced from £75m to £69m.
- Bristol Medical Services recommendation; review the environment on the endoscopy unit to ensure infection and prevention control standards are met and the premises are suitable for their intended use:
- Immediate issue regarding restricted access to dirty/clean linen was addressed at the time of inspection, however, longer term plans to upgrade the area are to be dealt with as part of the strategic capital programme.

2.8.3 Existing Service Arrangements and Challenges

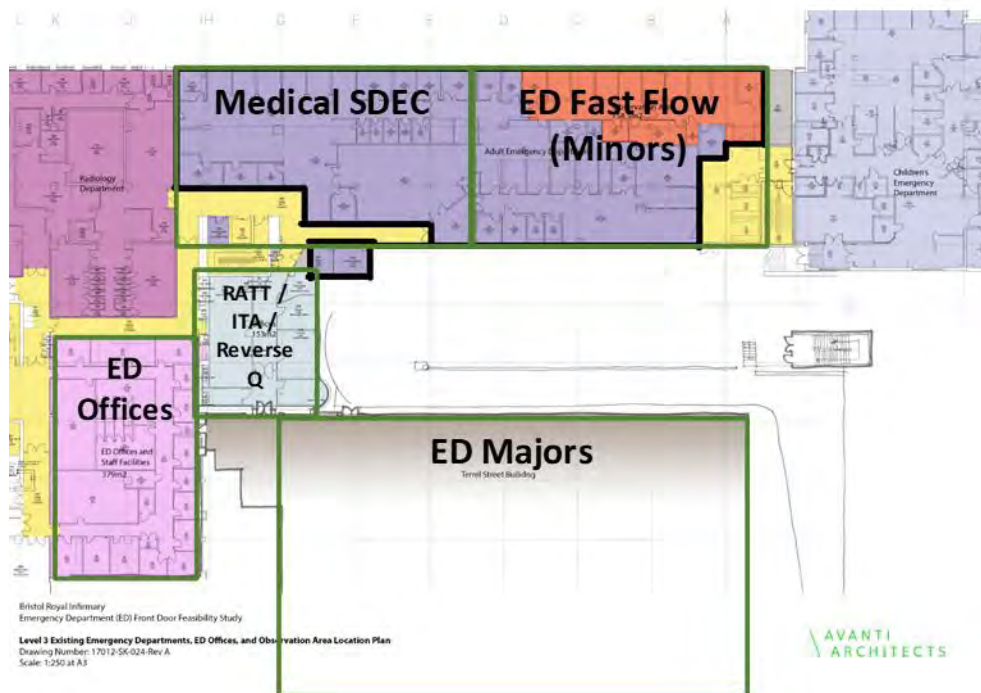
Adult Emergency Department

As shown in the figure below, the current department comprises:

- **A306** for 'Fast Flow Minors', including:
 - ◆ 11 cubicles
 - ◆ Reception office with reinforced glass barriers
 - ◆ Large waiting area for circa 40 patients
 - ◆ NHS 111 and EDST booths (EDST is available at WGH and from Aug 2022 at the BRI):
 - ◆ EDST booths have an urgent care self-service tool, also known as the streaming and redirection tool, and is a kiosk-based service, provided as a web application, for patients who arrive at accident and emergency (A&E) departments and urgent care settings with no pre-booked arrival time.
- **A300** for 'Majors' has:

◆ 16 Majors cubicles	◆ Security hub
◆ 8 Resus cubicles	◆ MH (mental health) interview room
◆ 8 Observation unit trollies	◆ 7 escalation or reverse queue spaces
◆ 'Fit to Sit' area	
- **A302** (Reverse Queue B) accommodates 4 escalation or reverse queue spaces.
- **A303** houses the Rapid Assessment Treatment and Triage (RATT) and the Incident Triage area, which has 3 trollies.

Figure 20 – Level 3 Existing Emergency Departments – BRI



The key current challenges and limitations within the Adult ED include:

- Providing timely and responsive treatment for our populations by addressing. The poor condition and lack of suitable theatres, that are contributing to elective waiting lists and constrain backlog recovery. As well as constraining the strategic ambitions of the Trust to drive our regional/tertiary provision.
- Poor working environment in our urgent care, theatre and endoscopy facilities where evidence demonstrates impact on staff health and well-being and consequent impact on retention and recruitment.
- Adult ED unfit for purpose, adding to performance challenges i.e. ED handover times, national league table position, 4 hour and 12 hour waits and elective recovery;
- The need to improving ambulance handover times;
- Addressing the challenges faced within the current environment and facilities and their impact on staffing efficiencies, patient pathways and opportunities for co-locations or adjacencies;
- Addressing delayed discharge
- Creating space within the existing estate to enable the expansion and renovation of the Bristol Royal Hospital for Children to create the capacity and timely patient pathways for paediatric population across the wider system.

Radiology

The current coadjacent radiology services (with ED) are as follows:

- One CT room shared with inpatients/ITU
- Radiology reporting hub
- This is supported by office and seminar room accommodation.
- Three plain imaging rooms (one currently not functioning)

Current challenges within Radiology include

- Backlogs in treatment and poor patient flow causing delays in care;
- Physical capacity leading to clinical quality and safety concerns;
- Poor equipment availability i.e. 1 plain imaging room not currently working;
- Lack of dedicated CT, increasing emergency and elective &/ outpatient waiting times.

AMU (Acute Medical Unit)

BRI AMU current layout includes:

- Ward A515, which is the main assessment unit, with 25 beds and 3 escalation trollies;
- Ward A518, which is the short stay unit for stays less than 72 hours and has 14 beds.

OPAU (Older Persons Assessment Unit)

BRI OPAU is solely A400, which is a 30 bed ward, with 4 escalation trollies.

STAU (Surgical Trauma Assessment Unit)

BRI STAU current working capacity includes:

- 23 beds;
- 3 assessment area trollies (open 07:00–22:30), with capacity to isolate one patient
- 6 assessment areas chairs (open 07:00–22:30).

Medical SDEC (Same Day Emergency Care)

BRI SDEC currently uses A307 and has:

- 8 cubicles
- 1 triage room
- 1 reception desk
- 1 waiting room for approx. 20 patients (this includes 2 metre social distancing)

The key current challenges and limitations faced within AMU, OPAU, STAU and SDEC include:

- Recurring capacity constraints being driven by demographic growth, changes in the times of presentation, increasing acuity, increasing age profile and increased number of complex patients and mental health concerns;
- Layout constraints of the departments cause diseconomy and complexity of staffing;
- Constraints of the environment causing constraints to delivery of the acute medical and frailty model required to enact HW2 in UHBW including the medical/clinical workforce model;
- Poor environment requiring upgrade across many areas with layouts causing difficulties to delivery of rapid turnaround services;
- Lack of escalation or boarding capacity on the STAU unit.

Theatres and Endoscopy Rooms

The Trust has a total of 39 operating theatres split across 10 theatre units and 7 hospital sites. The following table provides a breakdown of these theatre units:

Table 12 – UHBW Theatre Numbers (May 2022)

Site	Unit	Theatres	Main Use
BRI	Hey Groves Theatres	10	1 CEPOD, 1 Trauma, 4 Cardiac, 4 Thoracic, HPB, GI, OMFS
	Queen's Day Unit	2	1 ENT, 1 UGI/OMFS
STMH	STMH Theatres	5	2 Obstetrics, 1.5 Gynae (IP and DC), 1.5 ENT and GI (DC only)
BDH	GA Theatre	1	1 Paediatric Dental GA
BEH	BEH Theatres	4	4 Ophthalmology
SBCH	Day Surgery Unit	2	2 Miscellaneous (GI, Ophthalmology, Dermatology, OMFS, Pain, Cardioversion etc.)
BRHC	Main	7	4 Paediatric General Surgery, 1 Hybrid, 1 Burns, 1 Neuro
	DC (Day Case)	2	2 Paediatric Day Case
WGH	Main	4	0.5 CEPOD, 1 Trauma, 2.5 Orthopaedic, Urology, GI, Breast, Somerset Surgical Service (SSS)
	DC	2	2 Miscellaneous Elective
TOTAL:		39	

In addition, the Trust has eight endoscopy rooms split across three sites that are used exclusively for adult patients. Paediatric endoscopy activity is undertaken in BRHC theatres as patients receive a general anaesthetic.

Table 13 – Endoscopy Rooms – all sites

Site	Unit	Endoscopy Rooms
BRI	Queen's Day Unit	4
SBCH	Endoscopy Unit	2
WGH	Endoscopy Rooms	2

BRI Hey Groves Theatres (HGT)

There are 10 theatres in Hay Groves in the BRI and a small mixed-sex stage 1 recovery.

The works carried out in these theatres includes major surgery for cardiac, complex GI surgery, thoracic surgery, limb reconstruction, maxillofacial surgery, gynae, trauma and CEPOD.

A relatively high percentage of the non-cardiac activity in HGT theatres is cancer surgery. The vast majority of cases require inpatient beds post-operatively, including critical care. Day cases are only scheduled in these theatres as fillers to fully utilise time on lists.

Laminar flow is available in two theatres (HGT 7 and 8: trauma and limb reconstruction).

BRI Queens Day Unit (QDU)

There are 2 theatres, 4 endoscopy rooms, a mixed-sex stage 1 recovery, and male / female stage 2 recovery areas. These theatres do not have anaesthetic rooms; patients are anaesthetised in theatre, which can have an impact on patient flow.

The work that is carried out in QDU theatres is predominantly head and neck surgery. QDU theatres perform a range of day case and inpatient surgery. There has been a reduction of day case activity in these theatres following the centralisation of head and neck services in 2013.

There are some smaller GI cases that are unsuitable to be undertaken off the BRI site.

The work that is carried out in QDU Endoscopy includes diagnostic and therapeutic procedures. This facility also accommodates the Bowel Cancer Screening Programme (BCSP) and a small number of bronchoscopy sessions.

Bristol Royal Hospital for Children Theatres (BRHC)

There are seven theatres on Level 4 of the BRHC and a mixed-sex Stage 1 recovery area. There are an additional two theatres on Level 5 of the BRHC that are used for day case surgery with a mixed-sex Stage 1 recovery area. The patients receive second stage recovery on the wards.

St Michael's Hospital (STMH)

There are five theatres, a small mixed-sex Stage 1 recovery, and separate male and female Stage 2 recovery areas.

These theatres do not have anaesthetic rooms, but they do have reception rooms used as holding rooms, where patients can be cannulated only.

The work that is carried out includes a mix of emergency and elective gynaecology, obstetrics, ENT, and some GI cases suitable for off BRI site, mainly day case operating.

This site is only suitable for low-risk GI procedures.

For non-gynae cases, there is limited inpatient bed capacity, suitable for 24-hour stay only and low risk patient groups. This limits the possible case mix.

Bristol Dental Hospital (BDH)

There is one GA theatre for paediatric cases in the BDH. There is no separate anaesthetic room and it is an entirely self-contained unit.

Note that the types of procedures undertaken in this theatre are suitable for a minor procedure environment.

This facility has two half day sessions that are currently fallow. This was the product of a rationalising of existing theatre lists as part of the Division of Surgery 2018/19 CIP programme.

Bristol Eye Hospital (BEH)

There are four theatres in the BEH, which are dedicated to emergency and elective ophthalmic surgery. In addition, there is a procedure room that is used for corneal cross-linking procedures.

There is a separate business case being considered as part of the Phase 5 programme, related to the refurbishment of the BEH theatres, and the building of a fifth operating theatre to facilitate decent and to provide additional capacity to accommodate future demand.

South Bristol Community Hospital (SBCH)

There are two theatres, two endoscopy rooms, a Stage 1 recovery, and separate male and female Stage 2 recovery areas. These theatres do not have anaesthetic rooms; patients are anaesthetised in theatre which can have an impact on patient flow.

The work that is carried out in SBCH Theatres includes a range of surgery such as simple LGI and UGI cases, elective orthopaedics, oral surgery, dermatology, ophthalmology (oculoplastic), pain and cardiac (cardioversion).

The work that is carried out in SBCH Endoscopy includes diagnostic endoscopy, BCSP sessions and a small amount of gynaecology (hysteroscopy).

There are currently vacant sessions in SBCH Endoscopy, which relate to consultant vacancies within the current establishment.

There is no surgical inpatient bed capacity, which limits patient suitability and case mix.

Weston General Hospital (WGH)

There are four main theatres at WGH, three of which have laminar flow. There is a theatre receiving unit, which is a collocated surgical admissions suite.

There are two day case theatres used primarily for short stay admissions. In addition to this there is a surgical day case unit with 17 recovery spaces.

The work that is carried out includes a mix of emergency and elective, including Orthopaedic, Urology, GI, Breast and SSS. SSS refers to an independent sector provider, Somerset Surgical Services. There is a contract between the Trust and SSS, which permits them to use any unutilised theatre capacity on the WGH site.

CSSD services for the WGH theatres are provided from the BRI CSSD unit.

There are two endoscopy rooms at WGH, of which neither are lead lined. There is space for a third room, which although it was originally built to endoscopy specification, it is currently used as a kitchen, hence it could be converted to an endoscopy room.

In summary the key challenges for Theatres overall, which need to be considered during deliberation of the OBC options are:

- **Distributed model of theatres;** the Trust has 39 theatres across 7 sites in 10 theatre suites, which has its benefits and disbenefits, such as protecting some services from acute pressures, however this introduces diseconomies of scale and inconsistent practices.
- **Condition of theatres;** as highlighted in sections on 'Electrical Resilience' and 'Ventilation' below, urgent work has been undertaken to resolve the immediate concerns and risks regarding AHUs and electrical resilience, and, further fire compartmentalisation work is pending. There is also a lack of modern integrated (OR1 or laparoscopic) theatres.
- **Structural limitations** in the size and configuration of post-operative recovery, day unit and inpatient bed availability on the BRI, WGH and BRHC sites in particular. The use of QDU within the BRI and SDCU in WGH as escalation areas, impacts on day case volumes (including for Cath Labs).

Ventilation System Review

In March 2018, the Trust commissioned an Authorised Engineer (AE) to undertake an independent, Trust-wide review of the current condition of theatre ventilation systems. The objective of the review was to ascertain the condition of the principal ventilation plant elements installed throughout the theatre suites, and to detail a critical investment priorities schedule based on no change of use to the theatre spaces.

The review found that a number of elements tested (e.g. Pre-Filter, Fan Unit, Secondary Filter and Attenuators) either had significant issues (can use theatre, but needs routine maintenance) or were rated as critical (can use theatre, but could cause a significant risk; high priority works).

In response to this survey, the Estates team undertook some minor works to the ventilation systems to address immediate concerns. For example, new bearings were installed in all Hey Groves Theatres, HGT2, HGT3, HGT4 had reconditioned fan replacements and STMH5 had minor works to the surgeons' panel and ventilation. Although these works addressed the immediate risk of ventilation system failure, they did not resolve the underlying issues regarding the age, condition and reliability of the systems.

Electrical Resilience

In April 2018, the Trust also commissioned an independent review of its electrical resilience systems supporting our operating theatre estate. This report identified a number of areas where the existing UPS (uninterruptable power supply) and IPS (instant power supply) resilience requires improvement to mitigate risks associated with interruptions to electrical power supply. Following the review, the Estates team undertook works supported by capital investment to resolve immediate concerns and risks.

Endoscopy

The Joint Advisory Group (JAG) on GI Endoscopy supports endoscopy services across the UK to focus on standards and identify areas for development. The JAG runs an accreditation process which assesses the current performance of endoscopy services against a defined set of standards.

The Trust's endoscopy services received their five-yearly JAG inspection in February 2019. The Trust's accreditation status has currently not been renewed and is categorised as 'assessed: improvements required.'

The predominant issues raised by JAG relate to the suitability of the clinical environment and the Trust's ability to satisfy their quality standards, specifically privacy and dignity breaches relating to:

- The collocation within Queens Day Unit (QDU) of the endoscopy department, two theatres, day case recovery from Heygroves Theatres (HGT), and its use as an inpatient facility as part of extreme escalation.
- Where patients from the endoscopy procedure rooms cross paths with patients in the theatres first stage recovery.
- Where patients undergoing procedures and changed out of their day clothes are walking past the open seated area seating unchanged patients and relatives.
- The Outpatient Gastro-Intestinal (GI) Physiology room is situated within the endoscopy and theatres area. Outpatients accessing this clinic walk past the first stage recovery.

- There is inadequate storage for equipment which leads to the storage of trolleys, c-arm etc. The assessment team felt this was hazardous and unwelcoming.

The Trust submitted an initial action plan in response to the concerns raised by the JAG in May 2019. Due to the COVID-19 pandemic, there has been no project progress made on the BRI site and previous plans are now not considered to meet the brief now required by JAG accreditation. SBCH was also assessed for JAG compliance and is also not compliant.

Prior to the 2019 action plan a business case was submitted in January 2018 to address the privacy and dignity concerns by remodelling the adjacent old pre-op department (A403), constructing an external corridor with the possibility of converting the QDU theatres into therapeutic endoscopy rooms. The headline costs for this development were £4.85m. This business case was deemed to be cost prohibitive and not approved.

Weston General Hospital Endoscopy has JAG accreditation, however, currently both the BRI and SBCH sites are non-compliant and do not have JAG accreditation. As a result, the Trust's Endoscopy reputation is at risk and therefore there is an ongoing issue with recruitment and retention of endoscopy staff.

2.8.4 Further operational challenges and priorities

The Trust has a number of key operational priorities for clinical services that are intrinsically linked to wider strategic objectives described above and also to the Covid driven backlog and subsequent 'Elective Review and Recovery'. Each of these priorities are compounded by the demographic growth and increasing activity being seen for both overall emergency and elective demand, and the need to focus services on improving quality outcomes for patients and enhancing patient experience.

In line with the national standards set to tackle the backlog for elective care the Trust is required to ensure waits of longer than a year for elective care is eliminated by March 2025, ensure that long-waiting patients will be offered further choice about their care, and over time as the longest waits from over two years reduce to under one year, this will be offered sooner. Diagnostic tests are a key part of many elective care pathways, and in line with the national ambition, 95% of patients needing a diagnostic test receive it within six weeks by March 2025.

Outside of managing this backlog the Trust has a number of other priorities for elective care to ensure that the increasing numbers of new patients requiring treatment can be managed effectively; by implementing new pathways of care and facilities that support services to treat more people in different ways will ensure the current waiting list does not just keep getting longer and facilities are inadequate to support the changes required.

Prioritising key treatments will also be a part of this plan; the Trust, as with many large acute hospitals are consistently seeing record levels of urgent suspected cancer referrals since March 2021, a result of people not accessing treatment during the pandemic. In line with national targets, by March 2024, 75% of patients who have been urgently referred by their GP for suspected cancer are required to be diagnosed or have cancer ruled out within 28 days. This links directly to the ambitions of the NHS Long Term Plan ambitions on early diagnosis and effectiveness of early treatment.

For patients who need an outpatient appointment, the time they wait can be reduced by transforming the model of care and making greater use of technology.

There are a number of **key priorities** for UHBW, directly related to this project:

Elective waiting lists and backlog

Growing waiting lists for care pre-date the pandemic, following a decade of funding settlements that failed to keep up with rising demand for services and growing staff shortages. A number of national performance standards including waiting times for A&E, hospital treatment and cancer care have not been met for several years. Covid-19 also substantially contributed to growing waits for care, with many services operating at reduced capacity during the pandemic and pent-up demand being created as large numbers of people did not come forward for care.

The 2021 British Social Attitudes survey found 'taking too long to get a GP or hospital appointment' is the most common reason for dissatisfaction with the NHS.

At best, longer waits mean inconvenience and discomfort for patients, but for some it will mean deteriorating health and more severe illness, waiting in pain for operations, cancers being diagnosed later and the risk to patient safety of long waits in overcrowded A&Es. While patient surveys show that for the most part the people continue to have a good experience of care they receive, growing waits for care are being felt by the public

Performance challenges (ED handover times, national league table position, 4 hour and 12 hour waits and elective recovery)

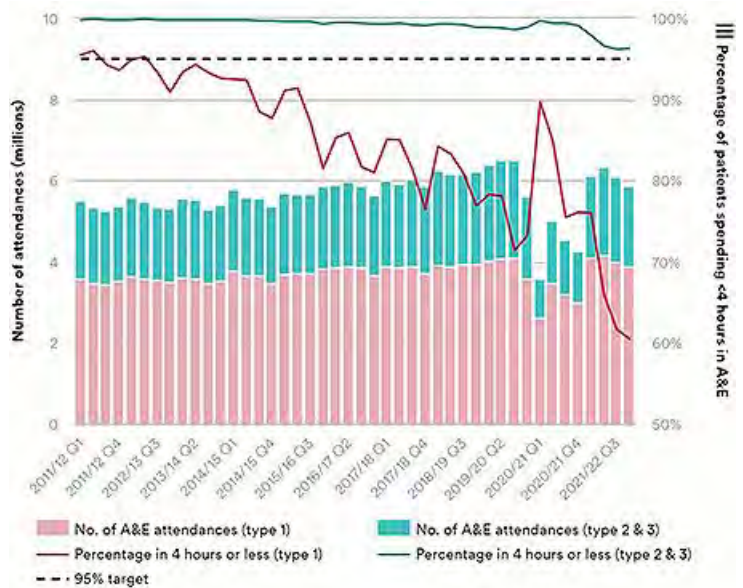
The four-hour standard was introduced in 2004 to support improvement in flow within acute hospitals. It gave focused resources, particularly staffing into emergency care; the number of emergency medicine doctors has grown by almost 50% since 2009, within which the number of consultants has almost doubled and there have also been significant increases in nurses working in nurse practitioner roles. However, since the introduction of the standard 15 years ago, there also have been major changes in the practice of medicine and in the way urgent and emergency care services are delivered, from the introduction of specialised centres for major trauma and stroke, to new mechanisms for entering the system through NHS111. The NHS Long Term Plan sets out how these services will be improved further, including the accelerated rollout of Same Day Emergency Care (SDEC). The Plan also sets out an increased focus on the management of acute life-threatening conditions such as sepsis, heart attacks and strokes.

The priority for UHBW and the wider ICB is to ensure the emergency department meets the national standards around this widely accepted emergency department four-hour wait standard.

The current headline four-hour access standard is used to measure and report performance against one aspect of the urgent and emergency care system. As set out in detail in the interim report, there are well-documented national issues and whilst opportunities to make changes are currently under review, the issue remains that many emergency department are under increasing pressure.

At UHBW, performance remains **extremely challenged** with key targets shown to have significantly deteriorated year on year.

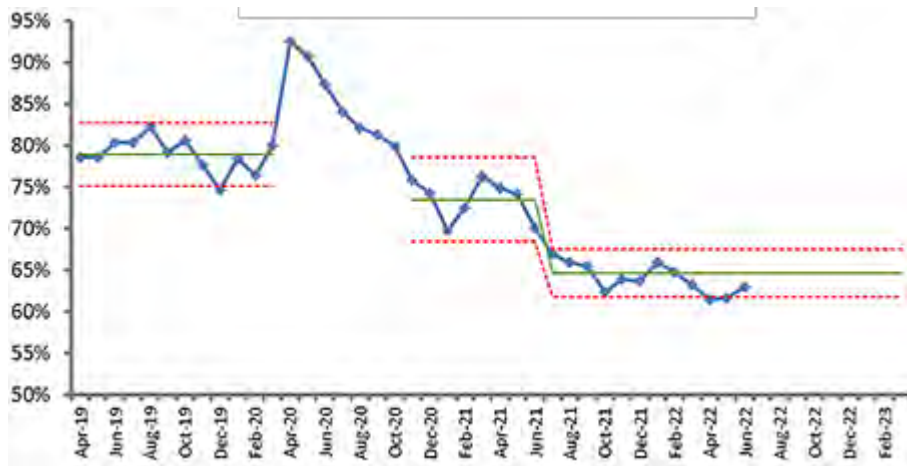
Figure 21 – National % attendances in A&E and deteriorating numbers of patients seen in 4 hours or less



4 Hour Standard

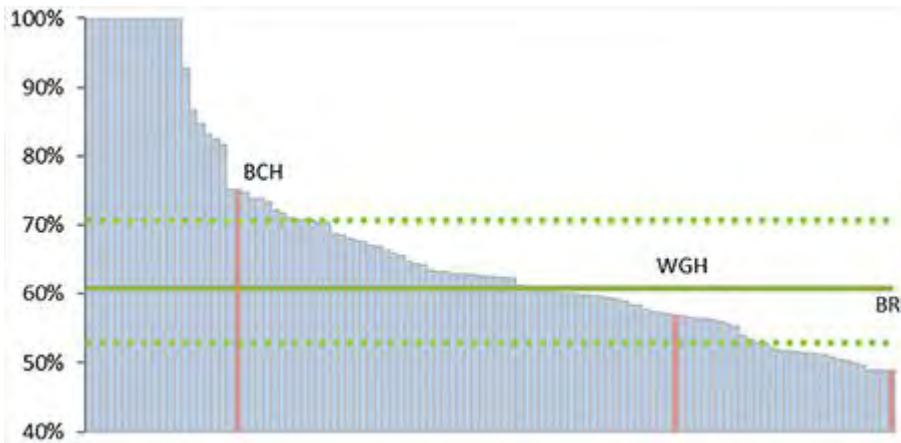
Measured as length of time spent in the Emergency Department from arrival to departure/admission. The national standard is that at least 95% of patients should wait under 4 hours.

Figure 22 – UHBW deteriorating position of patients being seen within 4 hours



By benchmarking the ED four-hour performance, it can be seen that for quarter 1 2022/2023 the BRI is currently one of the worst performing trusts in the country.

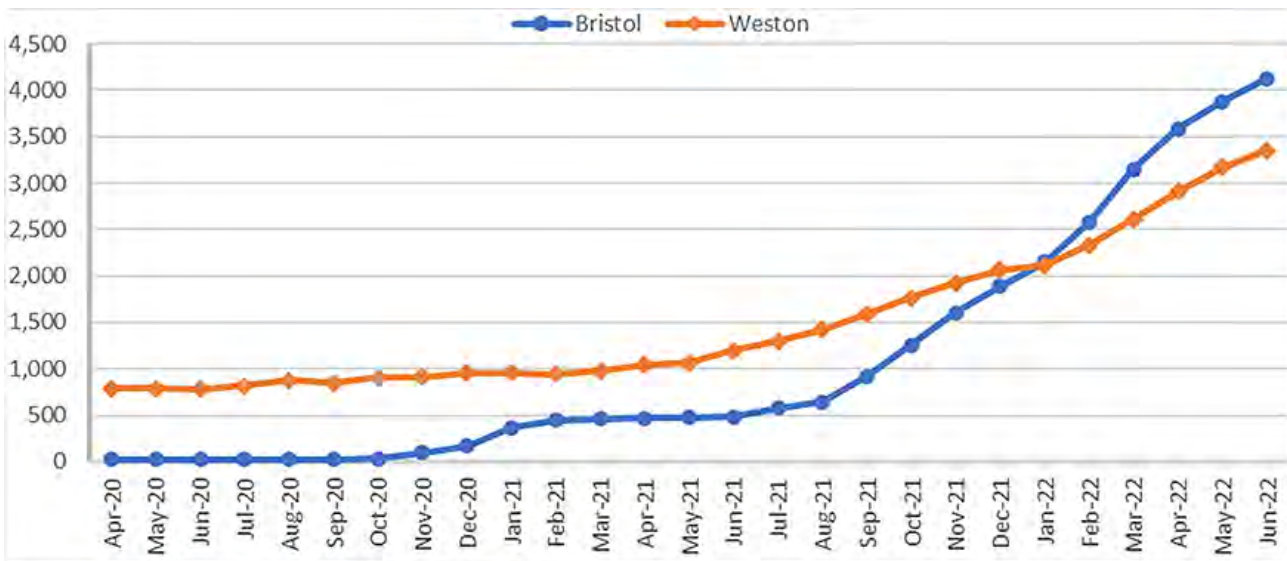
Figure 23 – Benchmarking BRI and WGH ED 4 hour performance (22/23 Q1)



12 Hour Trolley Waits

A supporting measure for Emergency Care is the “12 Hour Trolley Wait” standard. For all patients admitted from ED, this measures the time from the Decision To Admit (within ED) and the eventual transfer from ED to a hospital ward. The national quality standard is for zero breaches, and that no patient will wait more than 12 hours in ED after a decision to admit has been made, called “Trolley Waits”.

Figure 24 – increasing rolling 12-hour trolley waits since June 2021



NHS England has recently consulted on a proposed new set of standards for urgent and emergency care, as part of the NHS access standards review¹². The response to the consultation outlined plans to implement new critical standards to be met, including a measure of the percentage of ambulance handovers that take place within 15 minutes. These new standards are expected to create increasing pressure on acute Trusts to demonstrate improved performance.

12 NHS Access Standards Review 2021, NHS England

Improving ambulance handover times

The national guidance states that patients arriving at an emergency department by ambulance must be handed over to the care of A&E staff within 15 minutes and also an expectation that no Ambulance Handover will exceed 30 minutes.

A handover delay does not necessarily mean that the patient waited in the ambulance – they may have been moved into the A&E department, but staff were not available to complete the handover. Despite this national ambition, almost one-in-five ambulance handovers experienced a delay of least 30 minutes in 2021–22, a total of 156,665 ambulance handover delays, 21% of all ambulance arrivals

This is regarded as one of the most important indicators of measuring a system under pressure, as it occurs as a result of a mismatch between A&E/hospital capacity and the number of elective or emergency patients arriving. Before an A&E department becomes so full that significant queuing begins, the hospital should implement an escalation plan and alert the local clinical commissioning group. If significant delays still occur, this demonstrates a failure of the hospital trust (and wider health system) to meet the needs of patients requiring emergency care, since allowing ambulance queues to build up is not an appropriate way of managing an increase in demand. Data on ambulance handover delays of over 30 minutes is now collected as part of daily SitReps. The 30 minutes includes the 15 minutes allowed under SitRep guidance if an ambulance is unable to unload a patient immediately on arrival at A&E because the A&E is full.

The handover time is measured from 5 minutes after the ambulance arrives at the hospital and ends at the time that both clinical and physical care of a patient is handed over from South West Ambulance Service Foundation Trust (SWASFT) staff to hospital staff. This time is not only the time that a verbal handover is conducted; it also includes the time taken to transfer the patient to a hospital chair, bed, or trolley. A review of UBHW handover times during June 2022 is demonstrated below.

Figure 25 – South West Handovers June 2022

	Total Handovers - South West - June 2022						
	Total Handovers	Over 15 Mins	% Over 15 Mins	Over 30 Mins	% Over 30 Mins	Over 1 Hour	Over 2 Hours
BRISTOL ROYAL HOSP FOR CHILDREN	534	225	42.1%	70	13.1%	12	3
BRISTOL ROYAL INFIRMARY	1,953	1,618	82.4%	1,110	56.5%	669	323
CHELTENHAM GENERAL HOSPITAL	553	347	62.7%	201	36.3%	80	19
DERRIFORD HOSPITAL	1,867	1,562	83.7%	1,352	72.4%	1,058	810
DORSET COUNTY HOSPITAL	1,424	378	26.5%	143	10.0%	46	12
GLOUCESTER ROYAL HOSPITAL	2,313	2,043	88.3%	1,727	74.7%	1,239	746
GREAT WESTERN HOSPITAL	1,908	995	52.1%	501	26.3%	270	154
MUSGROVE PARK HOSPITAL	2,276	1,176	51.7%	528	23.2%	224	71
NORTH DEVON DISTRICT HOSPITAL	1,250	680	54.4%	328	26.2%	114	22
POOLE HOSPITAL	1,844	1,395	75.7%	982	53.3%	632	341
ROYAL BOURNEMOUTH HOSPITAL	1,852	1,322	71.4%	922	49.8%	526	240
ROYAL DEVON AND EXETER WOLFORD	2,687	1,426	53.1%	635	23.6%	159	15
ROYAL UNITED HOSPITAL - BATH	2,306	1,364	59.2%	785	34.0%	453	225
SALISBURY DISTRICT HOSPITAL	1,073	627	58.4%	345	32.2%	206	95
SOUTHMEAD HOSPITAL	2,551	2,115	82.9%	1,367	53.6%	781	452
TORBAY HOSPITAL	1,768	1,414	80.0%	1,081	61.1%	832	534
TRELISKE HOSPITAL	2,016	1,826	90.6%	1,665	82.6%	1,398	1,067
WESTON GENERAL HOSPITAL	851	652	76.6%	373	43.8%	229	149
YEOVIL DISTRICT HOSPITAL	1,225	513	41.9%	146	11.9%	31	1
SOUTH WEST TOTAL	32,261	21,678	67.2%	14,261	44.2%	8,959	5,279

Out of 1,963% BRI ambulance attendances 1,618 waited longer than 15 minutes for handover (82.4%) and for Weston handovers, 75.6%. At 30 minutes 56.5% (BRI) and 43.8% (Weston) were still waiting with the numbers of patients not seen for over an hour increasing.

Addressing the challenges faced with the current environment and facilities and their impact on staffing efficiencies, patient pathways and opportunities for co-locations

There are a number of primary issues with the existing estate that are contributing to the Trust's performance deterioration, these include:

- The overall demand is outstripping the capacity for inpatient beds due to the need to re-house the emergency department (ED) in the old Acute Medical Unit (AMU) estate, which has meant the total available inpatient capacity has been reduced.
- The layout of the ED is restrictive and inefficient, which does not allow teams to maximise the effectiveness of new pathways of care and has created inefficiencies in staff utilisation.
- There is limited space and facilities that are distant from each other for the AMU/OPAU/STAU capacity for maximising short stay or rapid assessment pathways
- There are a high number (>100 per day) of patients who are deemed medically fit for discharge (MFFD) but whose discharge is delayed due to the lack of system capacity to support their health and social care needs out of hospital.

Workforce shortages are exacerbated by:

- Staff working in a highly stressful environment which has not been designed and constructed for its current clinical requirements
- Staff rest areas are very limited and need to be shared by large numbers of staff. This does not provide adequate environmental space for staff to relax when faced with a demanding and often emotionally charged environment.
- The current levels of ambulance queueing as discussed in point 3 above has a significant impact on patient care and the difficult environment staff are faced with.
- Vulnerable groups such as patients with mental health issues, learning difficulties or have dementia are particularly disadvantaged in the current environmental due to the confused layout and no dedicated safe space
- Violence and aggression locally has been rising, including the number and severity of attacks, design council work outlines clear principles which could be incorporated within a new hospital care environment to help reduce this unacceptable situation.

Marlborough Hill is also an enabler for the Children's ED to expand and respond to the increased demand within a landlocked site. The Children's ED are experiencing the same issues described above and this programme will also give an opportunity for the wider issues of the estate to be addressed, including Children's Emergency Department, PICU and inpatient wards.

Delayed Discharges

Patients who are medically fit for discharge should wait a minimal amount of time in an acute bed. Pre-Covid, this was captured through Delayed Transfers of Care (DtoC) data submitted to NHS England. This return has been discontinued but the Trust continues to capture delayed discharges through its No Criteria to Reside (NCR) lists. These are patients whose ongoing

care and assessment can safely be delivered in a non-acute hospital setting, but the patient is still in an acute bed whilst the support is being arranged to enable the discharge.

Patients are transferred through one of three pathways; at home with support (Pathway 1), in community based sub-acute bed with rehab and reablement (Pathway 2) or in a care home sub-acute bed with recovery and complex assessment (Pathway 3).

There are regularly greater than 100 patients who could be out of an acute setting, which could be significantly reduced with more targeted pathway changes and suitable admission decisions.

2.9 Activity, capacity and demand

2.9.1 Strategic capital review outcomes (2021)

In July 2021, Archus submitted their Strategic Capital Review to the Trust, of which the key objective was to support the Trust in reviewing the Strategic Capital Programme. Three of the main activities were:

- a) Collating the capacity requirements across the range of proposed schemes and service developments;
- b) Testing anticipated capacity and demand requirements, based on a consistent set of assumptions across the existing business cases;
- c) Outlining and evaluating a range of scenarios, based on the scope of the schemes in the programme and the available physical estate options, to deliver the required benefits of the overall programme.

A demand and capacity model was created using the Trust's baseline data, using agreed demographic and non-demographic factors.

The outcome was a series of projections of the future activity and capacity requirements at five-, 10- and 20- year periods for:

- Emergency department and non-elective services
- Elective services
- Paediatric services
- Ophthalmic services
- Oncology and Haematology.

Key Model Assumptions

Key assumptions used in the model included:

- FY20 months 1-11 baseline, uplifted for full year effect;*
- Principal planning horizon FY35, although the model produces outputs for every year to FY40;
- Endoscopy and imaging growth, per Prof. Mike Richards' report¹³;
- Same Day Emergency Care (SDEC) opportunity – modelled at diagnosis level and assumes Ambulatory Emergency Care Directory met at lower end of range, with

¹³ "Diagnostics: Recovery and Renewal – Report of the Independent Review of Diagnostic Services for NHS England", Professor Sir Mike Richards, November 2020 *

- Office for National Statistics (ONS) demographic projections applied at patient level (adjusts for age, sex, location);
- Non demographic growth identified from historical trends / business cases / divisional analysis;
- Non demographic growth levels assumed to move to standard NHSEI planning assumption of 1% over five years (assumes integrated care system able to manage demand to this level over the medium to longer term) – excl. cancer and dermatology;
- Occupancy, utilisation and throughput retained at existing levels except where specific opportunities identified;
- throughput assumption of 4 patients per space per day;
- Length of Stay opportunity modelled on basis of saving 50% of delayed discharge bed days;
- Outpatient new to follow up ratios modelled on basis of achieving 50% of national best quartile opportunity;
- British Association of Day Surgery best practice opportunities for same-day surgery applied;
- Emergency Department non urgent attendance reduction of 4.3% based on NHS Digital dashboard.

2.9.2 Business case review

There were a number of individual business cases, which were developed by the service leads in recent years. Completion of the demand and capacity model enabled a review of the business cases to test the activity, assumptions and capacity projections against the model findings. For a full list of business cases reviewed [see Appendix 3; Strategic Capital Review].

Summary of key findings

The table below shows the key variances between the assumptions on requirements contained within the various business cases, relating to the scope of this project, against the findings from the activity and demand modelling.

Table 14 – Key findings from business case review – Strategic Capital Review July 2021

Area	Key findings	Variance between business case and model output/s
Adult ED	The model projects 36 cubicles required by FY35 which is closely aligned with the business case projections of 33 cubicles required in 10 years' time and 40 in 20 years' time.	The projection for observation spaces of c.8 beds is lower than 12-16 per the business case. Our modelling assumes best practice in same day emergency care is implemented at the ED front door.
Children's ED	Business case requirement of 8 additional cubicles and 8 additional observation beds by FY28.	We project a lower requirement of 5 additional cubicles and 2-4 additional observation spaces by FY35, alongside c.6 SDEC spaces.
Eye Hospital ED	Business case suggests uplift of 5 cubicles.	Our modelling suggests uplift of 3 cubicles.
Eye hospital theatres	Business case and our modelling both identify need for an additional theatre.	Business case and our modelling are aligned.

Area	Key findings	Variance between business case and model output/s
Endoscopy	Our modelling projects a core additional endoscopy requirement of up to 8 rooms by FY35	If Trust can move to a 5.5 day operating week and 9 hour operating day on average together with 85% utilisation, the number may be reduced.
Theatres	Our modelling identifies a core additional requirement of up to 6 theatres by FY35.	If Trust can move to a 5.5 day operating week and 9 hour operating day on average together with 85% utilisation, the number may be reduced.

Adult ED and Children ED

Table 15 – Projected Adult and Children’s ED requirement

Department	Consulting / Examination Rooms			Same Day Emergency Care Spaces		
	Baseline	FY35 Projected	Variance	Baseline	FY35 Projected	Variance
ED – Adults	26	37	+11	9	17	+8
ED – Children	17	22	+5	4	6	+2
ED – Eye Hospital	10	13	+3	1	1	-

It should be noted the projections assume a lot more activity is done on an SDEC basis, in line with best practice, but that throughput is also increased, so there is only an insignificant uplift in SDEC space requirements. It was assumed the ED would probably be a new build facility and therefore scheduled accordingly.

Day Case, Elective and Emergency Beds

Table 16 – Projected Day Case, Elective and Emergency bed requirements

Department	Day Case Spaces			IP Elective			IP Emergency		
	Baseline	FY35 Proj.	Variance	Baseline	FY35 Proj.	Variance	Baseline	FY35 Proj.	Variance
Haem Onc	33	38	+5	35	45	+10	22	27	+5
Children	21	24	+3	45	46	+3	114	129	+15
Heart	12	11	-1	15	19	+4	64	85	+21
Dental	1	1	-	3	3	-	3	3	-
Eye	16	21	+5	4	7	+3	3	11	+8
Medicine	8	12	+4	10	10	-	255	280	+25
Surgery	28	35	+7	28	32	+4	103	123	+20
Dermatology	3	6	+3	0	0	-	0	0	-
Adult Critical Care					55		69		

Day Case beds functional content

The model assumed that growth was required and associated with existing facilities, i.e. Haem / Onc, Children’s, Adult Cardiac, Eye. Therefore, it required an additional 11 medicine and surgical day case beds in the main BRI Block, which could be a 1 x 11 or 12 bed ward. Space would need to be identified from vacant accommodation and would necessitate a review of all

day case spaces, to arrive at the right configuration for all medical and day case spaces. However, medicine day case numbers appeared to be small, a total of 12 spaces, but day case surgery of 35 spaces was relatively high; this could be developed as a single identified zone, possibly as one unit of 36 cabins.

Elective and emergency beds

This assumed that growth was required and associated with existing facilities, i.e. Haematology and Oncology, Children's, Adult Cardiac and Eye. It would require an additional 45 medicine and surgical beds in the main BRI Block, with space needing to be identified from vacant accommodation.

2.9.3 Summary and conclusions

The review looked at the potential impact of any clinical mitigation and innovation opportunities, specifically looking at how services can be delivered differently to reduce the demand on physical space, which will have to be adopted as the Trust moves forward with its strategic planning. Opportunities exist for system working, a left shift to the community and adoption of more digitally enabled hospital for the future.

Schedules of accommodation were produced for all functional content, resulting from the activity and capacity modelling. These schedules were then used by BDP for the current functional content shown in the original UEAC Feasibility Study [Appendix 7]. The Functional Content, which is defined as the number of beds; consulting / examination rooms; theatres can only be determined by the expected patient activity and the criteria used. These criteria include the operational days and hours per week and the number of sessions per day. Functional Content is the main driver for determining size of space required.

The new capital regime, introduced in 2020/21, requires careful consideration as it sets a limit to system (STP) capital expenditure each year, with restrictions on annual spending, in line with Capital Departmental Expenditure Limit (CDEL), regardless of any cash reserves that a Trust may have.

The UBHW CDEL for 2020/21 is £53.16m and is expected to be at a similar level in 2021/22. In 2020/21 UHBW is expected to underspend by circa £20m against the CDEL, largely due to the continuing impact of Covid-19. CDEL prevents the addition of this year's under-spend to next year's capital programme. In real terms this results in significant limitations on the amount that the Trust could invest in infrastructure, environment, restoration, major medical, digital and other elements, from capital, from 2021/22 onwards. Due to the outcomes within the Strategic Capital Review, the strategic capital programme was grouped into three categories:

- Category 1: Infrastructure and Restoration – 1–2 years:
- Very high risk and high-risk infrastructure requirements – c£25m over 2 years;
- Existing schemes linked to Restoration Framework:
- Adult ward capacity – c£11m over 1 year;
- Adult critical care capacity – c£12m over 2 years;
- Medical Education facilities – c£2m over 1 year.
- Category 2: Medium scale strategic development – 2–4 years;
- Category 3: Major strategic development – 3–5+ years.

Following the conclusions of the report, it became clear the Adult ED requirement could not easily be accommodated in the current core site and its relocation to the Marlborough Hill is therefore the “key-stone” to unlocking capacity across the rest of the site for service strategic developments for the Trust.

2.10 Clinical model

Clinical teams have been considering the required clinical model in the context of the wider Integrated Care System (ICS) plans. A key requirement of the clinical model is that the Adult ED department must move out of its current location due to the general poor condition and its capacity which is unable to manage even the current demand. Adult ED moving to another location, which is ‘fit for purpose’ would have the benefit and enable the Children’s ED, which is also struggling with capacity to expand. These two requirements remain a priority for the Trust and are seen as the cornerstone for the development of Marlborough Hill site and were agreed and signed off by the SLT (now Executive Committee) in February 2020.

Furthermore, refurbishment and upgrade of the main adult theatre complex is of vital importance for the Trust. Whilst the cost of this is not included in the scope for Marlborough Hill, it is known that if Marlborough Hill development were to proceed, it would further enable the required upgrades of these theatres.

The ICS System wide Strategy is currently in development and will include a detailed system wide capacity and demand analysis that aligns assumptions of the benefits of the Marlborough Hill Development within the wider developments taking place across the ICS and combine strategic priorities that improve people’s wider access to care in the right place, at the right time and by the right people.

The Acute Provider Collaborative is also currently undertaking a dynamic strategic analysis at each specialty level across the ICS to identify all opportunities for collaboration, with the objective of creating a BNSSG wide joint clinical strategy where each services plans and individual site developments will need to be aligned to demonstrate the wider networking of service developments and clinical pathways to maximise the collective capacity before single organisation expansion.

The Case for Change for the Marlborough Hill development is supported by each of the speciality groups identified above. The focus for each has been on what and importantly where, the current problems lie and the risks to services that need to be addressed. This has been followed by an assessment of what will be required of the development to address the problems and importantly, how the development supports the wider ‘system’ wide plans. The requirements are further detailed in the appendices, with an outline considered below.

Table 17 – Clinical Case for change

Clinical requirements	Environmental	Associated Impact
The acute medical Environment at the BRI	Unsuitable environment in the BRI for delivery of modern models of care for urgent and emergency care. Ward_capacity (MAU) has been replaced with ED in the BRI.	Layout causes significant challenges to deliver rapid assessment and treatment services. Evidence of Increased violence and aggression towards staff.

Clinical requirements	Environmental	Associated Impact
	<p>Centre of site location restricts access and flexibility.</p> <p>Significant Infection control risks.</p>	<p>Opportunities lost for key vulnerable groups such as those with mental health issues and patients with learning disabilities.</p> <p>Staff and Patient Experience affected</p>
Surgical Environment at the Bristol site	<p>Very poor current theatre estate on Bristol sites, impacting on staff and patients –programme of upgrade and modernisation required.</p> <p>Modernisation of Bristol theatres required to be fit for purpose – e.g. currently only 2 laminar flow theatres.</p> <p>Decant space required for upgrade programme.</p>	<p>Manifests in high level of cancellations, poor staff recruitment and retention, poor performance against quality indicators</p> <p>Poor environment in the BRI for endoscopy, specifically relating to QDU – impact on staff and patients.</p> <p>Loss of JAG compliance due to environment.</p>
Theatre capacity problems	<p>Recurring theatre capacity deficits particularly relating to complex specialist work</p> <p>Driven by (growth in demand, change in clinical practice, service transfer etc).</p>	<p>Causes poor access and challenges to quality and performance.</p> <p>Endoscopy capacity gap, predicted to widen with known and predicted growth</p>
Adult capacity on the Bristol Site	<p>Capacity gap driven by – demographic growth, changes in time of presentation, increasing acuity, increasing age profile, increasing mental health presentations.</p>	<p>Fixed physical capacity leading to clinical quality and safety concerns</p> <p>Inability to achieve range of performance standards.</p>
Enabler for the Children's Hospital development	<p>Without relocation of current emergency and urgent care facilities on the BRI site to unlock space expansion and redevelopment of children's services is not possible.</p>	<p>Poor environment requiring upgrade across many areas within BRHC notably CED.</p> <p>Recurring capacity constraints in PICU, ED, outpatients, inpatient bed base.</p>
North Somerset population needs	<p>The population is growing and has new health needs. This includes specific needs for all ages, including A&E, children's services and care for older people.</p> <p>A need to work across the System to deliver the above. The plans help the hospital work better with GPs and community services, build on the merger between Weston and Bristol trusts and provide better access to care and more continuity.</p>	<p>Need to provide safe and stable services. There is a risk to having enough staff to make sure hospital services meet local and national standards now and in future.</p> <p>Opportunities to create a Centre of excellence for older people's care in line with population need</p>
Complexity of case mix and the location of theatres	<p>Specific issue relating to complexity of case mix and theatre capacity on the main Bristol site (HGT and BRI) with the required adjacencies.</p> <p>Strategically this constrains our ability to innovate to develop our specialist cancer surgery portfolio.</p>	<p>Operationally this manifests itself in high cancellations for complex cases, poor access for patients and associated performance, poor patient experience, recruitment and retention in specialist areas.</p>

Clinical requirements	Environmental	Associated Impact
Address workforce challenges in Bristol and Weston	Very significant challenges in recruiting to particular medical work for groups (e.g. acute medicine and CoE). Recruitment and retention challenges linked to environment. Significant recruitment and retention challenges linked to poor and deteriorating environment.	Causes constraint to delivery of the acute medical and frailty model required to enact HW2 in UHBW including the medical/clinical workforce model. Lay out constraints of ED cause diseconomy and complexity of staffing. Challenges in delivering and developing specialist work and innovation risking wellbeing and retention of specialist workforce.
Developing opportunities	HW2 proposals regarding surgical centre of excellence provide opportunity for expansion of total UHBW theatre capacity, including dedicated modern facilities.	In turn, will give opportunity to improve utilisation of Weston site to improve access for patients across Weston and Bristol. Opportunity to improve access to surgical care for North Somerset population.

The demand and capacity need for each of the clinical services at specialty level to quantify the scale of the complex case mix issue, and which service type should be delivered where, is progressing to confirm the detail that will sit behind what needs to be on which site in terms of physical space requirements and appropriate adjacencies.

This is also being supported by a site level analysis across the ICS to look at the impact each development will have on the wider provision of services; for example, for operating theatres the assumptions will be aligned with the Acute Care Collaborative and ICS System strategy modelling where possible. This will be detailed further in the Outline Business Case for the Marlborough Hill development.

2.10.1 Planning principles for the service delivery model.

Several key principles to support the clinical model have been agreed within the clinical workstreams. These will each be considered in more detail within the benefits appraisal of the preferred way forward as part of the outline business case development, and are described below:

In line with the requirements of the ICB, the 'Preferred' solution will address the needs of BNSSG as a 'system'

- The development addresses the needs of the BNSSG system population across (BRI/Weston/NBT) and will not only benefit and focus on Bristol.
- The facilities will need to provide the recurring capacity to meet demand as modelled over the longer term.
- Complexity of the case mix to be accounted for in planning service delivery on the site.
- All sites to be planned at maximum, but achievable level of utilisation.
- Must achieve JAG compliance for endoscopy
- The solution will consider 'hot/cold site discussions' and enable an agreed consensus view.

Enables new models of care

- Enables the acute medical and frailty model required to enact HW2 in UHBW including the medical/clinical workforce model.
- Interfaces with NBT on the options for an acute medical network and be able to respond to the challenge expected from stakeholders for the continuation of 3 medical takes across BNSSG.
- The solution enables rapid patient flow
- Includes associated diagnostic facilities.

Improves and modernises the environment for sustainable delivery of health care

- Improves and modernises the environment
- Must include a credible plan for the upgrade and modernisation of theatres.
- Estates plan to be credible at a high level at this stage

Workforce the future

- Developments must be underpinned by a credible plan for the required workforce. A full workforce plan will be confirmed at OBC.

2.11 Investment objectives

To enable the success of this proposed development, the Project Team have followed NHSE&I's recommended 'SMART' objective plan to ensure that project objectives are:

- **Specific:** Focus precisely on what is required.
- **Measurable:** Ensure set objectives can be measured to determine the scheme's success.
- **Achievable:** The objectives set are agreed by all and attainable.
- **Realistic:** The project is realistic in its completion for all stakeholders involved.
- **Time Constrained:** The project can be achieved in its set and agreed timeline.

The Project Team have agreed the following spending objectives with corresponding baseline measures:

Table 18 – Investment/Spending objectives, measures and associated benefits

Investment/Spending Objective	Measure	Associated Benefit
1. Create a new Adult ED/Theatres/Endoscopy facility, improving patient access to the right service in a timelier manner, working with local providers to better coordinate care, by 2030 ¹⁴ .	4 hour wait data	Improved patient access to timelier and the appropriate care

¹⁴ 2030 indicates approximately 2 years post construction complete, when evaluation of benefits can be realised.

Investment/Spending Objective	Measure	Associated Benefit
2. Improve and expand Adult ED/Theatres/Endoscopy, provision and support spaces, ensuring they are in line with current best practice, improving patient safety, by 2030.	Increase in number of patients seen / demand being met	Improved patient flow and experience
3. To work with our system partners to improve patient experience and future proof services (including consideration of pandemic resilience and local health complexities) for the population we serve, until at least 2035 ¹⁵ .	Patient survey	Improved patient experience, meeting needs of population better
4. Create opportunities to develop improved clinical pathways and models of care, leading to better patient outcomes, by 2035.	Patient outcomes data	Improved clinical pathways for improved patient flow / experience
5. Provision of best practice JAG compliant endoscopy service to meet demand, by 2035.	Compliance inspection by JAG	Improved patient experience, improved staff retention
6. Release additional capacity to meet the Trust strategic objectives for expanding specialist services, by 2030.	Sq/m available once services have moved	Improved staff environment and therefore retention, better served population
7. To put in place and maintain estates that enable the Trust to achieve compliance and conformance with modern healthcare standards and sustainability net zero carbon targets by 2030.	Backlog maintenance six facet survey	Improved staff and patient areas, sustainable future proof buildings
8. To develop services and environments staff want to work in and become an employer of choice by 2030.	Staff survey	Staff retention

2.12 Stakeholder engagement

To date, there has been engagement with Trust clinical representatives, including nursing, consultants, allied health professionals (AHPs), radiology and infection control and with divisional management. This engagement has involved discussion regarding which services are to be provided within the new centre, accommodation requirements, with outlined clinical and operational adjacencies.

Development proposals have been discussed at system level via existing Chief Operating Officer forum including partners within **Lisa Manson (Director of Performance and Delivery, BNSSG ICS)**, **Karen Brown (Acute Surgery General Manager, NBT)** and **Sarah Branton (Deputy Chief Operating Officer, AWP)**. There is broad outline support for the scheme, subject of course to the required ICS scrutiny of the scheme. The ICS capital and estate strategy work provides visibility of all partner plans and is being progressed to inform a system wide prioritisation of capital schemes.

¹⁵ 2035 indicates the date to which the Trust's current demand and capacity is modelled up to.

As noted within the management case, a communications workstream will be established and regular communications will be issued via the UHBW Capital Programme Communications

Further working groups will be established, as outlined in the Management Case; one for acute medicine and one for elective surgical services, tasked with providing clarity on the case for change, demand and capacity (future size requirements) and clinical models of care.

2.13 Local sensitivities

The city centre location and proximity areas of local residential neighbourhoods requires careful planning of the site zoning and construction logistics to minimise the impact of the development both in construction and operation.

The Design Strategy 'Maintain Business As Usual' (as noted in section 2.16.8) confirms the reduced footprint and use of off-site manufacture, will minimise the impact of the development on the day-to-day operation of the Trust and its neighbours. Off-site manufacture will reduce the construction programme, reduce noise and dust, reduce the number of operatives on site and minimise transportation around the hospital site.

2.14 Integrated working

In late 2015, NHS England announced plans to bring NHS healthcare providers and commissioners, together with local authorities that provide social services, to form Sustainability and Transformation Partnerships (STPs). STPs are now known as ICS (Integrated Care System) and **Healthier Together** is the ICS for Bristol, North Somerset and South Gloucestershire (BNSSG). This has now been established as a statutory entity, BNSSG Integrated Care Board (ICB) following legislative changes from 1 July 2022.

The ICS involves 10 local health and care organisations, including UHBW:

- Avon and Wiltshire Mental Health Partnership NHS Trust;
- Bristol City Council;
- BNSSG Integrated Care Board (ICB);
- North Bristol NHS Trust;
- One Care;
- North Somerset Council;
- Sirona Care and Health;
- South Gloucestershire Council;
- South Western Ambulance Service NHS FT;
- University Hospitals Bristol and Weston NHS FT.

The main purpose of *Healthier Together* is to enable these organisations to work together to create an integrated care system for the population, that is affordable and sustainable.

2.14.1 Healthy Weston

BNSSG ICS and UHBW have an ambitious vision for Weston General Hospital to lead the country as a successful small hospital delivering truly integrated, safe and high-quality services that meet the specific needs of local people, now and in the future. We will do this by working in new and innovative ways with health and care partners.

Healthy Weston Phase 2 (HW2) builds on the Healthy Weston work published in October 2019, which recognised that the reforms it proposed were urgent and important, but further work

was required, to deliver the vision of Weston as a dynamic hospital at the heart of its community. The HW2 model will better support the local population by:

- Integrating specialist, community and social care services to support and care for the frail elderly
- Continuing to provide all-age general hospital services to the local community, including an A&E (open from 8am-10pm)
- Creating a surgical centre of excellence and reducing waiting times.
- Ensuring that specialist medical care is made available to very unwell people much earlier in their pathway
- Reducing the time that people spend in hospital through the strengthening of new same day care and short stay pathways

2.14.2 Healthy Weston 2 objectives

- Avoid admissions and get the right patients under the right teams to optimise recovery and minimise length of stay;
- To provide an accessible service, fit for purpose for the people of Weston;
- Build on excellent work already underway (Ageing Well) to have a seamless frailty service across primary and secondary care;
- Multiple information sources, good triangulation based on predicted capacity needs;
- Parts of the service are already in place (GEMS, care of the elderly wards)- need to expand capacity and increase MDT (therapy/pharmacy etc).
- Develop an OPAU (commensurate reduction in AMU);
- Develop cross cutting teams e.g., delirium and dementia.

The final decision on the future vision of care at Weston Hospital will be made in 2022 and phased implementation plans will be developed aligned to the final stages of clinical service integration across UHBW.

2.14.3 North Bristol Trust (NBT) and UHBW Acute Care Collaboration

The *BNSSG Acute Care Collaboration* resulted in the **Acute Services Review** which outlined the following vision:

“... to deliver exceptional health outcomes for the people we serve, through provision of the full range of acute services from general to specialist, working collaboratively within an integrated care system to make the most effective use of the expertise of our staff and our acute resources for the benefit of the whole health community.”

The vision will be delivered through three key themes:

- 1 Collaborating for excellence in delivery of specialist acute services, working together to make best use of the specialist skills of the whole workforce, the physical facilities and equipment. Exceptional quality and outcomes will be delivered by developing consistent and aligned services. Reducing cost through better use of estate and reduced service duplication will be a priority. Clinical sustainability and workforce experience will be improved by working as one network.



- 2 Developing an integrated model of care where hospital care is provided only when necessary. The Trust will work in partnership with primary and community colleagues to better manage the growth in urgent care demand by providing appropriate care closer to home. This will allow the Trust to focus their specialist facilities and expertise at those people who need this level of care and treatment.



- 3 Actively contributing to improving the health and wellbeing of the population.

Prevention will become everyone’s business, with clinicians supporting people to make decisions that will improve their health and ability to live a full life. Population health management will be used to better understand the patients and shape services to actively address inequalities in access.



2.14.4 Alignment of UHBW and NBT Strategic Priorities

As the major acute providers in the South-West region, UHBW and North Bristol NHS Trust are working together as an Acute Provider Collaboration. The strategic priorities of both Trusts, as outlined in their published strategies, are summarised below:

NBT Strategic Priorities

Provider of high-quality patient care

- » Experts in complex urgent and emergency care
- » Work in partnership to deliver great local health services
- » A Centre of Excellence for specialist health care
- » A powerhouse for pathology and imaging

An Anchor in our Community

- » Create a healthy and accessible environment
- » Expand charitable support and network of volunteers
- » Developing in a sustainable way

Employer of Choice

- » A great place to work that is diverse and inclusive
- » Empowered clinically led teams
- » Support our staff to continuously develop
- » Support staff health and wellbeing

Developing Healthcare for the future

- » Training, educating & developing our workforce
- » Increase our capability to deliver research
- » Support development and adoption of innovations
- » Invest in digital technology

*UHBW Strategic Priorities***Our Patients**

We will excel in consistent delivery of high quality, patient centred care, delivered with compassion

Our People

We will invest in our staff and their wellbeing, supporting them to care with pride and skill, educating and developing the workforce for the future

Our Portfolio

We will consolidate and grow our specialist clinical services and improve how we manage demand for our general acute services, focusing on core areas of excellence and pursuing appropriate, effective out of hospital solutions

Our Partners

We will lead, collaborate and co-create sustainable integrated models of care with our partners to improve the health of the communities we serve

Our Potential

We will be at the leading edge of research and transformation that is translated rapidly into exceptional clinical care and embrace innovation

Our Performance

We will deliver financial sustainability for the Trust and contribute to the financial recovery of our health system to safeguard the quality of our services for the future

This demonstrates clear alignment between our two strategies, particularly in:

- Delivering the best care to patients;
- Driving innovation, research and new technologies;
- Developing and expanding specialist and regional services, and being ambitious in striving for excellence in these areas;
- Being an employer of choice and developing and educating the workforce for the future;
- Investing in staff health and wellbeing;
- Promoting a system approach and seeking new opportunities to work in collaboration with local health and social care partners.

The Acute Provider Collaboration will focus on working together to drive our collective ambitions for the benefit of the population. In addition to this, a joint clinical strategy is currently under development.

2.15 Design Strategies

The ability to add value to a project is at its peak during the early stages of design. The design team has explored opportunities to add best practice and innovation from other projects and sectors.

2.15.1 Patient focussed Design

Focussed on bringing care to the patient. An increased ratio of single bedrooms and the use of a universal cubicle will minimise the need to move patients and allow services to come to them. This will be underpinned by the Trust's digital strategy.

2.15.2 Evidence based design

Evidence based design is well documented, highlighting the benefits of acoustic privacy, access to daylight and views of nature for example. The inpatient rooms have been designed to have long-range views across the city and with acoustic control will ensure a good night's sleep and clarity in consultation.

2.15.3 Locating cohorts of assessment beds adjacent to ED

This will help reduce admissions by streaming to the appropriate point of care and having senior decision makers available.

2.15.4 The separation of planned and unplanned care

This should avoid disruption to planned care services.

2.15.5 Flexibility

Flexibility in operation, adaptability and expandability strategies have been considered. Loose fit and standardised rooms offer operational flexibility and simple adaptation as clinical models evolve.

2.15.6 Massing and site efficiency

The design retains the existing estates building and northern car park and has been designed to link as closely as possible to the King Edward Building. This minimises the footprint of the new building for an efficient floorplate and maximises external space around the building.

2.15.7 Connection to the city

The development offers the potential for a new front door, avoiding unnecessary travel through the Queens and King Edward Buildings and thus, giving a civic presence to the new development.

2.15.8 Maintain business as usual

The reduced footprint and use of off-site manufacture will minimise the impact of the development on the day to day operation of the Trust and its neighbours. Off-site manufacture will reduce the construction programme, reduce noise and dust, reduce the number of operatives on site and minimise transportation around the hospital site.

2.16 Equality and Diversity

As a provider of public services, UHBW has a statutory and legal duty to ensure fair and equitable treatment of all people, with respect to promoting equality as required in the Equality Act 2010, and to address health inequalities as required by the Health and Social Care

Act 2012. To ensure that the impact of our proposal is understood and that there is no adverse impact on any particular group of individuals, including those of protected characteristics and groups who may be most impacted by health inequality, an Equality and Health Inequality Impact Assessment (EHIA) will be undertaken at OBC. The EHIA analyses the potential impact of the proposed changes and makes recommendations to address any potential adverse impacts that have been identified.

2.17 Four Key Tests for Service Reconfiguration

Some engagement has been carried out regarding the emerging clinical model, the case for change and challenges facing the services, as well as potential solutions and service options. Further engagement and clarification of the service model, clinical pathways and models of care will be carried out at OBC. Discussions so far indicate there may be some change to the models of care and clinical pathways, with improvements expected for both staff and patients.

The proposed development will meet the four tests mandated in the “Planning and delivering service changes for service users” guidance:

- Strong public and patient engagement.
- Consistency with current and prospective need for patient choice.
- Clear clinical evidence base.
- Support for proposals from clinical commissioners.

2.18 Risks

The main risks of this investment are shown in the table below, together with their counter mitigations. Further detail on risk, will be covered in the Outline Business Case within the Economic, Commercial and Management Cases.

Table 19 – Main Risks and Mitigations

Main Risk	Mitigation
Financial	
Capital funding is not made available by NHSE/I and DOH.	Investigate potential alternative sources of funding. Review options for phased implementation.
Project proves unaffordable from a revenue perspective	Detailed and robust financial modelling/control. Maximise potential for efficiencies.
Internal and External Approval	
The Outline Business case is rejected or there is a delay in approval by the Trust Board.	Ensure the business case process is robust and at each stage continue to engage with key stakeholders to gauge commitment and support.
Business case is rejected or there is a delay in approval by HM Treasury, DHSC or NHSE/I.	Ensure business case is robust and continue liaison with NHSE/I, DHSC or HM Treasury to ensure support and commitment.

Main Risk	Mitigation
Design and Construction	
Project is not delivered to the brief or appropriate standards.	Robust and clear brief and contract, with stringent quality control procedures and effective site supervision/monitoring.
Risk that the scheme is unable to accommodate SDEC and the scheme will not be able to deliver best practice pathways for acute care resulting in poor patient outcomes and experience .	Careful planning and prioritising based on the benefits analysis of the project. In particular – modelling of activity and benefits realisation plan running through from SOC to FBC Establishing a design Working Group
Risk that easy access to Endoscopy cannot be achieved from other parts of the campus and access for emergency GI bleeds will be compromised resulting in patient harm.	Establishing a design Working Group to ensure that co-locations and adjacencies are clearly articulated and that the design and agreements based on safe practice
Risk that the site infrastructure is insufficient to meet the needs of the proposed development and additional funding may be required to resolve the issue. The resulted increase to the scheme cost which may make the scheme unaffordable.	Establishing a design Working Group, to ensure that the best use of the Trust estate is realised
Location of the new build is yet to be determined. Impact to budget and cost depending on the preferred location for the new build.	The SOC will provide an appraisal of some potential locations for the new centre. Optimism Bias included within initial budget; this will include allowance for unknowns at this stage.
Timescales for delivery. There is an urgency for this scheme to be delivered, this has been accentuated by the Covid-19 pandemic.	The SOC is progressing and is to be concluded by Jan 2023. The programme to be developed as part of SOC to understand potential for delivering the scheme.
Operations and Transformation	
Changes to models of care, demand, and/or commissioning adversely impacts upon the future efficiency and suitability of the project design.	Close working with users and commissioners to understand the direction of healthcare service provision, along with a flexible design solution.
Risk that the demand and capacity assumptions are not recognised and agreed by clinical teams. If this is the case, design teams and business case authors will be unable to progress the outline business case resulting in the scheme being unable to proceed.	Clear stakeholder engagement and presentation to discuss the expected increase in activity and subsequent demand and capacity issues for the service. Share report with clinical divisions Undertake workshop to review underlying assumptions and shared understanding
Poor quality brief that does not accurately portray the projects requirements.	Robust and informed strategic review, modelling, activity trend analysis, challenge and business planning.
Risk that vacant possession of Eugene Street flats is not achieved (Trust tenancies) to meet the development programme and construction works unable to commence Risk that Bristol City Council are unable to cease the tenancy of no.9 and the Trust are unable to exercise its pre-emption agreement to purchase the flat	Residences team putting new tenancy agreements in place Ongoing dialogue with Bristol City Council to resolve
Human Resources	
Project failure due to poor resourcing/project management.	Ensure sufficient, competent resources are directed to the project.
Inability to provide a sufficient and suitably skilled workforce to properly staff and operate the facility post-handover.	Ensure a suitable programme of staff engagement, training, recruitment and retention is implemented in sufficient time to meet the service needs.

2.19 Constraints

The Bristol campus is constrained for development, particularly around existing Adult Emergency Department and Children's Hospital, both A&E and inpatient wards. The Trust are cognisant that they must achieve the best possible value for money in capital redevelopments and each scheme must deliver the outcomes of both estates and services objectives.

The Trust currently has a significant constraint regarding workforce i.e. recruitment and staff retention. The associated benefits of this scheme could assist with addressing these issues, but also could constrain the progression of the potential options.

2.20 Dependencies

The cost/benefit of refurbishing and relocating departments within the existing footprint against that of new build development at Marlborough Hill has been tested at this feasibility stage. To 'unlock' space for developing the prioritised Strategic Estates Development list, including Children's Services, development of an Urgent Emergency Assessment Centre (UEAC), Theatres and Endoscopy facility at Marlborough Hill is the cornerstone for enabling the planned redevelopment programme.

3 The Economic Case

3.1 Introduction

In accordance with the Capital Investment Manual and requirements of HM Treasury's Green Book (A Guide to Investment Appraisal in the Public Sector), this section of the SOC documents the range of options that have been considered in response to the scope identified within the strategic case. It provides evidence to show that the most economically advantageous offer has been selected, which best meets service needs and optimises value for money.

This is achieved in two steps: first, by identifying and appraising a wide range of realistic and possible options (the long list); and second, by identifying and appraising a reduced number of possible options in further detail (the short-list). It should be noted that the 'preferred way forward' for the project emerges from the appraisal of the long-list and the 'preferred option' for the scheme from the appraisal of the short-list at OBC.

The Economic Case also provides an overview of the main costs, benefits and risks associated with each of the selected options. Importantly, it indicates how they were identified and the main sources and assumptions.

3.2 Critical Success Factors

The Critical Success Factors (CSFs) are the attributes essential for successful delivery of the project against which the initial assessment of the options for the delivery of the project will be appraised, alongside the spending objectives. The CSFs for the project are crucial, not merely desirable, and not set at a level that could exclude important options at an early stage of identification and appraisal.

HM Treasury/Central Government's best practice approach suggests a standard list of CSFs, which have been employed for this project as follows:

Table 20 – Critical Success Factors

CSF	How well the option:
1. Strategic fit and meets business needs	<ul style="list-style-type: none"> Meets the agreed spending objectives, related business needs and service requirements Provides holistic fit with other local/regional strategies/programmes/projects e.g. Healthy Weston 2, D2A business case, SDEC visions, amongst other acute collaboration programmes.
2. Potential value for money	<ul style="list-style-type: none"> Optimises social value (social, economic and environmental), in terms of potential costs, benefits and risks. Specific outcomes include for example; improved performance on LoS, 4-hour waits, 12-hour breaches, improved staffing efficiencies.
3. Supplier capacity and capability	<ul style="list-style-type: none"> Matches the ability of potential suppliers to deliver the required services Appeals to supply side

CSF	How well the option:
4. Potential affordability	<ul style="list-style-type: none"> • Can be financed from available funds • Aligns with sourcing constraints
5. Potential achievability	<ul style="list-style-type: none"> • Is likely to be delivered given an organisation’s ability to respond to the changes required • Matches the level of available skills required for successful delivery

3.3 Options Framework

3.3.1 Methodology

In accordance with the Capital Investment Manual and requirements of HM Treasury’s Green Book (A Guide to Investment Appraisal in the Public Sector), this section of the business case documents the wide range of options that have been considered that could deliver the agreed investment objectives for five categories of choice:

- **Scope** (service and geographical coverage).
- **Solution** (including services and required infrastructure).
- **Service delivery** (who will deliver the required services).
- **Implementation** (timing and phasing of delivery).
- **Funding** (type of funding for the investment).

3.3.2 The Long List

The long list must include an option that provides the baseline for measuring improvement and value for money. This option is known as ‘Business as Usual’. It must also include a realistic ‘Do Minimum’ based on the core functionality and essential requirements for the project.

Regular meetings have been held with both clinical and technical stakeholders of UHBW in order to establish an agreed and defined set of design imperatives, schedule of accommodation, critical adjacencies and flows, both within the new building and to and from the existing departments within the BRI.

Different building forms and site arrangements, taking account of site constraints and opportunities were then tested and presented to the Trust as a “Longlist” comprising 5 distinct options. This long list was derived from the previous feasibility study options [see appendix 7 for further images and information].

3.3.3 Assessment of the Options

The long list must include an option that provides the baseline for measuring improvement and value for money. This option is known as ‘Business as Usual’. It must also include a realistic ‘Do Minimum’ based on the core functionality and essential requirements for the project.

This process results in an assessment of each option in terms of how well it will deliver each investment objective and CSF and is assessed as either:

Does Not Meet	Partially Meets	Strongly Meets
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This results in an overall assessment of each option, which determines whether the option is either discounted, carried forward or noted as the preferred way forward.

The preferred way forward and options that are carried forward are taken into the short list for economic appraisal.

3.4 Long List

A high-level assessment of each of the options was undertaken by the Design Team and the Trust project team and a SWOT analysis compiled for each. In consequence to this, it was agreed that a shortlist of at least 4 should be further developed to a level of detail which would allow departmental internal arrangements, adjacencies and flows to be considered alongside engineering overlays, site 'abnormals' and cost analysis.

3.4.1 Project Scope

The workshop identified the following options to be considered for 'Service Scope' and understood an analysis of the various Strengths, Weaknesses, Opportunities and Threats of each option, as set out below.

Option 1 – Business As Usual: Maintain current status of buildings and service delivery.

Strengths	Weaknesses	Opportunities	Threats
<ul style="list-style-type: none"> • None – will not meet the strategic requirements 	<ul style="list-style-type: none"> • Will not address the backlog in diagnostics or future needs • Does not provide any benefits to patients 	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • Services continue to be delivered in premises that are overstretched resulting in increased costs • The capacity is insufficient to meet current and future demand • Quality Targets will not be met

Option 2 – Do Minimum: Refurbish existing buildings/areas, providing improved environment of existing areas

Strengths	Weaknesses	Opportunities	Threats
<ul style="list-style-type: none"> • Limited capital requirement 	<ul style="list-style-type: none"> • No additional benefits to patient care/access • The required scope of future services will not be possible • No improvement for ambulance access 	<ul style="list-style-type: none"> • There will be minimal improvement to the working environment 	<ul style="list-style-type: none"> • Even with some increase in capacity of the estate, it may be insufficient to meet the increased scope of services and current and future demand Service gaps remain with insufficient capacity to meet demand • No improvement of targets e.g., ambulance delays and the 4 hour and 12 hour waits

Option 3 – Intermediate 1: Demolish THQ and Residences; new build, providing more space than ‘Do Minimum’, filling the site in a linear fashion

Strengths	Weaknesses	Opportunities	Threats
<ul style="list-style-type: none"> • Some more capacity will be available • Would be affordable with funding available 	<ul style="list-style-type: none"> • Significant cost associated with this option whilst not fulfilling the required scope. • Splits ED over 2 floors affecting patient flow and communication • Requires major engineering structures to retain sloping topography. • ED would have little access to natural light. • Ambulance deck would have limited capacity. 	<ul style="list-style-type: none"> • None • There will be minimal improvement to the working environment 	<ul style="list-style-type: none"> • Even with some increase in capacity of the estate, it may be insufficient to meet the increased scope of services and current and future demand • Does not provide a sustainable future option

Option 4 – Intermediate 2: Demolish THQ and Residences; new build, creating limited space for either office or outpatient accommodation – creating space within clinical buildings to expand services

Strengths	Weaknesses	Opportunities	Threats
<ul style="list-style-type: none"> • Less capital will be required • There will be some improvement to available space for operational activities 	<ul style="list-style-type: none"> • Re-provision of accommodation on the footprint of the Trust HQ is limited (maximum of 3 stories) and does not take full advantage of the site. • Major engineering works are still required for the retaining structure along Montague Hill South. • Does not create sustainable solution for ED, Diagnostics, Theatres or Endoscopy. • Constrained ambulance drop-off which could further exacerbate the current ambulance wait times 	<ul style="list-style-type: none"> • There will be some improvement to the working environment for offices or outpatients. • Additional clinical space will be provided 	<ul style="list-style-type: none"> • Clinical planning constraints mean little improvement for patients • Reduced staff retention • Not enough space to meet projected demand and will not offer a sustainable solution • Trust will continue to not meet the ambulance drop off times and not meet required national targets even with the changes

Option 5 – Intermediate 3: Demolish THQ and Residences; new build, to create either office or outpatient accommodation – creating space within clinical buildings to expand services, building at front of site, with ground level ambulance access and parking re-provision underneath.

Strengths	Weaknesses	Opportunities	Threats
<ul style="list-style-type: none"> • Improves access for patients • Access for ambulances and drop off zone, offering a terraced landscape • Parking is re-provided under the building 	<ul style="list-style-type: none"> • The linear nature of the building makes travel distances longer (113m is circa 1min 30secs walking time). • Entrance to the hospital will need to be through a car park • Constraints to the design mean that patients flow may not be significantly improved, and patient experience not enhanced 	<ul style="list-style-type: none"> • Allows for future development of adjacent zone to King Edward building. • Offers some expansion to clinical services 	<ul style="list-style-type: none"> • Clinical planning constraints mean little improvement for patients • Reduced staff retention • Not enough space to meet projected demand

Option 6 – Intermediate 4: Demolish THQ and Residences; new build, to create either office or outpatient accommodation – creating space within clinical buildings to expand services, creating interlocking wards, ambulance access to level 3 and parking re-provision underneath.

Strengths	Weaknesses	Opportunities	Threats
<ul style="list-style-type: none"> • Close connections with KEB/main buildings • Allows street access and access from car park with an ambulance arrivals deck at level 3 • Clinical flexibility to accommodate different models of care • Space for temporary decant would be enabled 	<ul style="list-style-type: none"> • Close to KEB, with no space for future development • More expensive option without the best output for patients 	<ul style="list-style-type: none"> • Improved staff retention/satisfaction through improved work environment and clinical space • Improved patient access and care • Better ambulance access and some increase in clinical space should improve ambulance drop off times 	<ul style="list-style-type: none"> • Temporary access road will be required, as excavation will be close to the road

Option 7a – Do Max; Less Ambitious PWF: Phased Approach – Demolish THQ and Residences; new build, access to street, urban frontage, internal access to main hospital – use whole site available space. The new build shell is utilised in phases.

Strengths	Weaknesses	Opportunities	Threats
<ul style="list-style-type: none"> • Connected to main hospital buildings improving patient flow and addresses clinical need • Allows space for future development in a defined plot • Addresses the scope required for the service and allows a phased approach to implementation ensuring services can grow to meet patient need over time • Large ambulance drop off • Shorter travel distance • Space for temporary decant • Clinical flexibility 	<ul style="list-style-type: none"> • Whilst the scheme may have a weakness as a more expensive option – the scope of the project will be phased to meet the requirements of the cost envelope 	<ul style="list-style-type: none"> • Improved staff and patient experience • Improved environment therefore better staff retention / recruitment • Potential for 100% single beds • Meets future requirements and the scope of the project • Future developments will be enabled 	<ul style="list-style-type: none"> • Temporary access road required, as excavation close to road

Option 7b – Do Max; More Ambitious PWF: Demolish THQ and Residences; new build, access to street, urban frontage, internal access to main hospital – use whole site available space.

Strengths	Weaknesses	Opportunities	Threats
<ul style="list-style-type: none"> • Connected to main hospital buildings • Allows space for future development in a defined plot • Large ambulance drop off • Shorter travel distance • Space for temporary decant • Clinical flexibility 	<ul style="list-style-type: none"> • More expensive as most ambitious option 	<ul style="list-style-type: none"> • Improved staff and patient experience • Improved environment therefore better staff retention/recruitment • Potential for 100% single beds • Meets future requirements and the scope of the project 	<ul style="list-style-type: none"> • Temporary access road required, as excavation close to road

The workshop then used the outcome of the SWOT analysis to review these options for scope against the investment objectives and CSFs using the Options Framework process, as summarised in the table below.

Project	BAU	Do Minimum	Inter 1	Inter 2	Inter 3	Inter 4	Do Max phased	Do Max
Project Scope	Current status	Refurbishment	New Build Linear	New Build Courtyard	New Build Front of site	New Build Interlocking wards	New Build Internal access – phased occupancy	New Build Internal access – full occupancy
Investment Objectives								
Create a new Adult ED / Theatres / Endoscopy facility, improved patient access	Does not meet	Partially meets	Partially meets	Partially meets	Partially meets	Partially meets	Strongly meets	Strongly meets
Improve and expand Adult ED / Theatres / Endoscopy in line with best practice	Does not meet	Partially meets	Partially meets	Partially meets	Partially meets	Strongly meets	Strongly meets	Strongly meets
Work with system partners, improve patient experience and future proof services	Does not meet	Partially meets	Partially meets	Partially meets	Partially meets	Strongly meets	Strongly meets	Strongly meets
Create opportunities to develop clinical pathways and Models of care	Does not meet	Partially meets	Strongly meets	Strongly meets	Strongly meets	Strongly meets	Strongly meets	Strongly meets
Provision of JAG compliant Endoscopy to meet demand	Does not meet	Partially meets	Partially meets	Partially meets	Partially meets	Partially meets	Strongly meets	Strongly meets
Release additional capacity, meeting Trust Strategies	Does not meet	Partially meets	Partially meets	Partially meets	Partially meets	Partially meets	Strongly meets	Strongly meets
Put in place estates the Trust can achieve compliance and conformance; MHS and Net Zero	Does not meet	Partially meets	Strongly meets	Strongly meets	Strongly meets	Strongly meets	Strongly meets	Strongly meets
Develop services and environments staff want to work in	Partially meets	Partially meets	Partially meets	Partially meets	Partially meets	Partially meets	Strongly meets	Strongly meets
Critical Success Factors								
Strategic fit and meets business needs	Does not meet	Partially meets	Partially meets	Partially meets	Partially meets	Partially meets	Strongly meets	Strongly meets
Potential value for money	Partially meets	Partially meets	Partially meets	Partially meets	Partially meets	Partially meets	Strongly meets	Strongly meets
Supplier capacity and capability	Partially meets	Partially meets	Partially meets	Partially meets	Partially meets	Partially meets	Strongly meets	Strongly meets
Potential affordability	Strongly meets	Strongly meets	Partially meets	Partially meets	Partially meets	Partially meets	Partially meets	Partially meets
Potential achievability	Strongly meets	Strongly meets	Strongly meets	Partially meets	Partially meets	Partially meets	Strongly meets	Partially meets
Conclusion	Carried forward	Carried Forward	Carried forward	Carried forward	Carried forward	Carried Forward	PWF	Carried forward

3.4.2 Project Solution

The workshop identified the following options to be considered for 'Project Solution' and understood an analysis of the various Strengths, Weaknesses, Opportunities and Threats of each option, as set out below.

Option 1 – BAU: Continued regular maintenance and address backlog as required to maintain current buildings and service delivery.

Strengths	Weaknesses	Opportunities	Threats
<ul style="list-style-type: none"> No capital and revenue investment required. No operational disruption associated with this option 	<ul style="list-style-type: none"> Does not meet the strategic service solution Will not enable the backlog in activity to be addressed Does not provide the required benefits to patients 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Services continue to be delivered in premises that are overstretched The capacity is insufficient to meet current and future demand Quality Targets will not be met

Option 2 – Do Minimum: Refurbishment of existing buildings and service areas.

Strengths	Weaknesses	Opportunities	Threats
<ul style="list-style-type: none"> Refurbishment will improve the overall environment for patients and staff Will be affordable in the short term 	<ul style="list-style-type: none"> Does not address the issues with capacity and quality concerns There will still be costs associated with an option that does not fulfil the projects solutions 	<ul style="list-style-type: none"> May support the service to grow overtime but would need more investment to meet the service need Disruption to services may be minimal 	<ul style="list-style-type: none"> Services continue to be delivered in premises that are unable to address the increase in activity The capacity of the estate will be insufficient to meet increased current and future demand

Option 3 – Intermediate 1: New build on Marlborough Hill site, linear shaped building.

Strengths	Weaknesses	Opportunities	Threats
<ul style="list-style-type: none"> The development will improve the overall environment for patients and staff Will allow for some increase activity on the site 	<ul style="list-style-type: none"> Does not meet the future requirements for increased demand, activity and backlog Operational disruption Does not provide the required benefits to patients 	<ul style="list-style-type: none"> May support the service to grow overtime but would need more investment to meet the service need 	<ul style="list-style-type: none"> Services continue to be delivered in premises that are overstretched The capacity is insufficient to meet current and future demand Required quality targets will likely continue not to be fully met

Option 4 – Intermediate 2: New build on Marlborough Hill site, creating a courtyard.

Strengths	Weaknesses	Opportunities	Threats
<ul style="list-style-type: none"> Core services are expanded where possible This provides a more affordable option in comparison to do maximum option 	<ul style="list-style-type: none"> Does not provide required opportunities for colocation and integration of services Will not give the required expansion Significant cost associated with this option whilst not creating a sustainable solution . 	<ul style="list-style-type: none"> Will help to address the backlog in activity and support future demand and some services will be able to expand 	<ul style="list-style-type: none"> Not all services will be able to expand as needed The capacity of the estate will be insufficient to meet increased current and future demand

Option 5 – Intermediate 3: New build on Marlborough Hill site, building at front of site.

Strengths	Weaknesses	Opportunities	Threats
<ul style="list-style-type: none"> Core services are expanded where possible This provides a more affordable option in comparison to do maximum option Enhances patient, staff and visitor experiences 	<ul style="list-style-type: none"> Does not provide all required opportunities for colocation and integration of services Will not give the required expansion Significant cost associated with this option whilst not creating a sustainable solution . 	<ul style="list-style-type: none"> Will help to address the backlog in activity and support future demand and some services will be able to expand 	<ul style="list-style-type: none"> Not all services will be able to expand as needed The capacity of the estate will be insufficient to meet increased current and future demand

Option 6 – Intermediate 4: Compact new build on Marlborough Hill site with street access.

Strengths	Weaknesses	Opportunities	Threats
<ul style="list-style-type: none"> Core services are expanded and activity and capacity increased Provides a more affordable option in comparison to do maximum option Enhances patient, staff and visitor experiences with the new site A range of services will be provided 	<ul style="list-style-type: none"> Design may be restricted to fit into the space available at the site Access is restricted from the main hospital site The option may not provide the required space for future sustainability 	<ul style="list-style-type: none"> The option may lead to improvements in staff recruitment and retention. There are increased opportunities for integration of services within the new build structure. 	<ul style="list-style-type: none"> The premises may not give the best solution for future sustainability increase in activity

Option 7a – Do Max (Less Ambitious PWF): Phased Approach – Demolish THQ and Residences; new build, access to street, urban frontage, internal access to main hospital – use whole site available space. The new build shell is utilised in phases.

Strengths

- Enables the delivery of the Trust strategy and the ICS strategy for integrated services
- Provides a good solution to address demand and capacity
- A phased build will assist with the high cost of the option
- Enhances patient, staff and visitor experiences, optimises patients' privacy and dignity and supports equality and diversity.
- Patients can access a range of essential services on one site
- Provide up-to-date and fit-for-purpose built facilities and ease of access for patients and staff
- Embodied energy savings through the development of a modern facility
- Will attract new staff, and able to support training

Weaknesses

- The scheme is more costly than the lesser options

Opportunities

- The facility has the opportunity to provide a service solution that can grow overtime
- The solution offers an opportunity to address the current and longer term issues in relation to demand and capacity
- The facility is adjoined to the main hospital allowing flexibility of future service provision
- Attractive to staff and opportunity for training and development enhancement

Threats

- Delivery of this option is dependent on securing a higher value of capital funding
- This option may be less affordable in the shorter term

Option 7b – Do Max (More Ambitious PWF): New build on Marlborough Hill site, access to street, urban frontage, internal access to main hospital – use whole site available space.

Strengths

- Enables the delivery of the Trust strategy and the ICS strategy for integrated services
- Provides a good solution to address demand and capacity
- Enhances patient, staff and visitor experiences, optimises patients' privacy and dignity and supports equality and diversity.
- Patients can access a range of essential services on one site
- Provide up-to-date and fit-for-purpose built facilities and ease of access for patients and staff
- Embodied energy savings through the development of a modern facility
- Will attract new staff, and able to support training

Weaknesses

- The scheme is more costly than the lesser options and requires full funding at the offset of the scheme

Opportunities

- The solution offers an opportunity to address the current and longer term issues in relation to demand and capacity
- The facility is adjoined to the main hospital allowing flexibility of future service provision
- Attractive to staff and opportunity for training and development enhancement

Threats

- Delivery of this option is dependent on securing a higher value of capital funding
- This option may be less affordable in the shorter term

Project	BAU	Do Min	Inter 1	Inter 2	Inter 3	Inter 4	Do Max phased	Do Max
Project Solution	Current status	Refurbishment and backlog	New Build – minimal capacity	New Build – 25% of capacity	New Build – 50% capacity	New Build – 75% capacity	New Build – 100% capacity	New Build – 100% capacity
Investment Objectives								
Create a new Adult ED / Theatres / Endoscopy facility, improved patient access	Does not meet	Does not meet	Partially meets	Partially meets	Partially meets	Partially meets	Strongly meets	Strongly meets
Improve and expand Adult ED / Theatres / Endoscopy in line with best practice	Does not meet	Does not meet	Partially meets	Partially meets	Partially meets	Partially meets	Strongly meets	Strongly meets
Work with system partners, improve patient experience and future proof services	Does not meet	Partially meets	Partially meets	Partially meets	Partially meets	Partially meets	Strongly meets	Strongly meets
Create opportunities to develop clinical pathways and MoC	Does not meet	Does not meet	Strongly meets	Strongly meets	Strongly meets	Strongly meets	Strongly meets	Strongly meets
Provision of JAG compliant Endoscopy to meet demand	Does not meet	Does not meet	Partially meets	Partially meets	Partially meets	Partially meets	Strongly meets	Strongly meets
Release additional capacity, meeting Trust Strategies	Does not meet	Does not meet	Partially meets	Partially meets	Partially meets	Partially meets	Partially meets	Strongly meets
Put in place estates the Trust can achieve compliance and conformance; MHS and Net Zero	Does not meet	Does not meet	Strongly meets	Strongly meets	Strongly meets	Strongly meets	Strongly meets	Strongly meets
Develop services and environments staff want to work in	Does not meet	Partially meets	Partially meets	Partially meets	Partially meets	Partially meets	Strongly meets	Strongly meets
Critical Success Factors								
Strategic fit and meets business needs	Does not meet	Does not meet	Partially meets	Partially meets	Partially meets	Partially meets	Strongly meets	Strongly meets
Potential value for money	Does not meet	Does not meet	Partially meets	Does not meet	Does not meet	Partially meets	Strongly meets	Strongly meets
Supplier capacity and capability	Does not meet	Partially meets	Partially meets	Partially meets	Partially meets	Partially meets	Strongly meets	Strongly meets
Potential affordability	Strongly meets	Strongly meets	Strongly meets	Partially meets	Partially meets	Partially meets	Partially meets	Partially meets
Potential achievability	Strongly meets	Strongly meets	Strongly meets	Partially meets	Partially meets	Partially meets	Strongly meets	Partially meets
Conclusion	Carried forward	Carried forward	Carried forward	Discount	Discount	Discount	PWF	Carried forward

3.4.3 Project Delivery

The workshop identified the following options to be considered for project delivery and understood an analysis of the various Strengths, Weaknesses, Opportunities and Threats of each option, as set out below.

Option 1 – BAU: Continue with current Estates and Facilities management [Not applicable, as does not deliver pwf].

Option 1 – Do Minimum: Deliver backlog maintenance through Estates Department and possibly some local contractors [Not applicable, as does not deliver pwf].

Option 3 –Intermediate 1: Procure 2022/23 framework

Strengths	Weaknesses	Opportunities	Threats
<ul style="list-style-type: none"> Contractor appointment likely to have wider experience of delivering healthcare or similar projects and already working on existing site 	<ul style="list-style-type: none"> Likely to demand higher preliminary costs and greater commercial challenges agreeing risk allocations and ownership Time requirement and resources required to manage the process Disruption to the site whilst adaptations are being made 	<ul style="list-style-type: none"> none 	<ul style="list-style-type: none"> Disruption to existing services during project delivery

Option 4 – Intermediate 2: Procure 2022/23 framework

Strengths	Weaknesses	Opportunities	Threats
<ul style="list-style-type: none"> Contractor appointment likely to have wider experience of delivering healthcare or similar projects and already working on existing site 	<ul style="list-style-type: none"> Likely to demand higher preliminary costs and greater commercial challenges agreeing risk allocations and ownership Time requirement and resources required to manage the process Disruption to the site whilst adaptations are being made 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Disruption to existing services during project delivery

Option 5 – Intermediate 3: Procure 2022/23 framework

Strengths	Weaknesses	Opportunities	Threats
<ul style="list-style-type: none"> Contractor appointment likely to have wider experience of delivering healthcare or similar projects and already working on existing site 	<ul style="list-style-type: none"> Likely to demand higher preliminary costs and greater commercial challenges agreeing risk allocations and ownership Time requirement and resources required to manage the process Disruption to the site whilst adaptations are being made 	<ul style="list-style-type: none"> Unrestricted procurement route for works required should lead to high quality and value for money due to maximum exposure to the market. 	<ul style="list-style-type: none"> Disruption to existing services during project delivery

Option 6 – Intermediate 4: Procure 2022/23 framework

Strengths	Weaknesses	Opportunities	Threats
<ul style="list-style-type: none"> Contractor appointment likely to have wider experience of delivering healthcare or similar projects and already working on existing site 	<ul style="list-style-type: none"> Time requirement and resources required to manage the process Disruption to the site whilst adaptations are being made 	<ul style="list-style-type: none"> 	<ul style="list-style-type: none"> Timescale to deliver the project to get maximum benefit

Option 7a – Do Maximum (Less Ambitious PWF): Procure 2022/23 framework

Strengths	Weaknesses	Opportunities	Threats
<ul style="list-style-type: none"> Contractor appointment likely to have wider experience of delivering healthcare or similar projects and already working on existing site There will be less disruption to the main hospital site during the development 	<ul style="list-style-type: none"> none 	<ul style="list-style-type: none"> Unrestricted procurement route for works required should lead to high quality and value for money due to maximum exposure to the market. Ability to demonstrate value for money with utilisation of an existing site Provided no disruption should be able to meet agreed timescale for the project 	<ul style="list-style-type: none"> Timescale to deliver the project to get maximum benefit

Option 7b – Do Maximum (More Ambitious PWF): Procure 2022/23 framework

Strengths	Weaknesses	Opportunities	Threats
<ul style="list-style-type: none"> Contractor appointment likely to have wider experience of delivering healthcare or similar projects and already working on existing site There will be less disruption to the main hospital site during the development 	<ul style="list-style-type: none"> none 	<ul style="list-style-type: none"> Unrestricted procurement route for works required should lead to high quality and value for money due to maximum exposure to the market. Ability to demonstrate value for money with utilisation of an existing site Provided no disruption should be able to meet agreed timescale for the project 	<ul style="list-style-type: none"> Timescale to deliver the project to get maximum benefit

The workshop then used the outcome of the SWOT analysis to review these options for project delivery against the investment objectives and CSFs using the Options Framework process, as summarised in the table below.

Project	BAU	Do Min	Inter 1	Inter 2	Inter 3	Inter 4	Do Max phased	Do Max
Service Delivery	Estates	Estates/ Contractor	P22/23	P22/23	P22/23	P22/23	P22/23	P22/23
Investment Objectives								
1.Create a new Adult ED/Theatres/Endoscopy facility, improved patient access	NA	Does not meet	Does not meet	Does not meet	Does not meet	Strongly meets	Strongly meets	Strongly meets
2.Improve and expand Adult ED/Theatres/Endoscopy in line with best practice	NA	Does not meet	Partially meets	Partially meets	Partially meets	Partially meets	Strongly meets	Strongly meets
3.Work with system partners, improve patient experience and future proof services	NA	Partially meets	Partially meets	Partially meets	Partially meets	Strongly meets	Strongly meets	Strongly meets
4.Create opportunities to develop clinical pathways and MoC	NA	Does not meet	Partially meets	Partially meets	Partially meets	Strongly meets	Strongly meets	Strongly meets
5.Provision of JAG compliant Endoscopy to meet demand	NA	Does not meet	Does not meet	Does not meet	Does not meet	Partially meets	Strongly meets	Strongly meets
6.Release additional capacity, meeting Trust Strategies	NA	Does not meet	Partially meets	Partially meets	Partially meets	Partially meets	Strongly meets	Strongly meets
7.Put in place estates the Trust can achieve compliance and conformance; MHS and Net Zero	NA	Does not meet	Partially meets	Partially meets	Partially meets	Strongly meets	Strongly meets	Strongly meets
8.Develop services and environments staff want to work in	NA	Partially meets	Partially meets	Partially meets	Partially meets	Strongly meets	Strongly meets	Strongly meets
Critical Success Factors								
1.Strategic fit and meets business needs	NA	Does not meet	Partially meets	Does not meet	Does not meet	Does not meet	Strongly meets	Strongly meets
2.Potential value for money	NA	Does not meet	Strongly meets	Does not meet	Does not meet	Does not meet	Strongly meets	Strongly meets
3.Supplier capacity and capability	NA	Strongly meets	Partially meets	Partially meets	Partially meets	Strongly meets	Strongly meets	Strongly meets
4.Potential affordability	NA	Strongly meets	Partially meets	Partially meets	Partially meets	Partially meets	Partially meets	Partially meets
5.Potential achievability	NA	Strongly meets	Partially meets	Partially meets	Partially meets	Strongly meets	Strongly meets	Strongly meets
Conclusion	Carried Forward	Carried Forward	Carried forward	Discount	Discount	Discount	PWF	PWF

3.4.4 Project Implementation

The workshop identified the following options to be considered for project implementation and understood an analysis of the various Strengths, Weaknesses, Opportunities and Threats of each option, as set out below.

Option 1 – BAU: No change – continue as current – Not applicable.

Option 2 – Do Minimum: 2–3 year phased programme of refurbishment and/or new build – Not applicable

Option 3 – Intermediate 1: 3–4 year phased programme of refurbishment and new build

Strengths	Weaknesses	Opportunities	Threats
<ul style="list-style-type: none"> Minimally addresses capacity on the site and partially addresses requirements once operational 	<ul style="list-style-type: none"> Will cause disruption to services during implementation 	<ul style="list-style-type: none"> Its implementation increases access to services 	<ul style="list-style-type: none"> The option will not address the long-term requirements of the project

Option 4 – Intermediate 2: 3–4 year phased programme of refurbishment and new build

Strengths	Weaknesses	Opportunities	Threats
<ul style="list-style-type: none"> Increases capacity on the site and partially addresses requirements once operational 	<ul style="list-style-type: none"> Will not address all requirements and its implementation may need to be part of a wider programme of expansion 	<ul style="list-style-type: none"> Its implementation increases access to services 	<ul style="list-style-type: none"> The option will not address the long-term requirements of the project

Option 5 – Intermediate 3: 3–4 year phased programme of refurbishment and new build

Strengths	Weaknesses	Opportunities	Threats
<ul style="list-style-type: none"> Increases capacity on the site and partially addresses requirements once operational 	<ul style="list-style-type: none"> Will not address all requirements and its implementation may need to be part of a wider programme of expansion 	<ul style="list-style-type: none"> Its implementation increases access to services 	<ul style="list-style-type: none"> The option will not address the long-term requirements of the project

Option 6 – Intermediate 4: 3–4 year phased programme of refurbishment and new build

Strengths	Weaknesses	Opportunities	Threats
<ul style="list-style-type: none"> Increases some capacity on the site and partially addresses requirements once operational 	<ul style="list-style-type: none"> Will not address all requirements and its implementation may need to be part of a wider programme of expansion 	<ul style="list-style-type: none"> implementation increases access to services 	<ul style="list-style-type: none"> The option will not address the long-term requirements of the project

Option 7a – Do Maximum (Less Ambitious PWF): Phased approach (build shell) 5–year phased programme of refurbishment and new build.

Strengths	Weaknesses	Opportunities	Threats
<ul style="list-style-type: none"> • Would deliver the full scope of the needs of the project to address current and future requirements from day one of operation • Gives opportunity for a flexible and phased approach to occupancy 	<ul style="list-style-type: none"> • Implementation of the project is phased over a longer period 	<ul style="list-style-type: none"> • Enables increased services to be delivered locally • Increases future access and flexible use • The size of the facility has opportunity for full service offers • Future developments of services will be possible • Phased approach will enable services to be directed appropriately over time 	<ul style="list-style-type: none"> • Lack of certainty around funding opportunity

Option 7b – Do Maximum (More Ambitious PWF): Phased approach (build shell) 5–year phased programme of refurbishment and new build.

Strengths	Weaknesses	Opportunities	Threats
<ul style="list-style-type: none"> • Would deliver the full scope of the needs of the project to address current and future requirements from day one of operation 	<ul style="list-style-type: none"> • Implementation of the project is phased over a longer period 	<ul style="list-style-type: none"> • Enables increased services to be delivered locally • Increases future access and flexible use • The size of the facility has opportunity for full service offers • Future developments of services will be possible 	<ul style="list-style-type: none"> • Lack of certainty around funding opportunity

The workshop then used the outcome of the SWOT analysis to review these options for project implementation against the investment objectives and CSFs using the Options Framework process, as summarised in the table below.

Project	BAU	Do Min	Inter 1	Inter 2	Inter 3	Inter 4	Do Max phased	Do Max
Service Implementation	-	-	3-4 years	3-4 years	3-4 years	3-4 years	5 year	5 year
Investment Objectives2.3								
1.Create a new Adult ED/Theatres/Endoscopy facility, improved patient access	NA	NA	Does not meet	Does not meet	Does not meet	Partially meets	Strongly meets	Strongly meets
2.Improve and expand Adult ED/Theatres/Endoscopy in line with best practice	NA	NA	Partially meets	Partially meets	Partially meets	Partially meets	Strongly meets	Strongly meets
3.Work with system partners, improve patient experience and future proof services	NA	NA	Strongly meets	Partially meets	Partially meets	Partially meets	Strongly meets	Strongly meets
4.Create opportunities to develop clinical pathways and MoC	NA	NA	Partially meets	Partially meets	Partially meets	Partially meets	Strongly meets	Strongly meets
5.Provision of JAG compliant Endoscopy to meet demand	NA	NA	Does not meet	Does not meet	Does not meet	Partially meets	Strongly meets	Strongly meets
6.Release additional capacity, meeting Trust Strategies	NA	NA	Partially meets	Partially meets	Partially meets	Partially meets	Strongly meets	Strongly meets
7.Put in place estates the Trust can achieve compliance and conformance; modern healthcare standards and Net Zero	NA	NA	Partially meets	Partially meets	Partially meets	Strongly meets	Strongly meets	Strongly meets
8.Develop services and environments staff want to work in	NA	NA	Partially meets	Partially meets	Partially meets	Partially meets	Strongly meets	Strongly meets
Critical Success Factors								
1.Strategic fit and meets business needs	NA	NA	Partially meets	Partially meets	Partially meets	Partially meets	Strongly meets	Strongly meets
2.Potential value for money	NA	NA	Partially meets	Partially meets	Partially meets	Partially meets	Strongly meets	Strongly meets
3.Supplier capacity and capability	NA	NA	Strongly meets	Partially meets	Partially meets	Strongly meets	Strongly meets	Strongly meets
4.Potential affordability	NA	NA	Strongly meets	Partially meets	Partially meets	Partially meets	Partially meets	Partially meets
5.Potential achievability	NA	NA	Strongly meets	Partially meets	Partially meets	Partially meets	Strongly meets	Strongly meets
Conclusion	Carried Forward	Carried Forward	Carried forward	Carried Forward	Carried Forward	Carried Forward	PWF	Carried Forward

3.4.5 Funding

The workshop identified the following options to be considered for project funding and understood an analysis of the various Strengths, Weaknesses, Opportunities and Threats of each option, as set out below.

Option 1 – BAU: Not applicable.

Option 2 – Do Minimum: Trust funded from retained cash balances. CDEL assumed to be in place as per 2022/23 allocation – Not applicable.

Option 3 – Intermediate 1: National Capital &/ CDEL.

(CDEL assumed to be in place as per 2022/23 allocation. In addition, would require additional cash funding from national capital programmes and additional system CDEL allocation, as a result of system capital prioritisation)

Strengths	Weaknesses	Opportunities	Threats
<ul style="list-style-type: none"> Following funding and business case approval the project will provide increased capacity for enhanced service delivery 	<ul style="list-style-type: none"> Affordability in revenue terms needs to be assessed The scheme will not address the long-term requirements 	<ul style="list-style-type: none"> Will be developed on an existing site meaning likely to be achievable 	<ul style="list-style-type: none"> Delivery is dependent on the project securing the capital funding. The scheme will not address the long-term requirements

Option 4 – Intermediate 2: National Capital &/ CDEL.

Strengths	Weaknesses	Opportunities	Threats
<ul style="list-style-type: none"> Following funding and business case approval the project will provide increased capacity for enhanced service delivery 	<ul style="list-style-type: none"> The scheme will not address the long term requirements Affordability in revenue terms needs to be assessed 	<ul style="list-style-type: none"> Will be developed on an existing site meaning likely to be achievable 	<ul style="list-style-type: none"> Delivery is dependent on the project securing the capital funding. The scheme will not address the long term requirements

Option 5 – Intermediate 3: National Capital &/ CDEL.

Strengths	Weaknesses	Opportunities	Threats
<ul style="list-style-type: none"> Following funding and business case approval the project will provide increased capacity for enhanced service delivery 	<ul style="list-style-type: none"> The scheme will not address the long term requirements 	<ul style="list-style-type: none"> Will be developed on an existing site meaning likely to be achievable 	<ul style="list-style-type: none"> Delivery is dependent on the project securing the capital funding.

Option 6 – Intermediate 4: National Capital &/ CDEL.

Strengths	Weaknesses	Opportunities	Threats
<ul style="list-style-type: none"> Following funding and business case approval the project will provide an increased range of services and associated revenue 	<ul style="list-style-type: none"> The project will not meet the full requirements of the scheme for future capacity 	<ul style="list-style-type: none"> Will be developed on an existing site meaning likely to be achievable The project has opportunity to deliver an increasing range of services. 	<ul style="list-style-type: none"> Delivery is dependent on the project securing the capital funding.

Option 7a – Do Maximum (Less Ambitious PWF): National Capital &/ CDEL.

Strengths	Weaknesses	Opportunities	Threats
<ul style="list-style-type: none"> Following funding and business case approval the project will provide the full range of services and associated revenue for the lifetime of the scheme 	<ul style="list-style-type: none"> The project may not be affordable to have full occupancy from day 1 of operation 	<ul style="list-style-type: none"> Will be developed on an existing site meaning likely to be achievable The project is large enough to be able to review cost options over the longer term The project has opportunity to deliver an increasing range of services. 	<ul style="list-style-type: none"> Delivery is dependent on the project securing the capital funding.

Option 7b – Do Maximum (More Ambitious PWF): National Capital &/ CDEL.

Strengths	Weaknesses	Opportunities	Threats
<ul style="list-style-type: none"> Following funding and business case approval the project will provide the full range of services and associated revenue for the lifetime of the scheme 	<ul style="list-style-type: none"> The project may not be affordable to have full occupancy from day 1 of operation 	<ul style="list-style-type: none"> Will be developed on an existing site meaning likely to be achievable The project is large enough to be able to review cost options over the longer term The project has opportunity to deliver an increasing range of services. 	<ul style="list-style-type: none"> Delivery is dependent on the project securing the capital funding.

The workshop then used the outcome of the SWOT analysis to review these options for project funding against the investment objectives and CSFs using the Options Framework process, as summarised in the table below.

Project	BAU	Do Min	Inter 1	Inter 2	Inter 3	Inter 4	Do Max phased	Do Max
Funding	Trust	Trust	National/CDEL	National/CDEL	National/CDEL	National/CDEL	National/CDEL	National/CDEL
Investment Objectives								
1.Create a new Adult ED/Theatres/Endoscopy facility, improved patient access	NA	NA	Does not meet	Does not meet	Does not meet	Strongly meets	Strongly meets	Strongly meets
2.Improve and expand Adult ED/Theatres/Endoscopy in line with best practice	NA	NA	Partially meets	Partially meets	Partially meets	Partially meets	Strongly meets	Strongly meets
3.Work with system partners, improve patient experience and future proof services	NA	NA	Partially meets	Partially meets	Partially meets	Strongly meets	Strongly meets	Strongly meets
4.Create opportunities to develop clinical pathways and MoC	NA	NA	Strongly meets	Partially meets	Partially meets	Partially meets	Strongly meets	Strongly meets
5.Provision of JAG compliant Endoscopy to meet demand	NA	NA	Partially meets	Does not meet	Does not meet	Partially meets	Strongly meets	Strongly meets
6.Release additional capacity, meeting Trust Strategies	NA	NA	Partially meets	Partially meets	Partially meets	Partially meets	Strongly meets	Strongly meets
7.Put in place estates the Trust can achieve compliance and conformance; modern healthcare standards and Net Zero	NA	NA	Strongly meets	Strongly meets	Strongly meets	Strongly meets	Strongly meets	Strongly meets
8.Develop services and environments staff want to work in	NA	NA	Strongly meets	Partially meets	Partially meets	Partially meets	Strongly meets	Strongly meets
Critical Success Factors								
1.Strategic fit and meets business needs	NA	NA	Partially meets	Partially meets	Partially meets	Partially meets	Strongly meets	Strongly meets
2.Potential value for money	NA	NA	Partially meets	Partially meets	Partially meets	Partially meets	Strongly meets	Strongly meets
3.Supplier capacity and capability	NA	NA	Partially meets	Partially meets	Partially meets	Strongly meets	Strongly meets	Strongly meets
4.Potential affordability	NA	NA	Strongly meets	Partially meets	Partially meets	Partially meets	Partially meets	Partially meets
5.Potential achievability	NA	NA	Strongly meets	Partially meets	Partially meets	Partially meets	Strongly meets	Partially meets
Conclusion	NA	NA	Carried forwards	Carried Forwards	Carried Forwards	Carried Forwards	PWF	Carried Forwards

3.4.6 Options Framework Summary – Long List

The table below demonstrates a summary of the long list using the options framework.

Project	Option 1 – BAU	Option 2 – Do Min	Option 3 – Intermediate 1	Option 4 – Intermediate 2	Option 5 – Intermediate 3	Option 6 – Intermediate 4	Option 7a – Do Max (shell)	Option 7b – Do Max
1. Service Scope <i>As outlined in Strategic Case</i>	Existing services stay as they are	Refurbish existing buildings/areas.	New build on Marlborough Hill site, linear shaped building	New build on Marlborough Hill site, creating a courtyard.	New build on Marlborough Hill site, building at front of site	Compact new build on Marlborough Hill site with street access	<i>New build, – internal access to main hospital – use whole site available space</i>	
	Carried forward	Carried forward	Carried forward	Carried forward	Carried forward	Carried forward	Preferred way forward	
2. Service Solution <i>In relation to the preferred scope</i>	Existing services stay as they are	Increase use of existing site	Changes to existing estate			Smaller new build on Marlborough estate	Large build on Marlborough estate – phased occupancy	Large build on Marlborough estate – full occupancy
	Carried forward	Carried forward	Discount			Carried forward	Carried forward	Preferred way forward
3. Service Delivery <i>In relation to the preferred scope and service solution</i>	NA	Current estates and facilities teams	Procure 2022/23 framework					
		Carried forward	Preferred way forwards					
4. Implementation <i>In relation to preferred scope, solution and method of service delivery</i>	NA	NA	3–4 year phased				5 years phased (flexible use)	
			Carried forward				Preferred way forward	
5. Funding <i>In relation to preferred scope, solution, method of service delivery and implementation</i>	NA	NA	NHS Capital					
			Preferred way forward					
Conclusion	Carried Forward	Carried Forward	Carried Forward	Discounted	Discounted	Discounted	Carried Forward	PWF

3.4.7 Shortlisted Options

In line with guidance and best practice, the business case should identify a minimum of four short listed options for further appraisal. These should include:

- Business as Usual: The benchmark for value for money.
- ‘Do Minimum’: A realistic way forward that also acts as a further benchmark for Value for Money, in terms of cost justifying further intervention.
- ‘Recommended’: The preferred way forward at this stage.
- One or more other possible options based on realistic ‘more ambitious’ and ‘less ambitious’ choices that were not discounted at the long-list stage.

The options framework has been used to filter the options considered at the long-list stage to generate the potential short-list for the project, as illustrated below.

Table 21 – Shortlisted Options

Options framework summary

Options	Option 1; Business as Usual	Option 2; Do Minimum	Option 3; Intermediate 1	Option 7a; Intermediate (less ambitious PWF)	Option 7b; Do maximum (more ambitious PWF)
Project Scope	Existing remains	Refurbish existing	Linear new build	New Build – use whole site	
Project Solution	Backlog maintenance	Increase use of current site	Smaller new build	Large build on MH with <u>phased</u> occupancy	Large build on MH with <u>full</u> occupancy
Service Delivery	N/A	Current Estates and Facilities	P22/P23		
Project Implementation	N/A	N/A	3-4 year phased	5 year phased (flexi use)	
Project Funding	N/A	N/A	NHS Capital		

This short list of options will have full economic appraisal as part of the Outline Business Case. It should be noted, programmes are high level at this earlier stage of design, these will be explored in more detail and reviewed at OBC stage, including implementation timeline for each option. Estimated costs are shown within section 3.5 below.

3.5 Economic Appraisal

3.5.1 Introduction

In accordance with the Capital Investment Manual and requirements of HM Treasury’s Green Book (A Guide to Investment Appraisal in the Public Sector), this section of the SOC documents the range of options that have been considered in response to the potential scope identified within the strategic case. It identifies the investment objectives, the critical success factors, and appraises each to determine the preferred way forward.

3.5.2 Estimating Initial Capital Costs

Capital costs have been estimated for the preferred way forward, Option 7b Do Maximum – single phase, together with Option 7a, Do Maximum – multiple phases and Option 2 by the Trust's Cost Advisors, Peninsular Projects Ltd, and are based on the assumption that schedules of accommodation and 1:500 drawings are complete, in accordance with the level of design required at SOC stage.

A copy of the capital cost reports are provided in the following appendices:

- **Option 2/3** (Appendix 8) Capital Costs Do Min Refurb Scheme incl. BAU;
- **Option 7a** (Appendix 9) Capital Costs Shell Phased Fit Out Scheme; and
- **Option 7b** (Appendix 10) Capital Costs Full Scheme.

The resulting capital costs estimates are summarised in the table below for the key areas of Adult ED, Theatres and Endoscopy. The first option (BAU) includes addressing backlog maintenance only. Option 2 and 3 are based on an incremental estimate of costs, namely option 2 includes estimated refurbishment of all areas and option 3 includes Do Minimum costs, with a limited new build. The individual new builds (options 7a and 7b) do not include backlog maintenance or refurbishment of current areas, as per the first three options.

Table 22 – Capital Costs £000s

Functional floor space req. m ²	Incremental approach to options cost development			Individual new build options	
	7,131m ²	7,131m ²	11,866m ²	18,939m ²	18,939m ²
	Option 1 BAU; Backlog maintenance	Option 2 Do Min; Refurb all areas	Option 3; Do Min + small new build	Option 7a; Do Max (shell + phased fit out new build)	Option 7b; Do Max PWF (full fit out new build)
Construction	N/A	24,067	47,674	79,061	94,430
Fees	N/A	4,813	8,496	12,477	14,729
Non works	N/A	481	953	1,581	1,889
Equipment costs	N/A	5,671	7,779	8,432	8,432
Planning contingency	N/A	5,255	7,943	9,140	10,753
Construction Subtotal	N/A	40,287	72,845	110,691	130,232
Optimism bias	N/A	6,043	8,973	9,962	11,721
Inflation adjustment & Pubsec uplift	N/A	14,188	19,545	18,212	21,427
Inflation & Opt Bias Subtotal	N/A	20,231	28,518	28,174	33,148
Total (Ex VAT)	N/A	60,518	101,363	138,865	163,379
VAT	N/A	11,141	18,573	25,278	29,730
Estimated BLM costs	2,280	-	-	-	-
Total (Incl. VAT)	2,280	71,659	119,936	164,143	193,109

For completeness and ease of reference to capital cost forms and the Financial Case, the table includes VAT and inflation adjustments. However, it should be noted that for the purposes of the economic appraisal at the later OBC stage all costs will exclude VAT and be restated at base year prices in accordance with HM Treasury Green Book guidance.

Note that:

- Option 1 is based on a pro rata cost for 7,131m², of the total UH Bristol estate 180,000m² (approx. 4%), multiplied by total UH Bristol 'Estates Backlog Maintenance' capital allocation (£57.6m), which equates to £2.28m.
- Option 2 includes estimated refurbishment costs for all areas in scope provided by the Trust Cost Advisor (£71.6m), based on 7,131m² at c.£10k per m².
- Option 3 includes the estimated refurbishment as per option 2 (7,131m²), with an additional limited new build of 4,735m², which is approx. 25% of the full new build option 7b. The approx. value of the additional 4,735m² new build is £48.3m.
- Option 7a and 7b are a replacement new build covering the same footprint of 18,939m². 7a includes fully completed construction with phased fit out, however 7b (preferred way forward) includes full construction with complete fit out for services.

Table 23 – Estates Replacement & Infrastructure 5 Year Plan £000s

2022/23	2023/24	2024/25	2025/26	2026/27	Total
6,370	7,344	7,925	8,915	5,368	35,922

- Option 2 departmental costs have been based on the Healthcare Premises Cost Guides (HPCGs) £ per square metre estimates abated for refurbishment.
- The costs of the intermediate limited new build option (Option 3) have been calculated on a pro rata basis based on the preferred way forward.

3.5.3 Estimating Life Cycle Costs

Lifecycle costs for all options have been calculated by multiplying floor area information provided by Estates and the Trust Cost Advisor, by average rates contained in the latest available New Model Hospital data (2021/22), in which Hard FM costs are £70/per m²

The results are shown in the following table:

Table 24 – Lifecycle Costs £000s

Functional floor space req. m ²	7,131	7,131	11,866	18,939	18,939
	Option 1 – BAU	Option 2 – Do Min (Refurb)	Option 3 – Do min + limited new build	Option 7a; Do Max (phased new build)	Option 7b; Do Max PWF (occupied new build)
Lifecycle Costs	499	499	831	1,326	1,326

3.5.4 Estimating Recurring Revenue Costs

Recurring Revenue costs are yet to be fully scoped however indicative costs have been sourced for the functional departments based on 2021/22 BAU costs, while ERIC data for the Trust has been used to derive annual costs by floor area for ancillary services.

The resulting recurring revenue cost estimates and sources are summarised in the table below.

Table 25 – Recurring Revenue Costs 000's

Functional floor space req. m ² / Department	ERIC data - Annual £/m ²	Incremental approach to options cost development			Individual new build options		Source data 2021/22
		7,131m ² Option 1 – BAU	7,131m ² Option 2 – Do Min (Refurb)	11,866 m ² Option 3 – Do min + limited new build	18,939 m ² Option 7a; Do Max (phased new build)	18,939 m ² Option 7b; Do Max PWF (occupied new build)	
Emergency		7,549	7,549	10,515	11,863	11,863	Cubicles
AMU		6,007	6,007	6,007	6,007	6,007	BAU data
OPAU		3,898	3,898	3,898	3,898	3,898	" "
STAU		2,877	2,877	2,877	2,877	2,877	" "
Theatres		4,930	4,930	6,902	7,888	7,888	Rooms
Endoscopy		16,610	16,610	23,531	27,683	27,683	Rooms
Pharmacy		0	0	0	0	0	N/a
Hard FM	70	499	499	831	1,326	1,326	ERIC
Catering	25	175	175	292	466	466	"
Cleaning	49	348	348	579	925	925	"
Energy	27	189	189	315	503	503	"
Laundry	7	51	51	84	134	134	"
Parking	1	5	5	8	12	12	"
Portering	21	151	151	251	401	401	"
Water/Waste	9	64	64	106	170	170	"
Total Costs		£43,353	£43,353	£56,196	£64,152	£64,152	

Points to note, on the above table:

- Option 1 is based on 2021/22 cost of current services.
- Option 2 is the same as option 1, i.e. the footprint remains the same as BAU.
- Option 3 includes 2021/22 cost of current services, plus the revenue impact of a limited new build.
- Option 7a and 7b are a replacement new build of the same footprint. 7a total annual recurrent revenue costs will be the same as 7b, once phasing of fit out is complete.

3.5.5 Efficiencies

The costings presented at this SOC stage are based upon known BAU costs and floor space requirements. It is anticipated however that as the business case is developed it will be important to appraise the intended efficiencies including but not limited to:

- New estate allowing to create a more logical flow of patients and activities.
- Improved utilisation of internal space such as increasing the density of cubicles in the Emergency Department.
- Ways of working improvements such as extending Endoscopy and Theatre usage to a 5.5 day week.

It is likely that these efficiency gains will inform the scope of the intended development and in turn the associated costs. These will be developed at OBC stage.

3.5.6 Estimating Benefits

The main benefits resulting from the investment are listed in the draft benefits log at Appendix 11, these are some key benefits:

- Waiting times and backlog for elective surgery will be reduced
- The Trust will reduce the ambulance drop off time rates and associated quality reporting
- ED waiting time breaches over 4 hours and 12 hours will be reduced and associated quality indicators improved
- The efficiencies of have the working departments adjacent to each other will reduce the extra nursing costs attributed to the current multiple departments
- Recruitment and retention will be improved as working environments are enhanced for staff wellbeing – this will also improve absence levels and associated cost
- Patient access to the hospital will be improved
- Length of stay for key conditions will be reduced with faster assessments and diagnosis and increased use of SDEC
- There will be an overall improvement in population health as local people have better access to care. People with more complex conditions can be assessed and get timely referrals

Analysis of the monetised benefits is to be developed once costings are known at OBC.

3.5.7 Estimating Risks

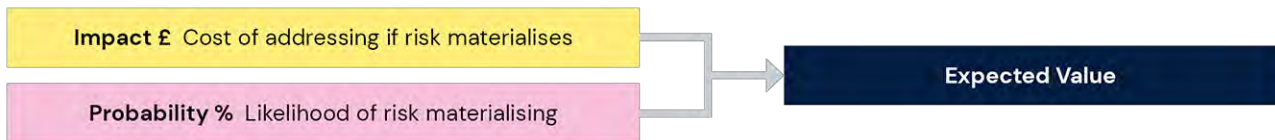
The risks for each option will be assessed and, as far as possible, quantified and expressed in monetary equivalent terms, including:

- Quantified risk in relation to planning contingency included in capital cost forms.
- Optimism bias factor included in capital cost forms.
- Key project risks which have not been accounted for within capital costs.

The main risk register for the project can be found at Appendix 12, risks specific to the options will be assessed further at OBC.

The risks will be quantified by calculating an 'expected value'. This provides a single value for the expected impact of all risks. It is calculated by multiplying the likelihood of the risk occurring (probability) by the cost of addressing the risk (impact) and summing the results for all risks and outcomes.

Figure 26 - Risk quantification approach using single-point probability analysis



3.5.8 Comprehensive Investment Appraisal

A CIA model has been developed to appraise the options at SOC and it also again at OBC stage once the service profile has been developed and defined benefits and risks have been identified and fully costed.

The CIA model (Appendix 13) shows for each of the options:

- Discounted costs and benefits.
- Net Present Social Values
- Cost Benefit Ratios and rankings

4 The Commercial Case

4.1 Introduction

This section of the SOC outlines the proposed procurement strategy for the preferred way forward identified in the Economic Case.

4.2 Procurement Strategy

For the proposed works for the preferred way forward of the project, the Project Board will agree a Procurement Strategy which will initially assess a wide range of potential options for securing a contractor and delivering the scheme. The procurement options available to are summarised as:

- Procurement Framework (currently ProCure22) – the Department of Health and Social Care’s (DHSC) procurement framework for healthcare related projects.
- Non-framework procurement – Traditional tender or Design and Build tender.
- Traditional Procurement – UHBW manage the design and a construction partner is appointed for development.

The proposed procurement strategy will be defined by the following principals (which will be further described and assessed through additional procurement discussions during Outline Business Case submission):

- | | |
|--------------------------------------|---|
| • Management and allocation of Risk | • Strategic Objectives |
| • Cost Certainty | • Speed to Site |
| • Change Control | • Quality Outcomes |
| • Capability and Capacity to Deliver | • Funding Requirements |
| • Programme Certainty | • Market and Supply Chain Considerations. |

The contract for the preferred way forward is proposed to be procured using Public Contracts Regulations 2015 procedures which incorporate down selection and negotiation wherever necessary (competitive procedure with negotiation or competitive dialogue). The contracting strategy for the project has been initially reviewed but is still subject to collective assessment and validation prior to agreeing the preferred route. In any instance, the Project Board will undertake early market engagement to ensure a good level of competition and notification for the procurement.

Once approval of this SOC is achieved, a procurement workshop with a number of key stakeholders will review and determine the preferred strategy based on the procurement principles outlined above.

- The chosen procurement route by UHBW will be confirmed OBC stage, currently the SOC options appraisal shows the preferred route as ProCure22/23.

Delivering value for money will be one of the key criteria considered when selecting the most appropriate procurement strategies to deliver the proposed development. A further detailed summary of the routes the Project Board are considering at this stage are in the below sub-section.

4.2.1 Procurement Opportunities

The potential delivery routes are outlined below with further guidance on the features of each method and the risk allocation between UHBW and the Contractor. The current P22 (ProCure22) framework currently includes:

- Guaranteed Maximum Price (GMP) is based on market-tested prices and detailed design at the Full Business Case (FBC) stage
- Performance on time within budget (ability to mobilise with immediate effect)
- Sustainable supply chains
- Absence of litigation
- Open book transparency and long-term relationships
- Improved risk management
- Buying gain
- Recovery of VAT (partial)
- Cost Certainty.

Within the P22 selection process Principal Supply Chain Partners (PSCPs) are required to provide responses to economic and quality selection criteria. The PSCPs are engaged by NHS Trusts to provide cost certainty as early as possible. The Trust and the selected PSCP will agree an early Target Cost. Once the design has been developed this will then be converted into a GMP, where the Trust will know exactly the capital cost associated with the project, subject to Trust changes.

ProCure 22 adopts an open book method of monitoring and auditing the project costs, from appointment of the PSCP through to project completion and defects free handover. The contract also operates a pain/gain share mechanism both as an incentive to performance and to protect the Trust's financial position.

Quality

A number of initiatives have been introduced by DHSC, including "repeatable rooms", "Design Quality Indicators (DQIs)". Through the application of this sharing of best practice and Key Performance Indicators (KPIs) against which all PSCPs must achieve the currency of the Framework, quality standards will be maintained to the benefit of the NHS, it's staff, patients, and visitors.

Programme

ProCure 22 facilitates the overlapping of the design and construction phases. The preferred PSCP is appointed as early as possible in the process, meaning that the development of the overall project programme is carried out jointly between the Trust, the PSCP and the supply chain, thereby creating a shared understanding and buy-in from all principal partners to the project, thus minimising the risk and providing cost certainty.

Flexibility

ProCure 22 is inherently flexible due to its partnering ethos, shared goals and objectives and open book approach to the commercial management of the project. The form of contract

adopts an “early warning” approach to potential risks and problems, where the whole Project Board work together to minimise the impact of potential change.

Design and Build

Design and Build Procurement is where the design responsibility is passed across to the Contractor therefore transferring the risks to the Contractor for Project delivery. This transfer can take place at any of the design gateways and will be very much reliant on the accurate and robust preparation of the Employers Requirement documents. This document needs to provide the Contractor with information pertaining to what the Client really wants from the finished product. The Contractor will respond to the Employers Requirements with the Contractors Proposals.

Features

- Trust appoints a building contractor (usually on a standard form)
- Building contractor provides a completed building to agreed cost and programme
- Building contractor is responsible for design and construction (as defined in the Employer’s Requirements (ERs))
- The Trust may appoint a consultant to oversee the project on their behalf
- Appointment of building contractor may be made after a Single Stage tendering process or through a Two Stage negotiation process
- Transfer of maximum risk to the contractor
- Highly commercial response from the contractor
- Can be single stage (based on outline design and CRs), two stage (on partial design), and two stage with GMP.

There are several advantages and disadvantages aligned with this as outlined in the table below:

Table 26 – Design and Build Procurement Summary

Advantages	Disadvantages
<ul style="list-style-type: none"> • Single point of responsibility for design and construction lessens the scope for disputes • Contractor’s expertise in buildability can bring efficiencies in design and be cost effective • The final cost and completion date are known with reasonable certainty prior to Contract execution • Possible to float tender minimal design information – not reliant on full detailed design • A saving in overall time can be achieved by the overlap of design and construction periods • The Client deals with the one firm only for both design and construction • No change orders or extensions of time unless otherwise instructed by the Client. 	<ul style="list-style-type: none"> • Changes introduced by the Client may be very costly and sometimes onerous • Clearly defined Employer’s Requirements needed to carry out detailed tender reviews and guaranteed final level of quality • Placing larger risk elements with the Contractor may result in overpricing • A third-party design consultant / technical advisor would need to be retained by the Client to ensure that the final product conforms to the Employer’s Requirements • Longer tender.

Traditional

Features

- Contractor builds to a defined scope
- Contractor works to a fixed price lump sum (regardless of cost)
- Trust remains responsible for the design
- Trust appoints a design team (including cost advice) for financial contractual advice
- A building contractor is appointed – usually after a tender process and usually using a standard form
- Can be single stage (complete design) or two stage (partial design)
- Cost Certainty.

Lump sum contracting provides a high degree of cost certainty providing that full design is achieved prior to tendering. Without the latter the Trust is exposed to potential claims.

Quality

Because design is trained by the Trust's appointed designers, quality is virtually guaranteed. However, this route does limit the opportunity for designers to communicate directly with specialist suppliers and to effectively involve them at an early point in the project design process.

Programme

In order to obtain full design prior to tendering, lump sum contracting requires a significant lead in as no overlap occurs between design and construction.

Flexibility

Whilst change can be incorporated under this route the tendency is for contractors to attempt to maximise rather than mitigate its effect. The main contractor's ability to do this is heightened by the fact that the Trust and advisors have no direct access to his subcontractors. Hence, flexibility is only gained at a cost for time or budget.

The ProCure 22 (P22) framework has now come to an end and the new framework P23 is within the approved strategy for the programme.

4.2.2 Preferred Procurement Route and Timeline

Initial engagement within the Project Board has outlined a preference for Procure 22/23 as a viable option which is considered favourably at this stage. It is also unlikely that UHBW will consider a 'Traditional' Procurement route for the proposed works due to the complex phasing and construction programme which would make this unviable for the level of risk which would sit with UHBW for the duration of the proposed works.

However, following approval of this Strategic Outline Case, the Project Board will engage with the Trust's Procurement team to explore all options and agree on a procurement timeline and next steps. This project would also align and link with other UHBW proposed development projects as part of the Estates Strategy.

4.3 Delivering a “Net Zero” NHS

In October 2020 the NHS published the ‘*Delivering a Net Zero National Health Service*’ in response to the health emergency that climate change will bring. More intense storms and floods, more frequent heat waves and the spread of infectious disease from climate change threaten to undermine years of health gains.

Two clear and feasible targets emerge 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 the NHS controls directly (the NHS Carbon Footprint), net zero by 2040, with an ambition to reach an 80% reduction by 2028 to 2032;
- For the emissions that can be influenced (the NHS Carbon Footprint Plus), net zero by 2045, with an ambition to reach an 80% reduction by 2036 to 2039.

4.4 Modern Methods of Construction (MMC)

NHS England and NHS Improvement (NHSE/I) with the Department of Health and Social Care (DHSS), are working on progressing the approaches used to increase the use of Modern Methods of Construction (MMC) on all business cases requiring central NHSEI sign off. As part of this, an interim draft guidance has been developed for inclusion in the NHS Capital Business Case Fundamental Criteria Checklist.

- Modern Methods of Construction (MMC) is a wide term, embracing a range of offsite manufacturing and onsite techniques that provide alternatives to traditional building and forms part of the Government’s recent policy (2017) for future construction in the public sector.
- In line with the Government 2019 statement – ‘Presumption in Favour of MMC’ DHSC and NHSEI assume that all schemes start out as MMC.
- In addition to enabling a reduced on-site component assemble time, due to off-site factory production to a pre-agreed quality standard, MMC also reduces the size of on-site construction teams, disruption to site, health and safety risk and post completion defects. MMC can also help in overcoming a skills shortage in the construction industry and should also result in a reduction in project time and cost whilst improving safety and quality throughout the whole of an assets life.
- The government’s Infrastructure and Projects Authority (IPA) guidance ‘Transforming Infrastructure Performance’ (2017) also refers to MMC as ‘smart construction’ defined under the following three categories which covers a range of techniques with greater levels of activity taking place off site and increased levels of standardisation, underpinned by digital design and engineering.
- Manufactured: whilst not widely used this offers the greatest opportunities to improve delivery efficiency and boost productivity. This approach enables high levels of customisation by developing and using standard components and assemblies.
- Volumetric: e.g., fully fitted modules.
- Components: e.g., standardised design elements (WC/shower ‘pods’, pre-assembled bed head services etc).

In addition, there is traditional construction e.g., methods that are relatively unproductive, with projects individually designed and constructed with little consistency in either the design solution or construction method, even for similar projects.

- Within 'Transforming Infrastructure Performance' these four approaches are used and set out to help illustrate benefits and are aided by the IPA's advisors' assessment of relative value from different approaches.
- Trusts are required to provide under a section headed Modern Methods of Construction at each business case, the following information which must be supported by appropriate design and construction advice from the Trust's in-house project team and its external design and cost advisors.
- It is acknowledged that at SOC stage, this may need to cover a range of shortlisted options whilst at OBC this will be for the preferred option only.

Early consideration of the use of off-site manufacture, allows the process to be streamlined through the design and construction process, maximising the benefits this approach can bring. Agreement to an early BIM Execution plan and sharing in a Common Data Environment (CDE) allows all parties to input in an integrated design, manufacturing, and assembly process.

The process was used at the Tyrell Street Ward block with concrete sandwich panels installed as a load-bearing facade and can be particularly relevant in constrained city centre sites to allow carefully planned logistics and assembly.

Some of the main advantages of OSM include:

- **Speed:** one of the primary advantages of off-site manufacture (OSM) in construction is the significantly reduced programme on-site through the use of prefabricated elements
- **Lower assembly cost:** by using fewer parts, decreasing the amount of labour required, and reducing the number of unique parts, OSM can significantly lower the cost of assembly
- **Higher quality and sustainability:** a highly automated approach can enhance quality and efficiency at each stage. There may be less waste generation in the construction phase, greater efficiency in site logistics, and a reduction in vehicle movements transporting materials to site. Shorter assembly time OSM shortens assembly time by utilising standard assembly practices such as vertical assembly and self-aligning parts. OSM also ensures that the transition from the design phase to the production phase is as smooth and rapid as possible.
- **Increased reliability:** OSM increases reliability by lowering the number of parts, thereby decreasing the chance of failure.
- **Safety:** by removing construction activities from the site and placing them in a controlled factory environment there is the possibility of a significant positive impact on safety.
- **MEP Systems:** off-site manufacturing and modularisation of MEP systems will be a key part of delivering the overall off-site manufacturing strategy, elements of the MEP installation that would benefit from offsite manufacturing would include the following:
- **Risers:** the mechanical and electrical risers can be built offsite and lowered into the preformed risers utilising a crane. Generally, the risers will be manufactured utilising a steel support framing system upon which the services will be mounted, this will also serve as a guide into the preformed riser. The sections are normally manufactured in section sizes that can be transported from the manufacturing facility to the site. To accommodate the

riser frame the cross section of the preformed riser is normally slightly larger than the riser would be if built traditionally.

- **Service Modules:** the primary mechanical and electrical horizontal distribution can be built offsite and installed, fixed to the soffit of each floor level. Secondary distribution can also be modularised, and this is of particular benefit on the floor levels where there is a lot of repetition such as inpatients and the operating theatres. Similar to vertical modularisation, the services are normally installed upon a steel support framing system which is then fixed to the concrete soffit. This type of system can be used to preinstall ductwork, certain types of pipework and containment.
- **Plant:** plant and the connections to the primary distribution infrastructure can be built offsite typically skid mounted and craned / wheeled into position before the building is made weather tight. Consideration should be given to:
 - ◆ Prefabricated wet service plant and pump assemblies delivered on skids ready for connection to distribution pipework.
 - ◆ Packaged substations which could be lifted or manoeuvred into position.
 - ◆ Fully fabricated air handling units with duct connections to be craned into the roof plantroom before the roof is constructed.

There is a cost premium involved in fabricating MEP systems off site, and additional design time required to achieve the granularity of co-ordination required for the services to be manufactured accurately. However, delivery and installation of prefabricated services, if integrated into project programmes at an early stage, may result in significant benefits such as: reduced programme length, reduced deliveries, improved site logistics, less site storage required, fewer operatives on site and an overall reduced risk profile.

A full tender specification and pack will be appended to the Outline Business Case. A selected procurement partner will be responsible for developing the building design in accordance with all relevant NHS and strategies standards. This includes HTM, HBN, Fire code and BREEAM compliance and Infection Control approach.

4.4.1 Interior Design

A building of this size and complexity will have an interior with different needs and personalities. There are big, public spaces full of activity and enlivenment contrasted by restful healing spaces.

Artwork, wayfinding and interior design must work together to create a cohesive whole. Differences in the feel of the spaces will be achieved through the intensity, extent and application of colour. Colour palettes will be developed with the Trust.

The objectives of the interior design are:

- Visual connectivity between materials and palettes of colour used externally.
- Warm, elegant and simple palette of materials and colour.

Staff and Patient Environment

- There should be creative and abundant use of natural light;
- The inside should be effectively connected to the outside;

- The main public spaces must be particularly attractive;
- Circulation routes should be attractive;
- Patient areas should be comfortable, private and afford dignity;
- Staff areas should be high quality;
- Staff should have good visibility and observation of patients;
- Colour should be used effectively and imaginatively;
- Environmental conditions should be excellent Cognisant of dementia and other conditions Equality Act compliant.

4.4.2 Standard Components

Standardisation of components or assemblies can bring significant benefit to projects through elements of the internal fit out such as doors, flooring, ceilings, IPS, clinical hand wash basins and crash protection.

It brings the benefits of increased patient safety through the standardisation of layouts (such as bedheads and position of hand washing facilities), improved life cycle, with reduced inventory and planned maintenance. From a patient perspective it also introduces legibility to the design by indicating primary, secondary and tertiary level spaces in the building which help to inform wayfinding.

The Government Efficiency Reform Group published the Government Construction Strategy (GCS) 2025 requiring all Government Departments and devolved bodies to reduce the cost of construction and whole life costs by 33%. In response, the Department of Health and Social Care and the ProCure22 Principal Supply Chain Partners (PSCPs) have continued the work to realize benefits for their clients through standardisation and repeatability.

ProCure 22 Category Component Proposals

Proposals for various standard components are recommended by ProCure22 PSCPs on the basis of their design, performance, commercial and/or whole life benefits – designed to achieve or even exceed the GCS cost, time and emissions reduction target compared to the same or similar products, whilst retaining compliance with HTMs (Health Technical Memoranda).

Kit of Parts

BDP have developed a palette of finishes and products which will work together through considered detailing to provide the building with a hierarchy of space and quality fit out. The building has been divided into sections, which dictate the value, importance and economy of the incorporated designs. We will use this division of space to provide the hospital with a considered, detailed and high-quality specification.

4.4.3 Infection Control

The proposed development will be designed and configured in compliance with HBN and HTM guidance to provide clean, well-designed environments within which clinical services and procedures can be carried out safely. Infection prevention and control measures will be designed into the new building through zoning, with appropriate clinical adjacencies to

facilitate clean to dirty flows and the provision of good access for cleaning and maintenance to take place.

As planned for the design development at OBC stage, the clinical leads will be fully engaged to ensure the needs of users are understood and clearly articulated in the design brief. UHBW Infection Prevention and Control Team will also be engaged by the Project Board to inform the detailed designs.

4.5 Planning Strategy

The planning strategy will be further developed at Outline Business Case following approval of this Strategic Outline Case.

4.5.1 Associated Disposals

There are no known disposals associated with this development, which would generate income for the Trust.

4.6 Personnel Implications

4.6.1 Integrated Service Model

It is anticipated that there will no TUPE arrangements required as staff would not be required to transfer off the existing site. This will be reviewed at OBC.

4.6.2 Adapted-Risk Service Model

Detailed workforce implications will continue to be developed as part of revenue assessments. This service model is anticipated to lead to some workforce efficiencies as there will be improved integration within teams and support systems.

4.7 Equipment Strategy

The Project Board intend to produce a detailed equipment strategy as part of the next steps in the OBC process; inventory equipment requirements across the proposed services for the new development and understand what is eligible for either of the following:

- Equipment that would transfer to new premises as part of the preferred way forward/option
- Equipment that would not be appropriate for transfer to new premises as part of the preferred way forward/preferred option
- Produce an equipment procurement strategy, which reflects the requirements and the associated purchase and/or lease of equipment in relation to funding arrangements.

5 The Finance Case

5.1 Introduction

The purpose of the finance case is to outline the financial implications of the preferred way forward and assess affordability. As such it sets out the capital requirements and revenue consequences of the proposed scheme, along with underpinning assumptions. It outlines anticipated funding arrangements and presents the impact on the overall financial statements.

As outlined in the Economic Case, the preferred way forward involves the full redevelopment of the Marlborough Hill site in a single phase of construction and occupancy (Option 7b – Do Maximum).

5.2 Capital costs

5.2.1 Initial Capital Costs

Agreed Schedules of Accommodation and 1:500 drawings in accordance with the level that is anticipated for delivery of the preferred way forward, will require capital investment of £193.1m, based on the capital cost reported by the appointed Cost Advisors, Currie & Brown Ltd.

The resulting capital costs estimates are summarised in the table below.

Table 27 – Capital Costs £000s

	Net	VAT	Total
Construction	94,430	18,886	113,315
Fees	14,729		14,729
Non works	1,889	378	2,266
Equipment costs	8,432	1,686	10,118
Planning contingency	10,753	2,151	12,904
Subtotal	130,232	23,101	153,332
Optimism bias	11,721	2,344	14,065
Inflation adjustment	21,427	4,285	25,712
Subtotal	33,148	6,630	39,777
Total	163,379	29,730	193,109

5.2.2 Initial Capital Funding

It is anticipated that initial capital costs of this scheme will be fully funded by a national capital funding programme, though this may be subject to change at the OBC stage. Capital funding is shown in the following table:

Table 28 – Capital Funding Analysis £000s

Funding	Total
Trust self-finance within Operational STP/ICS Capital Envelopes	
Emergency Capital within Capital Envelopes	
Disposals	
Grants or Donations	
NHSX	
National	193,109
Funding source	193,109
Build costs	130,232
Other costs	62,878
Application of funding	193,109
Source less application	-

5.2.3 Ongoing Capital Lifecycle Costs

Ongoing capital investment will be required to cover the whole life costs of replacing, refurbishing or upgrading of assets over the useful life of the resulting asset. Initial estimates, based on similar business cases suggest lifecycle costs of approximately £70 per m². This would equate to c.£1.3m annually. It is anticipated that this will be funded as part of the Trust's ongoing discretionary capital programme. This will be further investigated at OBC.

5.3 Revenue costs

5.3.1 Non-recurring Revenue Costs

None identified at this SOC stage. These costs will be identified at OBC/FBC stage.

5.3.2 Recurring Revenue Costs

It is anticipated that the investment will result in changes to recurring revenue costs (excluding capital charges) as follows:

- Departmental staffing medical
- Ancillary building costs
- Other

The resulting recurring revenue impacts are summarised in the table below.

Table 29 – Indicative Recurring Revenue Costs £000s

Functional floor space req. m ² / Department	18,939 m ²	Source data
	Option 7b Do Max (PWF)	
Emergency	11,863	Cubicles
AMU	6,007	BAU data
OPAU	3,898	" "
STAU	2,877	" "

	Initial Investment Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Years 6 - 60	Total	Equiv. annual ave.
Buildings	182,992								
Impairment @ 25%	-45,748								
Buildings Net	137,224								
Depreciation (straight-line 60 years)		2,287	2,287	2,287	2,287	2,287	125,807	137,244	2,287
Equipment	10,118								
Depreciation (straight-line 10 years)		1,012	1,012	1,012	1,012	1,012	5,059	10,118	1,012
Total Buildings and Equipment Net of Impairment	147,361								
Total Depreciation		3,299	3,299	3,299	3,299	3,299	130,866	147,361	3,299

PDC dividends become payable when the asset comes into use in line with DHSC Cash Regime guidance published in April 2020.

Public Dividend Capital (PDC) dividend payments are calculated using the average cost of net relevant assets at the current standard 3.5% rate of return until it is repaid. The PDC payments are summarised in the following table:

Table 31 - Schedule of Public Dividend Capital (PDC) Payments £000s

	Year 1	Year 2	Year 3	Year 4	Year 5	Years 6 - 60	Total	Equiv. annual average
Buildings	4,763	4,683	4,603	4,523	4,443	121,089	144,106	2,402
Equipment	336	301	266	230	195	443	1,771	177
Total	5,100	4,984	4,869	4,754	4,638	121,532	145,876	2,579

The new capital charges may be partly offset by the depreciation and PDC interest that will be released following the removal of existing assets. This will be explored at the OBC stage.

5.3.4 Revenue Consequences

The capital investment of the preferred way forward results in revenue charges (excluding depreciation and PDC payments) of approximately £64.2m per annum compared to a BAU position of c.£43.3m, a potential increase of c.£20.8m p.a. (48% increase).

5.3.5 Risks

The affordability risks will be further developed at OBC. The current key 'affordability risks' associated with this scheme are:

- National Capital Programme funding is the preferred way forward, however, there is a risk this will not be granted;
- The recurring revenue may not be affordable for the Trust going forward;

- If there was a delay in construction start, then this could push construction costs up, potentially making the scheme unaffordable.

5.3.6 Opportunities

There are opportunities to mitigate the affordability gap and/or improve the revenue position and these are currently as follows:

- Enabling a phased development option;
- The ability to retire old estate, reducing current backlog maintenance; and
- Utilising the ICS joint clinical strategy.

5.4 Impact on Financial Statements

5.4.1 Impact on the Statement of Financial Position

The impact on the Statement of Financial Position is summarised as follows:

- The initial Capital requirement for the preferred way forward (Option 7b Do Maximum) amounts to c.£193m, anticipating confirmation of national programme funding. Therefore, the Trust's PDC balance would increase by c.£146m.
- The transaction will create a series of asset balances relating to property, plant and equipment to c.£147.4m in year one.

5.4.2 Impact on Statement of Comprehensive Income

The impact on the Statement of Comprehensive Income (SoCI) is summarised as follows:

- PDC interest payments amount to an average of c.£2.6m p.a. over the life of the appraisal period and between £5.1m reducing to £4.6m in the initial 5 years.
- Impairments have been calculated as 25% of building costs. The effect of the impairment of c.£46m will be a technical charge to the SoCI. This will be subject to review by the District Valuation Office upon valuation.
- Total recurring revenue impact totalling £26.7m includes:
 - ♦ annual revenue cost increase of £20.8m;
 - ♦ depreciation of £3.3m; and
 - ♦ average Public Dividend Capital charge of £2.6m.
- Income opportunities from the new development have not been explored at this SOC stage of the business plan. The assumption is, should the SOC be supported by the ICB, the Trust will receive funding matched to the recurring revenue cost described below.

5.4.3 Impact on the Statement of Cashflows

The operating surplus/deficit for the Trusts will be impacted by increasing cash due to the non-cash items of:

- Depreciation accounting charges £3.3m p.a.
- Impairments against buildings amount to approximately £46m
- Anticipated PDC / cash receipt of £193.1m
- Cashflow outflow of £193.1m as a result of the investment

5.4.4 Impact on CDEL table

The impact on the Capital Departmental Expenditure Limit (CDEL) is outlined in the table below.

Table 32 - CDEL table £000's

CDEL	Total
Gross Capex (approval value)	193,109
Less NBV of Disposals	
Less Grants Donations (must be in the same financial year as the capex)	
CDEL	193,109

5.5 Affordability

Delivery of the preferred way forward requires capital investment of £193.1m and is assumed to be funded through national capital programmes. In a scenario where national capital funding is only partly available, or not available at all, then the BNSSG ICS and its partner organisations will need to undertake system prioritisation of providers strategic capital investment plans and subsequently agree the allocation of system CDEL and the use of provider cash funding.

The current and medium-term financial position of the ICS, with a recurrent deficit of c.£76m, means recurring revenue affordability is very challenging. However, should the scheme secure the full support of the ICB, operating costs are expected to be met by the ICB. Initial findings suggest this will result in a net incremental increase in costs of c.£26.7m, which includes revenue charges of £20.8m and capital charges of annual depreciation of £3.3m and average annual PDC charges of £2.6m. Annual depreciation of £3.3m may be mitigated by savings on the redevelopment of existing buildings, this will be explored in further detail at OBC stage.

6 The Management Case

6.1 Introduction

This section details the management arrangements, which have been put in place to ensure the successful delivery of the scheme in accordance with best practice.

6.2 Project Governance Arrangements

The programme will be managed in accordance with PRINCE 2 methodology. The Strategic Estates Development Programme Board (SEDPB) has the responsibility to drive forward and deliver the outcomes and benefits of this development.

Members will provide resource and specific commitment to support the Programme Director to deliver the outline deliverables.

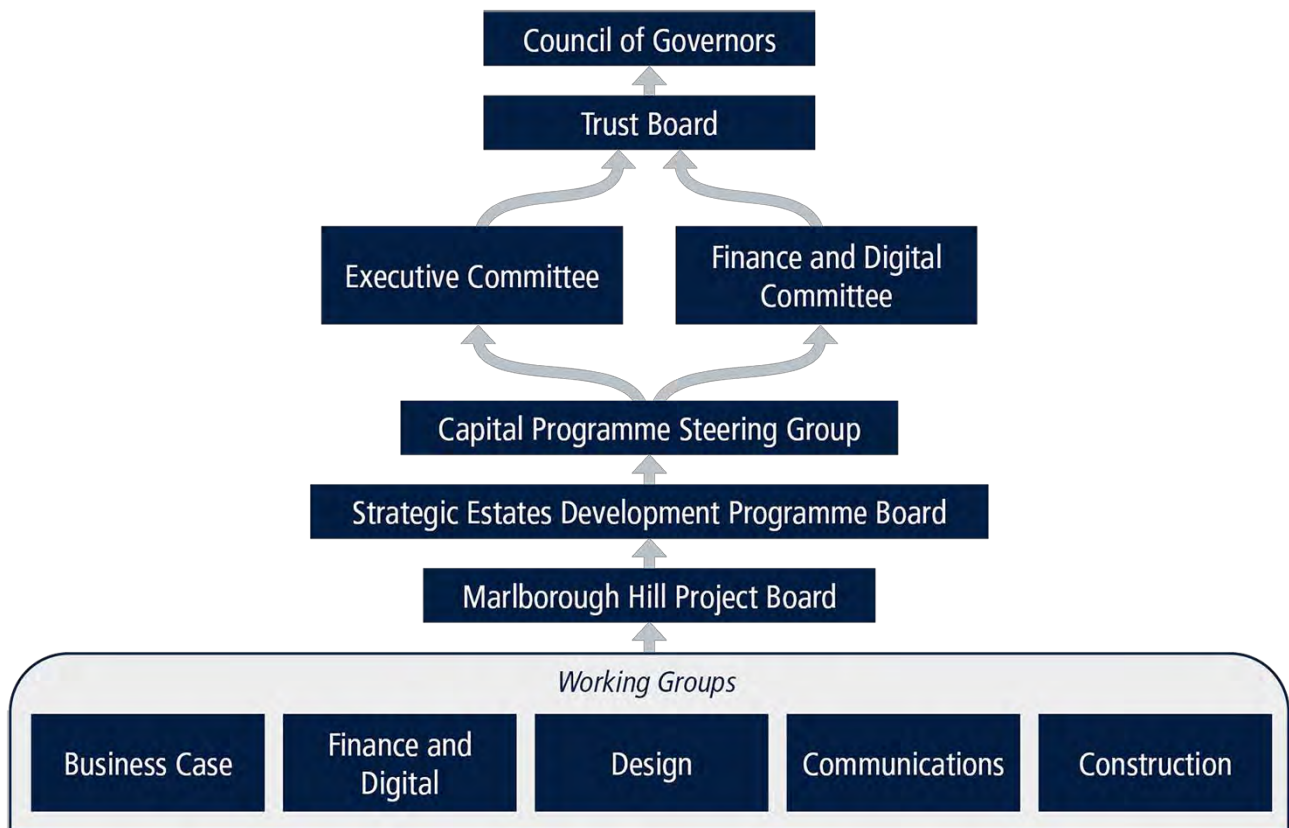
6.3 Project Roles and Responsibilities

6.3.1 Management Structure

Following the mobilisation of the project board, the workstreams will be established. The figure below shows the management structure for the SOC stage of the development.

The overarching programme management will focus on the delivery of the key financial and non-financial benefits and outcomes associated with the development.

Figure 27 – Project Management Reporting Structure



6.3.2 Finance and Digital Committee

The Finance and Digital Committee holds the role of Capital Investment Committee and considers all business cases classed as major and/or high risk and/or strategic, while making recommendations for approval or rejection to the Trust Board.

The Trust Capital Investment Policy sets out the governance arrangements for capital investments undertaken by UHBW. The policy was checked and updated in April 2022 and takes into account NHS Improvement’s Single Oversight Framework with effect from 30 September 2016, which still stands and most recently, the introduction of the Fundamental Assessment Criteria alongside the five-case model for Business Cases, is the approved approach for submission to NHSEI.

The Finance and Digital Committee (alongside the Executive Committee) will notify Trust Board of all project key red flags or required decisions, which cannot be made by SEDPB or Project Board.

6.3.3 Strategic Estates Development Programme Board (SEDPB)

The Strategic Estates Development Programme Board (SEDPB) is an established board who will oversee the project as part of the Trust Wide development strategy. The SEDPB oversees key objectives within the Estates Strategy including the Strategic Capital Programme, within the Trust Capital Programme, which includes this project. SEDPB will provide overall project direction and ensure necessary progress is being achieved by the project board. SEDPB will report monthly to SLT and Finance and Digital Committee.

Membership of the programme board includes:

- Director of Strategy and Transformation (Chair)
- Deputy Chief Executive/Chief Operating Officer
- Director of Finance and IT (Deputy Chair)
- Deputy Director of Finance (Head of Financial Services to Deputise as required)
- Associate Director of Strategy and Business Planning
- Associate Director, Capital
- Capital Programme Manager
- Director of Estates and Facilities
- Divisional Directors (or Deputy Directors)
- Strategic Capital Clinical Services Programme Manager
- Project Board Chairs by invitation.

Quorum necessary for the transaction of business is 50% of members, including a minimum of either the Chair or Deputy Chair, two Divisional Directors and the Director of Estates and Facilities or Associate Director, Capital.

Meeting frequency will be monthly, and at any such times the Chair deems necessary, and a quorum can be established.

6.3.4 Project Board

The Project Board will oversee the development of the Marlborough Hill project and provide monthly reports to the SEDPB. Project board will escalate all key red flags i.e. issues and risks to SEDPB. It is authorised by and accountable to the SEDPB.

The Project Board will have the responsibility for the delivery of the project, within approved cost and programme parameters, from project inception to delivery and commissioning. These parameters will be defined by SEDPB.

Project Board responsibility includes:

- Providing monthly reports to SEDPB
- Deliver a Strategic Outline Business Case (SOC)
- Deliver an Outline Business Case (OBC)
- Daily delivery of project objectives, within the approved cost and programme parameters, from project inception to commissioning
- Establish project working groups and teams, which report into Project Board
- Oversee commissioning activity and governance to ensure full operation of the facility
- Establish and manage the project risk register
- Communications strategy
- Work with charitable partners as necessary to secure funding support where appropriate.

Membership includes:

- Director of Strategy and Transformation (Chair)
- Project Director – Associate Director, Capital
- Finance Capital Manager
- Deputy COO Urgent Care
- Divisional Director, Medicine
- Divisional Director, Surgery
- Divisional Director, D&T

- Strategic Programme Director (Deputy Chair)
- Planning Project Manager
- Business Case Authors/External Project Managers (Archus/BAM)
- Clinical Chairs of represented Clinical Divisions by invitation (Ad Hoc)
- PMO Manager/Admin Support (Minutes).

Other members will be invited to join the Project Board where required, from various established teams or working groups.

Quorum required is 50%, including a minimum of Chair/Deputy Chair, one Divisional Director and the Project Director. Meeting frequency will be monthly, with any such other times as the Chair deems necessary.

6.3.5 Working/Workstream Groups

Working/Workstream groups will complete actions as indicated by the Project Board and report to project board monthly/when required and escalate all identified issues and risks.

While the Project Board and SEDPB, outlined above, will remain accountable for the workstreams, it is expected that they will delegate responsibility for the day-to-day management of, and delivery against, the work stream plan and critical path, to a work stream lead. Each work stream lead will support and monitor progress of the work streams against agreed milestones and report this to the Project Board.

6.3.6 Individual Key Roles and Responsibilities

The high-level responsibilities of key roles are as detailed below:

Senior Responsible Officer (SRO)

This role will be fulfilled by the Trust's Strategic Capital Programme Director. The role includes:

- Initiating and championing approval of the project
- Leading and managing the Trust's interests.

Project Director

Project Director role will be fulfilled by the Trust's Associate Director, Capital. The role includes:

- Assist in developing the project brief and design
- Advise on budget, programme and risk management arrangements
- Preparation of the master programme and monitoring progress against it
- Lead the development of the proposed procurement strategy for the project
- Liaise with stakeholders and approve communications
- Organisation and recommendation of the consultant team
- Monitoring performance of consultant team
- Management and co-ordination of the planning, design, procurement, construction, commissioning and handover processes
- Compliance of tender procedure in accordance with Trust policies

- Management of change control procedures
- Ensure appropriate and adequate insurances and warranties are in place for all parties.

The Strategic Capital Programme Director and Associate Director, Capital have significant experience developing large scale acute projects.

Project Manager

The role of Project Manager will also be fulfilled by the Trust's Associate Director of Capital for the SOC stage. This may change if required during SOC stage for OBC. The role includes:

- Preparation of project plan alongside Construction Lead
- Day to day management of the project plan and timeline
- Delivery of the project objectives to meet the parameters described within the business case
- Management of risks and issues and escalation of appropriate matters for SEDPB/SLT direction or approval
- Production of regular progress reports
- Monitoring, coordinating and controlling work of the project teams/workstreams or working groups.

Finance Lead

The role of Finance Lead will be fulfilled by Senior Financial Planning and Integration Consultant. The role includes:

- Overseeing the financial management of the scheme
- Developing and understanding the revenue implications of the scheme
- Liaising with key stakeholders regarding, for example, tenancy/service level agreements
- Overseeing the appointment of the PSCP and their supply chain
- Overseeing the costs associated with the delivery of the scheme.

Construction Partner (PSCP) Lead

The role of Construction Partner Lead will be fulfilled by the Trust's Construction Director. The role includes:

- Being point of contact for all estate related issues including arranging Isolations and issuing permits to work
- Management of any decant programme
- Management of the construction programme
- Providing Estates input to SOC/OBC/FBC processes.

6.3.7 Use of Special Advisors

Special Advisors have been used in a timely and cost-effective manner in accordance with the Treasury Guidance: Use of Special Advisors, to support the internal resources for this development. These external advisors are detailed in the table below:

Table 33 – Special Advisers

Specialist Area	Adviser
Business Case Authors	Archus Ltd.
Construction Partners	BAM Construct UK
Town Planning	Alder King
Architecture and Design	BDP (Building Design Partnership Ltd)
Building services	WSP (The Williams Sale Partnership Ltd)
Cost Advisor P22	Currie & Brown

During the OBC stage, further technical support is expected to be required, including:

- Financial
- Planning
- Digital
- Procurement
- Legal
- Highways and Transportation.

The external advisors will provide advice to the SRO and Programme Director and ultimately the Trust Board as required.

Special Advisor(s) – Roles and Responsibilities:

Special Advisors and their roles for the project include;

Business Case Authors – Archus Ltd

- Manage the Business Case process including the facilitation of workshops, chasing of information etc.
- Stakeholder engagement
- Technical authoring of the SOC
- Support submission of SOC to NHSEI
- Liaise with NHSE/I on Business Case progress.

P22 Trust Cost Advisor – Currie & Brown

- Full financial management and reporting of project costs together with payment recommendations for all expenditure incurred on the project
- Preparation of contract documents, procurement of contractors, payment of valuations and agreement of final accounts
- Budget estimating and cost modelling
- Cost planning
- Provision of cost advice
- Reporting and advising on all tendering and contractual arrangements
- Preparation of tender documents, including incorporation of client standard amendments and appropriate insurance provisions
- Analysing and reporting on tenders received
- Preparing and issuing regular executive financial reports and cash flow summaries to the Project Manager.

Town Planning Consultant – Alder King

- Providing advice and solutions to the Project Team
- Lead the process of planning
- Liaise with appropriate stakeholders
- Preparing regular reports for the Project Manager.

Architecture and Design – BDP

- Providing design advice and solutions to the Project Team
- Lead the process of design and the design team;
- Liaise with appropriate stakeholders;
- Preparing regular reports for the Project Manager.

Building Services – WSP

- Providing technical advice and solutions to the Project/Design Team;
- Assist with the design and construction teams where required;
- Liaise with appropriate stakeholders
- Preparing regular reports for the Project Manager.

6.3.8 Project Progress Reporting

Project teams/working groups will feed monthly reports to the Project Manager, who will submit the monthly report for Project Board and SEDPB. These reports will include progress to date, expected progress for forthcoming weeks, decisions required, key issues/red flags, progress against project milestones.

6.3.9 Project Management and Professional Fees Budget

The following table outlines the estimated project and professional fees budget for the SOC.

Table 34 – Forecast Project Management and Professional Fees Budget

Company	Purpose		Total Fees incl. 20% VAT
Archus UK	PM and Business Case Authoring		£98,351
Currie & Brown	Cost Advisor		£75,320
Alder King	Planning		£39,850
BAM	Survey Costs – Budget		£264,000
BAM	Form of Proposal		£1,867,314
BDP – Architectural	Feasibility Study	Procure22 7% fee	£197,486
WSP – M&E and C&S			
BAM – Management			
Cost Advisor			

6.4 Project Plan / Programme

The key milestones relating to the business case development is shown below:

Table 35 – Project Milestones

Key Deliverables		Date From/To
1.	SOC submission to ICB/ICS	Dec 2022
2.	SOC submission to NHSE	Jan 2023
3.	SOC submission to HM Treasury	Aug 2023
4.	OBC submission for internal Trust approval	Aug 2023
5.	OBC submission to ICB/ICS	Sept 2023
6.	OBC submission to NHSE	Nov 2023
7.	OBC submission to HM Treasury	May 2024
8.	FBC submission for internal Trust approval	Dec 2024
9.	FBC submission to ICB/ICS	Jan 2025
10.	FBC submission to NHSE	Mar 2025
11.	FBC to HM Treasury	Sep 2025
12.	Construction Start	Apr 2026
13.	Construction end & Commissioning	Mar 2029

6.5 Change Control

Change management associated with the project will be managed by the Trust through the SEDPB.

6.6 Risk Management

A risk management framework has been implemented to provide a comprehensive risk assessment and control framework for the programme. This details who is responsible for the risks and the required counter measures.

The reporting will follow the PRINCE2 process of checkpoint, highlight and exception reports. The condition will be indicated by using red, amber or green (RAG) colour code as outlined below.

Table 36 – Risk Rating Matrix

			Impact				
			Very Low	Low	Medium	High	Very High
			1	2	3	4	5
Pro	ha	Very Low	1	2	3	4	5

Low	2	2	4	6	8	10
Medium	3	3	6	9	12	15
High	4	4	8	12	16	20
Very High	5	5	10	15	20	25

The full risk register for the project (Appendix 12) is monitored by the Project Board and reported monthly to the SEDPB, who then escalate to Trust Board where necessary. The focus of risk management will address broadly:

- Non-delivery of project outcomes as defined in stages of the project plan;
- Threats to the completion of the project within cost and time (managed on a day-to-day basis by the members of the project delivery team).

In respect of this project, the following roles are at the core of the process:

- **The Risk Manager** – Responsible for capturing / assessing risk data based on information supplied and maintaining the Risk Register. The Programme Lead will work with individual Workstream Managers in performing this role
- **The Risk / Mitigation Owner** – Governance group or workstream lead best placed to ensure that effective mitigation of the risk is undertaken.

These individuals will be responsible for ensuring the risk mitigation actions are carried out and providing periodic updates at each Project Board.

6.7 Post Implementation Evaluation Arrangements

The outline arrangements for post implementation review (PIR) and project evaluation review (PER) will be established in accordance with best practice and are as follows:

The Trust will ensure that a thorough post project evaluation is undertaken at key stages in the process to ensure that positive lessons can be learnt from the project, to benefit:

- The Trust – utilising the knowledge for future capital schemes;
- Other key local stakeholders – to inform their approaches to future projects;
- The NHS more widely – to test whether the policies and procedures used in the development have been used effectively;
- Contractors – to understand the healthcare environment better.

The evaluation will examine the following elements, where applicable:

- The quality of the documentation prepared for the requirements of contractors and suppliers;
- Communications and involvement during procurement and the effectiveness of advisors utilised on the scheme;
- The efficacy of NHS guidance in delivery the scheme;
- Perceptions of advice, guidance and support from NHSE/I in progressing the scheme.

This review ascertains whether the anticipated benefits have been delivered. The review is recommended to be timed to take place immediately after the new health centre opens and then two years later to consider the benefits planned.

A benefits realisation plan will be developed as part of the full business case (FBC) stage and implementation of the operational policy to demonstrate how the benefits have been realised.

The project evaluation review will appraise how well the project was managed and whether or not it delivered to expectations. It will be timed to take place during the construction phase and will form part of the post project design evaluation. It will compare the current design assessment undertaken during the FBC project phase with the final operational building.

6.8 Organisation Readiness

Achievability evaluation of all the options is summarised in the options appraisal within the Economic Case.

Enabling Works

To provide an optimum programme and efficient site logistics an enabling works programme is proposed. This will clear the site of existing accommodation, divert any services infrastructure and upgrade road junctions in advance of the main works.

Pharmacy will be re-provided on site and other services such as Trust HQ will be assessed in the next stages of the design programme to determine their final location.

6.9 Premises Assurance Model (PAM)

The NHS PAM was developed to provide a nationally consistent basis for assurance for Trust Boards, on regulatory and statutory requirements relating to their estate and related services, and this NHS constitution right:

“To be cared for in a clean, safe, secure and suitable environment.”

In addition to supporting this NHS constitution right, the main benefits of the NHS PAM are to:

- Allow NHS funded providers of healthcare (NHS providers) to demonstrate to their patients, commissioners and regulators that robust systems are in place to assure that their premises and associated services are safe;
- Provide a consistent basis to measure compliance against legislation and guidance, across the whole NHS;
- Prioritise investment decisions to raise standards in the most advantageous way.

This assurance can then be used more widely and be provided to commissioners, regulators, the public and other interested stakeholders.

UHBW have developed their own PAM using the self-assessment questions provided in the latest 2019 version and this will be reviewed at OBC and subsequently included in appendices for detail.

Appendices

Appendix 1 – Estates Strategy



University Hospitals Bristol and Weston

NHS Foundation Trust

Estate Strategy 2021-26

September 2021 (revised April 2022)

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1 Executive Summary

The estate strategy is an iterative document which sets a framework for future development, and will evolve in response to clinical and business needs.

1.1 Where Are We Now?

University Hospitals Bristol and Weston NHS Foundation Trust (UHBW) is one of the country's largest acute NHS Trusts, with an annual income of close to a billion pounds. The Trust provides general hospital services to the people of central and south Bristol, and the north of North Somerset - a combined core population of over 500,000 - and specialist services to the wider population of the Southwest and beyond, serving typically between one and five million people.

The Trust was formed in April 2020, by the merger of University Hospitals Bristol NHS Foundation Trust (UH Bristol) and Weston Area NHS Trust (WAHT); this new organisation has brought together a workforce of more than 13,000, to deliver 100 clinical services across 10 different sites and a total estate comprising 215,624m².

UHBW is renewing the UH Bristol 2015-2020 Estate Strategy, in line with the Department of Health guidance '*Developing an Estate Strategy*', predominantly to cover the period 2021-2026.

Our Estate Strategy is a long-term plan for managing the estate to optimise its response to the service and business needs of the Trust, the Sustainable Transformation Programme (STP), the Integrated Care System (ICS) and the patients and local population / communities that the Trust operates to serve. An up-to-date estate strategy is required to set out the framework and direction of travel, regarding all estate matters, for the next five years and beyond. It considers the status of the estate, ambitions for the future and how they might be achieved, setting out key investment and disinvestment decisions that will be required, aligned to clinical and business objectives. A key objective of the document is to create a strategy for delivering sustainable, fit-for-future estate provision, where **buildings and equipment are in the right place, in the right condition, of the right type and able to respond to future service and population needs.**

There is also the post-Covid-19 impact to be considered and how this might affect future provision of services and estates infrastructure. The post Covid-19 response will impact how the system delivers services and utilises premises; it is too early to determine the exact long-term impact on use of space, but, given the increased use of digital technology and telemedicine, it is not unrealistic to assume that there will be greater opportunity for efficiency and less reliance on physical assets (in certain circumstances and aspects of the delivery of care). However, there is a need for more resilience in the core clinical environments delivering care, especially regarding infection control, segregation of space, single rooms and elective recovery capacity. The Trust will ensure resilience planning forms part of design stages for estate developments which will be aligned to the Business Case approvals process as outlined by NHS England and Improvement.

The Trust has a need to create more adaptable environments that can accommodate virtual clinics and facilitate the proposed flexible and agile delivery of administrative / office functions and to build for estate resilience in times of uncertainty, considering the potential impact of future pandemics. Moving non-direct clinical facing functions and/or elective care offsite, such as diagnostics, back-office, outpatients and other activities, presents an opportunity to release or create space for the expansion of higher acuity services and can be achieved by engaging with our people and delivering a more accessible and carbon neutral option for our patients. The emergence of national programmes including development of Edith Cavell Centres, Community Diagnostic Hubs and

Healthcare on the Highstreet will also need to be considered alongside the implications of local initiatives such as **Healthy Weston 2**, clinical service strategies and other relevant strategic documents.

The October 2021 Spending review granted funding aimed towards partnership working, via the Integrated Care Systems. The Trust is working with its system partners to realise the benefits of wider integration across the geography for the local population that it serves. The Trust currently operates from three main sites - Bristol Royal Infirmary, South Bristol Community Hospital and the Weston General Hospital – and several smaller satellite sites and delivers outpatient and midwifery community services from a range of non-Trust-owned properties.

The Trust is nearing the completion of a 10-to-15-year asset management cycle and, in the previous five years to 2020, has concentrated on rationalisation of the estate to release old building stock, alongside progressing some key strategic capital developments. This Estate Strategy will consider those items that still need to be addressed, future planned capital developments, the response to the clinical or divisional service plans and emerging service developments from the **Healthier Together** agenda, all whilst maintaining *business as usual* from a cyclical or back log maintenance investment programme. The Trust merged with Weston General Hospital in April 2020 and since then has concentrated capital estate investment on backlog maintenance, necessary repairs and patient environment upgrades. The opportunities and benefits of integration for an increased estate are being considered within the system work to develop a Healthy Weston. The vision for Weston General Hospital is to be a successful small hospital delivering truly integrated, safe and high-quality services that meet the specific needs of local people, now and in the future, working in new and innovative ways with our health and care

The estate strategy reflects the current thinking of the Trust's **Strategic Estates Capital Programme** and has, as part of its development, robustly tested the viability of each planned project. This validation of the requirements has been informed through stakeholder engagement and participation sessions with service leads and divisional directors, and further considered and endorsed via our Senior Leadership Team

We have undertaken a rapid review during Covid-19 and validated all clinical requirements using independent demand and capacity modelling, as part of the **Strategic Estates Development Review**. The Trust has also augmented its in-depth technical knowledge of the estate by carrying out Quality and Physical Condition Surveys, in line with DHSC guidance **A risk-based methodology for establishing and managing back-log** (NHS Estates, 2004).

The result of this process is a list of validated schemes that will inform the “where do we want to be” section of the strategy.

1.2 Where Do We Want To Be?

Previous redevelopments and rationalisation of the estate has created opportunities for surplus land for future strategic development or disposal. However, both the site development control plan of 2018 and the demand and capacity review in August 2021, have evidenced that the core Bristol Royal Infirmary site (Bristol Campus) is heavily developed, with only one development site available to the North-East of the main campus at Marlborough Hill.

As custodians of public sector land, it is important that any strategic development is considered carefully, as we must leave a lasting legacy for future generations. Therefore, future development of the site will continue to be a blend of **reuse, refurbish, extend, and new build** (only when necessary). The Trust will consider its options around offsite developments, working with partners as part of the integrated care system.

We also have an ambitious goal to become carbon neutral by 2030; the Trust continually considers how we can reduce our environmental impact and embed sustainability across all aspects and elements of the organisation.

This strategy sets out the ways in which our strategic objectives and estates priorities will be delivered over the next five years, making best use of these opportunities alongside consideration of the clinical service and organisational strategies.

As part of the Strategic Estates Plan the following **estate objectives** were identified:

- Maintain high standards of functionality and suitability;
- Adapt the estate to support the potential transformation of services including the shift of some outpatient activity to community settings, the potential to improve performance, including length of stay and day-case rates based on benchmarking, the impact of anticipated service model and technological changes and the impact of potential external developments to develop a robust site development plan;
- Ensure that business critical backlog maintenance is carried out to improve the quality of the estate, extend asset life where possible and reduce the current level of risk associated with a failure of the business-critical plant and equipment;
- Consider the potential for strategic estate and property acquisitions to support business and service ambitions. This is particularly important given the Bristol Campus location is heavily developed with little room for expansion.

The **estate priorities** were identified as:

- Ensure statutory compliance of existing estate and maximise utilisation;
- In line with the Five Year Forward View, develop plans for sustainable provision of health and care services to the populations we serve;
- Consider the potential for sharing/consolidating service delivery locations and office buildings to ensure effective utilisation of public estate across geographies;
- Prioritise a programme of schemes with the biggest impact on safety and patient experience, including critical backlog maintenance and compliance works;
- Align the strategic estates plan with business and service objectives, including maintaining the delivery of high-quality services, growing our specialist hospital services and maintaining our position as a leading acute provider in South West England and beyond;
- Implement our "[Sustainable Development Strategy 2020-2025](#)" and develop the required "Green Plan".

Stakeholder engagement, feasibility and surveying work has taken place to inform the estate strategy, including the prioritisation of strategic developments to support a long list of service improvements, expansions and transformation.

The result is a route map of "where we want to be" in terms of prioritised developments, site sequencing, early options appraisals, enabling works and programming.

Option appraisals of possible reconfigurations, relocations, new builds and extensions has taken place, including assessing and utilising expansion space at Marlborough Hill and Trust HQ rather than current site footprints and moving departments around existing buildings.

The **Bristol campus** is constrained for development, particularly around existing Emergency Department and Children's Hospital, both A&E and inpatient wards. We recognise that we must achieve the best possible value for money in capital redevelopments and each scheme must deliver the outcomes of both services and estate objectives.

The cost: benefit of refurbishing and relocating departments within the existing footprint against that of new build development at Marlborough Hill has been tested at this feasibility stage. To ‘unlock’ space for developing the prioritised Strategic Estates Development list, including Children’s Services, the creation of an Urgent Emergency Assessment Centre (UEAC), Theatres and Endoscopy facility at Marlborough Hill is the **cornerstone for enabling the planned redevelopment programme**.

Our estate objectives for **Weston Hospital** are to upgrade its critical infrastructure, ensure that life cycle investment takes place, while improving the patient environment. A Site Development Plan (SDP) for the site was finalised in March 2022 alongside the emerging clinical service planning “Healthy Weston 2 “.

The Weston SDP will act as a framework to support and enable delivery of major physical enhancements that secure clinical service benefits to healthcare provision for the population of Weston-super-Mare and the wider region. The plan demonstrates a significant opportunity to develop the estate and there is high level of assurance that any approved outputs from Healthy Weston 2 can be accommodated from an estate perspective. However, as is the case for some of the current strategic estate development programme schemes, development at Weston Hospital requires financial resource constraints to be addressed with system partners and funders.

1.3 How Do We Get There?

The Trust Board approved a five-year Strategic Estates Development Investment Programme, in 2018, to fund refurbishments, new buildings, medical equipment and our digital programme. Delivering consistent high quality, patient-centred care and valuing our people, are all core to the Trust’s mission of **providing a modern, fit for purpose environment** and is an essential part of achieving these priorities.

In September 2018, the Trust Board approved investment of **£120.3m in major strategic clinical services schemes**, part of the overall of Investment Programme and Medium-Term Financial Plan totalling £237m to 2022/23. However, the demand on these funds far outweighs what the Trust can invest in, with its own accumulated cash balances, without securing additional funding. The Trust has limited capital to fund a scheme as significant as the Marlborough Hill development.

The new capital regime, introduced in 2020/21, means all provider Trusts, including Foundation Trusts, are subject to capital expenditure constraints via the system Capital Departmental Expenditure Limit (CDEL). The CDEL cannot be breached, regardless of the level of accumulated cash balances a Trust may have. Therefore, to ensure Provider capital investment plans in aggregate are compliant with the system CDEL, system prioritisation of provider plans will be necessary and will, place a constraint on the Trust’s future capital investment plans.

The UBHW CDEL for 2021/22 is c£57m for all capital expenditure: the Trust’s current Medium Term Capital Programme significantly oversubscribes the CDEL. In real terms this results in significant limitations on the amount that the Trust could invest in infrastructure, environment, restoration, major medical, digital and other elements, from capital, in 2021/22 and beyond. The Trust’s Back Log Maintenance is estimated to be more than £73m; £25m of this is indicated for items of high or significant risk and will be prioritised as part of any ongoing infrastructure investments. The current Strategic programme does not include any allocation for the development of the Weston site. Maintenance and minor capital works will continue to be supported via internal capital allocations. However, any major or strategic capital development will require funding sources to be determined working with BNSSG ICS partners and NHSEI.

The developing revenue financial regime, the pending NHSEI notified three-year system revenue funding envelopes and the NHSEI notified system financial limit on capital expenditure (CDEL), will all play a major part in assessing the Trust's future capital investment plans. In addition, the yet-to-be-clarified Integrated Care System (ICS) role in determining and deciding the system's capital investment priorities and the subsequent allocation of CDEL to individual organisations, will also play a major part. Whilst, at the time of writing, the system and the Trust has currently, no visibility of the revenue funding envelopes beyond 31 March 2023, the system has committed to refreshing its Medium-Term Financial Plan this Summer to help inform the future direction of travel. However, the 2022/23 system financial plan describes a significant underlying deficit of c£90m going into 2023/24. The scale of the service and financial challenge to recover the system's underlying deficit is likely to impact heavily on the system's ability to afford the recurring revenue consequences of the systems and the Trust's capital investment plans.

The challenging revenue outlook coupled with the CDEL constraint will mean the Trust will not be able to fulfil all of its capital investment ambitions. Therefore, it is extremely important that the Trust works with its ICS partners to appropriately prioritise the systems and therefore the Trusts capital investment plans against all available resources including charitable funds.

Clearly, it is necessary to regularly review the Trust's capital priorities and carefully plan its future capital expenditure projects each year, within its strategic capital programme, that is affordable in recurring revenue and cash terms. Assuming the recurring revenue affordability of capital investment is prioritised and could be fully funded by the system, it would also mean the Trust will have to secure NHSEI centrally held capital funding (that does not score against CDEL) via compelling business cases submitted to NHSEI for future large-scale, strategic developments, such as some of the schemes described in the Capital Investment Programme section below:

Category 1: Infrastructure and Restoration

1 to 2 years

- Very high and high-risk infrastructure requirements – funding committed c£25m over 2 years;
- Existing schemes linked to Restoration Framework:
 - Adult ward capacity;
 - Adult critical care capacity;
 - Medical Education facilities.

Category 2: Medium scale strategic development

2 to 4 years

- D603 (inpatient ward refurbishment);
- Bristol Eye Hospital (Ground Floor)
- Bristol Eye Hospital 5th operating theatre:
 - Endoscopy.
- St. Michaels Hospital (Level E);
- Holistic Cancer Centre;
- Dermatology;
- Neonatal Intensive Care Unit.

Category 3: Major strategic development

3 to 5+ years

- Adult Emergency Department, assessment units and radiology;
- Adult theatres and endoscopy;
- Bristol Royal Hospital for Children expansion;
- Bristol Haematology Oncology Centre (expansion and redevelopment).

A key consequence of creating the UEAC facility on Marlborough Hill, is an opportunity to realise future strategic priorities (including delivery of the strategic objectives that are known or anticipated, in the next 5-10 years and beyond).

Realisation of the estate strategy will afford meaningful opportunities for development or potential disposal (e.g., Central Health Clinic), created through the development of the UEAC; which in turn, will make space available in the existing constrained and congested Children's Hospital and emergency departments. This sequence of developments will release the current pressure experienced on the Bristol Campus site and facilitate opportunities for expansion of key clinical services, such as Children's ED and Outpatients department.

The proposed clinical model for the Weston General Hospital site is to create a "surgical centre of excellence" excellence of between c80 and c90 beds plus potentially additional theatre provision, providing a dedicated elective facility focussed primarily on high volume, low complexity surgical work to be undertaken and to potentially allow for increased volumes of general and orthopaedic surgery as well as expansion of the day case provision in for example Breast, Gynaecology, Ophthalmology and Urology surgery.

The capital assessment assumes additional elective activity could be effectively delivered from Weston General Hospital under the proposals for change, supporting additional planned elective activity and the reduction of waiting lists across the North South-West region. This capital assessment provides for a surgical centre of excellence which includes the reconfiguration and refurbishment of the second floor of Weston General Hospital including four additional theatres (of which two are modular theatres) and the associated recovery facilities. Decant requirements are also included.

This is a significant capital programme of work as described in the Health Weston Phase Two Outline Business Case and in summary is;

- The reconfiguration of the second floor of Weston Hospital including the reprovision and refurbishment of four wards, for example Hutton, Steephholm, Uphill, Ashcombe maternity ward;
- Four new theatres, including two high flow laminar theatres on the second floor and two modular theatres/wards for potential decant and future expansion plus recovery facilities; and
- One modular ward at Taunton to accommodate the re-provision of emergency care transferring to Musgrove Park.

The source of funding required to meet the capital costs is assumed to be available via national funding programmes, for example, the nationally available elective recovery Targeted Investment Fund (TIF) from the Department of Health and Social Care. In a scenario where the capital funding is only partly funded then the BNSSG System will need to undertake prioritisation of system strategic capital investment plans.

1.4 Key actions this Estate Strategy aims to deliver

This Estate Strategy sets out the Trust's strategic direction for estates development over the five years from 2021-2026 and describes the opportunities available to us to facilitate key clinical service developments, maintain high quality environments, create space for expansion, facilitate better access and transport in and out of our sites and release space for future resilience and sustainability.

The estate strategy supports our mission to provide exceptional care, teaching and research for the benefit of the people we serve. Funding the delivery of major strategic developments remains one of the largest risks to achieving the estates strategy implementation and delivery plan.

The key actions this strategy seeks to deliver are:

<p>1 Support enablement of Trust's clinical and service strategies and be flexible to respond to emerging strategic direction such as <i>Healthy Weston 2</i> and the <i>Acute Services Review</i></p>	<p>2 Implement the SEDP, including development of the Marlborough Hill site to unlock the Bristol Campus site for development</p>
<p>3 Improve access, environment and transport for our patients, visitors and staff</p>	<p>4 Reduce our back-log maintenance and invest in the infrastructure supporting our estate</p>
<p>5 Support our sustainability strategy, adopting a road map to achieve net zero carbon</p>	<p>6 Explore the commercial opportunities associated with disposing of Central Health Clinic and Tyndall's Park Road</p>
<p>7 Continue to explore strategic real estate acquisitions such as the current dental hospital</p>	<p>8 Consolidate our administration functions and adopt an agile working methodology post-Covid</p>
<p>9 Enable opportunities for offsite working with our partners in the ICS and Healthier Together membership</p>	<p>10 Develop a strategy for staff, overnight and parents' accommodation</p>
<p>11 Adopt a digital strategy, implementing the opportunities for digital appointments, virtual wards, joined up care and self-care</p>	<p>12 Source funding and implement the Weston Site Development Plan aligning to the emerging clinical requirements from a <i>Healthy Weston 2</i></p>

2 Introduction and Overview

2.1 Background

University Hospitals Bristol and Weston NHS Foundation Trust (UHBW) is one of the country's largest acute NHS Trusts with an annual income of almost a billion pounds. We provide general hospital services to the people of central and south Bristol and the north of North Somerset - a population of about 350,000 - and specialist services to the wider population throughout the South West and beyond, serving typically between one and five million people.

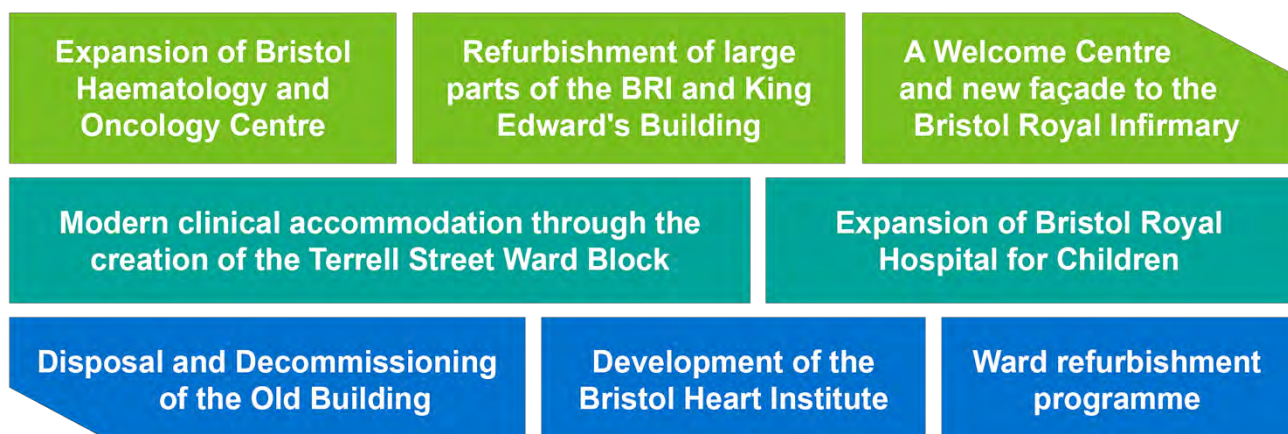
The Trust was formed in April 2020, by the merger of University Hospitals Bristol NHS FT and Weston Area NHS Trust; this new organisation brings together more than 13,000 staff and delivers 100 different clinical services across 10 different sites and a total estate comprising 215,624 m².

This estate strategy is being developed at the beginning of a new 10 to 15-year Trust asset cycle, which will look to renew and optimise significant parts of the Urgent & Emergency Care, Diagnostics departments and Theatres, as well as improving transport and access to the Bristol Campus site. One of its key objectives is to align our clinical accommodation to prevailing service and strategic objectives. There will also be follow-on and alignment work regarding Weston Hospital, once a service strategy is developed, alongside a development control plan.

Implementation of the strategy will result in the development and expansion of specialist hospital services, including the partial decommissioning of our older estate and realising expansion space for other key services - including the Children's Hospital, which provides the major trauma service for the South West region - to grow.

It is worth noting that the outgoing 10-year (UH Bristol) strategies, ending in 2020, will have driven investment of c£200m into the development of the estate and its notable impacts include;

Figure 1 - Impact and results from 10-year investment programme



Subsequently, the Trust has implemented a number of schemes within the current phase of strategic development, which includes:

- The acquisition and redevelopment of Myrtle Road;
- Cardiac Service – Stage 1 Expansion;
- Bristol Haematology and Oncology Centre - Stage 1 Redevelopment;
- Knightstone Ward – creation of 12 additional in-patient beds at Weston Hospital.

In parallel, significant work has been progressed on business cases, planning and design development, for several other clinical services-related schemes in the Strategic Estates Development Programme.

Due to the Covid-19 pandemic, there has been a one-year gap, or pause, between the last estate strategy period and this document, as we reviewed all our clinical services in response to these unexpected challenges.

Developing a formal Estate Strategy for 2021-26 brings a range of benefits to the Trust and wider health economy, including having:

- a) an assurance that the quality of clinical services provided will be supported by a safe, secure and appropriate environment;
- b) a means of ensuring that capital investments reflect clinical service strategies;
- c) a plan for change in which progress can be measured;
- d) a strategic context in which detailed business cases for all capital investment can be developed and evaluated as part of our strategic capital programme;
- e) a means by which the Local Authority can identify capital investment projects which will require formal statutory approval and will relate to the **Local Development Plan**;
- f) clear strategies to:
 - establish sustainable development and environmental improvements;
 - ensure assets are effectively managed;
 - ensure risks are controlled and investment properly targeted;
 - reduce risk.

In short, this document outlines the **strategic direction for the Trust**, regarding the future of the estate and acts as a **framework to inform the future estate decisions** over the next five years.

2.2 Strategic Context, National drivers for change

There are three main national drivers that the Estate Strategy needs to reflect:



2.2.1 The NHS Long Term Plan

The *NHS Long Term Plan* (LTP), published Jan 2019, sets out five major, practical changes to the NHS service model, to be delivered over the following five years:



The plan builds on the policy platform laid out in the *NHS Five Year Forward View* (5YFV) which articulated the need to integrate care to meet the needs of a changing population.

Boosting 'out-of-hospital' care, and joining up primary and community health services

Over a five-year period, country-wide, the NHS will be asked to increase the capacity and responsiveness of community and intermediate care services to those who are clinically judged to benefit most.

Urgent response and recovery support will be delivered by flexible teams working across primary care and local hospitals, developed to meet local needs, including GPs, allied health professionals (AHPs), district nurses, mental health nurses, therapists and reablement teams. Extra recovery, reablement and rehabilitation support will wrap around core services to support people with the highest needs.

Redesigning and reducing pressure on emergency hospital services

Over the period of the plan, the practical goal is to ensure patients get the care they need fast, relieve pressure on A&E departments and better offset winter demand spikes, by expanding and reforming urgent and emergency care services.

To help patients navigate to the optimal service 'channel', the NHS will embed a single, multidisciplinary Clinical Assessment Service (CAS) within integrated NHS 111, ambulance dispatch and GP out of hours services from 2019/20. CAS will provide specialist advice, treatment and referral from a wide array of healthcare professionals, encompassing both physical and mental health, supported by collaboration plans with all secondary care providers.

The NHS will fully implement the Urgent Treatment Centre (UTC) model, so that all localities have a consistent offering for out-of-hospital urgent care, with the option of appointments booked through a call to NHS 111. UTCs will work alongside other parts of the urgent care network, including primary care, community pharmacists, ambulance and other community-based services, to provide a locally accessible and convenient alternative to A&E for patients who do not need to attend hospital.

The NHS and social care services will continue to improve its performance in getting people home without unnecessary delay when they are ready to leave hospital, reducing risk of harm to patients from physical and cognitive deconditioning complications.

More personalised care to help people gain control over their health when they need it

As part of a wider move to 'shared responsibility for health', the NHS will increase support for people to manage their own health. This will start with diabetes prevention and management, asthma and respiratory conditions, maternity and parenting support and online therapies for common mental health problems.

Digitally enabled primary and outpatient care

Building on progress already made in digitising appointments and prescriptions, a digital NHS 'front door' through the NHS App will provide advice, check symptoms and connect people with healthcare professionals – including through telephone and video consultations. Patients will be able to access virtual services alongside face-to-face services via a computer or smart phone.

The NHS will continue to invest in the **nhs.uk** platform so that everyone can find helpful advice and information regarding their conditions. As technology advances, the NHS will trial the use of innovative devices, such as smart inhalers, for better patient care and remote monitoring of conditions and will continue to support the development of apps and online resources to support good mental health and enable recovery. Over the five years of the plan every patient in England will have a right to choose the option of having 'digital-first' contact through telephone or online consultations – usually from their own practice or, if they prefer, from one of the new digital GP providers.

Increased focus by local NHS organisations on population health and local partnerships with LA-funded services, through Integrated Care Systems (ICS)

The NHS will continue to develop ICSs, building on progress already made. As of April 2021, there are ICSs to cover the whole country, which have evolved from the previous network of Sustainability and Transformation Partnerships (STPs).

Every ICS will need streamlined commissioning arrangements to enable a single set of commissioning decisions at system level; this will typically involve a single CCG for each ICS area, resulting in CCGs which are leaner, more strategic organisations that support providers to partner with local government and other community organisations on population health, service redesign and LTP implementation.

The LTP also outlines how care and quality plans for the next 10 years will focus improvement on:

- Cancer care and diagnostics in particular;
- Cardiovascular disease (including stroke);
- Diabetes;
- Learning disabilities and autism;
- Adult mental health services;
- Maternity and neonatal services;
- Respiratory;
- Services for children and young people, particularly in relation to mental health and cancer.

Research, innovation and ensuring the right people are available in the workforce, are highlighted as essential to support the improvements sought. UHBW is well placed to respond to much of the vision of the LTP, building on our successes and continuing to work hard to build partnerships and collaborate for change.

Climate Change Resilience and Adaptation

The 2016 Carter Report highlighted the inefficient use of energy and natural resources as a major area for improvement and addressing these simultaneously supports adaptation and mitigation measures. The **Long-Term Plan** sets out key requirements in order that the NHS leads by example in sustainable development and reduces use of natural resource in line with government commitments.

The NHS has restated its commitment to the carbon targets in the UK government Climate Change Act (2008), reducing carbon emissions (on a 1990 baseline) by 34% by 2020 and 51% by 2025.

The NHS has also committed to improving air quality, by cutting business mileage by 20% by 2023/24 and ensuring that at least 90% of the NHS vehicle fleet have low-emission engines (including 25% ultra-low emissions) by 2028. Other priorities include phasing out coal and oil fuel primary heating from NHS sites, redesigning care and making greater use of 'virtual' appointments to reduce the need for patient and staff travel.

Public Health England and NHS England have identified 35 interventions which Lord Carter of Coles promoted in the Carter Review. The interventions, taken from the Sustainable Development Unit's **Securing Healthy Returns** report, are ranked showing the carbon reduction and financial savings possible across England, but are applicable locally. Whilst capital funding is required for the larger initiatives (e.g., installing combined heat and power facilities), many are achievable without such investment. **The NHS has been identified as the largest public sector contributor to climate change**, and the Government has made taking action, to reduce its carbon emissions and contribute to wider carbon reduction targets, critical for the NHS:

- **Waste management and Water consumption** are costly, contribute significantly to carbon emissions and are subject to legislation requirements.

- **Energy consumption** is the single biggest contributor to emissions in the NHS carbon footprint, of 18 million tons of CO₂ per year, energy is responsible for 22% of this, travel 18% and procurement 60%. Energy Prices have continued to increase as a result of Brexit, Inflation and the Russia's invasion of Ukraine, so both direct and supply chain efficiency gains will be essential to keep costs down.
- **Transport** - BNSSG comprises a significant rural area and community transport plays a key part in accessing and delivering NHS services. The commissioner's strategic aim is to have an increased focus on supporting our population to maintain good health, supporting patients to stay independent for as long as possible and providing services in out-of-hospital settings.
- **Procurement** is responsible for 60% of carbon emissions; it impacts on many areas of estate function, including facilities management (waste, catering, linen, fleet vehicles) and major capital expenditure (new developments, refurbishments and maintenance).
- **Facilities management, building maintenance and capital planning** - main providers will adopt the BREEAM Healthcare methodology to demonstrate that projects are built with sustainability in mind; achieving the BREEAM Excellent standard for new build and Very Good for refurbishments. HTM 07-07 encourages the improved sustainability of our buildings through planning, design, construction and refurbishment. There are various issues to be considered at each stage, with flood prevention and Sustainable Urban Drainage, futureproofing, health and wellbeing (health effects of climate change), energy and carbon emissions, pollution, land use and ecology, water use, and materials all being linked, either directly or indirectly, to our ability to manage the risks, implications and opportunities from a changing climate.

In collaboration with our healthcare partners, including North Bristol NHS Trust, we developed a board-approved Sustainable Development Strategy in 2020. We will continue to work with stakeholders to ensure we are aligned to deliver a shared set of goals for minimising our impact on the environment. We are also committed to working in partnership to deliver [Bristol's One City Plan](#) and the vision for a "*fair, healthy and sustainable city*".

The Lancet commission declared climate change is the greatest threat to global health. We recognise the urgency of the threat that climate breakdown poses to public health. We wish to be leaders in fast tracking plans to achieve carbon neutrality - improving the health of our population in the process.

NHS England and NHS Improvement (NHSE&I) have issued the report ***Delivering a Net Zero National Health Service***, which provides a national-level framework for action on climate change and sustainability. Every NHS organisation has an essential role to play in meeting this ambition.

Green Plans

To Support the net zero carbon ambition, each trust and integrated care system should have a **Green Plan** which sets out their aims, objectives and delivery plans for carbon reduction. In each case this should be signed off by the Trust Board, with a board-level **Net Zero Lead** responsible for overseeing its delivery. In addition to our Sustainable Development Strategy, the Trust is working on delivery of a Green Plan in 2022/23, to be presented to Trust Board for sign off.

2.2.2 NHS Property and Estates – Why the estate matters for patients

In March 2017 the government issued the findings of an independent review, by Sir Robert Naylor, which set out a new NHS estate strategy to support the delivery of specific Department of Health (DH) targets: releasing £2bn of assets for reinvestment and providing land for 26,000 new homes. The report called for the NHS, through the STP process, to develop robust capital plans, aligned to clinical strategies, which maximise value for money (including land sales) and address backlog maintenance costs and issues. Ultimately this should improve capability and capacity to support national strategic planning and local delivery.

The report outlined 17 separate recommendations, relevant to national or local structures; of particular note to UHBW (and other acute providers) are the following four recommendations:

- *“STPs should develop affordable estates and infrastructure plans, with an associated capital strategy, to deliver the 5YFV and address backlog maintenance. These plans should be supported by robust business cases. The new NHS Property Board should support the development of these plans.*
- *STP estates plans, and their delivery should be assessed against targets informed by the benchmarks developed for this review. STPs and their providers, which fail to develop sufficiently stretching plans, should not be granted access to capital funding either through grants, loans or private finance until they have agreed plans to improve performance against benchmarks.*
- *Land vacated by the NHS should be prioritised for the development of residential homes for NHS staff, where there is a need. The NHS Property Board should support this.*
- *Substantial capital investment is needed to deliver service transformation in well evidenced STP plans. We envisage that the total capital required by these plans is likely to be around £10bn, in the medium term, which could be met by contributions from three sources; property disposals, private capital (for primary care) and from HMT.”*

2.2.3 Cavell Centres

NHS policy initiatives in recent years have sought to respond to fundamental changes in Primary Care delivery, such as the PCN agenda and the new multi-disciplinary team (MDT) workforce associated with it. Policy has been consistent in promoting a greater level of care in the community, delivering outpatient services away from hospital settings, and introducing ‘wrap around’ support staff to help GPs manage increasing workloads.

Cavell Centres (sometimes referred to as Super Health Centres) could be considered as the emerging flagship assets of ICSs, enabling genuine system change and transformative service delivery, in line with consistent policy ambitions. The Centres are to be centrally funded with capital allocated as part of HMT's Comprehensive Spending Review (CSR). The National Programme Business Case is to be submitted to HMT in September 2022. The exact allocation is currently unknown, but it is hoped there will eventually be sufficient capital allocated over the next 10 years to cover the development of more than 420 Cavell Centres across England (roughly one per 120,000 people) and the total capital value of this programme would ultimately be circa £10b. There are currently six Cavell Centre pilot scheme underway in England (October 2021).

The Trust will work with the ICS, PCN and other system partners to realise any opportunity to co-develop Cavell Centres for the benefit of the population in Bristol. It is understood that they may be repurposed from existing assets and could potentially include step down beds.

2.2.4 Diagnostics Hubs

In July 2021 NHSE&I announced a plan to establish a multi-year framework agreement, worth up to £10bn, to provide services at around 150 planned new community diagnostic hubs. The framework's objective is to support contracting authorities in improving population health, by:

- increasing diagnostic capacity;
- improving productivity and efficiency of diagnostic activity,
- contributing to reducing health inequalities, by delivering a better and more personalised diagnostic experience for patients;
- supporting integration of care.

It is anticipated that the Community Diagnostic Hubs (CDH) will provide:

- Imaging capacity, including CT, MRI, ultrasound, traditional X-ray;
- Pathology services, including phlebotomy;
- Endoscopy facilities;
- Consulting and reporting rooms;
- Cardiorespiratory capacity, including echocardiography, ECG and rhythm monitoring, spirometry and some lung function tests, support for sleep studies, blood pressure monitoring, oximetry, blood gas analysis.

The Trust will continue to work with the ICS partners to realise any opportunities for a CDH to serve its population and communities. Proposals for CDHs to cover the BNSSG population are in development which currently include an identified need for a CDH in the Weston locality.

2.2.5 Single bedrooms for inpatients

The NHS is expecting central policy guidance, on the appropriate proportion of single bedrooms within hospital environments. Studies on the subject date back to the 1980s, but the debate in England has continued and gained even greater significance during the COVID-19 pandemic.

Many European and other OECD countries have adopted a policy of installing 100% single bedrooms in all new and refurbished buildings. The evidence shows that single rooms, with isolation rooms included in this arrangement, significantly reduces hospital acquired infection rates and speeds recovery times. Factors contributing to this reduction include:

- Fewer bed moves (*Royal College of Physicians* 2012 study found patients in multi-bed bays were moved five times, on average, during their hospital stay);
- Ability to use isolation rooms where provided;
- Improved hand hygiene by clinicians and visitors;
- Avoid issues with bed spacing.

The Trust's proportion of single bedrooms is currently circa 49% across the adult bed base on the BRI site, with the paediatric bed base being lower at circa 20%. The bed base on the Weston site is lower still at circa 13%, all of which are low when compared to others in the region. Moving towards more single rooms in existing buildings will be difficult to achieve due to existing building design and cost. The current policy, as part of the New Hospital Programme, is for 71% single rooms and the Trust will align its objectives with this policy on single rooms when a revised National Policy target becomes available.

2.2.6 One Public Estate

One Public Estate (OPE) is an established national programme of partnership, delivered by the Office of Government Property (OGP) within the Cabinet Office and the Local Government Association (LGA). It provides practical and technical support and funding for councils to deliver ambitious, property-focused programmes in collaboration with central government and other public sector partners.

OPE partnerships work across the public sector and take a strategic approach to asset management. At its heart, the programme aims to get more from our collective assets - whether that's catalysing major service transformation, such as health and social care integration and benefits reform; unlocking land for new homes and commercial space; or creating new opportunities to save on running costs or generate income.

The aims are encompassed in three core OPE objectives:

Creating economic growth
(new homes and jobs)

Delivering more integrated,
customer-focused services

Generating efficiencies,
through capital receipts and
reduced running costs

2.3 Local drivers for change

Local drivers in relation to the development of the estate strategy include;

- Local government plans; One City Plan;
- Healthy Weston 2;
- Acute Services Review;
- Local ICS 'Healthier Together':
 - 'Healthier Together Estate Strategy';
 - Climate change resilience and adaptation.

2.3.1 Local Government Plans

Bristol published the first ever **One City Plan** in Jan 2019, setting out a vision for the city in 2050:

*In 2050 Bristol will be a fair, healthy and sustainable city.
A city of hope and aspiration, where everyone can share in its success.*

The One City Plan includes a vision for health and wellbeing, redesigning the city for healthier living, giving people more choice about how they access health and care services, personalised medicine, the eradication of obesity and taking a holistic approach to health and wellbeing, which also includes schools, businesses, faith groups, charities, clubs and our communities, as well as existing health and social care services. The plan sets out some specific goals for health which include reducing variation in access to services, improving early cancer diagnosis, reducing the transmission of sexually transmitted diseases and making sure that no one leaves hospital to be homeless on the day of discharge.

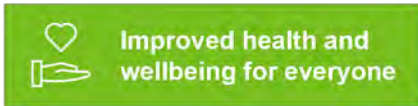
UHBW aims, through our future strategy, to help achieve the One City Plan goals by increasing the quality, responsiveness and resilience of the services delivered, by collaborating and integrating more with services across the city.

2.3.2 Integrated Care System: Healthier Together

In late 2015, NHS England announced plans to bring NHS healthcare providers and commissioners, together with local authorities that provide social services, to form Sustainability and Transformation Partnerships (STPs). **Healthier Together** as the STP for Bristol, North Somerset and South Gloucestershire (BNSSG) is now the shadow ICS, expected to be established as a statutory entity following legislative changes in the summer of 2022. The ICS involves 10 local health and care organisations, including UHBW:

- Avon and Wiltshire Mental Health Partnership NHS Trust;
- Bristol City Council;
- BNSSG Clinical Commissioning Group (CCG) – NB: the CCG will cease to operate when the formal ICS is established;
- North Bristol NHS Trust;
- One Care;
- North Somerset Council;
- Sirona Care & Health;
- South Gloucestershire Council;
- South Western Ambulance Service NHS FT;
- University Hospitals Bristol and Weston NHS FT.

The main purpose of *Healthier Together* is to enable these organisations to work together towards creating an integrated care system for the population, that is affordable and sustainable. There are three main aims, aligned to the NHS Five Year Forward View (5YFV):



Healthier Together has set out 10 priorities that the partner organisations will collaborate on, as the integrated care system develops acute care collaboration:

- digital transformation;
- general practice resilience;
- Healthy Weston;
- integrated community localities;
- maternity services;
- mental health services;
- prevention focus;
- urgent care access;
- workforce development.

In the Primary Care **Model of Care**, the Primary Care Networks (PCNs) work with local community, mental health, social care and voluntary sector partners, to develop further co-ordinated care. The practices in BNSSG have formed 18 PCNs, within the existing six localities, which aim to work together, across all integrated care providers, including adult community services provider Sirona, to deliver services tailored for the place-based population.

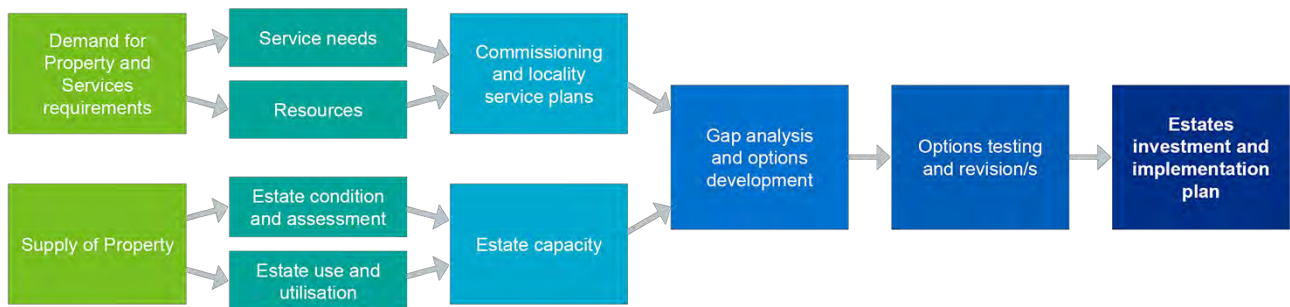
The Healthier Together Estate Strategy

In July 2019 Healthier Together submitted the mandatory template workbook (Estate Strategy) to NHSE&I to support Wave 4 capital projects. It set out the system’s key strategic objectives and the priority capital projects required to enable changes to the clinical model. It also included pledges, critical decisions and next steps to reduce backlog maintenance, improve efficiency and maximise disposal opportunities. The BNSSG Healthier Together Estate Strategy (June 2019), outlines that a well-thought-out estate strategy is essential to the provision of safe, secure, high-quality healthcare buildings capable of supporting current and future service needs.

Developing Fit-for-purpose Estate – Healthier Together

A more strategic, service-led approach, which is informed by the needs of patients, is now being proposed to ensure the estate is fit-for-purpose, efficient and flexible to be able to meet the needs of frontline services, based on the supply and demand model below, which is helpful in ensuring a consistent approach across BNSSG, with relevance at both locality and neighbourhood levels.

Figure 2 - BNSSG: Approach to delivering the Healthier Together Estate Strategy



The ICS has established six key objectives for the Healthier Together estate strategy, which will be tested against any estate proposals for investment or disinvestment:

1. Improve quality and user experience.
2. Drives utilisation of the existing estate, creating working environments that are flexible to enable modern and improved service delivery.
3. Identify opportunities for disposal, rationalisation, re-purposing of buildings and disposal of surplus land to generate STP capital receipts and additional housing units.
4. Financially sustainable and helps reduce overall costs of running the estate.

5. Invest in estate, which is sustainable, and supports new models of care.
6. Collaborate with partner organisations to gain efficiency and wider community and regeneration benefits.

The UHBW estate strategy has not been developed in isolation and its delivery is part of an integrated approach to planning service redesign, transformation and delivery of services across the system, which will inform future estate plans and projects. The UHBW Estate Strategy has been developed with this in mind, working with partners and setting out the system approach to managing the whole estate at a strategic level in collaboration. Our approach to delivery and our key objectives are fully aligned to the Healthier Together Estate Strategy.

Our Charities and supporters

The work we do would not be possible without the support, dedication, and hard work of a range of organisations, volunteers and charities. This generosity, time and support helps us provide extra equipment and facilities for our patients, their families, and our staff.

Each year millions of pounds are invested in projects that make a real difference to patients in our local communities and also helps to fund innovative research, support, capital projects and train hospital staff and provide state of the art equipment.

This work touches the lives of more than 989,000 patients cared for in our hospitals each year, as well as the millions of friends and family who visit them, and the 9,000 dedicated NHS staff who care for them.

2.4 Geography and Demography

2.4.1 Population figures and trends

Figure 3 - BNSSG Catchment Area and main UHBW hospital sites



In reviewing the population that impacts the future requirements of UHBW it is necessary to look at the wider geographic area, related to the Bristol, North Somerset and South Gloucestershire Clinical Commissioning Group (BNSSG) – shown in the figure above.

Bristol itself is a diverse city with thriving and growing communities, but also with areas of deprivation, and is understood in terms of three localities:

North and West Bristol

This locality has around 187,000 residents and covers some of the most affluent parts of Bristol, where many benefit from longer life expectancy and better health. However, there is significant deprivation in some communities where people are more likely to die younger from cancer, heart disease and stroke. There is a difference in life expectancy of 9.6 years between the most deprived and the most affluent areas of this locality.

Inner City and East (ICE)

This area has around 145,000 residents, its diverse community has areas of high deprivation in the inner city and the highest proportions of black and minority ethnic (BAME) residents in Bristol. For example, 80% of pupils in Lawrence Hill schools are from BAME groups. In the inner city there is a rapidly growing number of children aged five and under. In East Bristol, there are growing numbers of children and a significant number of elderly people, representing a wide range of health needs.

South Bristol

This area has around 159,027 residents and the number of 20 to 30-year-olds and babies under one year has increased by 20% since 2001. The number of people over 85 years old has also increased by 20%. Some parts of South Bristol are among the 10% most deprived in the country.

The surrounding area includes:

Figure 4 - Bristol localities

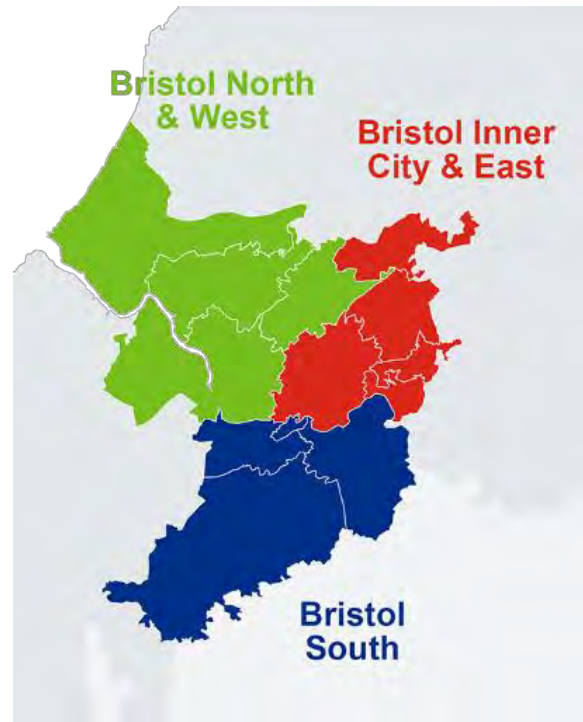


Figure 5 – Wider regions of BNSSG



North Somerset

Weston, Worle and Villages (WWV)

WWV has around 104,000 residents. Weston currently has an older demographic with pockets of significant deprivation and large health inequalities, whereas Worle has a younger population profile. The health status of people in parts of this locality is poor compared to North Somerset overall, with about 20% reporting a long-term disability that limits day-to-day activities.

Weston-super-Mare is undergoing a major transformation programme with significant new housing developments at Winterstoke and Parklands Villages which will result in a significant change to the population and demographic profile in the next few years. Through the [Healthy Weston Programme](#) an opportunity exists to develop a bright future for health and care services in Weston-Super-Mare, Worle, Winscombe and the surrounding areas.

Woodspring

Woodspring has around 117,000 residents, the demographic is older, with fewer young children. The health status of the population is generally good and many benefit from longer life expectancy. Even so about 17% report a long-term disability that limits day-to-day activities. New build developments are expected near Nailsea, Yatton, Portishead and between Long Ashton and Bristol. Areas of focus are developing local solutions for isolated, frail patients and preventing ill-health and promoting well-being through patient education.

South Gloucestershire

South Gloucestershire has over 280,000 residents, it is predominately rural but most of the population live in the urban areas. The population has increased by 10% over the past decade and is projected to rise a further 17% by 2037, with the biggest increases expected in the older age groups. At least 30,000 new homes are planned in the locality by 2036.

The level of deprivation in South Gloucestershire is generally very low, with most areas among the least deprived nationally. However, pockets of high overall deprivation exist, and deprivation related to access to services and education add complexity. Those living in deprived areas

continue to experience comparatively poor health, with a life expectancy gap of 6.3 years for men and 5.1 for women between the 10% most and least affluent areas in South Gloucestershire.

However, overall health in South Gloucestershire is good and has been improving; life expectancy is higher than the national average and rising and mortality rates for most diseases, including cancer and heart disease, are below the national average and have fallen over the last decade.

2.4.2 Population forecasts

Working from Office of National Statistics population projections, the following tables indicate the level of growth in population for the Bristol CCG area and for the wider BNSSG CCG.

Table 1 - Population breakdown Bristol v BNSSG areas

Area ¹	Age Group	2019	2020	2025	2030	2035	2040
Bristol	All Persons	470.7	475.0	494.2	513.7	531.6	547.9
	% increase from 2019		1%	5%	9%	13%	16%
	Males	236.4	238.8	249.5	260.0	269.6	278.4
	% increase from 2019		1%	6%	10%	14%	18%
	Females	234.3	236.2	244.7	253.7	262.0	269.6
	% increase from 2019		1%	4%	8%	12%	15%
Area ²	Age Group	2019	2020	2025	2030	2035	2040
BNSSG CCG	All Persons	972.1	980.8	1,021.9	1,061.8	1,098.1	1,131.7
	% increase from 2019		1%	5%	9%	13%	16%
	Males	483.2	487.8	509.3	530.0	548.9	566.4
	% increase from 2019		1%	5%	10%	14%	17%
	Females	143.4	144.7	151.1	157.0	162.4	167.5
	% increase from 2019		1%	5%	9%	13%	17%

2.4.3 Use and demand

While advances in healthcare have meant that many people live longer, the BNSSG population has increasingly complex health needs, such as cancer, heart disease, stroke, liver and lung disease, which are some of the most common conditions causing early deaths. Around 44,000 people over the age of 17 have diabetes and this figure is growing.

The population could make healthier choices:

- one in 10 children aged 15 years old smoke regularly;
- one in 10 mothers are smokers at the time their baby is born;
- there are around 6,000 alcohol-related hospital admissions per year;
- about a quarter of the adult population report that they binge drink.

There are also serious social factors affecting people's health in the Bristol area, for example, councils across BNSSG report a high level of *homeless households*. There is unwarranted variation in services access and provision, indicating that the population is not being best served by the various providers. Inequalities can have very real and serious consequences and there is an

¹ Adapted from data from the Office for National Statistics licensed under the Open Government Licence v.3.0.

² As above.

average life expectancy gap of around six years between people living in the most and least deprived areas; in the worst areas the difference can be as much as 15 years.

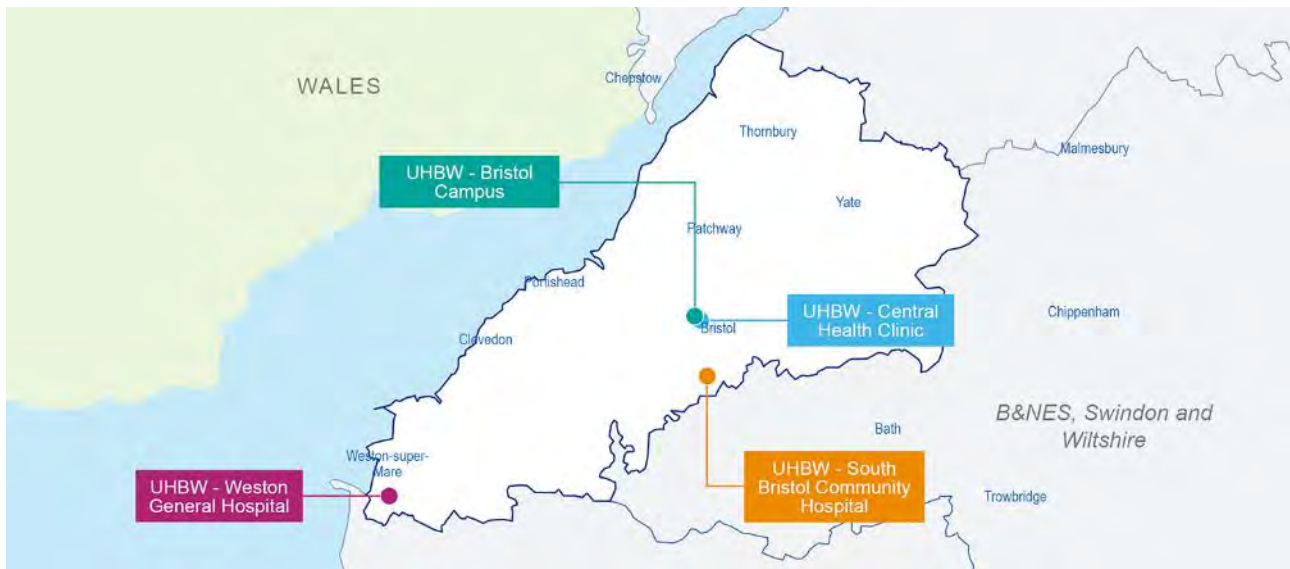
Working together across public sector organisations is essential if this unacceptable variation is to be addressed.

3 Where Are We Now?

3.1 The Existing Estate

3.1.1 Main sites

Figure 6 – Key UHBW sites



Our estate incorporates several key sites;

- **The Bristol Campus** - located in the city centre and comprising a number of specialist acute hospital buildings, providing services to both local populations and regional specialities;
- **South Bristol Community Hospital** - a leased LIFT premises located in Hengrove, offering mainly outpatient services, day surgery and urgent care/minor injuries treatment;
- **Central Health Clinic** - the sexual health and women's services, which is due to undergo a strategic review;
- **Weston General Hospital** (and Drove Road) which provide similar services to the main site on a smaller scale to its local population.

Bristol Campus

The site is a complex of buildings offering a range of acute and specialist services – there are 10 main sites, shown in Figure 7, they are:

1. St Michael's Hospital; a large 1970s concrete building located between St Michael's Hill and Kingsdown Conservation Areas.
2. Bristol Haematology and Oncology Centre; large 1970s building set back from Horfield Road.
3. Bristol Royal Hospital for Children; built in the late 1990s this building has a strong presence on Upper Maudlin Street.
4. Terrell Street ward block; constructed in 2014, this is a modular concrete panel structure with full height glazing and coloured fascia panels.
5. The Queens Building; this was part of the Bristol Campus build in the 1970s.
6. The King Edward Building; built in 1912 as part of the BRI, located on Marlborough Street adjacent to the Queens Building.
7. Bristol Heart Institute; built in 2007, this is a traditional stow render construction with a copper roof.

8. Trust Headquarters is a simple grey brick and concrete structure to the north of Marlborough Street.
9. The Bristol Dental Hospital dates to pre-1948 with a series of small extensions, the latest of which was in 1995. This is a brick building located in Lower Maudlin Street adjacent to The Bristol Eye Hospital and close to the BRI.
10. The Bristol Eye Hospital also dates to pre-1948 also with extensions, latest of which was 1984. This is a red brick building on Lower Maudlin Street adjacent to The Bristol Dental Hospital.

Figure 7 –Bristol Campus Map



The campus contains several of Bristol's major institutions; the present scale and importance of the campus at the heart of the community is reflected in several key statistics as follows:

- The hospital accommodates some 144,000 in- patient/day case admissions each year;
- It provides services dealing with just under 710,000 outpatient visits each year;
- It serves a Bristol, North Somerset and South Gloucestershire population of c.500,000;
- Many facilities serve a much wider population, exceeding 2,000,000 for some specialised or regional services;
- As one of the City's major employers, some 13,000 doctors, nurses and other staff are based in the Hospitals Area;
- It occupies a city centre site area of about 10 hectares (25 acres);
- Total floor space approximately 181,000 sq. metres, or 1,948,270 sq. feet, on the site.

South Bristol Community Hospital (SBCH)

The Trust occupy space at the SBCH (opened in 2012; agreement expires in 2042) which was purpose-built via the LIFT Co arrangement. The hospital is currently not fully utilised and has scope for increasing use by other services and providers.

In 2018 Community Health Partnerships, which owns SBCH, carried out an independent space utilisation survey using **Occupeek**, a remote sensing system, which found that the building had utilisation as low as 46% in some areas.

The Trust has also started collecting utilisation data, since February 2020 and reporting regularly to the Strategic Asset Management Group. This is to try and improve the utilisation of the space or consider opportunities to optimise the building. The table below describes the changes in occupancy since February 2020 to July 2021.

Table 2 - South Bristol Utilisation

Department	Utilisation (Average)	
	Since Feb 2020	July 2021
SBCH Rehab Wards (operated by Sirona Care and Health CIC)	57.4%	50.7%
Sirona Care and Health CIC	53.5%	61.7%
UHBW Acute & Admin Areas	35.4%	44.5%
UHBW FT Dental School 1F	28.2%	37.4%

In response to the need to improve wider collaboration and integration of health and social care services, CHP are supporting the BNSSG CCG to prepare its individual Locality and ICP wide estate strategies in 2021. Part of the initial scoping process has been to confirm the existing estate and identify any opportunities within the existing estate to improve better utilisation. South Bristol Hospital has been identified as such an asset where an opportunity may exist to optimise its use. UHBW as a key stakeholder will work with the CCG and CHP to fully understand the options to optimum utilisation of the facility during 2021.

The Central Health Clinic (CHC)

The Central Health Clinic houses the sexual health service and is located adjacent to the former Great Western Ambulance Station, which was sold for residential development (high rise), giving a good indication of comparable value for residential and office use.

Weston General Hospital (WGH)

There are two main Weston sites, Weston General Hospital and Drove Road, located in the town centre, providing CAMHS services locally.

WGH is on the outskirts of Weston-super-Mare, providing acute services to the local population of North Somerset, it:

- accommodates some 29,000 inpatient / day case admissions each year;
- provides services dealing with just under 98,000 out-patient visits each year;
- serves a Weston population of c. 80,000;
- is one of the city's major employers, with around 1,800 doctors, nurses and other staff based in the hospitals area;
- is has a site area of approximately 10.5 hectares (26 acres);
- provides approximately 34,624 sq. metres (372,690 sq. feet) of total floor space.

The Weston Hospital Estate Strategy, covering the period of 2016-2020, considered the two main sites, Weston Hospital and Drove Road, and concluded that the estate was in good condition, functionally suitable and well utilised. It noted that occupancy costs were high, indicative of an older and less efficient estate.

The strategy identified a requirement for significant capital investment in large items of mechanical and electrical systems infrastructure, particularly, the replacement of lifts, electrical intake systems and some ventilation systems. The total back-log maintenance cost for Weston Hospital was reported at circa £22 million for the financial year 2020/2021.

Two significant environmental problems were identified as affecting the site;

- Little protection exists from prevailing salt-bearing winds from the Bristol Channel, attention needs to be given to protecting steel components of the structure.
- The location in a potential flood area means that risks associated with major sea defence failure must be accepted and understood; risk of tidal flooding would need to be mitigated for any future development.

The key challenges of the existing Weston estate, impacting on our ability to operate services economically, efficiently and effectively include:

- An ageing engineering infrastructure which is not energy efficient;
- Poor functional relationships of departments, impacting on the logical flow of patients and staff through the hospital;
- Local Authority planning constraints, due to its location on the edge of residential development, disposal of surplus site would not attract high values, because planning consent for commercially attractive purposes would likely be refused;
- High overhead costs, with investment required for backlog maintenance and to ensure statutory compliance.

Overall, it was noted that the Weston site performed well in some areas of environmental sustainability, but there remained some opportunity to develop further.

WGH Policy Context

Weston General Hospital is not subject to a specific hospital policy designation on the Development Plan Policies Map. There is, therefore, no express policy provision supporting expansion or modernisation of the hospital estate; however, there is general policy support for protecting and maintaining existing healthcare facilities.

Settlement Boundary: The thick black line in Figure 8 represents the extent of the defined settlement boundary and shows that the hospital is located outside it, being located between the separate defined boundaries of Weston-super-Mare and Uphill.

In accordance with national planning policy provisions, the development plan confirms that development outside the settlement boundaries will be strictly controlled to protect the character of the rural area and prevent unsustainable development.

Figure 8 - Weston Strategic Gap



pink line = WGH site green diagonal shading = "strategic gap"

Core Strategy Policy CS33, however, does state that where a need for community facilities cannot be met within settlement boundaries, development can be acceptable where it is well related to the community it is intended to serve.

Strategic Gap: Policy CS19 of the Core Strategy states that the Council will protect Strategic Gaps (hatched green in image above) in order to help retain the separate identity, character and/or landscape setting of settlements and distinct parts of settlements.

Flood Risk: Policy CS3 of the Core Strategy states that development within flood zone 3 will only be permitted where it is demonstrated that it complies with the sequential test set out in national policy and, where applicable, the exception test. Figure 9 indicates the Hospital Site is situated within flood zone 3.

Healthcare Facilities: Policy CS26 of the Core Strategy states that the planning process will support programmes and strategies which increase and improve health services throughout the district, promote healthier lifestyles and aim to reduce health inequalities. This will be achieved, in part, through joint working with health providers to help deliver a district-wide network of health facilities. Existing health services will be protected and maintained.

Figure 9 - Weston Flood Zone 3 and location of WGH



The National Planning Policy Framework July 2021 (NPPF) sets out the government's planning policies for England and how these should be applied; for example, achieving:

- Sustainable development, promoting healthy communities, promoting sustainable transport, achieving well-designed places, meeting the challenges of climate change and responding to flood risk;
- Planning decisions should take account of local strategies to improve access to health facilities for all sections of the community.

Site Summary (numbers in brackets refer to those on the plan in Figure 10)

The main hospital building (1) is three storeys high; a one-storey support building (2) contains the supplies, restaurant and consultation rooms.

The Quantock Unit (3) contains inpatient, outpatient as well as consultation rooms with an old medical records store.

The Dental, Ambleside Renal Unit, Brent Knoll and East Brent offices are situated to the west of the site (6).

Long Fox Unit (8) is two storeys and currently leased by the Trust.

In the south western part of the site, lies the Weston academy and Nursery (5,4).

The Honey tree nursery is also currently leased out by the Trust. Patient and visitor parking are towards the front / south of the site close to Grange road, whereas staff parking is distributed all around the site.

Figure 10 - Weston Site Summary



Schedule - Current Building Condition

Unit No	Unit Name	Building Condition
1.	Honeytree Nursery	Acceptable
2.	Weston Academy	Acceptable
3.	Old Medical Records Store (Mendip Down)	Not fit for purpose
4.	Quantock Unit	Acceptable
5.	Main Hospital	Acceptable
6.	MRI/CT Scan Unit	Acceptable
7.	Dental Building	In need of repair
8.	Ambleside Renal Unit	In need of repair
9.	Bleadon	Not fit for purpose
10.	Brent Knoll Unit	In need of repair
11.	East Brent Office	Not fit for purpose
12.	Lymphsham	Not fit for purpose
13.	External Store	Not fit for purpose
14.	Long Fox Unit	Acceptable
15.	External Store & Office	Not fit for purpose
16.	Rafters Restaurant	In need of repair

3.1.2 Current estate challenges to address as part of the estate strategy implementation

The **Estate Strategy** is a long-term plan for managing the estate in the most advantageous way in relation to our service and business needs and the local health economy. It needs to be able to deliver resilient, sustainable and fit-for-future accommodation, with buildings and equipment in the right place, in the right condition, of the right type and able to adapt and respond to future service needs, which includes:

- analysis of the current estate and how it performs;
- proposed changes to the estate over the next decade;
- proposed performance improvements;
- estate optimisation plans;
- site master plans;
- a comprehensive estate investment programme.

The Estate has a critical influence on the key quality issues of:

- Environmental conditions (energy / emissions / sustainability);
- Physical environment (internal and external);
- Access;
- Safety;
- Infection control;
- Fire precautions;
- Suitability for function;
- Transportation / car parking;
- Aid to healing;
- Recruitment and retention of staff.

Backlog Maintenance (BLM)

The backlog maintenance cost is that needed to bring estate assets up to an acceptable good condition (condition B), regarding their physical condition and/or compliance with mandatory fire

safety requirements and statutory safety legislation. Backlog maintenance is a national challenge which is discussed at parliamentary and government level, such that The Cabinet office is also considering the issues and possible solutions to backlog maintenance across all public sector estates.

The Trust's BLM liability is poor, being above the benchmark value of other similar Trusts (on a price per metered squared basis and using the Model Hospital,) in the ICS area. This is due to the age and condition of the estate and the historical underinvestment in the hospital environment, such as at Weston General Hospital. The existing backlog maintenance cost of the estate is estimated to be in the region of £73.8m (including Weston Hospital and Central Health Clinic).

The risk-based methodology recommends investment should be allocated as follows across the risk categories:

- **Low risk** elements can be addressed through agreed maintenance programmes or included in the later years of your estate strategy.
- **Moderate risk** elements should be addressed by close control and monitoring. They can be effectively managed in the medium term so as not to cause undue concern to statutory enforcement bodies or risk to healthcare delivery or safety. These items require expenditure planning for the medium term.
- **Significant risk** elements require expenditure in the short term but should be effectively managed as a priority so as not to cause undue concern to statutory enforcement bodies or risk to healthcare delivery or safety.
- **High risk** elements must be addressed as an urgent priority in order to prevent catastrophic failure, major disruption to clinical services or deficiencies in safety liable to cause serious injury and/or prosecution.

The Trust has adopted an appropriate risk management strategy regarding estates and facilities in the context of the physical condition and quality of the estate portfolio. Details of the facet survey (2021) shows the reported back-log maintenance figures per category over the three main Trust sites for the financial years 19/20 & 20/21.

Table 3 - Bristol Campus backlog maintenance costs

Cost	Value 19/20	Value 20/21
Cost to eradicate high risk backlog	£2,513,500	£185,845
Cost to eradicate significant risk backlog	£9,293,299	£22,852,967
Cost to eradicate moderate risk backlog	£12,969,893	£19,763,426
Cost to eradicate low risk backlog	£21,784,689	£6,723,195
Sub- Total	£46,561,381	£49,525,432

Table 4 - Central Health Clinic backlog maintenance costs

Cost	Value 19/20	Value 20/21
Cost to eradicate high risk backlog	£50,000	£0
Cost to eradicate significant risk backlog	£276,000	£110,000
Cost to eradicate moderate risk backlog	£610,018	£1,568,331
Cost to eradicate low risk backlog	£111,002	£148,241
Sub-Total	£1,047,020	£1,826,572

Table 5 – Weston Hospital backlog maintenance costs

Cost	Value 19/20	Value 20/21
Cost to eradicate high risk backlog	£1,662,400	£3,300*
Cost to eradicate significant risk backlog	£2,611,460	£663,678
Cost to eradicate moderate risk backlog	£3,702,200	£16,728,529
Cost to eradicate low risk backlog	£9,485,000	£5,105,526
Sub-Total	£17,461,060	£22,501,033

*The Trust is currently investing £2.5 million per year on backlog for four years, which will eradicate high and significant risk back-log and contribute to the increasing moderate risks.

It is anticipated that the backlog maintenance figure will reduce further over the period of this estate strategy, once the new core clinical buildings are commissioned, enabling older estate to be retired or repurposed.

3.1.3 Estates Infrastructure Review

The 2018 UH Bristol Site Development Plan was produced, to support our strategic capital investment, it contains proposals for several diverse improvement and expansion projects across the Bristol Campus precinct. These projects represent the Strategic Estates Development Programme (SEDP).

Implementation of the SEDP requires a wider understanding and documentation of the site-wide engineering services infrastructure. This information can then be utilised to inform the Estates Infrastructure Steering Group on key issues such as wider energy/ agenda for future developments.

The intention of the MEP (Mechanical, Electrical and Public Health) review, carried out by Hoare Lea (final issue 27 Feb 2020) was to provide an easily understandable overview of the on-site MEP infrastructure. It is intended that the outcomes of this review will avoid the need for a larger detailed surveying exercise and will allow us to take an agile approach to options within the Site Development Plan.

The review concentrated on the “infrastructure” i.e., the supporting external networks for the individual buildings throughout the estate. The services reviewed were:

- Steam / District heating;
- Natural gas;
- Potable water;
- Fire water;
- Foul Drainage;
- Surface Drainage;
- Oxygen;
- Medical Gas;
- HV (11kV) Electrical Network;
- LV Electrical Network;
- Data/Telephones;
- Fire Alarm Network;
- CCTV and Security System sub-network;
- Pneumatic Tube Systems.

Figure 11 - Site Plan for MEP Review



The map above shows the buildings on the site that were included in the review:

- | | |
|--|---|
| 1. Sam's House | 21. Bristol Dental Hospital |
| 2. Ronald McDonald House | 22. Bristol Eye Hospital |
| 3. St Michaels Hospital | 23. Old Building (Unite Site) |
| 4. Bristol Heart Institute | 24. Joint Boiler House |
| 5. BHOC | 25. PH Laboratory (Myrtle Road) |
| 6. BRHC | 26. 36 Southwell Street |
| 7. Radio Pharmacy | 27. 38 Southwell Street |
| 8. Residential Plot 1 Marlborough | 28. Southwell House |
| 9. Residential Plot 2 Eugene | 29. 2 St Michaels Hill |
| 10. Residential Plot 3 Montague | 30. King David Hotel |
| 11. Bristol Campus Zone A (Queens Building) | 31. Seahorse Pub |
| 12. Bristol Campus Zone A (Tyrell street ward block) | 32. Kingsdown, see row 19. |
| 13. King Edward Building (Zone B) | 33. MSCP attached to Trust HQ |
| 14. Facilities & Estates | 34. Medical Engineering Maintenance Operations (MEMO) |
| 15. Dolphin House | 35. Alfred Hill buildings |
| 16. Trust HQ (including MSCP & Cycle Store) | 36. 10/10A Marlborough Hill |
| 17. Kingsdown/CSSD/Dermatology | 37. Queen Anne Building |
| 18. Education & Research Centre | 38. Site Village |
| 19. Chapter House (part of dental hospital) | 39. 40 Southwell Street/IM&T |
| 20. Above & Beyond (Abbotts House) | 40. Bristol Dental Hospital Extension |

The review process steps included the following:

**Step 1 – Data
Collection**

**Step 2 – Prepare
Gap Analysis**

**Step 3 – Prepare Network Diagrams
and Site Reticulation Plans**

Highlights of the reports are detailed below:

HV 11kV network (the 11,000 Volt cabling between facilities in and around the Estate) and **LV network** (the 400 Volt submains cabling between facilities in and around the Estate). It was recommended the Trust considers further investigation, monitoring and recording of existing loads to identify routing, demands and capacities of existing equipment for both these networks.

ICT network: It is recommended that the Trust take some time to enhance the recorded information to allow a better understanding of the Main Distribution Frame (MDF) rooms, Intermediate Distribution Frame (IDF) rooms, backbone network routing and network topologies. This would allow third parties to better understand the existing installation when planning for future projects.

Fire alarm network: The information provided and subsequent discussions with the Estates Team have confirmed that Fire Alarm Panels are present in all facilities on the site. Future development of the Bristol Campus Estate and alterations to existing systems is completed on a case-by-case basis, evaluating the existing Fire Detection subnetwork and LAN sitewide capacity as and when this is required. The Bristol campus now has a fully compliant fire alarm system and there are committed funds to have a similar system upgrade for Weston General Hospital.

Mechanical services review summary: The mechanical information has been desktop reviewed with following engagement with Estate department engineers. Whilst there are drawings of the site available which show the general distribution of the services there are several gaps which required further investigation. The GAP Analysis Matrix indicated where information is available the size of the connecting services to each building.

Distribution of services appears to utilise a linear solution from the primary energy/service centres and if a local failure was to occur there are only limited opportunities on some services to divert or redistribute. Where possible future engineering projects will target extension of the services to achieve a ring distribution format to allow services to be fed in various directions.

Our estates team continue to plan and implement works regarding site engineering and critical infrastructure at the Bristol Campus and Weston sites. The infrastructure review recommendations and any subsequent reports will form part of the ongoing estate management.

A key objective of the estate strategy is to ensure that business critical backlog maintenance is carried out to improve the quality of the estate, extend asset life where possible and reduce the current level of risk associated with a failure of the business-critical plant and equipment. Having subsequently carried out a physical condition and quality facet survey, the goal will be to address as much back-log and critical maintenance challenges as possible via the Strategic Estates Development Plan alongside addressing those high and significant risks as part of the Category 1 schemes (critical and significant back-log maintenance).

3.1.4 NHS Premises Assurance Model (NHS PAM)

In 2013 the first NHS Premises Assurance Model (NHS PAM) was developed and published. The NHS Pam is aligned to support the NHS Constitution Right:

“You have the right to be cared for in a clean, safe, secure and suitable environment”.

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

It is a basis for:

- allowing NHS healthcare providers to assure Boards, patients, commissioners and regulators on the safety and suitability of estates and facilities where NHS healthcare is provided;
- providing a nationally consistent approach to evaluating NHS estates and facilities performance against a common set of questions and metrics;
- prioritising investment decisions to raise standards in the most advantageous way.

Methodology

The NHS PAM questions are grouped into five Domains, which are broken down into individual self-assessment questions (SAQs) and further sub-questions known as *prompt questions*. The five domains are:

- Safety (Hard and Soft);
- Patient Experience;
- Efficiency.
- Effectiveness;
- Organisational Governance.

Each domain assessment is made or managed by a senior manager against the following assurance measure:

RED	AMBER	YELLOW	GREEN	BLUE
Inadequate	Requires moderate improvement	Requires minimal improvement	Good, full compliance	Outstanding

As of April 2020, the following results were reported for the Trust:

Table 6 - UHBW NHS PAM risk % scores (at Apr 2020)

Measure	Risk Level	Percentage
Outstanding	VERY LOW RISK	2.1%
Good	LOW RISK	43.5%
Requires Minimal Improvement	MODERATE RISK	42.3%
Requires Moderate Improvement	HIGH RISK	12.1%
Inadequate	VERY HIGH RISK	0.0%

Although the Trust has scored reasonably well it is recognised that there is still work to do to maintain and improve on its position. This is particularly relevant across the measures of requiring moderate improvement mainly in the areas of access and car parking.

3.1.5 Patient Led Assessment of the Care Environment PLACE

April 2013 saw the introduction of PLACE, a system for assessing the quality of the patient environment, replacing the old Patient Environment Action Team (PEAT) inspections. The assessments primarily apply to hospitals, in-patient healthcare buildings and hospices, providing NHS-funded care in both the NHS and private/independent sectors, but others are also encouraged and helped to participate in the programme.

The assessments involve local people (known as Patient Assessors) going into hospitals and in-patient healthcare buildings, as part of teams, to assess how the environment supports the provision of clinical care, privacy and dignity, food, cleanliness and general building maintenance and, more recently, the extent to which the environment is able to support the care of those with

dementia. From 2016 the assessment also considered the aspects of the environment in relation to those with disabilities.

The results 2019 indicated that the Trust scored well in the areas of cleanliness and food and hydration. However, as identified in this estate strategy there are improvements required to meet the national average on condition, maintenance, and appearance (except for South Bristol Community Hospital) and in the area of privacy and dignity. Been slightly lower than the national average is reflective of the age and functionality of the buildings, requiring investment.

3.2 Redevelopment Constraints of Bristol Campus

3.2.1 Conservation areas and Listed Buildings

The Bristol campus area and surroundings include several conservation areas, areas of archaeological interest and townscape features of interest and listed buildings. All of these have the potential to impact on future development proposals.

One building on campus is listed as being of *special architectural or historic interest*, the Queen Anne Building, Eye Hospital, which is Grade II listed.

3.2.2 On site landscape

Many of the trees on the Bristol Campus are fast-growing, non-native species and have been planted as screening for neighbours to the site, this has resulted in several areas becoming secluded with little means of natural surveillance. There is also a high density of low-level shrubs and unmanaged tree growth resulting from self-propagation, this raises significant safety and security issues for patients, visitors, staff and passers-by.

Notwithstanding this, some existing areas of landscape are of visual amenity and therapeutic value. Communal spaces for the public and staff generally lack means of access and are considered more as gardens to be viewed whilst passing rather than to be actively used. Several trees between Terrell Street and Horfield Road are protected by Tree Preservation Orders.

3.2.3 Off-site landscape

Several parks are relatively close to the Bristol campus and well used by the general public, including:

- St James's Park is often busy and offers an area of solace adjacent to the busy Haymarket. The open grassed area is enclosed by mature trees, with benches around the perimeter;
- Kingsdown Green commands views down Horfield Road and Marlborough Hill but lacks seating generally. Access is restricted by steps at either end of a single path although the route is quite extensively used as a shortcut.

3.2.4 Pedestrians and Cycle Access

The Bristol campus is ideally located to promote sustainable travel, in line with national and local government policy: located in the city centre, walking or cycling are realistic alternatives to private cars. Although hilly, cycle routes exist on the surrounding roads and several pedestrian routes are available through the site. A substantial cycle centre is provided for staff and visitors, located in the base of the Queen's Building, including storage and showering / changing facilities.

Marlborough Hill, the key north-south route through the site, is particularly steep and ends in steps making it unsuitable for people with mobility difficulties. In addition, this route meets a major urban road (Upper Maudlin Street) some 70m away from the nearest pedestrian crossing.

Bristol Bus Station is just over 300m away, or a 3-4-minute walk, from the main outpatients' department in the Queen's Building. The Tollgate, Long Ashton, Avonmouth and Bath Road Park and Ride bus stops are all within an approximate six-minute walk from the campus.

A regular free HUBS bus service, operated jointly between the University and UHBW and funded by *Above & Beyond* charity, stops in front of the site and is part of a regular shuttle between Temple Meads railway station, Cabot Circus shopping centre, the hospitals and the University.

3.2.5 Access and movement by motorised transport

The Bristol campus is near to city centre bus station and bus stops, making it very accessible by public transport, including the free shuttle bus service noted above. It should be recognised however that, due to their shift patterns, many Trust staff and some patients and visitors, would need to travel outside the peak traffic periods when services are less frequent.

Journeys to and from the Bristol campus by private car involve travelling via busy city centre routes. Where viable alternatives exist, UHBW encourages public transport over this method of travel in the information provided to visitors and patients.

3.2.6 Car parking and servicing

The Bristol campus has a total of 673 spaces - with 52% currently allocated to staff and 48% for visitors. Staff with disabilities are provided with spaces in appropriate locations and 8% of the patients and visitors provision is designated disabled parking. Given its city centre location, the area is generally well served by public car parks and is also within the Bristol City Centre Controlled Parking Zone.

Due to the sloping site topography, the different levels and gradients of access to campus buildings, it is not easy for people with reduced mobility and/or disabilities, especially if they have to travel long distances from available parking spaces to their appointment locations.

Car parking and ease of access continues to be a topic on which the Trust receives high volumes of complaints from visitors, patients, staff and families.

3.3 Redevelopment constraints of the WGH site

3.3.1 Land use

Weston General Hospital is located in Weston-super-Mare, Somerset, where there are a variety of adjacent land uses as shown in the map below (Figure 12), including residential, commercial and institutional uses. The potential effect of any development proposal on those living or working in the surrounding areas would always need to be a significant consideration.

3.3.2 Built form

The hospital has been developed in an ad-hoc fashion over the years and a variety of building forms is to be found throughout the area with no particular character, architecture or materials prevailing. Each building reflects the general approach to healthcare and development at the time of construction. There has also been the recent addition of several temporary modular buildings and outbuildings, to accommodate offices and storage areas, due to changes in the local health and care system. The original hospital building was designed to be three storeys high, while all the other units range from one to two storeys.

Figure 12 - Weston Surrounding Area



3.3.3 Conservation

Within the hospital site, there are no prominent conservation areas or areas of archaeological interest. The site is also not located in a conservation area. Within the hospital site, there are no prominent conservation areas or areas of archaeological interest. The site is also not located in a conservation area.

3.3.4 Landscape

Figure 13 - Weston Landscape



The village of Uphill is identified, in landscape character terms, as a smaller village, separate from Weston Super Mare, and physical and visual coalescence is considered undesirable.

The River Axe is a major waterway flowing through Uphill into the estuary. Most of the area is Flood Zone 3 as it lies beneath high tide level and full river level and is therefore susceptible to flooding. The hospital lies on the eastern edge of the village within a landscape of rhyes and ditches.

It is overlooked by Bleadon Hill, a popular local beauty spot, connected by footpath from the park homes opposite the hospital entrance. North Somerset Council's Landscape Sensitivity Assessment (Wardell Armstrong 2018) concludes that all land around Uphill is of high sensitivity.

Figure 14 - Weston Strategic Gap



Strategic gaps: (green hatched areas, Figure 14) are proposed for specific policy protection from development.

Trees and Landscape: Despite their ecological value, the existing single or grouped trees on the site are generally in poor condition, having had no formative pruning for many years, being choked with ivy and poorly maintained.

Rhynes and Hedgerows: The rhynes and pond, adjacent to the Rafter's restaurant, have been neglected. The retention and good maintenance of these areas will not only conserve an attractive element of the existing landscape but will also contribute to bio-diversity net gain and preserve the existing wildlife habitats.

3.3.5 Pedestrian and cycle access movement

The hospital site is located away from the town centre but is accessible to the general public by vehicle or public transport. However, with settlements like Uphill and Bleadon surrounding the site, alternative transport options, such as cycling or walking, are also possible. There are multiple pedestrian entrances from Grange Road and a single pedestrian entrance from the west of the site, from Uphill Road through Knyfton Close. Due to the ad-hoc nature of the site's development, there is no significant relationship between the landscape areas and pedestrian routes.

The multiple entrances on the south side give the impression that the hospital has its back to the town and is not easily accessible. This may have been a deliberate plan for security reasons, but improved access and signage from other directions would better integrate the site into its surroundings and with the community and the wider town of Weston. The site also suffers from a considerable amount of unclear signage, street clutter and parking control measures which have built up over time (often without obsolete items being removed), resulting in a confused, unwelcoming and understated main entrance, which could be better promoted and used as the main access point to the hospital complex.

3.3.6 Car parking and servicing

Within the site area there are a total of 823 spaces, with approximately 70% currently allocated to staff and 30% to visitors. Staff with disabilities are provided with spaces in appropriate locations and 30% of the patients and visitors parking provision is designated for the disabled.

There are two existing cycle storage spaces in front of the main hospital, on either side of the entrances and another in front of the Weston Academy and the Ambleside Renal Unit. The current cycle storage capacity equates to approximately 5% of vehicular parking.

The arrival points and parking zones are not as clear as they could be, with two vehicular entrances often causing confusion to those unfamiliar with the site. The perimeter road also leads unexpectedly to a gated barrier with no room to turn around. Further car parking surveys would be required to evaluate and confirm the development options for each zone.

3.4 Summary

In line with the Department of Health and Social Care's guidance document HBN 00-08: *The Efficient Management of Healthcare Estate and Facilities*, including "understanding the estate", we continue to annually carry out a comprehensive analysis of our current position and performance in relation to the estate we use. The key objective is to establish a baseline against which estate development planning can take place for future years. The Trust operates from circa 226,596 sq.mt of gross internal space (Weston: 31,569 and Bristol 195,000) with a combined asset valuation of £397 million. The estate metrics considered as part of estate planning and this strategy include:

- ERIC Returns and Model Hospital;
- Six Facet Surveys / Visual Inspection Reports including backlog maintenance;
- Premises Assurance Model;
- Management of Statutory Compliance / Environmental Health and Safety;
- PLACE;
- Management of estates and facilities risks.

The overarching objective is to continue to monitor and assess the estate metrics to fully inform future investment and disinvestment decisions, this includes completing necessary critical infrastructure and facet surveys and approving the strategic programme for investment. The Trust aims for ***our hospitals to be among the best and safest places in the country to receive care.***

Providing a modern, fit for purpose environment is an essential part of this and UHBW have committed to a four-year investment plan, which aims to:

- support the development of specialist clinical services that can only be delivered in a hospital environment; and
- continue to renew and upgrade our medical equipment, IT and estates infrastructure to improve facilities for our staff and patients.

The following forward-looking estates objectives have been agreed by the Board:

- Address all known estate priorities;
- Rationalise the estate whilst promoting operational and clinical efficiency;
- Minimise current and future backlog maintenance;
- Align any proposed commercial development of surplus land to schemes which maximise both strategic and financial benefit for us;
- Develop maximum flexibility within the estate to address future priorities;
- Develop strategies that deliver a contribution to the Trust's financial health;
- Develop estate solutions which help diversify risk and promote strategic partnering opportunities, notably in areas that support our core mission of care delivery, teaching and research.

The range of benefits to the Trust and wider health economy in having a formal Estate Strategy for 2021-26 include:

- An assurance that the quality of the clinical services provided will be supported and strengthened by a safe, secure and appropriate environment;
- A plan for change in which the future clinical services can progress and be measured;
- A strategic context in which detailed business cases for all strategic capital investment can be developed and evaluated ensuring that future capital investments reflect service and clinical strategies;
- A means by which the Trust, STP/ICS can identify capital investment projects which will require external approval.
- The Trust will continue to progress investments via the Treasury Green Book Five Case Model in line with NHSE&I.

4 Where Do We Want to Be?

The NHS belongs to the people. It is there to improve our health and wellbeing, supporting us to keep mentally and physically well, to get better when we are ill and, when we cannot fully recover, to stay as well as we can to the end of our lives. It works at the limits of science – bringing the highest levels of human knowledge and skill to save lives and improve health. It touches our lives at times of basic human need, when care and compassion are what matter most.

The NHS Constitution

4.1 Overview

The estate strategy is an iterative document which sets a framework for future development and will evolve in response to clinical and business needs.

Previous redevelopments and rationalisation of the estate has provided an opportunity to create a development zone at Marlborough Hill as part of the Bristol campus. The Site Development Plan for the Weston Hospital site confirms that it can accommodate any emerging clinical services and operational strategy with room for consolidation and expansion.

This Trust is committed to an efficient, well-utilised estate that offers an excellent and safe environment for patients, staff, carers, and visitors. The estate must be sustainable both in environmental and financial terms and the Trust needs to ensure that any strategic investment deployed considers these objectives. The estate should support clinical models to maximise patient safety and efficient staffing, while aligning to wider proposals at both a national and regional level. The Trust will continue to look at innovative and mitigating solutions to reduce the growing demand for physical healthcare space.

This section details the various National, Regional and Local strategic policies and plans in place at this current time. The key themes identified across the wider strategic context can, and should be addressed, within any planned development and strategic investment in the Trust estate.

4.2 Strategic Context – National

The NHS, the world's largest publicly funded health service, is undergoing strategic transformation to improve clinical outcomes across the UK and this presents many opportunities, as well as challenges, for providers of care services. The key national drivers underpinning the Estates Strategic Plan in service delivery and supporting safe practice are:

- The NHS Long Term Plan;
- We are the NHS: People Plan 2020/21;
- NHS National Patient Safety Strategy;
- Delivering a “Net Zero” NHS;
- The Carter Report;
- The Naylor Review;
- Health Infrastructure Programme (includes the New Hospital Programme);
- UK Industrial Strategy;
- Modern Methods of Construction;
- SMART/Intelligent Hospitals;
- NHS Digital Blueprint.

There are several National, Regional, and Local strategies and plans which influence how UHBW estate should be developed and utilised in the future. The following key themes have been identified in relation to the Trust's estate.

Table 7 - Key Strategic Themes, related to UHBW estate

Development / improvement of infrastructure to support:	<ul style="list-style-type: none"> • The delivery of outstanding clinical quality and safety environments; • Improve capacity, support expansion and operability of our critical infrastructure; • Enhancements to clinical pathways, supporting model of care transformation; • An integrated health and social care system including ICS; • Create a UEAC development to reduce A&E attendances and deliver same day emergency care. 		
An improved and updated estate to:	<ul style="list-style-type: none"> • Ensure pandemic resilience/support Covid-19 recovery response; • Attract and retain skilled staff; • Improve patient and visitor experience. 		
An estate which will:	<ul style="list-style-type: none"> • Be flexibly designed and standardised where possible; • Improve clinical adjacencies; • Support changes to clinical strategies. 		
Develop a sustainable estate in terms of:	<ul style="list-style-type: none"> • Net Zero Carbon/decarbonisation; • Financial sustainability; • Sustainable construction methods that use MMC and DfMA methodologies. 		
Development of a SMART / digitised hospital by:	<ul style="list-style-type: none"> • Implementing latest technologies; • Development of virtual clinics/ outpatients; • Can support more offsite and care in the community. 		
Reduce the demand on ED by:	<ul style="list-style-type: none"> • Working with system partners on integrated care models that are less reliant on emergency care; • Creating an Urgent Emergency Assessment Centre; • Increasing same day emergency care. 		
Collaborative working in terms of estate to:	<ul style="list-style-type: none"> • Provide economies of scale by jointly working with system partners; • Offsite collaboration for elective diagnostics / integrated community hubs etc; • Develop community services which offer care and support closer to home. 		
Strengthen links between primary, mental health and community care to include:	<ul style="list-style-type: none"> • Easier access to services; • Better utilisation of the community estate; • Create centres of excellence within the system. 		
Support the development of services through the SEDP including:	<p>Category 1: Short term critical infrastructure and restoration;</p> <ul style="list-style-type: none"> • Very high risk / high-risk infrastructure requirements – c£25m over 2 years; • Existing schemes linked to Restoration Framework; • Adult ward capacity; • Adult critical care capacity; • Medical Education facilities; <p>Category 2: Medium scale strategic; development – 2-4 years;</p> <table border="0"> <tr> <td> <ul style="list-style-type: none"> • BEH ground floor; • D603 (in-patient ward refurbishment); • St. Michaels Hospital (Level E); • Holistic Cancer Centre; </td> <td> <ul style="list-style-type: none"> • Dermatology; • NICU; • BEH 5th operating theatre; • Endoscopy; </td> </tr> </table>	<ul style="list-style-type: none"> • BEH ground floor; • D603 (in-patient ward refurbishment); • St. Michaels Hospital (Level E); • Holistic Cancer Centre; 	<ul style="list-style-type: none"> • Dermatology; • NICU; • BEH 5th operating theatre; • Endoscopy;
<ul style="list-style-type: none"> • BEH ground floor; • D603 (in-patient ward refurbishment); • St. Michaels Hospital (Level E); • Holistic Cancer Centre; 	<ul style="list-style-type: none"> • Dermatology; • NICU; • BEH 5th operating theatre; • Endoscopy; 		

Category 3: Major strategic development – 3-5+ years:

- Adult Emergency Department, assessment units and radiology;
- Adult theatres and endoscopy;
- BRHC expansion;
- BHOC expansion and redevelopment.
- Develop an estates implementation plan and source funding for strategic developments at the Weston Site.

4.3 Embracing Change, Proud to Care, Our 2025 Strategy – aligning our Estate Strategy

In developing the future strategy, UHBW remains firmly dedicated to its mission and values, which were developed with stakeholders in 2010 and confirmed, through a refresh process, in 2019 as remaining relevant as key drivers in all that UHBW does:

“Our mission as a Trust is to improve the health of the people we serve by delivering exceptional care, teaching and research, every day. In developing ‘Embracing Change, Proud to Care’, the then (pre-merger) UHB’s 2025 strategy, the Trust has established as its vision for 2025 to;

- *Anchor our future as a major specialist service centre and a beacon of excellence for education.*
- *Work in partnership within an integrated care system locally, regionally and beyond.*
- *Excel in world-class clinical research and our culture of innovation.*

This is further expressed and set out in the establishment of seven key priorities;

1. “Our people are the most important part of all our hospitals”

- *Invest to make sure that everyone who works with us has the skills and development they need to deliver exceptional care every day.*
- *Prepare for a challenging future by training the people and reviewing workforce as a whole, identifying skill gaps.*
- *Promote equality in service delivery and employment, working to maintain a culture of compassion and inclusion at every level.*

2. “We want to be a beacon of outstanding education that motivates and inspires our staff and brings direct benefit to patient care”

- *To effectively respond to the future health and social care priorities, our staff will need to be motivated and highly adaptable to changing workplace environments.*
- *If we embrace learning as part of who we are, we have every opportunity to become nationally and internationally known as a place where exceptional careers are created.*

3. “We want to continue to develop more capacity for delivering specialist services”

- *We want to be able to treat many more people with specialist health needs.*
- *Too many people in the South West have to make a choice to travel to London, Birmingham and other specialist centres because sometimes we don’t have the capacity to treat them here soon enough. Specialist treatments are developing all the time and we need to keep up to make sure we are always at the leading edge.*

4. “We need to make sure that we stay at the forefront of research and innovation”

- We want to make sure that our hospitals maintain their places as specialist regional centres building on our clinical academic foundations.
- We need the brightest clinicians to deliver the best clinical services today and develop the best clinical services for tomorrow.
- We need to keep innovating to offer cutting-edge care and treatment and strive to continuously improve all that we do. Even as a trust that is recognised as a Global Digital Exemplar, we still have a long way to go to become a truly digital organisation and we must maintain and increase our commitment to changing the way we work to take advantage of all the benefits that new technology offers for our patients.

5. “We need to work harder to integrate local hospital services with our local communities”

- We know that a growing, aging population in BNSSG will need more support from health and social care as the next decade progresses.
- We cannot sustain traditional service models where people are referred in for multiple visits for appointments, tests and follow-ups, where GPs feel they have no alternative but to admit people to hospital, where local people feel they have no option but to take themselves or someone they care about to the emergency department.
- Clinical teams in our communities can do much more to look after people at home or nearby – but only if we ensure our specialist expertise and support is available when they need it so that people don’t have to come to our hospitals.

6. “We need to keep focused on delivering strong operational performance to deliver the Constitutional Standards that our patients have a right to expect us to meet”

- We need to continue work to develop our demand and capacity alignment and work smarter to release capacity to support our strategic ambitions to support more care out of hospital and expand our specialist provision.
- We need to use GiRFT, RightCare, Model Hospital, Care Utilisation Review and national benchmarking data to support evidence-based change where we have opportunities to reduce waste and add more value.

7. “We need to play our part in promoting the health and wellbeing of our populations to prevent illness and injury and reduce health inequalities”

There are a series of themes emerging from the clinical strategy as presented in “Embracing Change” as below.

4.3.1 Specialist and Regional Services

To consolidate and grow the specialist service portfolio including;

- Cardiac services, including structural cardiology;
- Clinical Genetics / Genomics;
- Complex cancer surgery;
- Dental Services;
- Dermatology;
- Haematology and Oncology, incl. immune effector cells;
- Ophthalmology;
- Paediatric services, incl. PICU and NICU and specialist children’s service designations in obesity, craniofacial, brain tumour surgery;
- Radiology services.

To develop an integrated regional system for children's healthcare with an overarching operational delivery network structure.

To develop acute collaborative partnerships, avoiding duplication and complexity unless there is a good reason not to, with a focus on NICU, Gynaecology, Stroke, MSK, Interventional Radiology, Aseptic Pharmacy / Pharmacy production, Pathology, Maternity services (LMS).

To invest in the estate to create the physical capacity required to support specialist and tertiary care demand and ambitions.

4.3.2 Local Acute and Integrated Care

To actively manage growing acute demand in general adult and paediatric services to include;

- An integrated frailty model;
- Development of surgical and acute medical ambulatory care;
- Extending UHBW's role in partnering to provide community child health/CAMHS services;
- To develop a partnership with the single community services provider to deliver effective admission avoidance and discharge schemes and an integrated therapies model;
- To work collaboratively with primary care localities, focussing on out of hospital pathways to include Respiratory, Diabetes, Endocrine, Rheumatology, Cardiology, Eye services;
- To improve resilience of services at Weston General Hospital through partnership arrangements and establishment of a new integrated organisation;
- To redesign outpatient services to enable access to specialist expertise out of our hospitals using digital options and working with locality teams;
- To develop diagnostic hubs;
- To deliver a future model of care for South Bristol Community Hospital.

4.3.3 Research and Innovation

To continue to grow the research portfolio and reputation for excellence through;

- Hosting an innovative Academic Research Centre;
- Grow our National Institute of Health Research and Biomedical Research Centres over next three years in preparation for renewal in 2021;
- Bid for and gain an NIHR Clinical Research Facilities in 2021;
- Build on BHP / collaborative regional working to form an Academic Health Science Centre;
- Work with the CRN to transform the performance of the South West.

To build our Quality Improvement capacity and capability, throughout the organisation, through continued development of our QI Academy including development of a 'Gold academy'.

To develop our staff to improve and innovate in their services and lead world class research that benefits patients, including increasing joint clinical / research workforce roles.

To successfully deliver the Digital transformation programme.

To maximise use of technology to drive innovation, including Diagnostic and AI technology, patient communication tools, new clinical devices and techniques.

4.3.4 Education, Teaching and Learning

To develop new non-medical roles including ACPs, nurse and clinical scientists and maximise apprentice opportunities.

To enhance our relationship with HEE and university partners to support clinical education, recruitment and retention.

To build on the Divisional and Trust-wide recognition process to ensure staff feel valued and proud of the work they do through:

- Succession plan, talent management strategy, mentorship schemes, embedding the leadership behaviours;
- Reducing violence and aggression experienced by UHBW teams;
- Creating opportunities for all staff and a diverse leadership team representing staff and population;
- Pursuing innovative recruitment approaches;
- Maximising use of technology to support increased flexible working;
- Improving the physical environment to support staff well-being.

4.4 NBT / UHBW Acute Care Collaboration – Acute Services Review

The *BNSSG Acute Care Collaboration* resulted in the **Acute Services Review** which outlined the following vision:

“... to deliver exceptional health outcomes for the people we serve, through provision of the full range of acute services from general to specialist, working collaboratively within an integrated care system to make the most effective use of the expertise of our staff and our acute resources for the benefit of the whole health community.”

The vision will be delivered through three key themes:

- 1 Collaborating for excellence in delivery of specialist acute services, working together to make best use of the specialist skills of our whole workforce, our physical facilities and equipment. We will deliver exceptional quality and outcomes by developing consistent and aligned services. We will reduce cost through better use of estate and reduced service duplication. We will improve clinical sustainability and the experience of our workforce by working as one network



- 2 Developing an integrated model of care where hospital care is provided only when necessary. We will work in partnership with our primary and community colleagues to better manage the growth in urgent care demand by providing appropriate care closer to home. This will allow us to focus our specialist facilities and expertise at those people who need this level of care and treatment



3 Actively contributing to improving the health and wellbeing of our population.

Prevention will become everyone’s business, with clinicians supporting people to make decisions that will improve their health and ability to live a full life. We will use population health management to better understand our patients and shape our services to actively address inequalities in access



4.5 Alignment of UHBW and NBT strategic priorities

As the major acute providers in the South-west region, UHBW and North Bristol NHS Trust are working together as an Acute Provider Collaboration. Below the strategic priorities of both trusts, as outlined in our recently published strategies, re summarised.

NBT Strategic Priorities

Provider of high-quality patient care

- Experts in complex urgent and emergency care;
- Work in partnership to deliver great local health services;
- A Centre of Excellence for specialist health care;
- A powerhouse for pathology and imaging.

Developing Healthcare for the future

- Training, educating and developing our workforce;
- Increase our capability to deliver research;
- Support development and adoption of innovations;
- Invest in digital technology.

Employer of Choice

- A great place to work that is diverse and inclusive;
- Empowered clinically led teams;
- Support our staff to continuously develop;
- Support staff health and wellbeing.

An Anchor in our Community

- Create a healthy and accessible environment;
- Expand charitable support and network of volunteers;
- Developing in a sustainable way.

UHBW Strategic Priorities

Our Patients

We will excel in consistent delivery of high quality, patient centred care, delivered with compassion

Our People

We will invest in our staff and their wellbeing, supporting them to care with pride and skill, educating and developing the workforce for the future

Our Partners

We will lead, collaborate and co-create sustainable integrated models of care with our partners to improve the health of the communities we serve

Our Portfolio

We will consolidate and grow our specialist clinical services and improve how we manage demand for our general acute services, focusing on core areas of excellence and pursuing appropriate, effective out of hospital solutions

Our Potential

We will be at the leading edge of research and transformation that is translated rapidly into exceptional clinical care and embrace innovation

Our Performance

We will deliver financial sustainability for the Trust and contribute to the financial recovery of our health system to safeguard the quality of our services for the future

This demonstrates clear alignment between our two strategies, particularly in:

- Delivering best care to our patients.
- Driving innovation, research and new technologies.
- Developing and expanding our specialist, regional services and being ambitious in striving for excellence in these areas.
- Being an employer of choice and developing and educating our workforce for the future.
- Investing in staff health and wellbeing.
- Promoting a system approach and seeking new opportunities to work in collaboration with our partners.

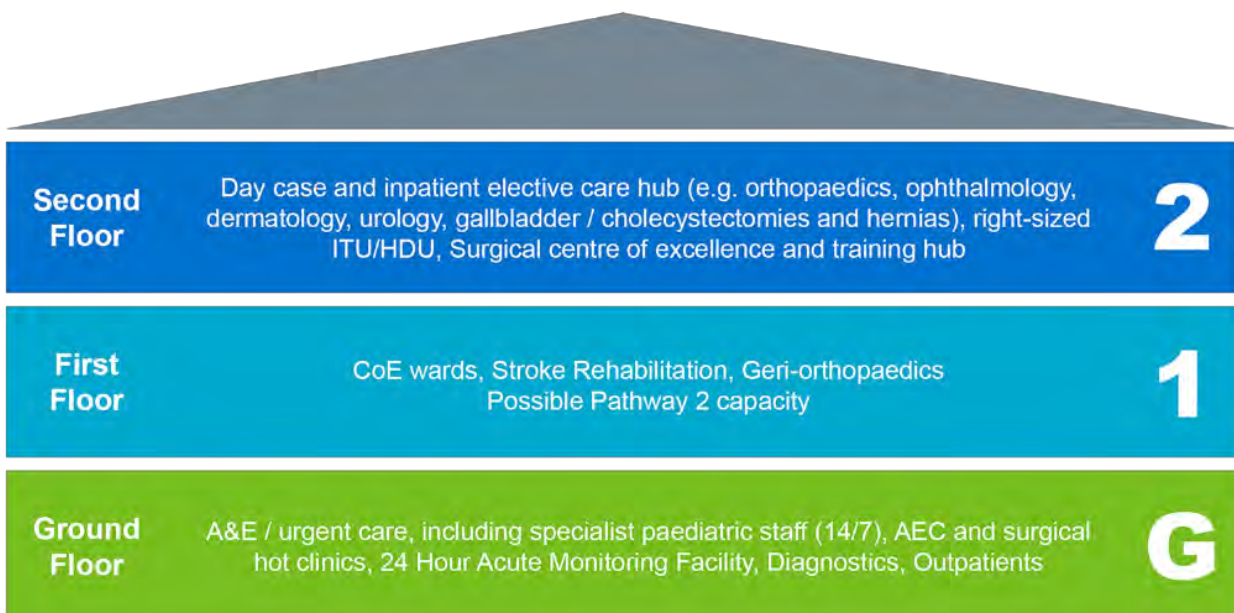
The Acute Provider Collaboration will focus on working together to drive our collective ambitions for the benefit of the population we serve. Both Trusts' estates functions will work jointly together to deliver the most optimum estate solutions that can achieve our combined strategic intentions.

4.6 Weston strategic priorities / Healthy Weston 2

HW2 builds on the Healthy Weston work published in October 2019, which recognised that the reforms it proposed were urgent and important, but further work was required, to deliver the vision of Weston as a dynamic hospital at the heart of its community. The HW2 model will better support the local population by:

- Integrating specialist, community and social care services to support and care for the frail elderly;
- Continuing to provide all-age general hospital services to the local community, including an A&E (open from 8am-10pm);
- Creating a surgical centre of excellence and reducing waiting times;
- Ensuring that specialist medical care is made available to very unwell people much earlier in their pathway;
- Reducing the time that people spend in hospital through the strengthening of new same day care and short stay pathways.

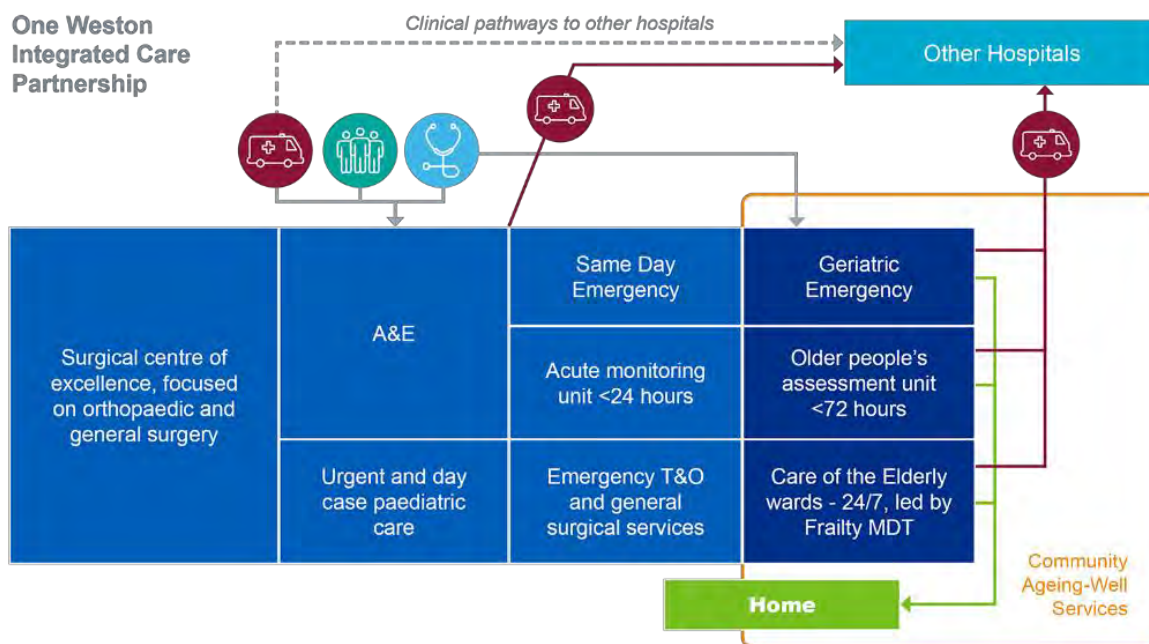
Figure 15 - Phase 2 clinical design group proposal



Healthy Weston 2 objectives

- Avoid admissions and get the right patients under the right teams to optimise recovery and minimise length of stay;
- To provide an accessible service, fit for purpose for the people of Weston;
- Build on excellent work already underway (Ageing Well) to have a seamless frailty service across primary and secondary care;
- Multiple information sources, good triangulation based on predicted capacity needs;
- Parts of the service are already in place (GEMS, care of the elderly wards)- need to expand capacity and increase MDT (therapy/pharmacy etc).
- Develop an OPAU (commensurate reduction in AMU);
- Develop cross cutting teams e.g., delirium and dementia.

Figure 16 - Healthy Weston 2 Pathway Overview



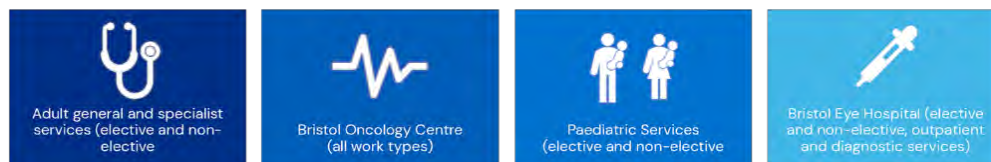
The final decision on the future vision of care at Weston Hospital will be made in 2022 and phased implementation plans will be developed aligned to the final stages of clinical service integration across UHBW.

4.7 Strategic Estates Development Review

An independent capacity and demand analysis exercise was carried out in June 2021 to validate the existing business cases from the Strategic Estates Development Programme, to inform future space requirements, identify where innovation could assist in clinical delivery and consider potential development options on the main Bristol campus site.

The capacity and demand activities were based on the following areas;

Figure 17 - Capacity and demand activity areas



Specifically, the analysis was focused on the areas of the business case and strategic development programme such as inpatient requirements, outpatient pre-operative assessment, dermatology, children, eye hospital and the haematology and oncology centre.

A total of 14 business cases and feasibility documents were reviewed in detail, as part of the process and a series of stakeholder engagement sessions held with members of senior management teams of the relevant clinical division. Further stakeholder engagement was held with business intelligence, estates, and finance teams. This reflects the level of *check and challenge* applied to each case for change and included robust interrogation of all assumptions made by the clinical teams.

Whilst the model projected a substantial required uplift in non-elective medical inpatient beds, based on demand trends to Financial Year 35 (from 255 to c.400 under a 'Do Nothing' scenario, i.e., projected growth with no efficiencies or service transformation applied), the Trust will look to offset the majority of this demand pressure, by achieving expected levels of same day emergency care and reducing delayed discharge rates by 50%. This generates a realistic mid-case scenario of a 280 medical inpatient bed requirement by FY35.

The modelling produced the findings from the demand and capacity exercise and evaluation of individual business cases by department. The net additional impact anticipated to FY35 against baseline capacity is as follows:

Table 8 - Net additional impact anticipated to FY35 against baseline capacity

Hospital Function	Additional FY35 requirements *	Hospital Function	Additional FY35 requirements *
Consult Exam Rooms	48	Inpatient beds elective	18
Same Day Emergency Care	10	Inpatients beds emergency	104
Day Case Spaces	21	Theatres	7

* against baseline

The figures above assume a reasonable mid-case scenario for growth, service transformation and efficiencies. This review looked specifically at the potential impact of any clinical mitigation and innovation opportunities. A "blended" approach will be adopted looking at how services can be delivered differently to reduce the demand on physical space and developing the estate as part of implementation of its SEDP. Opportunities exist for system working, left shift to the community and adoption of more digitally enabled hospital for the future.

Schedules of accommodation were produced for all functional content, resulting from the activity and capacity modelling. These schedules will inform future planning, design, and costing of the capital programme.

The report concluded that no single action or scheme will address all the Trust's strategic needs and challenges, but a series of opportunities have been identified for UHBW to:

- Move to best practice quartiles including *Getting it Right First Time* (GiRFT);
- Undertake a proportion of outpatient appointments outside of hospital settings;
- Increase throughput of patients;
- Reduce length of stay;
- Improve utilisation of space especially if core clinical areas;
- Look for offsite opportunities such as community diagnostics hubs, Edith Cavell Centres and Health on the high street.
- Develop the Marlborough Hill site to provide a new Urgent Emergency Assessment Centre to include adult ED, radiology, endoscopy and theatres.

The **Bristol campus** is constrained for development, particularly around existing Emergency Department and Children's Hospital, both A&E and inpatient wards. We are cognisant that we must achieve the best possible value for money in capital redevelopments and each scheme must deliver the outcomes of both estates and services objectives.

The cost/benefit of refurbishing and relocating departments within the existing footprint against that of new build development at Marlborough Hill has been tested at this feasibility stage. To 'unlock' space for developing the prioritised Strategic Estates Development list, including Children's Services, development of an Urgent Emergency Assessment Centre (UEAC), Theatres and Endoscopy facility at Marlborough Hill is the cornerstone for enabling the planned redevelopment programme.

Figure 18 – Artists' impressions of the Marlborough Hill site development



4.8 Other considerations as part of this estate strategy

4.8.1 Office and Administration Strategy

Offices and administration services are currently located in disparate locations and across multiple buildings and staff are generally based in smaller one person or open plan offices. Over the last decade, recognition in both the NHS and wider industry has been made of the benefits to staff and the organisation of transforming workspaces to be in line with current best practice. These include:

- Providing a space that will improve workforce productivity;
- Promoting collaboration between staff and departments;
- Supporting recruitment and retention;
- Improving efficiency and effectiveness of the estate – linking to Carter benchmarks;
- Potentially reducing office footprints and driving down property costs;
- Enabling redevelopment and utilisation of core acute sites for clinical services.

The Trust has an Asset Management Group and a Non-Clinical and Corporate Space sub-group responsible for reviewing these elements of the estate utilisation. The early finding is that the demand for office accommodation is high with little available space at the Bristol Campus. The Trust is looking to relocate administrative and back-office functions off-site, into a newly acquired office block at St James Court, which was acquired in 2021, as part of a strategy to provide good

quality modern office accommodation for Trust staff. The corporate HQ is currently located in space at Marlborough Hill that is earmarked for expansion and will be demolished.

The Trust have developed a working policy for post-covid occupancy, which includes more flexible, hot-desk and home working, which if adopted by staff, should reduce the dependency on office space on the main acute sites. There is a recognised need to utilise the Bristol campus for core clinical delivery and identify opportunities to move non-clinical functions offsite.

4.8.2 Staff living accommodation

UHBW faces ongoing challenges to recruit and retain staff to work in a Bristol city centre location and at Weston-Super-Mare where both locations have very limited accommodation provision. Candidates regularly withdraw from the recruitment process once they establish the high costs of living in Bristol and that we cannot assist them with accommodation. Additionally, impending changes in legislation will affect the already limited provision of staff living accommodation. It has also proved difficult to attract staff to work in Weston-Super-Mare.

Discussions have been conducted to establish future accommodation requirements and demand, these have included divisional recruitment leads and new starters across a selection of staff groups. A significant need was identified, for a mixed economy of affordable short-term accommodation to support the ongoing need, for UHBW to remain a competitive and attractive employer to those people looking to relocate to Bristol or Weston.

We will continue to pursue options to work with all public sector partners on the possibility of a city-wide key worker strategy or utilising a partnership with a private residential provider to assist in the provision of staff housing and accommodation. The accommodation solution in Bristol does not need to be on the Bristol campus, which is better utilised for clinical purposes and expansion space for the provision of services.

The Trust will continue to rent the 12 houses (known as Rooftops) at Weston-Super-Mare for the provision of staff accommodation.

The Trust will create an accommodation strategy for both Weston and Bristol during 2022/2023 to look at the most optimum solution across all its overnight accommodation needs.

4.8.3 Parent Accommodation

Providing accommodation for parents is a vital part of our commitment to support families of children with serious illness, and we currently benefit from the fantastic support of charities and fundraisers. As part of the last estates strategy (2015-2020), it was identified that this is an ongoing requirement, and that a potential 36 parent units would be required by 2023. There is some existing accommodation for parents, but this is considered aged and worn and in need of replacement. Repatriation of existing parent accommodation from other sites and planning for additional parent accommodation requirements also needs to be considered.

The current leasing arrangements for Ronald Macdonald House and Sam's House end in 2027 and a strategy for these will be required as part of estate planning. The Trust will work closely with the University of Bristol to establish the future intentions for both properties. This work will commence in 2023, to allow sufficient time to provide the most optimum solution.

4.9 Other sites and issues for development consideration

4.9.1 Tyndalls Park Road

Currently occupied by MEMO and training services; future use of the Tyndalls building is yet to be determined, as it is outside the core estate area and the site's future strategy will need to be aligned to the overall strategic development at Marlborough Hill.

4.9.2 Central Health Clinic (CHC)

The Sexual Health Service, located at the Central Health Clinic is subject to a strategic review, pending a competitive tender for re-provision of all sexual health services in Bristol by the City Council. The CHC is adjacent to the former Great Western Ambulance Station, (currently being redeveloped into 375 new homes, through a mixture of build-to-rent and affordable dwellings).

The future of the CHC must be determined in the context of the estate and services strategy against commercial and sale values. However, given the planning precedent set for the former ambulance site, there is a clear strategic / commercial opportunity. Redeveloping the site for alternative purposes could financially support clinical and capital developments in the future and could provide a potential solution for key worker accommodation or affordable homes, in collaboration with a development partner.

4.9.3 Bristol Dental Hospital

The University of Bristol (UoB) are relocating all primary care-related dental undergraduate teaching from the Trust's sites into a new facility at 1 Trinity Quay, much closer to the proposed new university campus at Temple Quarter, with effect from September 2022.

The Dental Hospital building dates from around 1907 and comprises 7,852sqm, it is owned by the University Of Bristol and leased to UHBW. As of 31 March 2021, the building has a book value of £11m and a land valuation of £600k. Dental undergraduate teaching occupies circa 16% - or 1,242sqm - of the building and accommodates 68 dental chairs (18 on first floor, 50 on third floor). The undergraduate teaching will release circa 1,243sqm of clinical space.

The Trust will consider the future use of this space in partnership with the UoB, whether the space could be used for alternative NHS services if desirable, and the potential to acquire or lease the space from UoB should be considered.

4.9.4 Weston General Hospital Considerations

The need for development should be balanced against the constraints which operate on each part of the site, as set out earlier in this document. It is important to ensure that the **building** and **facilities** are correctly located to maximise and ease access and flow of patients adequately, to meet clinical needs – as described in 4.6.1 Healthy Weston 2.

1. A&E services would remain the same, with the same number of walk-ins and ambulance arrivals
2. No changes to 9 of the 12 key service areas at Weston General Hospital
3. Further develop our award-winning Geriatric Emergency Medicine Service (GEMS) and creating a centre of excellence for the care of older people, supporting individuals to remain as independent as possible for as long as possible, with different health and social care professionals with specialist expertise working together to deliver joined-up high-quality care. An expanded GEMS, working closely with the primary care-led Care Home Hub, would make Weston-super-Mare a national leader in the care of older people.
4. Significantly expand same day emergency care and planned care services (which would help with COVID backlog recovery)

5. Eight additional people per day would be transferred to a neighbouring hospital for specialist inpatient medical care, delivering better outcomes and a shorter length of stay for those patients.
6. The result of implementing number 5, is that we could deliver between 22 and 114 extra surgical procedures on the Weston site every day (dependent on type of procedure and full capital funding)
7. In addition, we will continue to strengthen how we provide local assessment and treatment of children to support the large number of families living in Weston and the surrounding areas.

There is a positive and exciting future for Weston General Hospital delivering exceptional care and services for our resident communities as well as visitors to the area. This future will be developed by staff, patients and local people.

5 How Do We Get There?

5.1 Implications of service strategy for the estate

The Trust will align to the national, regional and local drivers which impact how services are delivered and how the estate is development. This includes clinical transformation developments as part of the NHS Long Term Plan, One Public Estate, and the Integrated Care System (Healthier Together). There will also be other localised service developments as a result of national drivers, such as system working alongside all health, social care and third sector organisations, to tackle social detriments to health and continue to find innovative way to provide safe, high-quality care that is sustainable for future generations to come. The Healthier Together ICS Strategy articulates the integrated care provision as neighbourhood, place and system.

The Trust will continue to work with the ICS on the development of its *Acute Services Review* acute provider collaboration and *Healthy Weston 2* review, to develop a sustainable clinical model for a core population of over half a million people. The strategic estates plan is flexible and adaptable to enable any service transformation and to facilitate changes in service delivery as clinical models and strategies evolves. Another major clinical service development which will have an impact on the estate provision will be restoring the position post Covid-19 and addressing the backlog of patient waiting lists.

In a practical sense working as an integrated system will likely see more appointments undertaken virtually with the enablement of digital technology, more self-care management, the potential for outpatients' appointments to take place in the community alongside primary, community, mental health, vocational and social care. More elective and diagnostic care may also take place outside of a traditional hospital campus setting. As seen from the demand and capacity analysis as part of the *Strategic Estates Capital Review*, these changes to the estate will offset demographic and non-demographic growth factors that place greater demand for more physical hospital estate over the next 15 years to FY35.

5.2 Preferred strategic option for estate change Weston SDP

Key Development Areas

We have a hugely ambitious and exciting strategic estates capital programme which aims to:

- Improve our buildings and infrastructure to benefit patients and staff.
- Increase our capacity for delivering care and restoring services impacted by COVID-19, alongside supporting more care outside of our hospitals.
- Drive forward our strategy to be a lead provider of outstanding clinical services, teaching and research over the next 10 years.

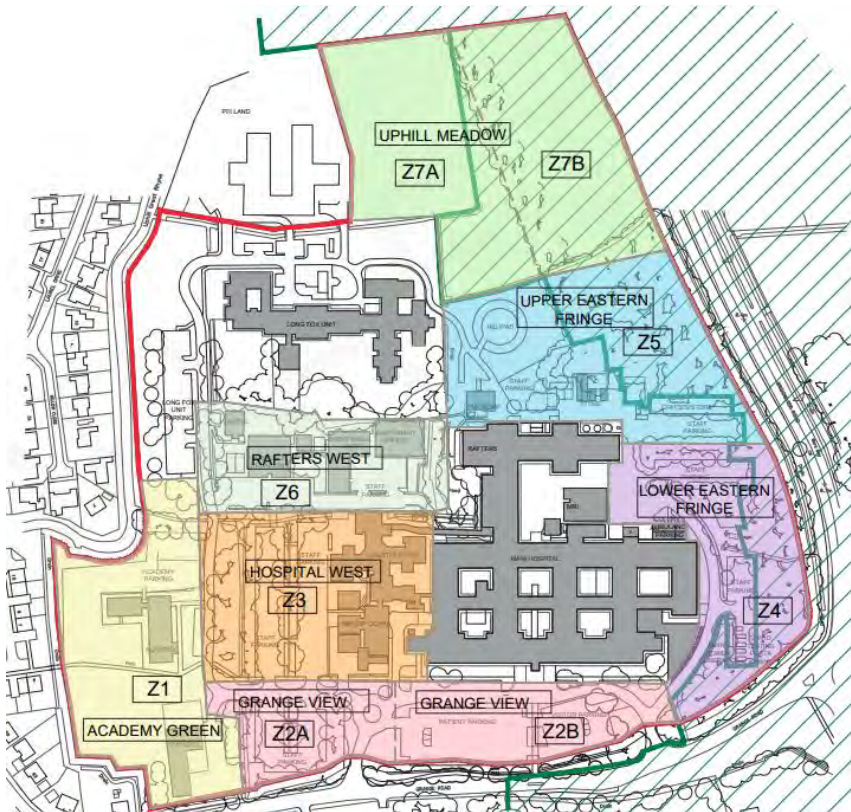
Up to £2m is being invested to support staff wellbeing – including refurbishing cafés (Deli Marche and Rafters) and staff rest areas, and the development of plans for new staff wellbeing areas. There is also a focus on projects that will help us to restore services and increase capacity.

The overall development requirements will be linked to the service model developments as highlighted in section 4.9.4 of this Strategy. The Strategic Development Plan has confirmed that expansion space is possible if required.

The Weston General Hospital site covers over 12.25 hectares, but the identified development requirements are expected to involve only a relatively small portion of this. The starting point has been to identify “development zones” - distinct parts of the site generally without major buildings - which, in principle, could accommodate future development. The main building (only minor improvements and refurbishments expected) and Long Fox Unit (leasehold, not owned by the Trust) are not proposed to be developed and therefore excluded from these zones.

The seven development zones are shown on the plan (Figure 19) and outlined below:

Figure 19 - WGH key development zones



Any development of new buildings in these zones will:

- Be designed with massing relative to existing buildings;
- Use building materials that appropriately reflect those already present in the locality;
- Use roof materials and forms that are considered in the context of being visible from the public realm;
- Soft and hard landscaping and new tree planting to be integral to development proposals.

Zone 1 (Academy Green): This zone covers the south-western corner of the site, adjacent to the Rhyne and Uphill Development, containing the Weston Academy with its extension, as well as the Honey Tree Nursery. New buildings will be located away from the residential area and must follow similar height restrictions.

- This option will demolish parts of the existing car park around the Academy;
- The new development will be a two-storey extension of the existing academy, to increase capacity and will be located so that there is a good buffer between it and the existing residential development;
- The land behind Honey Tree Nursery will be further developed into a sports or recreation ground and children’s play area.

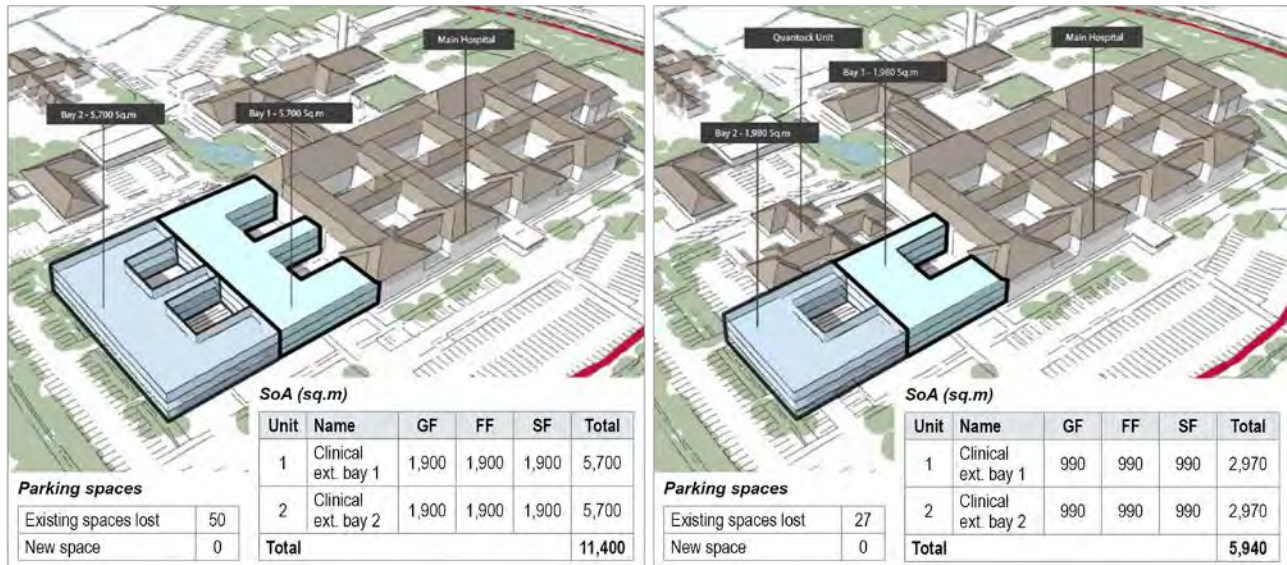
Zone 2 (Grange View): This comprises the southern part of the site, containing the patient and visitor parking parallel to Grange Road. There is limited potential for any new development as the current zone is quite successful at providing parking for patients and visitors, due to its proximity to the hospital entrances. No significant building development is currently proposed.

Zone 3 (Hospital West): Located west of the main hospital and with the academy to its west, outbuildings to the north and parking areas to the south. This zone features an existing drain

running north-south and a tree belt to the west. Proximity to the main hospital suggests potential for clinical activities in this zone, and opportunity to provide high-quality frontage to the main road (Grange Rd) and for new well-defined entrances at the front of the hospital.

- Options 1: a new three-storey clinical extension to the main hospital, divided into two bays - extending along the western hospital street. The option will include the **demolition** of existing Quantock Unit, the temporary buildings currently housing the old medical records store and the adjacent car park.
- Option 2: as Option 1 but would involve **retaining** the Quantock Unit. (see Figure 20 below).

Figure 20 - comparison of Zone 3, option 1 and 2



Zone 4 (Lower Eastern Fringe): Running parallel to Bridgewater Rd, west of the main hospital and including part of the wooded areas and some of the existing staff car parking. There is limited potential for any new development due to location of the woodland and the strategic gap. Thus, no significant built development is currently proposed within this zone.

Zone 5 (Upper Eastern Fringe): Located north of Zone 4, parallel to Bridgewater Rd and the extension of the main hospital. It covers part of the woodland area and helipad, currently used as an informal staff parking area and as a location for temporary storage and office units. As it is apart from the main hospital, there is no potential for Clinical development. However, proximity to the restaurant and workshop could suggest potential non-Clinical uses. The relationship between landscape areas, pedestrian routes and car parking will be reviewed.

- The new development will be a one/two storey (due to the height constraints) standalone Receipt and Distribution Hub, as per location of the strategic gap and the topography. It would involve demolition of a few parking spaces at the helipad, which would be reprovided in other areas around the development.

Zone 6 (Rafters West): several outbuildings are located here: Dental, Ambleside Renal Unit, Brent Knoll Office and East Brent Office, and with some dedicated parking in the south of the zone. Due to its proximity to the main hospital has potential to be developed into recreation or amenity space for staff or visitors, with possible connections to Rafters Restaurant or Quantock Unit. Improvements will be made to the existing poorly maintained pond and the nearby drains.

- Given the identified need for the expansion of the offices, Zone 6 provides an opportunity to introduce a new accommodation for staff / admin that will have a better connection with the main hospital. The new development will be a two-storey standalone unit, comprising the Office staff and a Well-being hub that merges into the landscape.

Zone 7 (Uphill Meadow): in the northern-most part of the site and covering mostly wooded areas and farmland. No significant development is proposed in this zone due to the presence of the Strategic Gap.

In summary Zones 3, 5 and 6 are better suited to accommodate the necessary development than the others.

5.3 Preferred strategic option for estate change Bristol Campus

This section looks at how the Trust's estate and infrastructure can be developed to support the strategic direction and objectives discussed in the previous section. The Category 1 schemes identified are those which address the known risks across the estate, predominantly from a backlog maintenance perspective. However, the realistic strategy for the Trust is the longer-term option of a major capital development on the Marlborough Hill site. The planned proposal is for a new Urgent Emergency Assessment Centre (UEAC), theatres and endoscopy. Development of the Marlborough Hill site would free up the necessary space to allow the expansion of Children's ED, Outpatients, In-patient and Paediatric Intensive Care Unit.

Delivering consistently high quality, patient-centred care and valuing our people are core to our mission and providing a modern, fit for purpose environment is an essential part of achieving these priorities. This proposed development would have the biggest impact to the Trust's strategic challenges, and it is recognised under the SAFE framework assessment:

<p>S</p> <p>Suitable, in terms of addressing the strategic challenges</p>	<p>A</p> <p>Acceptable to the Trust, patients, visitors and staff and other stakeholders</p>	<p>F</p> <p>Feasible, in terms of the resource and capability to implement</p>	<p>E</p> <p>Enduring, in terms of its life expectancy</p>
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A major constraint is the cost / financial resource to implement the required estate changes. The required funding resources are likely to take the Trust beyond its five-year programme, potentially requiring compromise and flexibility of aspirations across the clinical services.

5.4 Funding options

In September 2018, Trust Board approved investment of £120.3m into major clinical services strategic schemes, part of the overall of Investment Programme and Medium-Term Financial Plan totalling £237m to 2022/23. However, the demand on these funds far outweighs what the Trust can invest in, with its own accumulated cash balances, without securing additional funding. The Trust has limited capital to fund a scheme as significant as the Marlborough Hill development.

The new capital regime, introduced in 2020/21, means that all provider Trusts, including Foundation Trusts, are now subject to capital expenditure constraints via a system Capital Departmental Expenditure Limit (CDEL). The CDEL cannot be breached, regardless of the level of accumulated cash balances a Trust may have. Therefore, to ensure Provider capital investment plans in aggregate are compliant with the system CDEL, system prioritisation of provider plans will be necessary and will, place a constraint on the Trust's future capital investment plans.

The UBHW CDEL for 2021/22 is c£57m for all capital expenditure. The Trust's current Medium Term Capital Programme significantly oversubscribes the CDEL.

In real terms this results in significant limitations on the amount that the Trust could invest in infrastructure, environment, restoration, major medical, digital and other elements, from capital, in 2021/22 and beyond.

The developing revenue financial regime, the pending NHSEI notified three-year system revenue funding envelopes and the NHSEI notified system financial limit on capital expenditure (CDEL), will all play a major part in assessing the Trust's future capital investment plans. In addition, the yet-to-be-clarified Integrated Care System (ICS) role in determining and deciding the system's capital investment priorities and the subsequent allocation of CDEL to individual organisations, will also play a major part. Whilst, at the time of writing, the system and the Trust has currently, no visibility of the revenue funding envelopes beyond 31 March 2023, the system has committed to refreshing its Medium-Term Financial Plan this Summer to help inform the future direction of travel. However, the 2022/23 system financial plan describes a significant underlying deficit of c£90m going into 2023/24. The scale of the service and financial challenge to recover the system's underlying deficit is likely to impact heavily on the system's ability to afford the recurring revenue consequences of the systems and the Trust's capital investment plans.

The challenging revenue outlook coupled with the CDEL constraint will mean the Trust will not be able to fulfil all of its capital investment ambitions. Therefore, it is extremely important that the Trust works with its ICS partners to appropriately prioritise the systems and therefore the Trusts capital investment plans against all available resources including charitable funds.

Clearly, it is necessary to regularly review the Trust's capital priorities and carefully plan its future capital expenditure projects each year, within its strategic capital programme, that is affordable in recurring revenue and cash terms. Assuming the recurring revenue affordability of capital investment is prioritised and could be fully funded by the system, it would also mean the Trust will have to secure NHSEI centrally held capital funding (that does not score against CDEL) via compelling business cases submitted to NHSEI for future large-scale, strategic developments, such as some of the schemes described in the Capital Investment Programme section.

5.5 Capital Investment Programme

The Trust has created a detailed Strategic Estate Development Programme Board to oversee the delivery of the programme over the next 5 years and beyond. The SEDP sets a framework for priority and delivery, assisting the Trust to understand what scheme will be delivered to which proposed timeline. The current Strategic programme currently excludes any allocation for the development of the Weston site.

The programme has been broken into three categories of schemes:

Category 1: Infrastructure and Restoration

1 to 2 years

Category 2: Medium scale strategic development

2 to 4 years

Category 3: Major strategic development

3 to 5+ years

Category 1: Infrastructure and Restoration – 1 to 2 years

A - Very high risk and high-risk infrastructure requirements – 1-2 years;

In line with Department of Health and Social Care guidance, high and significant risk items should be addressed within a reasonable timescale so as not to compromise the delivery of care. The Trust's identified high and significant risk items as a result of its facet survey is £25 million.

B - Existing schemes linked to Restoration Framework – over 2 years

Adult ward capacity

An additional medical ward is required on the Bristol Royal Infirmary (BRI) site to support the development of cardiology services (i.e., provide space within the Bristol Heart Institute (BHI) to increase cardiology ward capacity) and support resilience of patient flow in the context of increasing medical admissions. The development of medical and cardiology inpatient services is core to our provision of urgent and planned care services for our local and regional populations.

Adult critical care capacity

The provision of critical care facilities is core to the development of our specialist surgical cancer and cardiac work, which are central to the strategic development of our specialist and regional services portfolio.

The proposed scheme will assess the opportunities to integrate general and cardiac ICU provision, along with expansion in the bed base on a phased basis to address the current constraints in capacity and account for future growth.

Medical Education facilities

Capital investment into education facilities to modernise and improve both environment and increase teaching and training capacity.

It is essential that the value of the schemes confirmed for 2021/22 does not exceed the amount we can spend within our CDEL envelope. It has been confirmed that the Trust can fund the Category 1 schemes under the current cash reserves.

Category 2: Medium scale strategic development – 2 to 4 years

Bristol Eye Hospital - Ground floor

This scheme proposes to change the layout of areas of the BEH identified as suboptimal to enable new ways of working and models of care to improve the productivity of outpatient services, expand capacity to match increased demand and provide a modern environment for staff and patients.

There is clear alignment of this programme to our current and future strategic objectives, both in relation to environment and driving productivity and efficiency and to the development of our local and specialist service offer.

D603 (In-patient ward refurbishment)

Refurbishment of Bristol Haematology and Oncology Centre (BHOC) inpatient ward, providing an improved and modernised environment for staff and patients. This is a 100% Charity funded scheme.

St. Michaels Hospital (Level E)

Upgrade of outdated environment at St Michael's Hospital (STMH) for maternity services. Strategically aligned to providing a modern and up to date environment for our staff and patients and to achieving high quality care in our general services for the local population we serve.

Holistic Cancer Centre

Patient feedback has continued to reflect the need for an appropriate environment aligned to, but separate from, the hospital environment for patients with cancer or other long-term conditions. Work is underway to progress a Maggie's Centre for our patients including a collaboration between the Trust, Maggie's and Penny Brohn charities. This programme is strategically aligned to our quality objectives, as well as our development of general and specialist cancer services.

Dermatology

The environment within the current dermatology department requires significant refurbishment in order to provide an adequate clinical and non-clinical environment for staff and patients. Its current location is also suboptimal, with patients experiencing difficulty in accessing the department. In addition, dermatology activity has grown significantly over the last 5 years, supported by increased commissioner contracts. This has included the transfer of activity from Weston and more recently, from Taunton. Dermatology services are core to our clinical services strategy, both in relation to general services we provide to our local population and the development of specialist work for the wider region. The proposal is to build a new and modern unit to provide the required space for the expanding service, as well as a modern environment for staff and patients.

Neonatal Intensive Care Unit

Improving the quality and outcomes of new-born care has been identified as a key national priority in both the NHS Long Term plan and in the recent national neonatal review “Better New-born Care”. In clear alignment with these core national strategies, the current outline business case presents an opportunity to place the new-born babies’ needs at the centre of how we deliver neonatal care in Bristol, to build a safe and sustainable neonatal service for the future, and to address some of the significant challenges and risks faced by the services at present.

The fundamental aim for this reconfiguration of services is to ensure that clinical care of the highest quality and safety is provided to those new-born babies and their families who require care from the neonatal teams at both North Bristol NHS Trust (NBT) and University Hospitals Bristol NHS Foundation Trust (UH Bristol), ensuring we get the right baby in the right place at the right time with the right staffing.

Whilst both units are high performing with good clinical outcomes, the way the services are currently organised, with a neonatal intensive care unit (level 3) on both sites, and the unit at NBT being a standalone neonatal unit with no other paediatrics on site, impacts on the quality and safety of care that can be delivered, as well as the long-term sustainability of the service in a number of ways;

- 35-40% of the very small high-risk babies are transferred from NBT to UH Bristol for paediatric specialist assessment and / or ongoing care.
- There is a lack of paediatric support services at NBT (radiology, pharmacy, allied health professionals) as the NICU is the only paediatric service on site.
- As one of the few NICU units in the country with no other paediatrics on site to provide support to the unit, the long-term sustainability of the neonatal service and staffing at NBT is an important consideration.

The proposal is to centralise all the neonatal intensive care at the Bristol Campus site and for the NBT site to function as a Local Neonatal Unit (LNU). The units would operate as an integrated service, underpinned by a robust partnership agreement between both Trusts to establish the new clinical model and integrate both units, ensuring the delivery of a high quality, safe and sustainable future neonatal service in Bristol.

Bristol Eye Hospital (fifth operating theatre)

Surgicube theatre development to facilitate the essential maintenance of existing theatres, also providing potential future capacity expansion.

Endoscopy

Proposed review and potential redesign of the current endoscopy facilities, with a focus on Queen’s Day Unit (Level 4 BRI) to achieve JAG in medium term.

It has been established that the Trust can fund the Category 2 schemes from current cash reserves. These schemes would need to be further developed through the business case and design process and form part of a programme over the next two-to-four years, based on capital availability and our CDEL envelope. The business case development process is underway within the SEDP.

Category 3: Major strategic development – 3 to 5+ years

Marlborough Hill Development

The development is planned over four levels, providing direct links to Bristol Royal Infirmary, incorporating:

- Adult Emergency Department, including supporting radiology, observation beds, Acute Medical Unit and Older Persons Assessment Unit;
- Increased theatre capacity and a Surgical and Trauma Assessment Unit;
- A Joint Advisory Group on Gastrointestinal Endoscopy (JAG) compliant Endoscopy Unit.

This scheme forms part of broader clinical strategy that support improved response to increasing UEC demand and enhance regional capacity for specialist and tertiary services. The release of space within the existing building enables redevelopment and expansion of services within the South West major trauma centre for children.

As a Global Digital Exemplar, UHBW continues to accelerate using new and emerging technologies and sharing our learning to enable others to follow as quickly as possible.

We will engage and consult with our ICS to horizon scan and realise opportunities such as increased use of data and AI, which will influence final design and capacity.

Bristol Royal Hospital for Children (expansion)

The delivery of local, regional and supra-regional services for children is a core strand of our clinical, teaching and research agenda, both currently and for the future. Since the centralisation of specialist paediatric services, we have continued to experience growth across a number of our paediatric services.

This has led to the requirement for additional space in the children's hospital and this proposal is to expand facilities in the Emergency Department, outpatients, inpatient beds and paediatric intensive care services. This will result in high quality modern environment for staff and patients, as well as enabling the future strategic development of our paediatric services.

Bristol Haematology and Oncology Centre (expansion and redevelopment)

Cancer services are core to providing high quality services to the local population and to continue to develop and innovate in our specialist and regional services. Sustained growth has been experienced in haematology and oncology services over the last 5 years, supported by increased contracts with our commissioners and income growth in these areas. Additional physical capacity and modernisation of the environment is required in BHOC to respond to this growth and maintain an appropriate environment for staff and patients alongside expanding oncology service access in more local units.

These Category 3 schemes drive our strategic objectives as an organisation to find alternative ways to manage our acute demand and to continue to expand our specialist portfolio as a Trust. They are also characterised by their scale and complexity.

5.6 Meeting regulatory obligations

The Trust recognises the importance of working with Regulators to ensure we meet, if not exceed, the standards expected of an efficient and high performing NHS Foundation Trust. These standards ensure that high quality, safe and effective care is provided in an economically sustainable manner.

The Trust has an obligation, as part of the NHS Constitution, to care for patients, staff, and visitors; ensure the services provided are high quality and that the Trust can demonstrate value for money to the taxpayer. The Trust's aim will be to maximise funds to support the delivery of care through the elimination of waste, duplication, and inefficient use of resources within the Estate and how it is operated.

The New Hospital Programme has established 13 criteria that applicable participating Trust's must meet as part of it building. It is anticipated that these criteria will be expected for any major strategic new build programme within the NHS:

Criteria 1	Programme Standardisation – Shell & Core Design Parameters (structural grid / floor to floor heights / general service & FM strategies)
Assessment Evidence of Early Adoption of the Shell & Core Design Principles - Standardised structural grid - Standardised approach to floor-to-floor heights – typology of medium / high tech spaces	
Criteria 2	Programme Standardisation – repeatable rooms / components
Provide example of typical standardized rooms expected; inpatients, outpatients, dirty utilities, toilets etc - 80% demonstration of repeatable rooms on a project basis. Assessed against standard rooms % against quantity of rooms (net department) Commitment for programme application of standardised components. - As drawn demonstration of application of 80% room standardisation and primary assemblies (bathroom pods / bedhead walls / door sets / major FFE assemblies, integrated plumbing systems etc - Commitment for programme application of standardised components evidence with 1:50 standard rooms delivery. Rooms to be HBN/HTM complaint and where derogated evidence to show full functionality	
Criteria 3	Delivering Modern Methods of Construction
Presence of MMC strategy - PMV – Premanufactured Value (measure of offsite) - minimum 65% - RCD – Residual Cost Density (measure of efficiency) - minimum 55% - Standardisation evidence of application within design from strategy - MMC Maturity Assessment (measure of enablers)	
Criteria 4	Patient Flows
Complying with the draft HBN - Matrix of clinical adjacencies - Separation of Elective and Emergency - All areas minimising cross flows of patients/staff/logistics - Infection control processes in place - Major patient pathways	
Criteria 5	Net Zero Carbon
Plant area % minimum of 23% (GIFA and external) - Test Fit Plant Layouts - Full application of Net Zero Technologies - Cost allowance for NZC as maximum 5% of overall net construction cost – separately highlighted but evidenced as integral to the overall standard costs / design delivery strategy (it shouldn't be an add on) - Project specific strategy that demonstrates compliance with national NHS targets. - Complies with Intelligent Hospital Guide	
Criteria 6	Digital
Appointment of Digital Leadership / Digital Team - Undertaken stakeholder engagement/awareness programme - Project Specific Digital Strategy - aligned with Trust wide digital strategy - A Digital Roadmap showing scope of capabilities and how technologies will be rolled out over time (5-10 yrs. depending on scope of scheme) - Digital Case within the OBC or SOC with cost/benefits analysis for digital scope - Digital strategy aligned with and enabling clinical strategy - Digital strategy aligned with physical infrastructure solutions - Digital Capital Allocation or Budget assigned - Compliance with principles of emerging NHS digital guidance	
Criteria 7	Social Outcomes
Project Specific Strategy - Benefits of health outcomes and reducing health inequality locally - Trust have defined aims for local work apprenticeships/ local economy benefits	

Criteria 8	Cost Benchmark and Risk Assessed
In line with benchmark range £/m2 (should cost model / NHP benchmarking) - In line with comparison benchmarks with other front runners - Maximum 20% of OB is factored into design development / area growth	
Criteria 9	Capacity and Modelling
Project Specific Inclusions for Pandemic Resilience, Left Shift, Surge / Peaks - Standard Approach to Modelling - Well developed hospital strategy - Standardisation of occupancy & utilisation (85-90% + application of different working weeks / days)	
Criteria 10	Workforce
Project specific modelling coordinated with clinical strategy and schedule of accommodation	
Criteria 11	Patient experience and Outcomes
Minimum 71% single bedrooms - Minimum 1 Isolation room per ward. Minimum 1 Bariatric bedroom per ward - All patient rooms with direct access to natural light	
Criteria 12	Programme Delivery
Demonstrable Town Planning Support - NHP Technical Assurance Review	
Criteria 13	Backlog Maintenance
The reduction of all critical and significant infrastructure backlog in ERIC to be achieved by completion of the project	

5.7 Sustainability

A sustainable NHS will mean improved working environments, greater cost savings; better service to the community and reduced environmental impact. In conjunction with the service and operational strategies being developed, this estate strategy will consider sustainability issues in the future development of the estate and will be informed by progress being made in delivering the Trusts Sustainable Development Strategy (2020-2025).










The need for a health service facility and its content will be driven by patient needs, national directives and the clinical requirements supporting the Trust's vision. There are, however, opportunities for the Trust to enhance its sustainability by determining how services can be provided efficiently, and by developing them locally or through shared estate with the wider health and social economy. The use of information technologies to link services and to provide information remotely can be an important component of ensuring that the most effective use is made of resources. Also, investigating the extent to which other services could be provided from the same site may reveal significant benefits through economies of scale, increasing the viability of transport access and through effective integration of services.

5.7.1 Net Zero Carbon

Each scheme implemented should deliver benefits under the focus of Net Zero Carbon (as described earlier), Government Energy Conservation targets and the Sustainability Agenda, and reduce the Trust's carbon footprint, reducing its energy costs and consumption to a minimum.

The Trust is committed to sustainability and understanding the importance of reducing carbon emissions. Any new facility will be designed to meet National targets. The Trust will work with its design team to ensure any new development at Marlborough Hill will follow a five-point plan to get to Net Zero Carbon in keeping with the national directive:

Table 9 - Five Point Plan to Net Zero Carbon

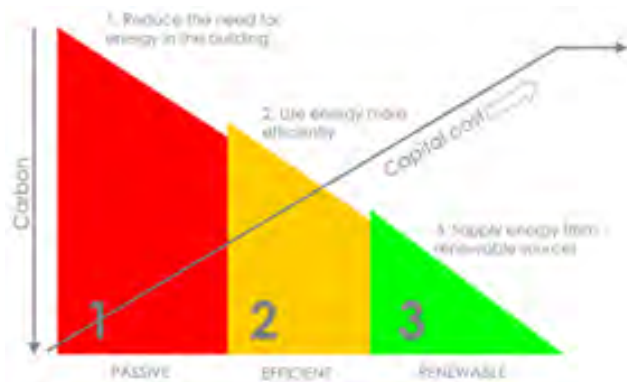
1. Sweat the net area requirement																															
<ul style="list-style-type: none"> • A smaller building will have a smaller carbon footprint in its construction stage, and in its operational phase. This could be done by: • Challenging current functional planning and operational policies to limit the extent of under-used space in the new building. • Seeking out opportunities to move non-clinical functions off-site (such as administration, research and teaching facilities). • Maximising shared facilities, centrally organise interdisciplinary functions, and work on the principle of right of use rather than ownership of space in the building. • Investing in digitalisation to maximise the utilisation of space, and automation to limit the extent of on-site storage (just in time delivery). 																															
2. Incorporate Modern Methods of Construction (MMC)																															
<ul style="list-style-type: none"> • Modern Methods of Construction (MMC) and Design for Manufacture and Assembly (DfMA) Philosophy • Collaborative approach between the Trust, Designers and Contractor to maximise off-site construction. • Collaborative digital engineering in a shared environment. • Repeatability maximised when applied to generic/repeatable installations. 	<p>Benefits include:</p> <ul style="list-style-type: none"> • Faster, quieter construction. • Fewer deliveries (fewer carbon emissions in transit). • Less material/less wastage (fewer carbon emissions in production). • Potential for end-of-life recycling/re-use. • Improved safety. 																														
3. Set a target for operational energy consumption																															
<p>The new development will have a Net Zero Carbon Strategy based on targets derived from the RIBA Sustainable Outcomes 2030 Climate Challenge.</p> <p><i>Figure 21 - RIBA Sustainable Outcomes 2030 Climate Challenge</i></p> <table border="1"> <thead> <tr> <th colspan="6">RIBA 2030 Climate Challenge target metrics for non-domestic buildings</th> </tr> <tr> <th>RIBA Sustainable Outcome Metrics</th> <th>Current Benchmarks</th> <th>2020 Targets</th> <th>2025 Targets</th> <th>2030 Targets</th> <th>Notes</th> </tr> </thead> <tbody> <tr> <td>Operational Energy kWh/m²/y </td> <td>225 kWh/m²/y DEC D rated (CIBSE TM46 benchmark)</td> <td>< 170 kWh/m²/y DEC C rating</td> <td>< 110 kWh/m²/y DEC B rating</td> <td>< 0 to 55 kWh/m²/y DEC A rating</td> <td>UKGBC Net Zero Framework 1. Fabric First 2. Efficient services, and low-carbon heat 3. Maximise onsite renewables 4. Minimum offsetting using UK schemes (CCC)</td> </tr> <tr> <td>Embodied Carbon kgCO₂e/m² </td> <td>1100 kgCO₂e/m² (M4i benchmark)</td> <td>< 800 kgCO₂e/m²</td> <td>< 650 kgCO₂e/m²</td> <td>< 500 kgCO₂e/m²</td> <td>RICS Whole Life Carbon (A-C) 1. Whole Life Carbon Analysis 2. Using circular economy Strategies 3. Minimum offsetting using UK schemes (CCC)</td> </tr> <tr> <td>Potable Water Use Litres/person/day </td> <td>>16 l/p/day (CIRA W11 benchmark)</td> <td>< 16 l/p/day</td> <td>< 13 l/p/day</td> <td>< 10 l/p/day</td> <td>CIBSE Guide G</td> </tr> </tbody> </table>		RIBA 2030 Climate Challenge target metrics for non-domestic buildings						RIBA Sustainable Outcome Metrics	Current Benchmarks	2020 Targets	2025 Targets	2030 Targets	Notes	Operational Energy kWh/m ² /y 	225 kWh/m ² /y DEC D rated (CIBSE TM46 benchmark)	< 170 kWh/m ² /y DEC C rating	< 110 kWh/m ² /y DEC B rating	< 0 to 55 kWh/m ² /y DEC A rating	UKGBC Net Zero Framework 1. Fabric First 2. Efficient services, and low-carbon heat 3. Maximise onsite renewables 4. Minimum offsetting using UK schemes (CCC)	Embodied Carbon kgCO ₂ e/m ² 	1100 kgCO ₂ e/m ² (M4i benchmark)	< 800 kgCO ₂ e/m ²	< 650 kgCO ₂ e/m ²	< 500 kgCO ₂ e/m ²	RICS Whole Life Carbon (A-C) 1. Whole Life Carbon Analysis 2. Using circular economy Strategies 3. Minimum offsetting using UK schemes (CCC)	Potable Water Use Litres/person/day 	>16 l/p/day (CIRA W11 benchmark)	< 16 l/p/day	< 13 l/p/day	< 10 l/p/day	CIBSE Guide G
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<p>HTM07-07: Sustainable Health and Social Care Buildings (2013) recommends that all new capital developments achieve an energy target of 35-55 GJ/100m³.</p>																															

4. Lean, mean, green design approach to new building

LEAN. Initial focus on building form, orientation, extent of glazing, solar screens, insulation levels of external fabric of the building, natural air movement through the building, etc.

MEAN. Removal of fossil fuel-based energy provision on the development site. A potential move to electric based heating, cooling, and hot water generation. Inclusion of LED lighting, daylight control, inverter drives, intelligent hospital control strategy, etc.

GREEN. An initial investment in renewable energy technology (solar thermal hot water and PV panels) will allow newer developments to meet energy consumption target level of 110 kWh/m²/y.



5. Investment the appropriate time in renewable energy

We propose to track the decarbonisation of The National Grid and to then calculate annual carbon emissions from the development. Dependant on the rate of decline of the electricity supply carbon factor – will dictate the extent of ongoing carbon offsetting investment (either via onsite renewables or potentially a national carbon offsetting strategy by the NHS).

5.7.2 Using Modern Methods of Construction

The Trust fully supports HM Treasury, DHSC and NHSE&I objectives for MMC as set out in key National strategies and understands the influence this has on the development of procurement and delivery strategies for the Marlborough Hill development.

To limit the extent of carbon emissions generated during the construction stage activity it will be necessary, at the very earliest stage of the design of the development to embrace Modern Methods of Construction (MMC) and Design for Manufacture and Assembly (DfMA).

The MMC philosophy adopted by the Trust will comprise:

- A collaborative approach to off-site construction. This will see a need to appoint a Contractor for the new hospital at an early stage, to enable dialogue and advice on the components available in the manufacturing supply chain that will ultimately comprise the “kit of parts” on which the new hospital will be constructed;
- Close working between the Trust and project stakeholders to develop successful MMC/DfMA strategies;
- Maximising repeatability in the design of the hospital;
- Prioritising locally sourced materials and labour wherever practicable to limit transportation related carbon emissions;
- Reducing the construction programme period where practicable;
- Developing the design of the new development in a digital 3D shared environment within which options analysis can be undertaken on where MMC and DfMA can be incorporated.

Embracing this philosophy will deliver the following benefits:



5.8 Supporting strategies

Throughout the development of this estate strategy, we have sought to reference other key Trust strategies and plans, to ensure that it supports the delivery of overarching objectives, and that the optimal estate is developed to meet the future needs of the local population. This document should be continually reviewed and updated in consultation with others as Trust and wider health economy plans are developed and it should also always be mindful of the inter-dependencies and projections upon which the plans are based. The estate strategy should be read in conjunction with the whole suite of strategies which all need to work together in alignment to deliver the Trust’s Strategic Vision:

- Clinical Service Strategies;
- The Digital Strategy – Digitally enabled hospital;
- Workforce Strategy;
- Organisation Development;
- Healthy Weston 2;
- Life Cycle investment and Back-log maintenance;
- Sustainability;
- Transport and access;
- Capital Plans;
- Acute Services Review.

5.9 SWOT Analysis

To understand the Trust’s strategic estate challenges and risks and develop the strategic options, a SWOT analysis was carried out for the estate:

Strengths	Weaknesses
<ul style="list-style-type: none"> • c.£200m already spent in past 15 years to develop the estate; • The site development plan 2018-2023 provides a basis to accommodate future requirements; • No existing private finance or debt; • Cash reserves available towards funding of capital developments. 	<ul style="list-style-type: none"> • Car parking, access and transport; • Backlog maintenance outstanding c.£73.8m; • Demand for capital outweighs the available funding resource; • The age of the buildings and the remaining anticipated life; • Estate needs to be more resilient for pandemics; • Flexibility of estate with challenges to increase bed capacity to respond to demand pressures; • No approved staff residential policy. • No capital funding allocation for the strategic development of the Weston site.

Opportunities

- Weston Hospital and Drove Road now in Trust estate portfolio and managed centrally;
- Improve utilisation of SBCH (South Bristol Community Hospital);
- Long-term solution required for parent accommodation and Children's;
- Potential disposal of Central Health Clinic site;
- Site development zone available.

Threats

- Planning permission could be denied for expansion of the main site, Marlborough Hill;
- Achieving vacant possession of Eugene Street Residences;
- Flood risk at Weston Hospital and local authority planning constraints;
- High overhead costs at Weston Hospital;
- Critical infrastructure and life cycle investment improvements required at both sites;
- Estate needs to support post covid-19 clinical work;
- Changes to government policy such as provision of single rooms or funding flows from commissioners under ICS.

As with all large-scale strategic development there will be several constraints and barriers which will impact the delivery of the SEDP. These include, but are not limited to, the following:

- Availability of funding;
- Ability to work successfully with other Trusts, CCGs and wider ICS partners;
- Willingness of other parties to support vision;
- Future commissioning plans;
- HR Policies, Procedures and Management changes;
- Workforce;
- Technology.

All constraints and barriers identified throughout this process will be considered in more detail as part of business case development processes. However, plans to prevent some of them becoming a barrier to the transformation of the estate will be set in motion now.

The estate strategy must ensure that risk is minimised in all forms, that environments are safe and provide a high-quality experience for patients and visitors. The environment in which services are delivered should be maintained to a high standard and support staff to deliver high quality care.

The estate strategy aims to eliminate, minimise or adequately control risks associated with the built environment and to ensure that any investment decisions are affordable, represent value for money and support the Trust's financial plans.

5.10 Benefits

Due to the current financial status of the NHS, and ICS progress to date, it is important that the Trust improves the productivity of the estate as much as possible, this would include:

- An assurance that the quality of clinical services provided will be supported by a safe, secure and appropriate environment;
- A means of ensuring that capital investments reflect service strategies;
- A plan for change in which progress can be measured;
- A strategic context in which detailed business cases for all capital investment can be developed and evaluated as part of our strategic capital programme;

- A means by which the Local Authority can identify capital investment projects which will require formal statutory approval and will relate to the Local Development Plan;
- A clear strategy to:
 - establish sustainable development and environmental improvements;
 - ensure assets are effectively utilised and managed;
 - ensure risks are controlled and investment properly targeted;
 - reduce risk;
 - support a digitally enabled hospital to improve productivity and resources;
 - improve the metrics on cost and performance of the estate;
 - reduce waste and operating costs through effective deployment of Trust resources.

6 Conclusion and Key Actions

Our estate strategy will be delivered through developing key assets, increasing income from commercial and clinical activities, acquiring strategically and disposing of estate that becomes surplus to requirements.

Affordability and delivery will be achieved using the most appropriate financial mechanisms, to leverage the optimum level of financial and non-financial benefits to the Trust.

Each proposed change to the physical assets will be appraised against the identified options and presented for approval in the context of the framework set out by this overarching estate strategy. Each development will be approved via the Treasury Green Book 5 Case Business case model, utilising Better Business Case practitioners to develop the investment cases. This will include the forecasted effect of this estate strategy on the estate and environmental performance.

There are several clinical service changes planned for the Weston Hospital site, where the capital investment for any material changes to the estate have yet to be determined. The critical infrastructure and life cycle investment at Weston will be a key area of focus for the coming estate strategy period.

As a result of the changing clinical operating models, major estate development will concentrate on the Bristol Campus, the Weston campus, opportunities for offsite working and development of Marlborough Hill.

The key actions this strategy seeks to deliver are as follows:

1 Support enablement of Trust's clinical and service strategies and be flexible to respond to emerging strategic direction such as <i>Healthy Weston 2</i> and the <i>Acute Services Review</i>	2 Implement the SEDP, including development of the Marlborough Hill site to unlock the Bristol Campus site for development
3 Improve access, environment and transport for our patients, visitors and staff	4 Reduce our back-log maintenance and invest in the infrastructure supporting our estate
5 Support our sustainability strategy, adopting a road map to achieve net zero carbon	6 Explore the commercial opportunities associated with disposing of Central Health Clinic and Tyndall's Park Road
7 Continue to explore strategic real estate acquisitions such as the current dental hospital	8 Consolidate our administration functions and adopt an agile working methodology post-Covid
9 Enable opportunities for offsite working with our partners in the ICS and Healthier Together membership	10 Develop an accommodation strategy for staff, overnight accommodation and parents
11 Adopt a digital strategy, implementing the opportunities for digital appointments, virtual wards, joined up care and self-care	12 Source funding and implement the Weston Site Development Plan aligning to the emerging clinical requirements from a <i>Healthy Weston 2</i>



University Hospitals Bristol and Weston

NHS Foundation Trust

Produced on behalf of the Trust by

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Appendix 2 – OBC Theatres Expansion 2019

Theatre & Endoscopy Refurbishment & Expansion

Version	Version notes	Author/ Updated by	Approved by	Date
0.1	First draft	Philip Kiely		09/07/19

Executive Summary

This outline business case proposes (1) the commencement of a theatre refurbishment programme, (2) the building of a new block of theatres on the BRI site to facilitate this refurbishment and to provide additional capacity to accommodate future growth and service development (e.g. robotic surgery), and (3) the building of a new endoscopy unit to accommodate future levels of growth and ensure that the clinical environment is improved to meet best practice standards.

This outline business case excludes a consideration of BEH theatre refurbishment and expansion. This is considered as part of a separate phase 5 outline business case. It also excludes consideration of cath labs, dermatology expansion and brachytherapy services.

The case for change for a theatre refurbishment programme is built upon the condition of the Trust's theatre infrastructure; more specifically, the condition of the theatre ventilation systems, electrical resilience, general condition of the theatre estate and reliability to avoid disruption to service delivery.

The case for change to build a new theatre block is based on growth particularly within cancer pathways and surgery which requires post-operative critical care and inpatient care that can only be provided on the BRI site.

The case for change to build a new endoscopy unit is based on year-on-year growth in demand for diagnostic endoscopy and a requirement to meet JAG best practice standards for patient privacy and dignity.

The headline proposed investment is £12.935m for the refurbishment of five operating theatres over a 2.5 year period; a new build theatre block incorporating four operating theatres built to a laparoscopic standard at £13.362m, and a new endoscopy unit built to include 8 endoscopy rooms at £21.150m. These should be regarded as upper estimate costs based on the specification of the theatres and number of endoscopy rooms proposed.

1. Background

The Trust has a total of 33 operating theatres split across 7 theatre units and 6 hospital sites. The following table provides a breakdown of these theatre units:

Site	Unit	Theatres
BRI	Hey Groves Theatres	10
	Queen's Day Unit	2
STMH	STMH Theatres	5
BDH	GA Theatre	1
BEH	BEH Theatres	4
SBCH	Day Surgery Unit	2
BRHC	Coastguard	2
	Horizon	7
		33

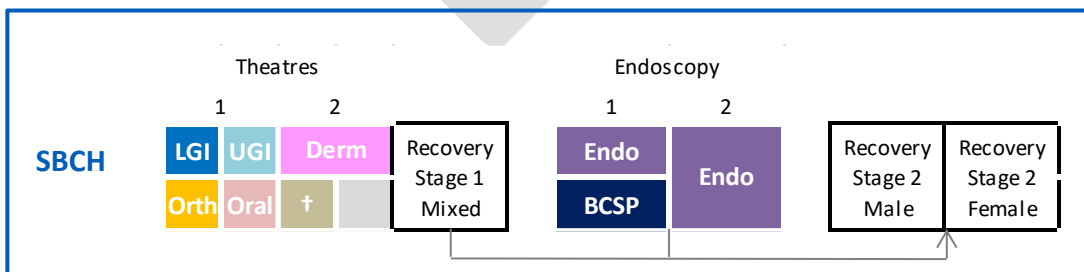
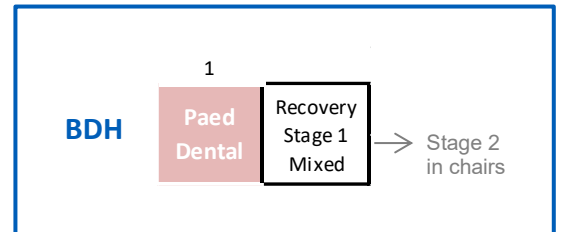
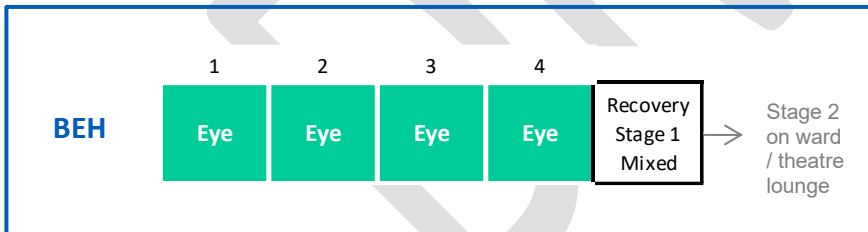
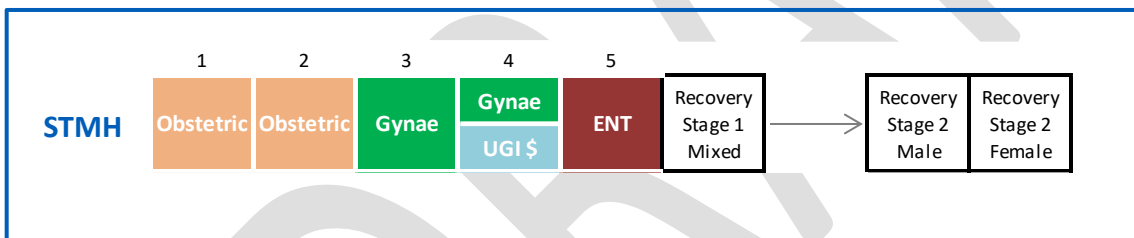
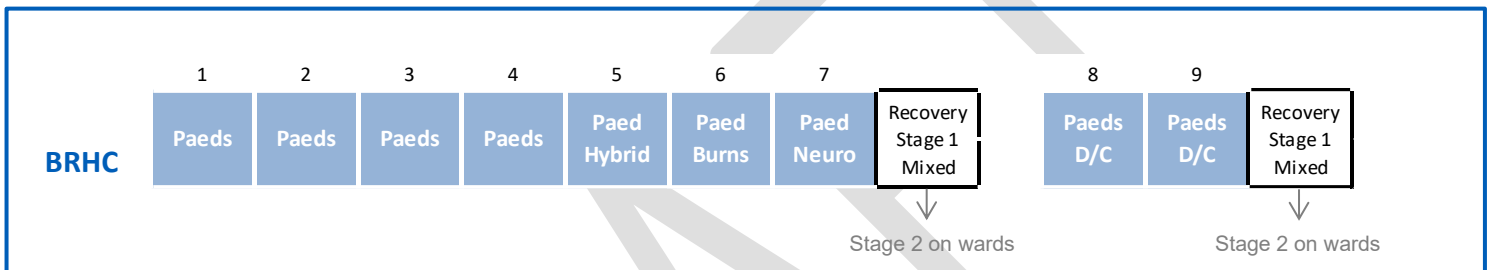
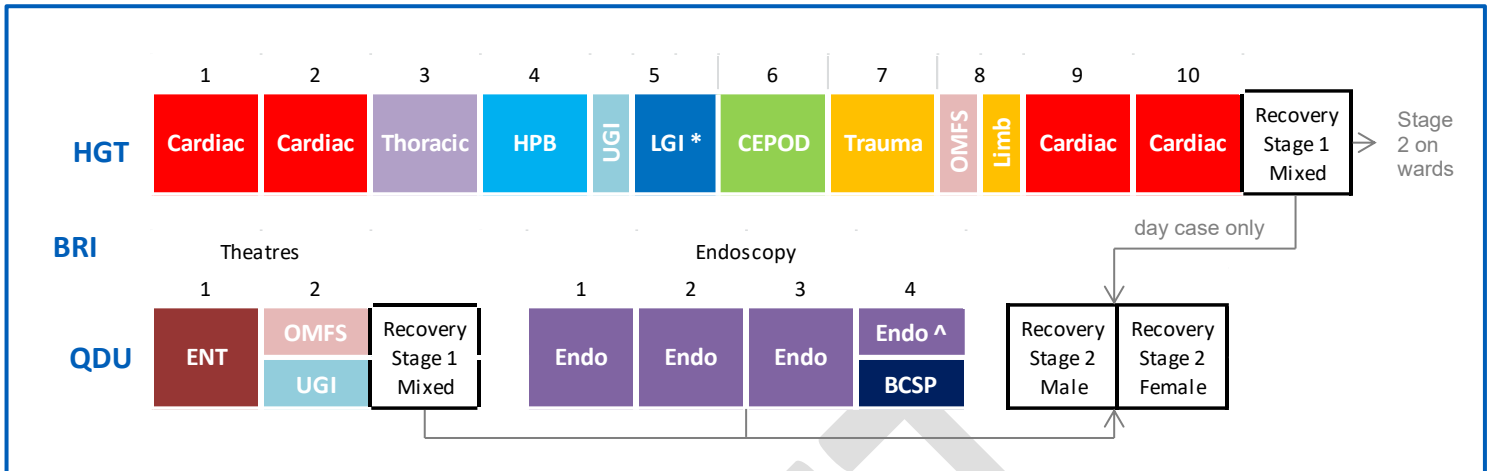
In addition, the Trust has 6 endoscopy rooms split across 2 units / sites that are used exclusively for adult patients. Paediatric endoscopy activity is undertaken in BRHC theatres as patients receive a general anaesthetic.

Site	Unit	Endoscopy Rooms
BRI	Queen's Day Unit	4
SBCH	Endoscopy Unit	2
		6

The following sections provide more detail regarding the configuration of each theatre suite and the relative allocation to different surgical and medical specialties.

Note that the following diagram is illustrative and the theatre numbers within each suite do not necessarily correspond with the numbers in the diagram. The relative distribution is averaged over a month because the theatre timetable differs week to week.

1.1 Theatre & Endoscopy Suite Overview



* including once-monthly gynae-oncology list

^ including bronchoscopy

‡ including special care dental and surgical termination of pregnancy (STOPs)

† Hysteroscopy / colposcopy, cardioversion, oculoplastics and pain procedures

1.1.1 Hey Groves Theatres

There are 10 theatres in Hey Groves in the BRI and a small mixed-sex stage 1 recovery.

The works carried out in these theatres includes major surgery for cardiac, complex GI surgery, thoracic surgery, limb reconstruction, maxillofacial surgery, gynae, trauma and CEPOD.

A relatively high percentage of the non-cardiac activity in HGT theatres is cancer surgery. The vast majority of cases require inpatient beds post-operatively, including critical care. Day cases are only scheduled in these theatres as fillers to fully utilise time on lists.

Laminar flow is available in two theatres (HGT 7 and 8: trauma and limb reconstruction).

1.1.2 Queen's Day Unit

There are 2 theatres, 4 endoscopy rooms, a mixed-sex stage 1 recovery, and male / female stage 2 recovery areas. These theatres do not have anaesthetic rooms; patients are anaesthetised in theatre which can have an impact on patient flow.

The work that is carried out in QDU theatres is predominantly head and neck surgery. QDU theatres perform a range of day case and inpatient surgery. There has been a reduction of day case activity in these theatres following the centralisation of head and neck services in 2013.

There are some smaller GI cases that are unsuitable to be undertaken off the BRI site.

The work that is carried out in QDU Endoscopy includes diagnostic and therapeutic procedures. This facility also accommodates the Bowel Cancer Screening Programme (BCSP) and a small number of bronchoscopy sessions.

1.1.3 Bristol Royal Hospital for Children Theatres

There are seven theatres on level 4 of the BRHC and a mixed-sex stage 1 recovery area.

There are an additional two theatres on level 5 of the BRHC that are used for day case surgery with a mixed-sex stage 1 recovery area. The patients receive second stage recovery on the wards.

1.1.4 St Michael's Hospital

There are 5 theatres, a small mixed-sex stage 1 recovery, and separate male and female stage 2 recovery areas.

These theatres do not have anaesthetic rooms, but they do have reception rooms used as holding rooms, where patients can be cannulated only.

The work that is carried out includes a mix of emergency and elective gynaecology, obstetrics, ENT, and some GI cases suitable for off BRI site, mainly day case operating.

This site is only suitable for low-risk GI procedures.

For non-gynae cases, there is limited inpatient bed capacity, suitable for 24-hour stay only and low risk patient groups. This limits the possible case mix.

1.1.5 Bristol Dental Hospital

There is one GA theatre for paediatric cases in the BDH. There is no separate anaesthetic room and it is an entirely self-contained unit.

Note that the types of procedures undertaken in this theatre are suitable for a minor procedure environment.

This facility has two half day sessions that are currently fallow. This was the product of a rationalising of existing theatre lists as part of the Division of Surgery 2018/19 CIP programme.

1.1.6 Bristol Eye Hospital

There are 4 theatres in the BEH which are dedicated to emergency and elective ophthalmic surgery. In addition, there is a procedure room that is used for corneal cross-linking procedures.

There is a separate business case being considered as part of the Phase 5 programme, related to the refurbishment of the BEH theatres, and the building of a fifth operating theatre to facilitate decant and to provide additional capacity to accommodate future demand.

1.1.7 South Bristol Community Hospital

There are 2 theatres, 2 endoscopy rooms, a stage 1 recovery, and separate male and female stage 2 recovery areas. These theatres do not have anaesthetic rooms; patients are anaesthetised in theatre which can have an impact on patient flow.

The work that is carried out in SBCH Theatres includes a range of surgery such as simple LGI and UGI cases, elective orthopaedics, oral surgery, dermatology, ophthalmology (oculoplastic), pain and cardiac (cardioversion).

The service previously accommodated minor urology and vascular procedures. However, these sessions were withdrawn by NBT in 2018 because the cost of renting the theatre sessions was deemed cost prohibitive. This activity was repatriated to NBT.

The work that is carried out in SBCH Endoscopy includes diagnostic endoscopy, BCSP sessions and a small amount of gynaecology (hysteroscopy).

There are currently vacant sessions in SBCH Endoscopy which relate to consultant vacancies within the current establishment.

There is no surgical inpatient bed capacity which limits patient suitability and case mix.

In 2018, a small pilot of laparoscopic surgery operating was undertaken. However, this pilot was discontinued because of concern about spreading surgical teams across too many sites. However, the Division of Surgery is expanding the range of surgical endoscopy available on this site as part of the 2019/20 productivity plan.

2. Case for Change

The case for change to establish a theatre refurbishment programme is based on the following:

- The condition of the ventilation systems
- The lack of comprehensive UPS / IPS provision (electrical resilience)
- The general condition of the theatre estate
- Issues with reliability impacting service delivery

2.1 Ventilation System Review

In March 2018, the Trust commissioned an Authorised Engineer (AE) to undertake an independent, Trust-wide review of the current condition of theatre ventilation systems.

The objective of this review was to ascertain the condition of the principle ventilation plant elements installed throughout the theatre suites, and to detail a critical investment priorities schedule based on no change of use to the theatre spaces.

The review sought to establish the level of compliance and conformance to the current best practice as outlined in the design requirements of HBN 26 and HTM 03.01 for healthcare ventilation systems.

The review sought to establish any specific areas of concern that could impact operational effectiveness, and areas of potential 'single point of failure' and the likely disruption and impact of any potential elemental failure which would impact the ventilation system performance.

It is very important to note that this report was based on a non-intrusive, visual based inspection of the ventilation plant and associated theatre suites. This was because of concern, based on the current condition of the plants, that any further investigation may deteriorate the condition of the components.

2.1.1 Ventilation System Rating

The following table presents the outcome of the ventilation system review including the overall rating score for each theatre.

The ventilation systems which serve a theatre area consist of a number of elements, all of which contribute to the overall condition of the system. The report provides an assessment of the following elements:

- External Louvre
- Air Intake
- Frost Coil
- Pre-Filter
- Fan Unit
- Heat Recovery
- Cooling Coil
- Humidifier
- Heating Coil
- Secondary Filter
- Attenuator
- Ductwork

These elements were individually inspected and assessed, within the practical limitations of an operational hospital and allocated a score based on findings.

All elements were rated on a 0 to 5 scale:

1 = Minor (no issues)

2 = Material (issues of annoyance to staff; low priority works)

3 = Significant (can use theatre but needs routine maintenance)

4 = Critical (can use theatre but could cause a significant risk; high priority works)

5 = Catastrophic (should review use of the theatre as potentially hazardous; requires immediate work)

As not all of the ventilation plants serving the identified areas have all of these elements, a correction factor was applied to enable direct comparison of all systems. This approach allowed for a prioritisation process and ranking of condition to be completed.

AHU	Site	External Louvre	Air Intake	Frost Coil	Pre-Filter	Fan Unit	Heat Recovery	Cooling Coil	Humidifier	Heating Coil	Secondary Filter	Attenuator	Ductwork	Overall Gross Score	Correction Factor	Overall Rating
Theatre 3	BEH	3	3	3	4	4	0	3	0	3	3	4	3	33	83%	27.39
Theatre 4	BEH	3	3	3	4	4	0	3	0	3	3	4	3	33	83%	27.39
Theatre 2	BEH	3	3	3	4	4	0	2	0	2	4	4	3	32	83%	26.56
Theatre 1	BEH	3	3	2	3	4	0	3	0	3	4	4	2	31	83%	25.73
Recovery	BRHC	3	3	2	2	3	2	2	0	2	2	3	2	26	92%	23.92
Theatre 5	STM	2	3	2	2	2	3	3	0	2	3	0	3	25	92%	23
Theatre 3	BRHC	2	2	2	2	3	2	2	2	2	2	0	2	23	92%	21.16
Theatre 4	BRHC	2	2	2	2	3	2	2	2	2	2	0	2	23	92%	21.16
GA Suite	BDH	4	4	3	3	2	0	3	0	3	3	0	3	28	75%	21
Recovery	HGT	2	2	2	2	2	2	2	2	2	2	0	2	22	92%	20.24
Theatre 2	HGT	3	3	2	2	3	0	2	2	2	2	0	3	24	83%	19.92
Theatre 3	HGT	3	3	2	2	3	0	2	2	2	2	0	3	24	83%	19.92
Theatre 9	HGT	3	3	2	2	3	0	2	2	2	3	0	2	24	83%	19.92
Theatre 7	HGT	2	3	2	2	3	0	2	2	2	2	0	3	23	83%	19.09
Theatre 1	HGT	3	3	2	2	2	0	2	2	2	2	0	3	23	83%	19.09
Theatre 4	HGT	2	3	2	2	3	0	2	2	2	2	0	3	23	83%	19.09
Recovery	STM	3	4	3	2	2	0	2	0	2	2	0	3	23	83%	19.09
Theatre 2	QDU	2	2	2	2	2	0	2	0	2	2	2	2	20	92%	18.4
Theatre 8	HGT	2	3	2	2	2	0	2	2	2	2	0	3	22	83%	18.26
Recovery	QDU	3	3	2	2	2	0	2	2	2	2	0	2	22	83%	18.26
Theatre 3	STM	3	3	2	2	3	0	3	0	2	2	0	2	22	83%	18.26
Theatre 4	STM	3	3	2	2	3	0	3	0	2	2	0	2	22	83%	18.26
Theatre 1	BRHC	2	2	2	2	3	2	2	0	2	2	0	2	21	83%	17.43
Theatre 2	BRHC	2	2	2	2	3	2	2	0	2	2	0	2	21	83%	17.43
theatre 10	HGT	2	2	2	2	2	0	2	2	2	2	0	2	20	83%	16.6
Theatre 6	BRHC	2	2	2	2	2	0	2	2	2	2	0	2	20	83%	16.6
Theatre 1	QDU	2	2	2	2	2	0	2	0	2	2	2	2	20	83%	16.6
Theatre 1	STM	3	3	2	2	2	0	2	0	2	2	0	2	20	83%	16.6
Theatre 2	STM	3	3	2	2	2	0	2	0	2	2	0	2	20	83%	16.6
Theatre 5	HGT	2	3	2	2	2	0	2	0	2	2	0	2	19	75%	14.25
Theatre 6	HGT	2	3	2	2	2	0	2	0	2	2	0	2	19	75%	14.25
Theatre 8	BRHC	1	2	1	1	1	1	1	1	1	1	1	2	14	100 %	14
Theatre 9	BRHC	1	2	1	1	1	1	1	1	1	1	1	2	14	100 %	14
Recovery	BRHC	1	2	1	1	1	1	1	1	1	1	1	2	14	100 %	14
Theatre 5	BRHC	2	2	2	2	2	0	2	0	2	2	0	2	18	75%	13.5

Theatre 7	BRHC	2	2	2	2	2	0	2	0	2	2	0	2	18	75%	13.5
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In response to this survey, the Estates team undertook some minor works to the ventilation systems to address immediate concerns. For instance, new bearings were installed in all Hey Groves Theatre; HGT2, HGT3, HGT4 had reconditioned fan replacements; STMH5 had minor works to the surgeons' panel and ventilation. These works may change some of the scoring indicated in the above table.

However, although these works addressed the immediate risk of ventilation system failure, they have not resolved the underlying issue regarding the age, condition and reliability of these systems.

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2.1.2 Ventilation System Age

The Trust has a wide range of air handling units (AHUs) both in terms of age, condition and criticality. Existing research evidence indicates an equally wide range of average life expectancies for air handling plant dependent upon the type of system and components used. Typically, it is not unusual to find AHUs in excess of the upper limit within healthcare settings. Indeed, the Trust has a number of AHUs which exceed the typical life expectancy. The performance of these older units may still achieve acceptable standards, the risks and likelihood of breakdowns and failures does tend to increase with age.

The performance of the ventilation systems within the theatre suites is subject to regular verification by the estates team. Routine inspection and maintenance of theatre suites is an integral element of the annual verification process as outlined in HTM 03-01 Part B Appendix 2 and supported in HBN 26 Theatres (currently being updated) and HBN 00-09 Control of Infection in the built environment. Every year the suite MUST be inspected, condition rated and identified issues address / rectified.

HTM 03-01 states that AHUs may have a working life of 25 to 30 years.

The HTM states that, at the point of being commissioned, operating theatres are recommended to deliver 25 air changes an hour (AC/hr), a day case theatre 15 AC/hr and a treatment room 10 AC/hr.

The performance of the ventilation systems should be no less than 75% of the AC/hr at the point of being commissioned. Therefore, a conventional operating theatre designed to deliver 25 AC/hr should have no fewer than 18.75 AC/hr.

The following chart provides details of the latest annual verification reports for BEH, STMH, HGT, QDU and the BDH. It indicates the number of immediate and urgent defects identified by the independent ventilation specialist during this process. It also provides the detail of any AHUs that have fallen below the standard of no less than 75% of the current HTM designed AC/hr. Note the original design performance of some of the older systems may not have designed to achieve compliance to the current HTM standard.

Date of Annual Verification	Theatres	No. of Immediate Defects	No. of Urgent Defects	Room	Design Air Changes	Recorded Air Changes	%
04/04/2019	BEH1	1	5	Lay Up Prep	>25	17	68%
				Scrub	>20	18.1	65%
04/04/2019	BEH2	1	6	Theatre	25	8.5	34%
				Lay Up Prep	>25	5	20%
				Anaesthetic Supply	15	9.3	62%
				Anaesthetic Extract	15	10.7	72%
05/04/2019	BEH3 & Recovery	1	3	Dirty Utility	>20	4.8	24%
				Recovery	15	10.3	69%
04/04/2019	BEH4	1	5	Anaesthetic Extract	15	3.9	26%
				Lay Up Prep	25	18.4	73%
				Scrub	15	9.3	62%

30/04/2019	STMH1	0	6				
30/04/2019	STMH2	1	6	Theatre inc Scrub	25	15.9	64%
02/04/2019	STMH3	1	8	Shared Scrub	25	0	0%
				Anaesthetic Extract	15	2.6	17%
				Shared Dirty Utility	>20	5.4	27%
02/04/2019	STMH4	1	9	Shared Scrub	25	0	0%
				Anaesthetic Supply	15	10.1	68%
				Anaesthetic Extract	15	2.7	18%
	Shared Dirty Utility	>20	5.4	27%			
03/04/2019	STMH5	0	9				
03/04/2019	STMH Recovery	1	5	Recovery	15	5.3	35%
03/02/2019	HGT1	1	8	Theatre	25	16.5	66%
				SPS Prep	10	4.1	41%
				Anaesthetic Extract	15	0	0%
02/02/2019	HGT2	2	8	SPS Prep	10	6.5	65%
				Anaesthetic Extract	15	8	54%
02/02/2019	HGT3	1	11	Shared Scrub	25	6.3	25%
				Anaesthetic Extract	15	1.4	9%
03/02/2019	HGT4	1	8	Theatre	25	16.6	66%
				Shared Scrub	>20	6.3	25%
				SPS Up Prep	10	5.5	55%
				Anaesthetic Supply	15	11	73%
	Anaesthetic Extract	15	11	73%			
12/01/2019	HGT5	1	11	Theatre	25	17.6	70%
				Anaesthetic Supply	15	11	73%
				Anaesthetic Extract	15	7.4	49%
13/01/2019	HGT6	1	13	Theatre	25	11.9	47%
				SPS Prep	10	4.4	44%
				Anaesthetic Extract	15	10.9	73%
12/01/2019	HGT7	1	10	Shared Scrub	25	8	32%
				Lay Up Prep	>25	19.9	74%
				Anaesthetic Extract	15	6.4	43%
13/01/2019	HGT8	1	11	Theatre	25	15.2	61%
				Shared Scrub	25	8	32%
				Lay Up Prep	>25	8.1	68%
				Anaesthetic Supply	15	4.7	32%
	Anaesthetic Extract	15	5.7	38%			
03/02/2019	HGT9	1	8	Lay Up Prep	>25	17.1	68%
				Anaesthetic Supply	15	10.6	71%
				Anaesthetic Extract	15	3	20%
				Dirty Utility	>20	1.8	9%
02/05/2019	HGT10	1	9	Lay Up Prep	>25	9.1	37%
				Anaesthetic Supply	15	10.8	72%
				Anaesthetic Extract	15	3.1	21%
				Scrub	>20	13.9	69%
22/11/2018	HGT Recovery	1	6	Recovery Supply	15	9.9	66%
				Recovery Extract	15	4.8	32%
21/11/2018	QDU1	0	8				
21/11/2018	QDU2	0	9				
22/08/2018	BDH GA Theatre	2	6	Recovery Supply	15	10.9	73%
				Recovery Extract	15	2.3	15%
	Total	22	188				

The above table indicates that there are significant concerns about the condition and performance of the AHUs across these theatre complexes. The verification reports indicate that there are issues with corrosion / rust, filtration, accumulation of dust / debris, and standing water in two theatres.

Furthermore, the HTM states that the ventilation systems should be able to control the temperature of an operating theatre between the ranges of 18-25°C. During the summer months, the temperature of the Trust's operating theatres has exceeded 30°C. There is a tolerance within the HTM to exceed specified limits for up to 10 working days per year. The verification reports did not identify any issues with temperature regulation. However, there were some issues with the humidity of theatres. The time of year that these temperature / humidity recordings were taken should be noted. Historical practice has led to the isolation of humidification from the majority of AHU's due to changes in anaesthesiology.

The performance and condition information used in the preparation of this report is based upon the last annual verification reports undertaken by the Trust's appointed independent specialist sub-contractor. Where results have demonstrated a level of performance below the recommended minimum standards, within an operating room, the estates team have undertaken initial remedial actions to address the immediate performance issues and maintain a safe patient environment. The estates team are also in the process of tendering for a series of intermediate refurbishment works to provide a higher degree of resilience for areas of identified poor condition and performance. These actions should be seen as a temporary solution and does not negate the need for a permanent investment solution to be provided.

2.1.3 Theatre Age

The following table provides details of when the theatre suites were initially built and the date that the ventilation systems were installed or last replaced. The 'Notes' column indicates any other significant remedial works that have been undertaken to improve the condition of the plant.

Suite	Site	Level	System	Laminar Flow	Date Theatre Built	Ventilation System Built / Replaced	Notes
BDH	BDH	1	GA Suite	No	1970s	2004	2004: theatre refurbishment
BEH	BEH	4	Theatre 1	No	1986	1986	
	BEH	4	Theatre 2	No	1986	2004	AHU upgraded for defunct Laservision development
	BEH	4	Theatre 3 & recovery	No	1986	1986	
	BEH	4	Theatre 4	No	1986	1986	
HGT	QB	6	Theatre 1	No	1989	1989	
	QB	6	Theatre 2	No	1989	1989	2018/19: Reconditioned parts on shaft / fan in AHU replaced
	QB	6	Theatre 3	No	1989	1989	
	QB	6	Theatre 4	No	1989	1989	
	QB	6	Heygroves Recovery	N/A	1989	1989	
	QB	6	Endoscopy Clean room	N/A	1989	1989	2007: x1 new AER
	KEB	6	Theatre 5	No	1995	1995	
	KEB	6	Theatre 6	No	1995	1995	
	KEB	6	Theatre 7	Yes	2001	2001	
	KEB	6	Theatre 8	Yes	2001	2001	
QB	6	Theatre 9	No	2004	2004		
BHI	6	theatre 10	No	2009	2009		
BRHC	BRHC	4	Endoscopy Clean room	N/A	2001	2001	
	BRHC	4	Theatre 1	No	2001	2001	
	BRHC	4	Theatre 2	Yes	2001	2001	
	BRHC	4	Theatre 3	No	2001	2001	
	BRHC	4	Theatre 4	No	2001	2001	
	BRHC	4	Theatre 5	No	2014	2014	
	BRHC	4	Theatre 6	No	2014	2014	
	BRHC	4	Theatre 7	Yes	2014	2014	
	BRHC	4	Theatre Recovery	N/A	2014	2014	
	TSB	5	Theatre 8	No	2014	2014	
TSB	5	Theatre 9	No	2014	2014		
TSB	5	Theatre Recovery	N/A	2014	2014		

QDU	QB	4	Endoscopy Clean room	N/A	2006	2006	2015/16: x4 new AERs; 2016: x1 new RO plant
	QB	4	x4 Endoscopy rooms	N/A	2006	2006	
	QB	4	QDU Theatre 1	No	2006	2006	
	QB	4	QDU Theatre 2	No	2006	2006	
STM	STM	C	Recovery	N/A	<i>1990</i>	<i>2004</i>	
	STM	C	Theatre 1	No	<i>1980s</i>	<i>2004</i>	
	STM	C	Theatre 2	No	<i>1980s</i>	<i>2004</i>	
	STM	C	Theatre 3	No	<i>1990</i>	<i>1990</i>	
	STM	C	Theatre 4	No	<i>1990</i>	<i>1990</i>	
	STM	C	Theatre 5	No	2004	2004	2019: works undertaken to panel and controls of AHU
SBCH	DSEU		Theatre 1	No	2013	2013	
	DSEU		Theatre 2	No	2013	2013	
	DSEU		X2 Endoscopy rooms	N/A	2013	2013	

It should be noted that there is a paucity of information concerning the age of the Trust's operating theatre, and details of any subsequent refurbishment or replacements of AHUs. The information in the table above highlighted in italics is based on the best available information. Therefore, there may be a margin of error in the dates stated above.

Nevertheless, this information does paint a picture of theatre infrastructure that is approaching the limit or has exceeded the anticipated lifespan of an operating theatre of 25-30 years, including the BDH GA suite, BEH theatres 1-4, STM theatres 1- 4, and HGT 1-6.

2.2 Electrical Resilience Review

In April 2018, the Trust also commissioned an independent review of its electrical resilience systems supporting our operating theatre estate.

This report identified a number of areas where the existing UPS and IPS resilience requires improvement to mitigate risks associated with interruptions to electrical power supply.

An UPS (uninterruptible power supply) is an electrical apparatus that provides emergency power in the event of a power failure. A UPS differs from a standby generator in that it will provide near-instantaneous protection from input power interruptions, by supplying energy stored in batteries or supercapacitors. The on-battery run-time of most UPS is relatively short, but sufficient to start a standby power source or to stop an operation in as safe a way as possible. IPS (instant power supply) is an electrical device that also provides electricity when the mains supply is not available. The difference between IPS and UPS is that the latter has virtually no down time when switching to battery supply.

The report also considered compliance with electrical regulations at the time of construction, and current electrical regulations.

2.2.1 Electrical Resilience Rating

Building	Room	Area	IPS	UPS	Compliant with Current Electrical Regulations	Risk Rating
BDH	GA Theatre	GA Suite	No	No	No	High
BEH	Theatre 1	Microscope & Operating Light	No	Yes	No	High
BEH	Theatre 1	Prep. Room	No	No	No	
BEH	Theatre 1	Anaesthetic Room	No	No	No	
BEH	Theatre 2	Microscope, Laser & Operating Light	No	Yes	No	
BEH	Theatre 2	Prep. Room	No	No	No	
BEH	Theatre 2	Anaesthetic Room	No	No	No	
BEH	Theatre 3	Microscope & Operating Light	No	Yes	No	
BEH	Theatre 3	Prep. Room	No	No	No	
BEH	Theatre 3	Anaesthetic Room	No	No	No	
BEH	Recovery	All sockets	No	No	No	
BEH	Theatre 4	Pendant Sockets	No	Yes	No	
BEH	Theatre 4	Operating Light	No	Yes	No	Medium
BEH	Theatre 4	Prep. Room	No	No	No	

BEH	Theatre 4	Anaesthetic Room	No	No	No	Medium
BRHC	Theatre 1	Prep. Room	No	No	No	
BRHC	Theatre 1	Anaesthetic Room	No	No	No	
BRHC	Theatre 1	Marked Sockets	Yes	No	No	
BRHC	Theatre 1	Operating Light	No	Battery	No	
BRHC	Theatre 2	Prep. Room	No	No	No	
BRHC	Theatre 2	Anaesthetic Room	No	No	No	
BRHC	Theatre 2	Operating Light	No	Battery	No	
BRHC	Theatre 2	Marked Sockets	Yes	No	No	
BRHC	Theatre 3	Prep. Room	No	No	No	
BRHC	Theatre 3	Anaesthetic Room	No	No	No	
BRHC	Theatre 3	Operating Light	No	Battery	No	
BRHC	Theatre 3	General Sockets	N/A	Yes	Yes	
BRHC	Theatre 3	Marked Sockets	Yes	Yes	No	
BRHC	Theatre 3	General Lighting	N/A	Yes	Yes	
BRHC	Theatre 4	Prep. Room	No	No	No	
BRHC	Theatre 4	Anaesthetic Room	No	No	No	
BRHC	Theatre 4	Operating Light	No	Battery	No	
BRHC	Theatre 4	Marked Sockets	Yes	No	No	
BRHC	Theatre 5	Prep. Room Sockets	No	No	No	
BRHC	Theatre 5	Anaesthetic Room Blue Sockets	Yes	Yes	Yes	
BRHC	Theatre 5	Operating Light & Blue Sockets	Yes	Yes	Yes	
BRHC	Theatre 6	Prep. Room Blue Sockets	No	No	No	
BRHC	Theatre 6	Anaesthetic Room Blue Sockets	Yes	Yes	Yes	
BRHC	Theatre 6	Operating Light & Blue Sockets	Yes	Yes	Yes	
BRHC	Theatre 7	Prep. Room Blue Sockets	No	No	Yes	
BRHC	Theatre 7	Anaesthetic Room Blue Sockets	Yes	Yes	Yes	
BRHC	Theatre 7	Operating Light, "Brainlab" & Blue Sockets	Yes	Yes	Yes	
BRHC	Recovery	Blue Sockets	Yes	Yes	Yes	
BRHC	Theatre 8	Operating Light	No	Battery	No	
BRHC	Theatre 8	Blue Sockets	Yes	Yes	Yes	
BRHC	Theatre 8	Prep. Room Blue Sockets	Yes	Yes	Yes	
BRHC	Theatre 8	Anaesthetic Room Blue Sockets	Yes	Yes	Yes	
BRHC	Theatre 9	Operating Light	No	Battery	No	
BRHC	Theatre 9	Blue Sockets	Yes	Yes	Yes	
BRHC	Theatre 9	Prep. Room Blue Sockets	Yes	Yes	Yes	

BRHC	Theatre 9	Anaesthetic Room Blue Sockets	Yes	Yes	Yes	
BRHC	Recovery	Theatres Recovery - Blue Sockets	Yes	Yes	Yes	
HGT	Theatre 1	All Sockets	No	Yes	No	Medium
HGT	Theatre 1	General Lighting	N/A	Yes	No	
HGT	Theatre 1	Operating Light	No	Battery	No	
HGT	Theatre 1	Prep. Room	No	Yes	No	
HGT	Theatre 1	Anaesthetic Room	No	Yes	No	
HGT	Theatre 2	All Sockets	No	Yes	No	
HGT	Theatre 2	General Lighting	N/A	Yes	No	
HGT	Theatre 2	Operating Light	No	Battery	No	
HGT	Theatre 2	Prep. Room	No	Yes	No	
HGT	Theatre 2	Anaesthetic Room	No	Yes	No	
HGT	Theatre 3	All Sockets	No	Yes	No	
HGT	Theatre 3	General Lighting	N/A	Yes	No	
HGT	Theatre 3	Operating Light	No	Battery	No	
HGT	Theatre 3	Prep. Room	No	Yes	No	
HGT	Theatre 3	Anaesthetic Room	No	Yes	No	
HGT	Theatre 4	All Sockets	No	Yes	No	
HGT	Theatre 4	General Lighting	N/A	Yes	No	
HGT	Theatre 4	Operating Light	No	Battery	No	
HGT	Theatre 4	Prep. Room	No	Yes	No	
HGT	Theatre 4	Anaesthetic Room	No	Yes	No	
HGT	Theatre 5	All Sockets	No	No	No	High
HGT	Theatre 5	Operating Light	No	Battery	No	
HGT	Theatre 5	Prep. Room	No	No	No	
HGT	Theatre 5	Anaesthetic Room	No	No	No	
HGT	Theatre 6	All Sockets	No	No	No	
HGT	Theatre 6	Operating Light	No	Battery	No	
HGT	Theatre 6	Prep. Room	No	No	No	
HGT	Theatre 6	Anaesthetic Room	No	No	No	
HGT	Theatre 7	All Sockets	No	No	No	
HGT	Theatre 7	Laminar Flow Canopy	No	Battery	No	
HGT	Theatre 7	Operating Light	No	Battery	No	
HGT	Theatre 7	Prep. Room	No	No	No	
HGT	Theatre 7	Anaesthetic Room	No	No	No	
HGT	Theatre 8	All Sockets	No	No	No	
HGT	Theatre 8	Operating Light	No	Battery	No	
HGT	Theatre 8	Prep. Room	No	No	No	
HGT	Theatre 8	Anaesthetic Room	No	No	No	
HGT	Theatre 9	All Sockets	Yes	No	No	
HGT	Theatre 9	Operating Light	Yes	Battery	No	
HGT	Theatre 9	Prep. Room	Yes	No	No	
HGT	Theatre 9	Anaesthetic Room	Yes	No	No	

HGT	Recovery	General Lighting	N/A	Yes	Yes	Medium
HGT	Recovery	All Sockets	No	Yes	No	
HGT	Theatre 10	Blue Sockets & Operating Light	Yes	Yes	Yes	Low
QDU	Theatre 1	Operating Light	No	Battery	No	High
QDU	Theatre 1	Pendant Sockets	Yes	No	No	
QDU	Theatre 1	Prep. Room Sockets	No	No	No	
QDU	Theatre 2	Operating Light	No	Battery	No	
QDU	Theatre 2	Pendant Sockets	Yes	No	No	
QDU	Theatre 2	Prep. Room Sockets	No	No	No	
QDU	Recovery	Marked Sockets	Yes	No	No	
QDU	Endoscopy Rooms	Pendant sockets	Yes	No	No	
STMH	Theatre 1	Red Pendant Sockets	Yes	Yes	No	Medium
STMH	Theatre 1	Red Sockets	Yes	Yes	No	
STMH	Theatre 1	Operating Light	No	Battery	No	
STMH	Theatre 1 & 2	Anaesthetic Room Sockets	No	Yes	No	
STMH	Theatre 2	Red Pendant Sockets	Yes	Yes	No	
STMH	Theatre 2	Red Sockets	Yes	Yes	No	
STMH	Theatre 2	Operating Light	No	Battery	No	
STMH	Theatre 3	Pendant Sockets	No	No	No	
STMH	Theatre 3	General Sockets	No	No	Yes	High
STMH	Theatre 3	Operating Light	No	Battery	No	
STMH	Theatre 3	Prep. Room	No	No	No	
STMH	Theatre 3	Anaesthetic Room	No	No	No	
STMH	Theatre 4	Pendant Sockets	No	No	No	
STMH	Theatre 4	General Sockets	No	No	Yes	
STMH	Theatre 4	Operating Light	No	Battery	No	
STMH	Theatre 4	Prep. Room	No	No	No	
STMH	Theatre 4	Anaesthetic Room	No	No	No	
STMH	Theatre 5	Red Pendant Sockets	Yes	Yes	No	Medium
STMH	Theatre 5	Red Sockets	Yes	Yes	No	
STMH	Theatre 5	Operating Light	No	Battery	No	
STMH	Theatre 5	Prep. Room	No	Yes	No	
STMH	Theatre 5	Anaesthetic Room	No	Yes	No	

This review has highlighted a number of areas of high risk to the electrical resilience of theatres and endoscopy departments across the Trust. It should be noted that there is currently:

- No UPS in QDU theatres / endoscopy. There is nowhere on level 4 to run extension leads or source power to run theatres in event of a power cut.

- No UPS or IPS in HGT 5, 6, 7 and 8 (the existing 80 kVa UPS feeding theatres 1, 2, 3, 4 & 9 has insufficient capacity to support these additional theatres)
- No UPS or IPS in STMH theatres 3, 4 and recovery (however, there is a 60 kVa UPS feeding theatres 1, 2 and 5)
- No UPS or IPS in BEH theatres (except some limited backup in microscopes and laser). There is nowhere to run extension leads or source power to run theatres in event of a power cut.
- No UPS or IPS in BDH GA Theatre suite. There is nowhere to run extension leads or source power to run theatres in event of a power cut.

An assessment has been undertaken on any short-term measures which may mitigate the risk associated with the lack of UPS / IPS in these theatre complexes.

In addition, business continuity plans (BCPs) have been developed which indicate the critical equipment that would be impacted in the event of power loss. A Critical Equipment SOP for use in the event of a loss of mains power was produced in January 2018.

It is important to note that the BCPs and Critical Equipment SOP do not mitigate against the loss power in the theatre suites noted above. They are primarily designed to raise awareness of theatre staff of the impact of a loss of power supply.

An infrastructure capital bid (ID 677) for £500k is approved as part of the 2019/20 capital plan. This capital investment will resolve the issues related to the provision of UPS/IPS across the theatre estate.

Where possible, works to address risks relating to electrical resilience should be incorporated within a programme of theatre refurbishment to reduce down time and disruption to operating lists.

2.3 General Condition of Theatre Estate

In April 2018, the independent review of the Trust's ventilation systems also considered the general condition of the operating theatres.

The following table provides details of this condition assessment by theatre suite.

All elements were rated on a 0 to 5 scale:

- 1 = Minor (no issues)
- 2 = Material (issues of annoyance to staff; low priority works)
- 3 = Significant (can use theatre but needs routine maintenance)
- 4 = Critical (can use theatre but could cause a significant risk; high priority works)
- 5 = Catastrophic (should review use of the theatre as potentially hazardous; requires immediate work)

AHU Reference / System	Location	Doors	Walls	Ceiling	Floor	Grilles / Diffusers	Fixtures / Fittings	Overall Suite Condition Rating
Theatre 3 (Inc. recovery)	BEH	4	4	3	3	2	3	19
Theatre 2	BEH	2	3	3	3	2	3	16
Theatre 3	HGT	4	4	2	2	2	2	16
GA Suite	BDH	2	2	4	2	2	3	15
Theatre 1	BEH	2	3	3	2	2	3	15
Theatre 4	BEH	2	3	2	3	2	3	15
Theatre 7	HGT	4	2	2	2	2	2	14
Theatre 8	HGT	2	3	2	3	2	2	14
Theatre 1	QDU	2	4	2	2	2	2	14
Theatre 2	QDU	2	4	2	2	2	2	14
Theatre 1	HGT	3	3	2	2	2	2	14
Theatre 2	HGT	3	3	2	2	2	2	14
Theatre 10	HGT	2	2	2	2	2	2	12
Theatre 1	BRHC	2	2	2	2	2	2	12
Theatre 2	BRHC	2	2	2	2	2	2	12
Theatre 3	BRHC	2	2	2	2	2	2	12
Theatre 4	BRHC	2	2	2	2	2	2	12
Theatre 5	BRHC	2	2	2	2	2	2	12

Theatre 6	BRHC	2	2	2	2	2	2		12
Theatre 7	BRHC	2	2	2	2	2	2		12
Recovery	BRHC	2	2	2	2	2	2		12
Theatre 5	HGT	2	2	2	2	2	2		12
Theatre 6	HGT	2	2	2	2	2	2		12
Recovery	HGT	2	2	2	2	2	2		12
Theatre 4	HGT	2	2	2	2	2	2		12
Theatre 9	HGT	2	2	2	2	2	2		12
Recovery	STM	2	2	2	2	2	2		12
Theatre 1	STM	2	2	2	2	2	2		12
Theatre 2	STM	2	2	2	2	2	2		12
Theatre 3	STM	2	2	2	2	2	2		12
Theatre 4	STM	2	2	2	2	2	2		12
Theatre 5	STM	2	2	2	2	2	2		12
Theatre 8	BRHC	2	2	2	2	2	2		12
Theatre 9	BRHC	2	2	2	2	2	2		12

2.3.1 Risk Register

The divisional and Trustwide risks relating to the condition of the theatre estate include the following:

- 2480 (9): lack of forward renovation and refurbishment programme for theatres
- 2166 (6): poor theatre temperature regulation in HGT, BDH, BEH, STM and QDU
- 2752 (6): lack of bar 7 piped air in STMH theatres
- 2999 (6): inadequate radiation protection in HGT and QDU
- 1388 (6): poor lighting in BEH theatres
- 2893 (6): lack of automatic door opening in BEH theatres
- 2753 (5): lack of emergency call system in STMH theatres
- 1024 (5): infection control risk related to condition of scrub sinks in HGT
- 1684 (6): Risk that inadequate BRI operating availability and timely access to HDU impacts on cancer waiting time for gynae patients

Furthermore, the risk related to poor electrical resilience in theatres and endoscopy departments across the Trust have been logged on the divisional / Trust risk registers. Note that the relatively low scores relate to the likelihood of the event of a power outage, whereas the consequence could be catastrophic.

- 2886 (5): lack of UPS backup in BDH theatre
- 2887 (5): lack of UPS backup in BEH theatres
- 2775 (5): lack of UPS backup in HGT theatres 5-8
- 2776 (5): lack of UPS backup in STM theatres 3-4 and recovery
- 2777 (5): lack of UPS backup in QDU theatres
- 2399 (4): risk of harm related to lack of electrical resilience for high risk clinical areas

2.3.2 Radiation Protection

There have been concerns relating to inadequate radiation protection in our theatres and endoscopy unit raised by the Trust's Radiation Protection Advisor (RPA). There is a need to improve the protection offered to staff working in the QDU endoscopy department who perform Endoscopic Retrograde Cholangio-Pancreatography (ERCP).

The endoscopy room used for ERCP is very small. There is no scope to use additional shielding such as a mobile lead screen for the head end nurse. The installation of a ceiling suspended lead glass screen is impractical. There is no room for staff to stand back to reduce radiation dose. Staff have to crawl under cables to leave the room for clinical supplies.

Although the measured doses recorded during monitoring were reported to be low, Ionising Radiations Regulations require the Trust to keep the doses low. It has been recommended that given the workload of this type of activity in QDU, the protection standards of an interventional radiology room / cath lab would be appropriate (e.g. ceiling suspended shields and mobile shields used to protect staff).

The size of the room means that there is a limit to the extent that these risks can be mitigated. Furthermore, there are issues with the temperature regulation in the room, which results in high temperatures. The lead lined room must be kept shut during exposures, so the working conditions in the room become unpleasant during these cases.

The Trust's RPA has made further recommendations that, in order fulfil our obligations under Ionising Radiations Regulations, additional shielding should be built into theatres as part of

any future refurbishment programme. Owing to the type of procedure performed in these theatres, it would be sensible for shielding to be installed in QDU1, HGT6, HGT7, HGT8 and STMH4.

2.3.3 Infection Control

In March 2019, concerns were raised by the infection control team about the condition of BEH theatres. These concerns included:

- Scrub sinks date from the 1980s
- Splashes behind sinks old, discoloured and not cleanable
- Damaged sealant around sinks
- Thermostatic controls on scrub sinks (also dating from 1980s) not working
- Lack of hand hygiene sinks
- Missing cupboard doors
- Damage to chipboard and wooden surrounds
- Walls badly damaged including the presence of holes
- General poor condition of paintwork, including peeling paint
- Lack of storage space

The concerns regarding the condition of BEH theatres have been logged on the divisional risk register, risk ID numbers: 3143 (12) and 131 (4). These will be considered by the Infection Control Committee in July 2019. The potential costs of repair in advance of any programme of theatre refurbishment have been included in the discussions concerning the 2019/20 operational capital allocation.

2.3.4 Wellbeing of Staff Working in Theatres

There have been a number of reported incidents of musculoskeletal injuries for surgeons working in specialties that tend to have long operating procedures. In some cases, consultant surgeons have experienced periods of long term sick leave.

The theatre environment may have contributed to these issues i.e. awkward body posture, frequent repetitive movement of the upper extremities, prolonged static position of the surgeon.

Operating theatre design has not significantly changed for the last 50 years. Most operating theatres were designed for open procedures. The adjustability of the height of the operating table and the traditional tower configuration of monitors are significant ergonomic issues for minimally invasive surgery. There is a risk of neck injury to the operating surgeon if the monitor is positioned to the side of the surgeon, rather than in front, as is often the case with the traditional tower configuration.

There is the potential that the creation of a laparoscopic theatre would help to alleviate some of these ergonomic risks. In a laparoscopic theatre design the endoscopic equipment is integrated as part of the system, which is controlled by a common sterile interface for operating lights, table positioning, pumps, shavers, insufflators and electrosurgical equipment.

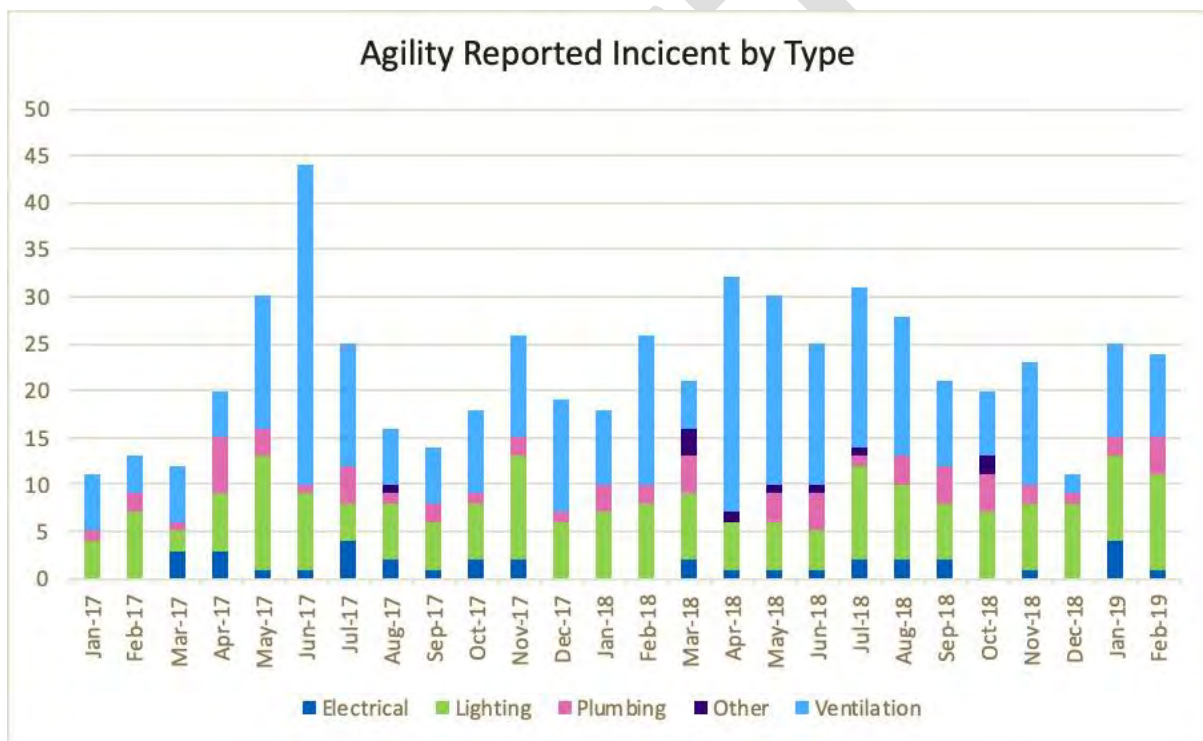
There is also some evidence that laparoscopic theatre design can aid the efficiency of an operating list with less down time between cases associated with configuring the equipment within the operating theatre.

The deficient number of air changes delivered by some of the operating theatres, as indicated in the annual verification reports, may also pose a risk to staff through pathogens from infective patients not being adequately vented.

2.3.5 Incident Reporting

Since January 2017, the BRI theatres (HGT & QDU) have reported 378 incidents requiring repair on Agility. This represents an average number of 14 incidents per month. Over the same period, STMH theatres have reported 214 incidents, with an average of 8 incidents a month. There is evidence of under-reporting of issues on some sites.

The following graph provides a breakdown by type of repair required. The majority of issues reported relate to the condition of the ventilation systems, including poor temperature regulation.



The reported incidents relating to the condition of the ventilation systems have resulted in disruption to the theatre lists and cancellation of patients. For instance, the following incidents have occurred in the past year:

- Jul 2018 – HGT 2 (cardiac) down for 2 weeks, resulting in the loss of 2 cases per day
- Dec 2018 – HGT 4 (GI) down for 3 days, resulting in the loss of 2/3 cases per day
- Feb 2019 – HGT 3 (thoracic) down for 2 days, resulting in the loss of 4 cases per day

- Ongoing – STM 5 (specialty) down for a few hours each morning, resulting in the loss of 1 case per day

It should be noted that there is some under-reporting of LMCs related to theatre maintenance issues. However, this may be attributable to some lists remaining un-booked during recurrent problems; as such, the loss of this activity may be better presented as an opportunity cost.

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2.4 Overall Theatre Condition Assessment

The following table provides a consolidated picture of the overall condition of the Trust's operating theatres, based on the following:

- Ventilation system review including any single points of failure
- General condition review
- Electrical resilience review

	1. Ventilation System Review		2. Single point of failure (ventilation)		3. General Condition Review		4. Electrical resilience Review		Overall position	
	(of 4)		(of 4)		(of 4)		(of 3)			
	Rating	Score	Rating	Score	Rating	Score	Rating	Score	Rating	Score
BEH recovery	Very high	4	High	3	Very high	4	High	3	Very high	14
BEH3	Very high	4	High	3	Very high	4	High	3	Very high	14
BEH1	Very high	4	High	3	High	3	High	3	High	13
BEH2	Very high	4	High	3	High	3	High	3	High	13
BDH	High	3	Very high	4	High	3	High	3	High	13
BEH4	Very high	4	High	3	High	3	Medium	2	High	12
HGT7	High	3	High	3	Medium	2	High	3	High	11
HGT3	High	3	High	3	High	3	Medium	2	High	11
HGT8	Medium	2	High	3	Medium	2	High	3	High	10
STMH3	Medium	2	Very high	4	Low	1	High	3	High	10
STMH4	Medium	2	Very high	4	Low	1	High	3	High	10
QDU2	Medium	2	High	3	Medium	2	High	3	Medium	10
HGT9	High	3	High	3	Low	1	High	3	Medium	10
QDU1	Medium	2	High	3	Medium	2	High	3	Medium	10
STMH5	Very high	4	High	3	Low	1	Medium	2	Medium	10
HGT1	High	3	High	3	Medium	2	Medium	2	Medium	10
HGT2	High	3	High	3	Medium	2	Medium	2	Medium	10
STMH recovery	High	3	Very high	4	Low	1	Medium	2	Medium	10
HGT5	Low	1	Very high	4	Low	1	High	3	Medium	9
HGT6	Low	1	Very high	4	Low	1	High	3	Medium	9
HGT4	High	3	High	3	Low	1	Medium	2	Medium	9
STMH1	Medium	2	Very high	4	Low	1	Medium	2	Medium	9
STMH2	Medium	2	Very high	4	Low	1	Medium	2	Medium	9
HGT recovery	Medium	2	High	3	Low	1	Medium	2	Medium	8
BRHC1	Medium	2	High	3	Low	1	Medium	2	Medium	8
BRHC2	Medium	2	High	3	Low	1	Medium	2	Medium	8

BRHC3	High	3	Medium	2	Low	1	Medium	2	Medium	8
BRHC4	High	3	Medium	2	Low	1	Medium	2	Medium	8
BRHC6	Medium	2	Very high	4	Low	1	Low	1	Low	8
BRHC recovery	Very high	4	Medium	2	Low	1	Low	1	Low	8
BRHC5	Low	1	Very high	4	Low	1	Low	1	Low	7
BRHC7	Low	1	Very high	4	Low	1	Low	1	Low	7
HGT10	Medium	2	High	3	Low	1	Low	1	Low	7
BRHC8	Low	1	Low	1	Low	1	Low	1	Low	4
BRHC9	Low	1	Low	1	Low	1	Low	1	Low	4

In summary, the table above indicates significant concerns regarding the condition of some of the Trust's operating theatres.

In particular, the condition of BEH1, BE2, BEH3, BEH4 and BEH recovery, the BDH GA suite, HGT3, HGT7 and HGT8, and STMH3 and STMH4.

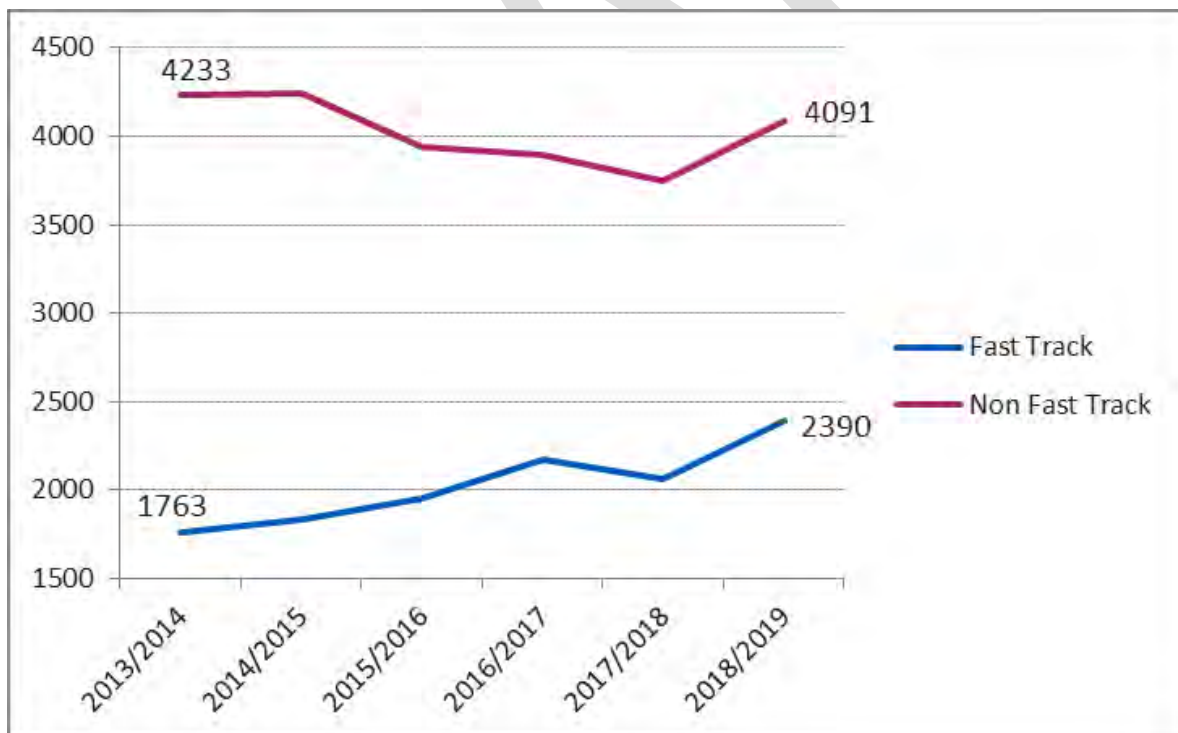
2.5 Theatre Expansion

The case for change to expand our theatre and endoscopy capacity is based on the following:

- Growth in demand for theatres
- Growth in demand for endoscopy
- JAG accreditation standards for endoscopy

2.5.1 Growth in Demand for Theatres

The following run chart presents surgical additions to waiting lists at the Trust for Adult Cleft, Colorectal, ENT, Maxillofacial, Thoracic, T&O and UGI surgery. This indicates a trend of reducing non-fast track (routine) additions to waiting lists, and a significant increase in the number of fast track (cancer) additions to waiting lists.



Overall, this data demonstrates an increase in the number of patients being listed for a surgical procedure (2013/14: 5,996; 2018/19: 6,481). However, it also indicates a change in the case mix of the waiting list with a greater number of patients being listed as fast track

cases. These fast track cases may have greater complexity, and will also more likely need the facilities offered at the BRI with post-operative inpatient facilities and critical care.

2.5.2 HGT Capacity

There has been a particular increase in demand for HGT capacity from a number of different specialties including:

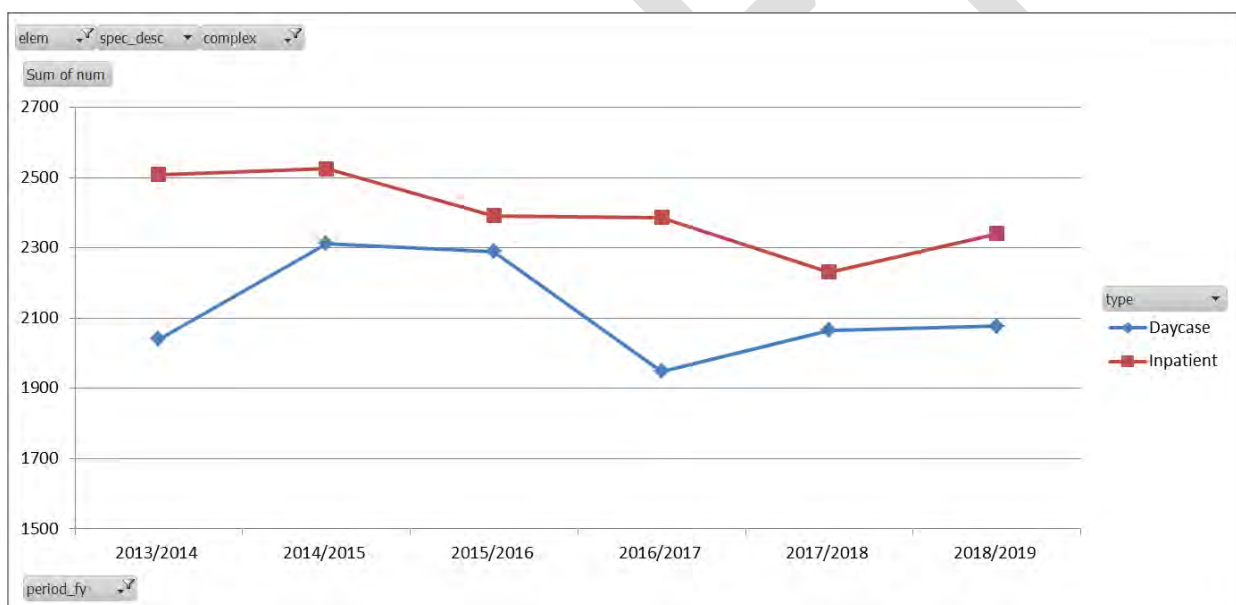
- Cancer: there has been a growth in demand for operating within HGT from a number of cancer specialties. The requirement to prioritise capacity in HGT for this cohort of patients has resulted in the displacement of benign major activity e.g. the frequent reallocation of limb reconstruction capacity to cancer specialties.
- Emergency Surgery: the introduction of an emergency surgery ambulatory care (ESAC) service, to improve the care offered to patients requiring surgery on an urgent basis, is partly dependent on the identification of dedicated ESAC surgical sessions. The exemplar ESAC service offered at the RUH has a half-day surgical session a day dedicated to urgent surgery such as a hot lap chole pathway. These sessions are distinct from the CEPOD theatre.
- Trauma: the Trust's performance against the fractured neck of femur best practice tariff is largely dependent on the time to theatre standard. This can be difficult to manage given the relatively small amount of operating capacity allocated to trauma and orthopaedics. At present, a half-day session per day is dedicated to general trauma operating.
- Gynae-Oncology: there is growth in demand for operating capacity, which is being driven by several factors. The complexity and range of procedures being offered has expanded, as more surgical procedures become options for life-prolonging and -saving treatment. Surgery is becoming more radical, and can be offered to a larger cohort of patients – including the major internal debulking procedures that require input from multiple surgical teams (often colorectal, sometimes HPB), and that usually require an HDU bed post-operatively. In addition, new groups of patients are having surgery for malignant disease, including pre-menopausal women with estrogen-positive breast cancers and women with BRCA-positive genetic tests, for whom the removal of ovaries is linked to improved life experience post-mastectomy. While the majority of these patients will have surgery at STMH, a number will require an HDU bed post-operatively, and will therefore require their surgery to be undertaken in HGT, due to complex pre-existing conditions and

comorbidities. This specialty currently has one all-day session in HGT, once a month. The level of demand at present is anticipated to exceed this available capacity, with a requirement of second monthly list.

It should also be noted that the current recovery space within HGT is insufficient compared to the volume of operating. Any increase in the theatre capacity of HGT would require an expansion of the recovery facilities.

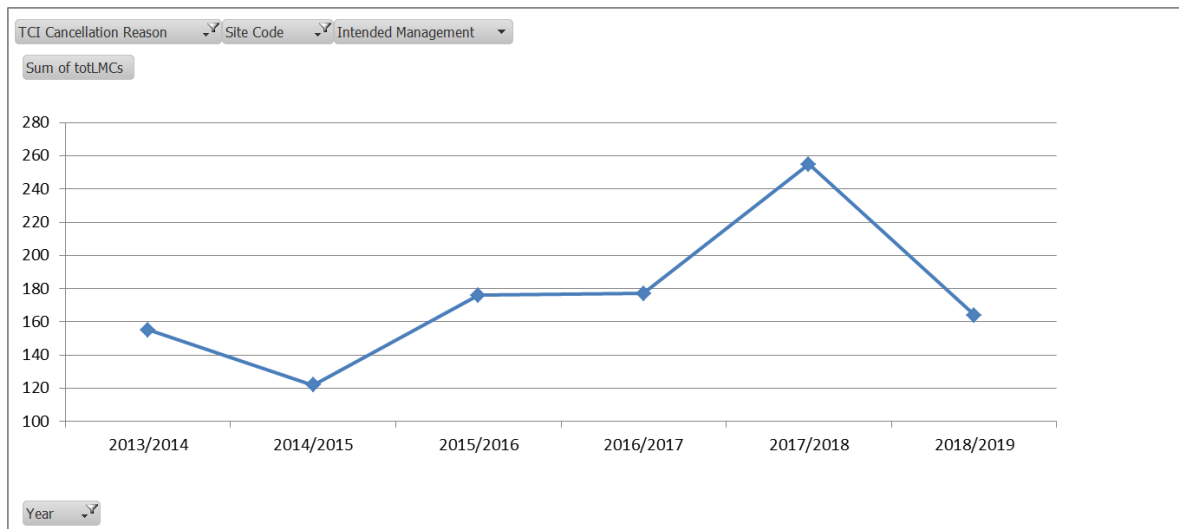
2.5.3 Inpatient & Day Case Activity

The following run chart tracks the changes in elective patient volumes at the BRI (QDU and HGT). This data indicates a reduction in inpatient and day case operating on the BRI site.



This shift in activity becomes more explicable when considered with the balancing measure of last minute cancellations related to no bed, no HDU bed, no ITU bed and no Critical Care bed.

The following chart indicates that, in 2017/18, there were in excess of 250 cancellations on the BRI site because of no bed. This figure may be understated as delays in theatre start time because of no bed being identified may result in cancellations reported as theatres running out of operating time.



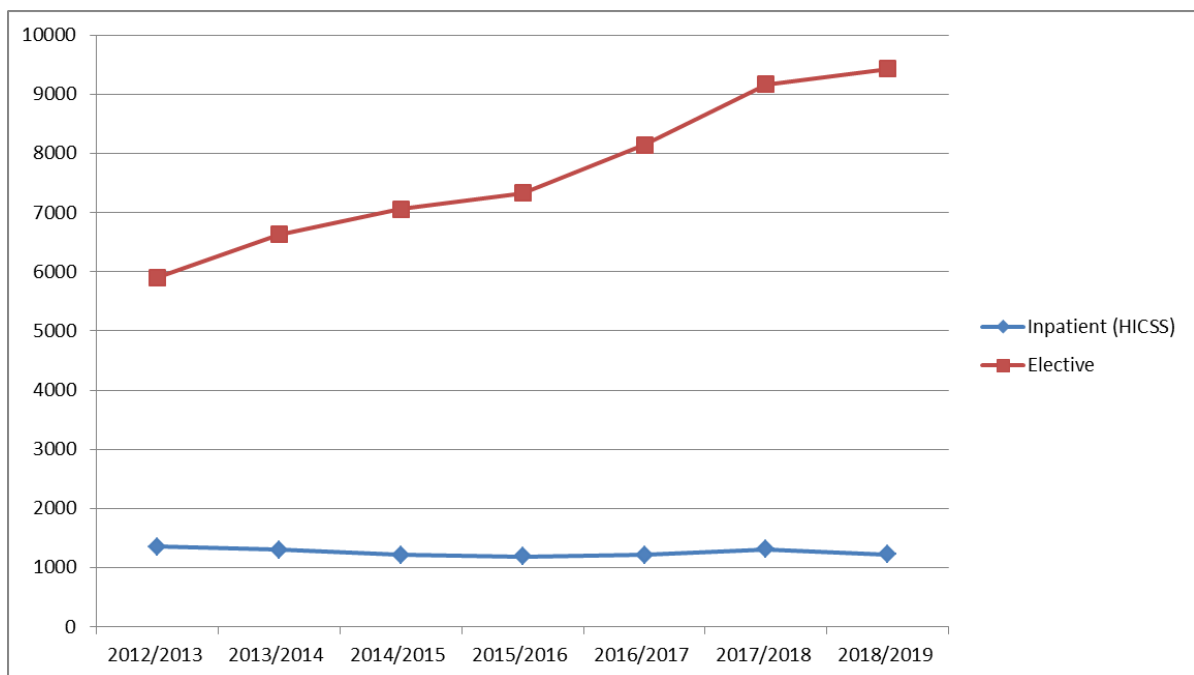
In summary, there is evidence that there has been growth in demand for operating capacity. This growth in demand has centred upon cancer surgery. The concomitant effect has been a growth in demand for BRI theatres (particularly Hey Groves). This has resulted in the displacement of benign major operating to accommodate these activity volumes.

There is a dependency between the availability of theatre capacity and bed capacity (general acute and critical care). The mismatch in capacity has resulted in a relatively high cancellation rate for surgery on the BRI site. Any future theatre development would need to ensure that there are the requisite recovery, acute general and critical care beds to support operating volumes and ensure a return on investment.

Finally, the availability of HGT capacity may stymie future aspirations to expand the Trust's portfolio of specialist services as a major cancer centre. In addition, other service developments that may have a beneficial impact on patient length of stay (e.g. expediting trauma surgery and urgent ESAC operating) may also be limited by the availability of BRI theatre capacity. This may also have an impact on other aspects of the Trust's five-year strategy including the development of robotic surgery – both in terms of the available theatre capacity, and theatre that are the requisite size to accommodate the robot, stack and operator console etc.

2.5.4 Growth in Demand for Endoscopy

The following run chart tracks growth in demand for endoscopy. The data indicates a relatively flat level of demand for inpatient endoscopy, but a very significant growth in elective day case activity.



It should be noted that, since 2015, the UHB and NBT endoscopy services have been closed to routine GP referrals. The majority of the growth in demand for elective day case operating relates to diagnostic endoscopy on a suspected cancer pathway.

There has also been considerable growth in specialist, therapeutic procedures such as Hepatobiliary Cholangioscopy (Spyglass).

The growth in demand for diagnostic endoscopy for patients on the cancer pathway and therapeutic procedures has affected the case mix of the service and potentially its profitability.

The following table presents the average income per operating list and demonstrates a reduction in the contribution per operating list.

	Average Income per List
2015-16	2,502
2018-19	2,128

Nevertheless, the Trust's activity and gross income have increased year on year – though with a much smaller increase from 17/18 to 18/19 due to endoscopy room and endoscopist capacity constraints.

	Activity	Gross Income
2014-15	7,058	£3,733,633
2015-16	7,334	£3,336,464
2016-17	8,547	£3,977,001
2017-18	9,401	£4,521,660
2018-19	9,426	£4,665,587

The growth over this four-year period has been 33%, with variable levels of growth year-to-year. The future growth projections are based on 7% per annum as outlined in the following table:

	Activity	Lists per Year
2019-20	10,065	2,341
2020-21	10,770	2,505
2021-22	11,523	2,680

Based on the current levels of growth, there will be a shortfall in physical endoscopy capacity of one additional room by 2021-22, with a second additional room required from 2023-24.

This assumes that the Trust can appoint the requisite endoscopist and nursing staff, a continuation of growth in endoscopy demand and no substantive change in working pattern of the service.

	Number of lists per week short of room capacity	Plan to provide sufficient room capacity
2019-20	1	1 WLI per week
2020-21	4	4 WLI per week
2021-22	8	1 additional room required
2022-23	12	2 WLI per week
2023-24	15	2nd additional room required
2024-25	20	
2025-16	23	3 WLI per week

These projections are based on an optimistic assessment of backfilling all available lists 50 weeks per annum. This would require changes to physicians job plans and backfill of their commitments whilst on-call.

Despite recurrent growth in demand for diagnostic endoscopy, the Trust has managed performance against waiting time standards. However, in the last year, there has been a deterioration in performance relating to a vacant consultant endoscopist, a vacant consultant hepatologist, and an inability to recruit to a nurse endoscopist role.

The physical capacity of the department is currently not a rate limiting step in terms of performance. However, as outlined above, in the near future the available capacity will have an impact on performance without expansion or a substantive change to the operating model.

2.5.5 JAG Accreditation

The Joint Advisory Group on GI Endoscopy (JAG) supports endoscopy services across the UK to focus on standards and identify areas for development. The JAG runs an accreditation process which assesses the current performance of endoscopy services against a defined set of standards.

The Trust's endoscopy services received their five-yearly JAG inspection in February 2019. The Trust's accreditation status has currently not been renewed and is categorised as 'assessed: improvements required.'

The predominant issues raised by JAG relate to the suitability of the clinical environment and the Trust's ability to satisfy their quality standards, specifically privacy and dignity breaches relating to:

- The collocation within QDU of the endoscopy department, two theatres, day case recovery from HGT, and its use as an inpatient facility as part of extreme escalation.
- Where patients from the endoscopy procedure rooms cross paths with patients in the theatres first stage recovery.
- Where patients undergoing procedures and changed out of their day clothes are walking past the open seated area seating unchanged patients and relatives.
- The outpatient GI physiology room is situated within the endoscopy and theatres area. Outpatients accessing this clinic walk past the first stage recovery.
- There is inadequate storage for equipment which leads to the storage of trolleys, c-arm etc. The assessment team felt this was hazardous and unwelcoming.

The Trust has submitted an initial action plan in response to the concerns raised by the JAG in May 2019. The Trust is required to submit an updated action plan on the 15th July 2019 prior to a reinspection on the 13th September 2019 (QDU) and 16th September 2019 (SBCH).

There is a risk that the Trust will lose its JAG accreditation without a substantive solution to the environmental concerns regarding patient privacy and dignity. If the unit loses its accreditation there will be an attendant loss of best practice tariff ~£200k. However, this poses a much bigger risk to the reputation of the unit and the Trust's ability to recruit and retain endoscopy staff (which is already proving a significant challenge).

A business case was submitted in January 2018 to address the privacy and dignity concerns by remodelling the adjacent old pre-op department (A403), constructing an external

corridor with the possibility of converting the QDU theatres into therapeutic endoscopy rooms. The headline costs for this development were £4.85m. This business case was deemed to be cost prohibitive and not approved.

A working group has been set up in July 2019 to oversee the development of other options including the construction of a new build endoscopy department.

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3. Option Appraisal

The options appraisal is split into three sections. The first section relates to the strategy for refurbishing the highest risk operating theatres. The second and third section relates to theatre capacity and endoscopy environment & capacity options respectively.

The options relating to theatres and endoscopy are presented together, rather than as discrete cases, as there is currently overlap between the departments and interdependencies between them in outlining an options appraisal.

Theatre Refurbishment Options:

- A1: Do Nothing
- A2: Commence refurbishment programme using mobile theatre for decant
- A3: Commence refurbishment programme incorporating decant within theatre expansion plan

Theatre Capacity Options:

- B1: Do Nothing
- B2: Improve utilisation to accommodate growth in demand
- B3: Utilise other sites to accommodate growth in demand e.g. Weston
- B4: Extend the working day of theatre sessions
- B5: Commence routine weekend working
- B6: New theatre build on the BRI site

Endoscopy Environment & Capacity Options:

- C1: Do Nothing
- C2: Improve utilisation to accommodate growth in demand
- C3: Utilise other sites to accommodate growth in demand e.g. Weston
- C4: Extend the working day of endoscopy sessions
- C5: Commence routine weekend working
- C6: Reconfigure the QDU to meet JAG standards including re-provision of theatres in new theatre build
- C7: New endoscopy build on BRI site including option to open to routine diagnostic referrals

3.1 Theatre Refurbishment Options

Option	Advantages	Disadvantages
<p>A1: Do Nothing</p>	<p>No capital outlay</p> <p>Minor works may further extend the AHU working life</p> <p>Some of the issues relating to AC/hr may be resolvable with rebalancing of the AHUs</p>	<p>There remain significant concerns regarding the condition of the AHUs.</p> <p>There is a potential risk infection if the AHUs are not functioning adequately</p> <p>The current infrastructure will become increasingly unreliable, and will likely cause considerable disruption whilst the theatres await repair and parts. This will have an impact on patient experience, waiting time standards, income / activity etc.</p>
<p>A2: Commence Refurbishment Programme using mobile theatre for decant</p>	<p>It would be feasible to rent a mobile theatre to facilitate a refurbishment programme. This mobile theatre could be moved between sites.</p> <p>The headline costs for a mobile theatre is approximately £11,239 including VAT per week. There may be additional costs related to logistics, enabling works etc.</p>	<p>The costs of a theatre refurbishment programme will be considerable, but potentially unavoidable</p> <p>The biggest challenge related to the rental of a mobile theatre is where it can be located. It is likely that it will be a standalone unit, which will increase the revenue costs of running this facility</p> <p>There is a risk that the transfer of activity to a mobile theatre may have an adverse impact on case mix and throughput. The mobile theatre may not be suitable for complex cases; the location of the theatre may</p>

		<p>make it too risky to undertake complex surgery.</p> <p>Assuming the mobile theatre is retained for an extended period, for instance 2.5 years to facilitate the refurbishment of five theatres, is equivalent to £1.461m. The cost effectiveness of utilising a mobile theatre is partly determined by the length of the refurbishment programme</p>
<p>A3: Commence Refurbishment Programme incorporating decant within theatre expansion plan</p>	<p>The building of an extension to HGT (see Appendix 2, a feasibility study commissioned in 2015) would ensure that, during decant, there will be little disruption to the case mix and throughput of the operating lists</p> <p>There would be no rental costs incurred for a mobile theatre to facilitate decant</p>	<p>The costs of a theatre refurbishment programme will be considerable, but potentially unavoidable</p> <p>The incorporation of the refurbishment programme within a theatre expansion plan would mean that the refurbishment couldn't commence until the new theatres have been built. Inclusive of demolition of existing buildings to make way for a new theatre block, there is an anticipated lead time to completion of 24 to 30 months</p> <p>Minor works will be required to address immediate concerns about the condition of theatres in advance of any major building programme.</p>

3.2 Theatre Capacity Options

Option	Advantages	Disadvantages
<p>B1: Do Nothing</p>	<p>No capital outlay</p> <p>Investments in additional theatre capacity will unlikely provide a sufficient return unless this is paired with developments to right size bed and critical care capacity.</p>	<p>There will continue to be challenges in managing waiting time standards, particularly for cases that require BRI beds and post-operative critical care</p> <p>The lack of theatre capacity on the BRI may stymie future service developments e.g. robotic surgery, ESAC etc.</p>
<p>B2: Improve utilisation to accommodate growth in demand</p>	<p>No capital outlay</p> <p>There may be an opportunity to improve rates of utilisation at the BRI site (see Appendix 1). This may provide a marginal gain to accommodate a level of future growth.</p>	<p>Although there are undoubtedly opportunities to improve utilisation, this will unlikely satisfy the requirements for future growth, particularly in cancer specialties.</p> <p>The availability of recovery beds, acute hospital beds and critical care beds may be a rate limiting step on effects to improve theatre utilisation</p> <p>Although there is fallow theatre capacity at SBCH, there is limited scope to release capacity at the BRI by transferring simple cases, as they are either used as fillers on the BRI lists, or they have comorbidities falling outside of criteria that would make them unsuitable for surgery at a community hospital site.</p>
<p>B3: Utilise other sites to accommodate growth in demand e.g. Weston</p>	<p>No capital outlay</p> <p>There are 4 main theatres and 2 day case theatres at Weston. 12/60 sessions are</p>	<p>There will be logistical challenges to operate from a seventh hospital site.</p>

	<p>reserved for CEPOD. There remaining sessions, as of March 2019, are utilised for elective work with an average uptake of 80%. There are routinely between 12-14 sessions available per week.</p> <p>Some of these sessions are being rented out to an AQP (Somerset Surgical Services). Therefore, there is fallow capacity on this site which could be utilised.</p>	<p>The specialties that have the greatest potential to benefit from the capacity offered by Weston are Ophthalmology (cataract) and Orthopaedics. This will not resolve the pressure on the BRI site related to the cancer pathway.</p>
B4: Extend the working day of theatre sessions	<p>No capital outlay</p> <p>Better utilisation of the Trust's infrastructure.</p>	<p>There will continue to be challenges in managing waiting time standards, particularly for cases that require BRI beds and post-operative critical care</p> <p>The extended working pattern may frustrate efforts to recruit and retain theatre staff. As of September 2019, the anticipated vacancies, based on the current working pattern, across HGT, QDU and STMH will be x8 B5 and x6 B2.</p> <p>Any change to working patterns will require consultation.</p> <p>Extended working days, particularly three session days, can lead to conservative booking and reductions in average list productivity.</p>
B5: Commence routine weekend working	<p>No capital outlay</p>	<p>A routine weekend working pattern may frustrate efforts</p>

	<p>Better utilisation of the Trust's infrastructure.</p>	<p>to recruit and retain staff, as outlined above. In addition, the staffing outlay will also need to include facilities not routinely staffed at the weekend e.g. surgical admissions etc.</p> <p>The scope to undertake weekend working will be limited to certain specialties because of the lack of frozen section support at the weekend.</p> <p>There may be an impact on weekly flow patterns by bedding electives over the weekend, resulting in additional bed requirements overall.</p> <p>Any change to working patterns will require consultation.</p> <p>This change in working pattern would need the consent of the surgeons that would participate.</p>
<p>B6: New theatre build on the BRI site</p>	<p>A feasibility study in March 2015 considered the scope to expand HGT theatres and recovery (see Appendix 2). This study still provides the best template to extend operating theatres on the BRI site.</p> <p>The study proposed the demolition of the existing single storey buildings to the North East side of the King Edward Building, fronting onto Marlborough Parade and Alfred Parade.</p>	<p>The building of a new theatre block requires considerable capital outlay</p> <p>The construction of this building will also require the demolition of existing buildings which may need to be re-provided.</p>

	<p>These buildings are currently occupied by Care of the Elderly Offices and Pharmacy. This site would then be redeveloped with a three storey block (plus roof plant) on levels 4, 5 and 6. This would provide capacity for four new operating theatres on level 6. Levels 4 and 5 would be available to accommodate other services e.g. endoscopy.</p> <p>This would provide four additional theatres, collocated to the existing HGT, which can be used to support decant and expansion.</p> <p>It would be desirable for this development to incorporate laparoscopic theatres to ensure that the specification meets the most modern standards of theatre design, and making meaningful adjustments to improve the wellbeing of operating staff.</p>	
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3.3 Endoscopy Environment & Capacity Options

Option	Advantages	Disadvantages
C1: Do Nothing	No capital outlay	<p>The Trust will find it increasingly difficult to manage demand against the six week diagnostic target. This could also adversely impact our cancer pathway too.</p> <p>The Trust will likely lose its JAG accreditation making recruitment and retention of endoscopy staff more difficult.</p> <p>It will not be possible to adhere to the latest JAG standards regarding patient experience, and protecting their privacy and dignity.</p>
C2: Improve utilisation to accommodate growth in demand	<p>No capital outlay</p> <p>The Division of Surgery is focusing on endoscopy productivity as part of its 2019/20 Working Smarter programme.</p> <p>There may be some marginal gains which can accommodate a level of growth</p>	<p>Although there is an opportunity to improve list productivity, this is unlikely to provide sufficient capacity to accommodate 7% year-on-year growth</p> <p>The relative utilisation of endoscopy is difficult to determine. In 2019/20, a plan is being implemented to move endoscopy on to Bluespier real time data capture. At present, it is only possible to report on the number of cases on each procedure list. Therefore, it is difficult to quantify the opportunity.</p>
C3: Utilise other sites to accommodate growth in demand e.g. Weston	No capital outlay	Despite requests for clarification, there is no confirmation of the number

	<p>There are two endoscopy rooms at Weston which have recently been refurbished. There is reportedly fallow capacity, but the rate limiting step is available endoscopy nursing staff on the Weston site to staff lists.</p>	<p>of fallow sessions available. However, this is unlikely to be sufficient to accommodate the level of year-on-year growth. This may be part of a blended strategy to increase capacity in the short to medium term.</p>
<p>C4: Extend the working day of endoscopy sessions</p>	<p>No capital outlay</p> <p>Better utilisation of the Trust's infrastructure.</p> <p>The Division is intending to introduce extended working days (by one hour) in SBCH in 2019/20</p>	<p>The extended working pattern may frustrate efforts to recruit and retain endoscopy staff. At present, in QDU there are x3 B5 and x2 B2 vacancies. Owing to the current medical endoscopist vacancies, the staffing in SBCH is sufficient to meet the level of demand, but not when the service is fully recruited.</p>
<p>C5: Commence routine weekend working</p>	<p>The Division is currently intending to consult with staff on a 6 or 7 day working pattern as part of efforts to substantive WLI sessions for Agenda for Change staff. At present, there are 20 WLIs running per month within the department (partly offsetting loss of activity in-week related to medical vacancies).</p>	<p>The extended working pattern may frustrate efforts to recruit and retain endoscopy staff.</p> <p>The introduction of 6 day a week working will not substantively resolve the issues of having sufficient capacity to meet demand. However, it will push back the requirement for additional rooms by two years. 1st additional room would be needed by 2023/24 and a 2nd by 2025/26.</p> <p>Any change to working patterns will require consultation.</p>

		This change in working pattern would need the consent of the surgeons that would participate.
C6: Reconfigure the QDU to meet JAG standards including re-provision of theatres in new theatre build	<p>A business case was submitted in January 2018, in response to JAG's latest quality standards. It proposed utilising the old pre-op department (A403) as a new reception / changing area, to construct an external corridor to ensure unidirectional flow throughout the department, to avoid compromising patients' privacy and dignity. This development is contingent upon closing the two operating theatres in QDU, and transferring out the GI physiology service.</p> <p>There is an opportunity to re-purpose the existing theatres as therapeutic endoscopy rooms. The dimensions of these rooms are much larger and they would be better suited to this type of activity. The net gain would be two additional endoscopy rooms to support future growth.</p>	<p>This development would require a considerable capital outlay of £4.85m. This does not include the costs of re-providing the two theatres, GI physiology outpatients or the outpatient services currently accommodated in the old pre-op department (A403)</p> <p>This development would not address concerns about the use of QDU as an inpatient facility during period of extreme escalation.</p>
C7: New endoscopy build on BRI site including option to open to routine diagnostic referrals	<p>The construction of a new endoscopy department would definitively address the concerns raised by JAG about the quality of the clinical environment.</p> <p>There is an opportunity to build additional endoscopy rooms to meet future growth.</p>	<p>This development would require considerable capital outlay.</p> <p>The major challenge in any expansion plan will be staff recruitment. The endoscopy service currently has a consultant endoscopist vacancy and a consultant hepatologist vacancy. It is</p>

	<p>There is an opportunity to address the relative contribution delivered by the endoscopy service. Based on the SLR analysis of Q3 2018/19, the service currently makes a £2.3m loss per annum. The construction of additional endoscopy rooms could facilitate the repatriation of simple diagnostic endoscopy from AQPs.</p>	<p>difficult to determine whether improvements to the quality of the clinical environment, and assurance regarding JAG accreditation, would aid recruitment and retention efforts.</p>
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3.4 Preferred Options

The preferred option to address theatre refurbishment is **A3: Commence Refurbishment Programme incorporating decant within theatre expansion plan.**

The cost of a theatre refurbishment is £1,016,550 (270 m² @ £3,765/m²) + equipment at £344,250 (270 m² @ £1,275/m²) + fees of 20% at £272,160, and contingencies of 20% at £326,592. The total cost per theatre will, therefore, be £2,351,462 inclusive of VAT.

The cost of refurbishment of a theatre and converting it to a laparoscopic theatre would be an additional allowance of 10% for the more specialist nature of the room. The total cost of the theatre will therefore be £2,586,608.

It is proposed that the theatre refurbishment programme initially focus on five operating theatres (HGT3, HGT7 and HGT8, and STMH3 and STMH4). The total cost of this programme would therefore be £12,933,040 inclusive of VAT, and assuming an upgrade to laparoscopic theatres. Note that this refurbishment would be completed over a 2.5 year programme.

The preferred option to address theatre capacity is **B6: New theatre build on the BRI site.**

The cost of a new block of four theatres is £5,917,700 (1,180 m² @ £5,015/m²) + equipment at £1,504,500 (1,180 m² @ £1,275/m²) + fees of 25% at £1,855,550 (uplifted to include planning etc.) and contingencies of 20% at £1,855,550. The total cost will, therefore, be £13,359,960 including VAT.

Inclusive of demolition and construction, the building programme will be between 24 and 30 months.

It is difficult to determine the costs of displacing the Care of the Elderly Offices and Pharmacy block which will need to be demolished. For the purposes of illustration, the costs of relocating 25-30 staff, equating to an area of approximately 180 m² @ £2,500/m² + 40% is £756,000 including VAT.

Therefore, inclusive of demolition, construction and re-provision of office spaces, the total cost will be £14,115,960.

The preferred option to address endoscopy environment and capacity is **C6: New endoscopy build on BRI site including option to open to routine diagnostic referrals.**

The cost of a new block of six endoscopy rooms (i.e. with a new gain of two rooms) is £6,772,500 (1,500 m² @ £4,515/m²) + equipment at £2,040,000 (1,500 m² @ £1,360/m²) + fees of 25% at £2,203,125 (uplifted to include planning etc.) and contingencies of 20% at £2,203,125. The total cost will therefore be **£15,862,500** including VAT.

Two locations have been identified for a new endoscopy building. Firstly, a new endoscopy unit could be accommodated on levels 4 and 5 of a new theatre block, as outlined above. Alternatively, there is scope to accommodate the unit on the 9th floor, and to collocate this service with the gastroenterology ward, +/- the hepatology ward also being transferred from the 5th floor. This second option would displace a range of office staff from the 9th floor. Alternative provision would need to be scoped and costed. Note that the levels 4 and 5 of a new theatre block could be built to accommodate these displaced offices.

The construction of six endoscopy rooms would provide capacity for future growth. However, in order to repatriate routine diagnostic activity from AQPs, a further two endoscopy rooms would be required. The cost of an eight roomed unit would be **£21,150,000** including VAT. The return on this additional investment in terms of additional simple diagnostic activity would need to be fully appraised.

Assuming that the endoscopy unit is incorporated as part of the new theatre block, the programme of works will be between 24 and 30 months, as outlined above.

This option would vacate A414 (QDU) which could be converted to an alternative use. The cost of this conversion will depend on the type of use. For non-clinical / office type function, it would be approximately £2,099,160 including VAT (833 m² @ £1,500/m² + 40% for fees, design work, enabling works etc.). For clinical space, it would be **£4,198,320** including VAT (833 m² @ £3,000/m² + 40% for fees etc.)

4. Financial Assessment

THEATRES					
Options costing - refurbishment			£'000	£'000	
A1: do nothing				0	
A2: Commence Refurb using Mobile Theatre for decant					
	Costs of mobile theatre		1,461		
	Per theatre		2,351		
	including conversion to laparoscopic per theat		2,587		
	Assume 5 theatres?		12,935		
	TOTAL			14,396	
A3: Commence Build and refurb using new build					
	Refurb as A2 (less Mobile theatre)		12,935		
	Cost of build		13,362		
	TOTAL			26,297	
Options costing - invest in capacity			£'000	£'000	
B1: do nothing				0	
B2: improve utilisation to accommodate growth in demand?				0	
	unlikely to deliver capacity needed				
B3: utilise other sites to accommodate growth in demand?				0	
	logistical issues				
	costs of paying staff for travel time and expenses				TBC
	unlikely to deliver capacity needed for cancer				
B4: extend the working day to meet demand				0	
	will require recruitment - additional staff				TBC
	may impact on recruitment and retention into theatres				TBC
	unlikely to deliver capacity needed for cancer				
B5: commence routine weekend working				0	
	will require recruitment - additional staff				TBC
	may impact on recruitment and retention into theatres				TBC
	unlikely to deliver capacity needed for cancer				
B6: New theatre build on BRI Site - presented with and without endoscopy					
	4 Theatres		5,918		
	Equipment		1,505		
	Fees		1856		
	contingency		1856		
	VAT		2227		
B6	TOTAL Theatres			13,362	
	Including Endoscopy				
	6 rooms		6773		
	Equipment		2040		
	Fees		2203		
	contingency		2203		
	VAT		2643.8		
	TOTAL Endoscopy			15,863	
B6 + C7	GRAND TOTAL			29,225	
	Include additional 2 rooms			21,150	
B6 + C7 + growth	GRAND TOTAL (8 endoscopy rooms and 4 theatres)			34,512	

ENDOSCOPY					
Options costing - refurbishment				£'000	
A1: do nothing				0	
A2: Commence using Mobile Theatre for decant					
	Costs of mobile endoscopy		1,461	0	
	Cost of Refurbishment		4850		
	TOTAL			6,311	
	Possible loss in efficiency and casemix? (assumed required for same period as theatres?)				TBC
Options costing - invest in capacity				£'000	
C1: do nothing				0	
C2: improve utilisation to accommodate growth in demand?				0	
	unlikely to deliver capacity needed				
C3: utilise other sites to accommodate growth in demand?				0	
	logistical issues				
	costs of paying staff for travel time and expenses				TBC
	unlikely to deliver capacity needed for cancer				
C4: extend the working day to meet demand				0	
	will require recruitment - additional staff				TBC
	may impact on recruitment and retention into theatres				TBC
	unlikely to deliver capacity needed for cancer				
C5: commence routine weekend working				0	
	will require recruitment - additional staff				TBC
	may impact on recruitment and retention into theatres				TBC
	unlikely to deliver capacity needed for cancer				
C6: New theatre build on BRI Site					
	See option B6 - presented with and without endoscopy				
REPURPOSE A414					
	to offices			2,939	
	to other clinical space			5,877	

5. Recommendations and next steps

The Phase 5 programme group is asked to approve the following options presented in this outline business case, and to commence work on a full business case for these developments:

- A3: Commence Refurbishment Programme incorporating decant within theatre expansion plan.
- B6: New theatre build on the BRI site.
- C6: New endoscopy build on BRI site including option to open to routine diagnostic referrals.

The group is also asked to approve any costs related to feasibility studies to further develop these proposals and refine the proposed costs.

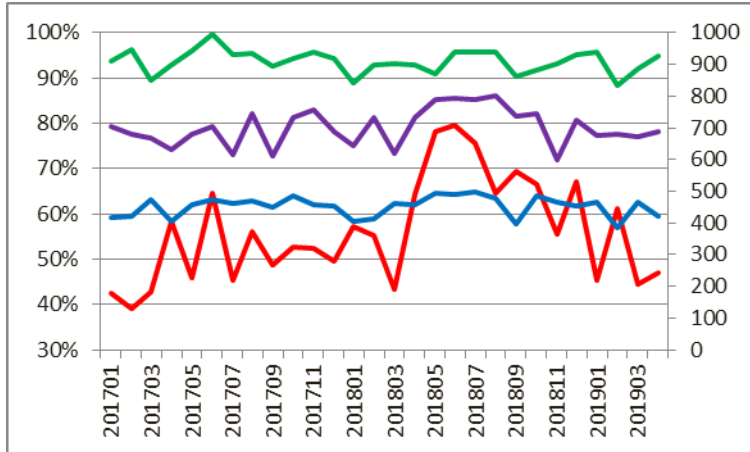
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Appendix 1: Theatre Utilisation

Key:

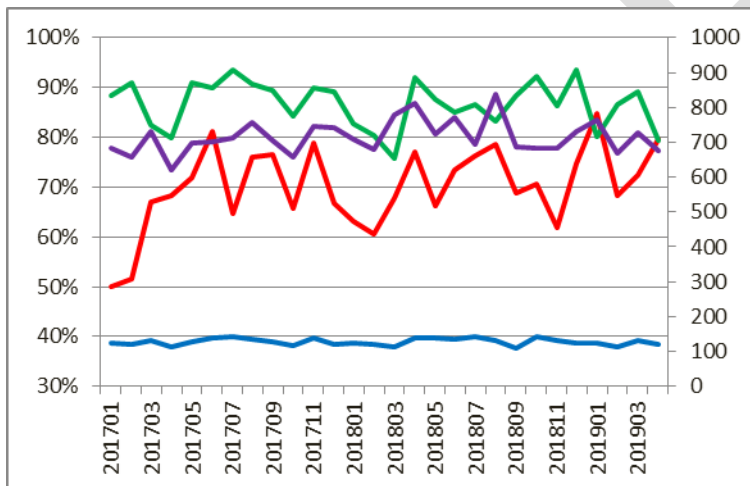
- Start On Time
- Uptake
- Utilisation
- Cases

HGT

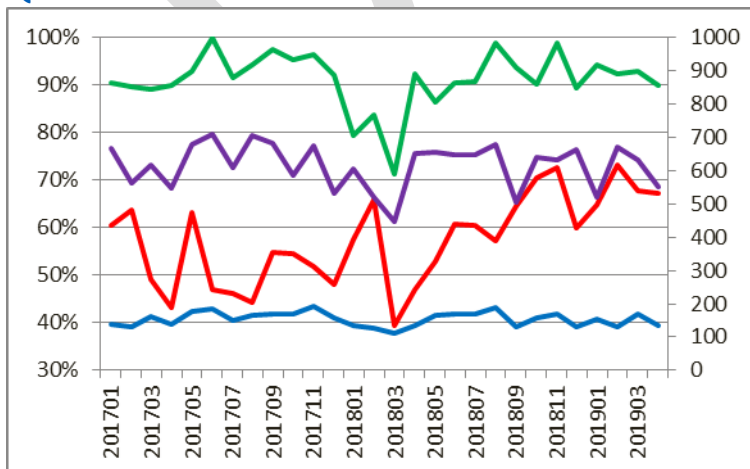


- High level of list 'Uptake' reflects demand for HGT lists
- Automatic send project commenced April 2018 improving 'Start on Time', since deteriorated because of bed pressures

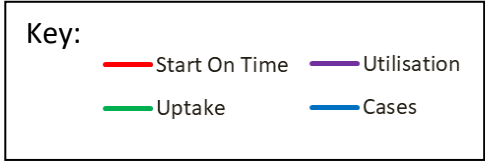
Cardiac



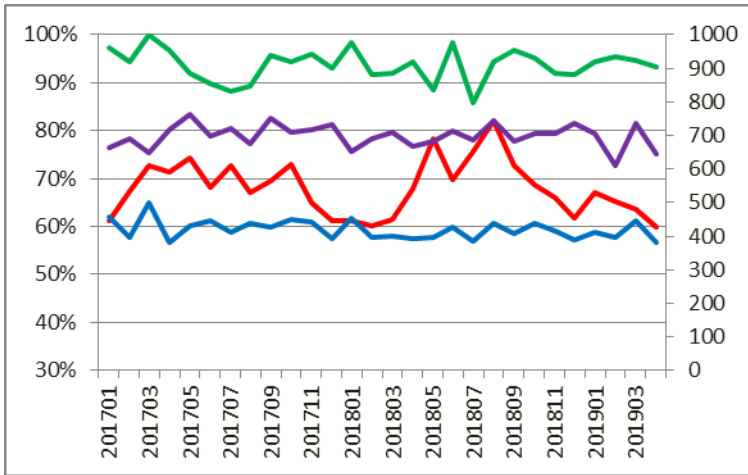
QDU



- Impact of winter pressures in 2018 on 'Uptake' of surgical lists in QDU
- Automatic send project improved start times from April 2018

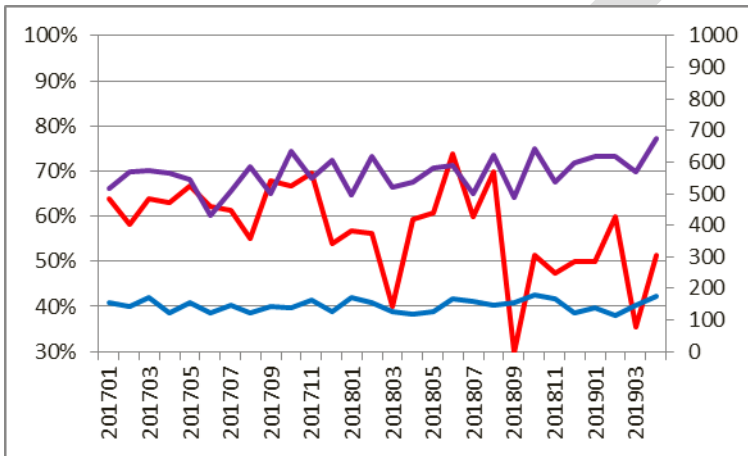


STMH



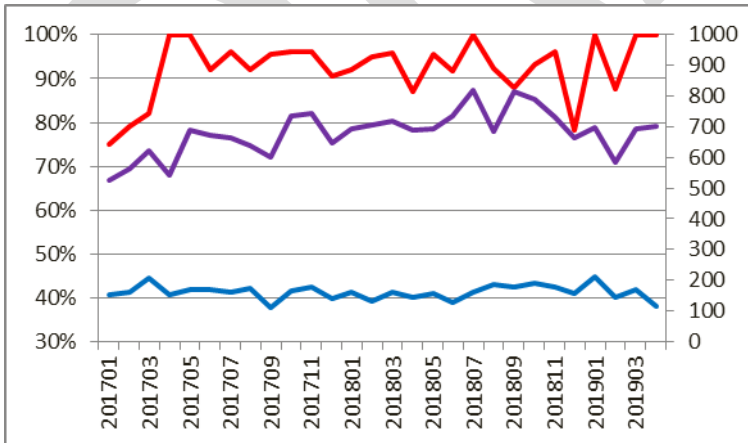
- Automatic send project improved start times from April 2018. However, gains do not seem to have been sustained.

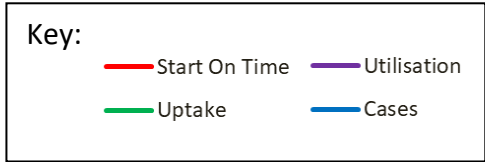
SBCH



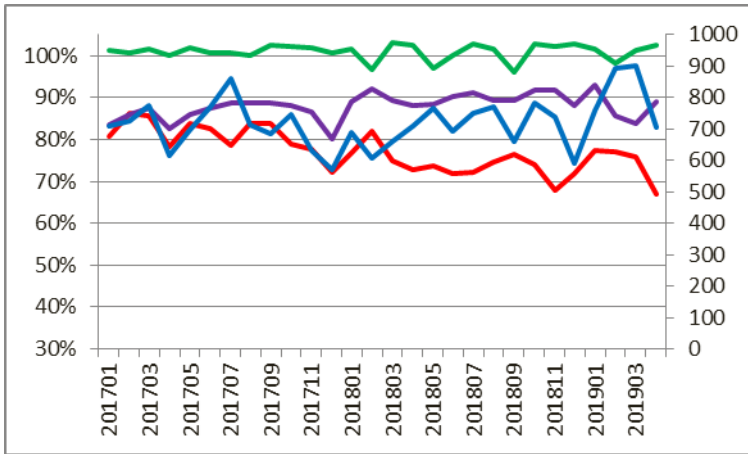
- Improvements in utilisation relates to scheduling processes
- The veracity of the start of time data is questionable

BDH



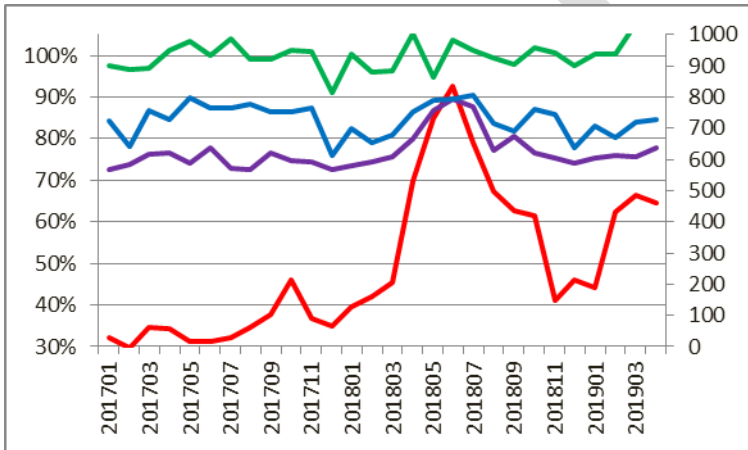


BEH



- Increase in cases at end of 2018 to early 2019 relates to twilight cataract sessions and increase in day case activity
- There will be a focus on improving start on time as part of the 2019/20 working smarter programme

BRHC



- The veracity of the start of time data is questionable

Appendix 2: Arturus Architects Campus Phase 5 Feasibility – March 2015





Aerial View showing location and volume of proposed extension to Heygrove Theatres



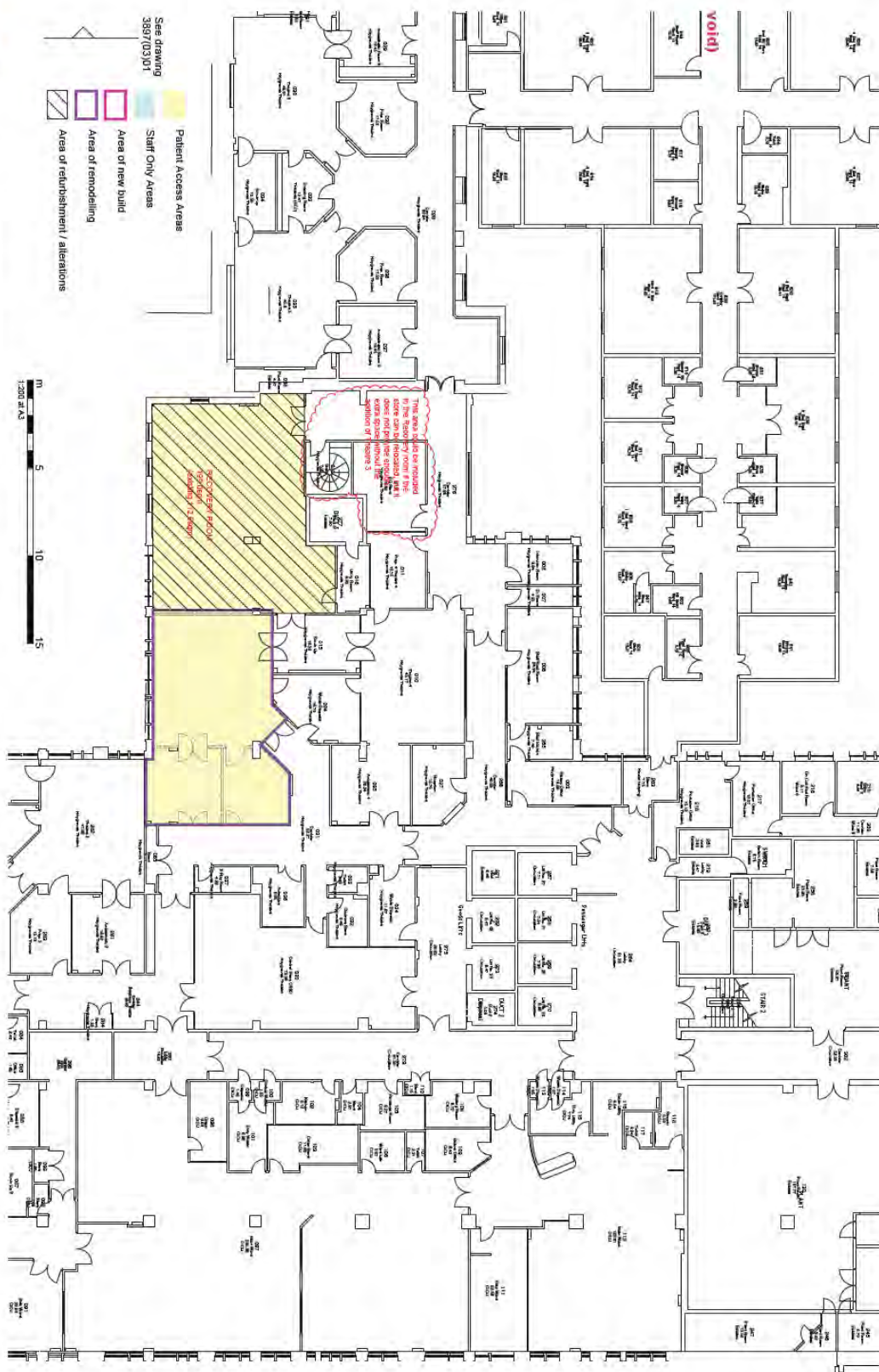
New gross floor area at Levels 5 - 7: 23,500m²
 Plus equal new uncoloured area at Levels 4 and 5
 1:200 at A3
 0 5 10 15
 M

ALFRED PARADE (on Level 4)

- Patient Access Areas
 - Staff Only Areas
 - Area of new build
 - Area of remodelling
 - Area of refurbishment / alterations
- See draw 3957/033X



BRI Phase 5 Level 6 Heygroves Theatres
 Additional Theatres Proposed Plan
 Brierley Architects Australia
 387/0301A



BRI Phase 5 Level 6 Heygroves Theatres
Additional Recovery beds Proposed Plan

Appendix 3 – Strategic Capital Review

Archus

The healthcare infrastructure specialist

Strategic Capital Review

July 2021



University Hospitals
Bristol and Weston
NHS Foundation Trust

Draft for comment



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Figure 8 – (BRHC) projected Inpatient bed capacity

Figure 9 – (BRHC) projected Outpatient capacity

Figure 10 – (BEH) projected ED cubicle capacity

Figure 11– (BEH) projected Day Case capacity

Figure 12– (BEH) projected Theatre capacity

Figure 13– (BEH) projected Outpatient capacity

Figure 14 – (BHOC) projected Inpatient bed capacity

Figure 15 – (BHOC) projected Day Case capacity

Figure 16 – (BHOC) projected Outpatient capacity

Figure 17 – (Dermatology) projected Day Case capacity

Figure 18 – (Dermatology) projected Theatre capacity

Figure 19 – (Dermatology) projected Outpatient capacity

Figure 20 – (Cardiac) projected Inpatient bed capacity

Figure 21 – (Cardiac) projected Day Case capacity

Figure 22 – (Cardiac) projected Critical Care capacity

Figure 23 – (Theatres/Endoscopy) projected capacity

Figure 24 – (Endoscopy) projected capacity

Figure 25 – (ACC) project capacity

Draft for Comment



Document control

Report for University Hospitals Bristol NHS Foundation Trust

File ref https://archusuk.sharepoint.com/sites/Southwest/Shared Documents/Clients/UH Bristol/Strategic Capital Review/4. reports & outputs/Archus report_Strategic Capital Review_v2.1 with comments .docx

Prepared by Toby Banfield, Matt Hill and Bev Letherby, Associate Directors

Date 24 April 2021

Checked by Shane Dineen (MRICS) Director (Dip IOD)

Date 21 June 2021

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Glossary

BEH	Bristol Eye Hospital
BHF	British Heart Foundation
BHI	Bristol Heart Institute
BHOC	Bristol Haematology and Oncology Centre
BRHC	Bristol Royal Hospital for Children
BRI	Bristol Royal Infirmary
C/E	Consultation / Examination
CAR-T cell	Chimeric Antigen Receptor T-cell
CICU	Cardiac Intensive Care Unit
CRU	Cardiovascular Research Unit
CSSD	Central Sterile Services Department
ED	Emergency Department
EL/DC	Elective (inpatient)/ Day Case
FBC	Full Business Case



FYxx	Financial year
GICU	General Intensive Care Unit
GIRFT	Getting IT Right First Time
GRFT	Getting Right First Time (national policy)
HGT	Hey Groves Theatres
ICS	Integrated Care Systems
ITU	Intensive Treatment Unit
M&E	Mechanical and Electrical Engineering
NHSEI	NHS England / NHS Improvement (now a single entity)
NICU	Neo-Natal Intensive Care Unit
OBC	Outline Business Case
ONS	Office for National Statistics
PICU	Paediatric Intensive Care Unit
SAFE	Suitable, Acceptable, Feasible, Enduring
SBCH	South Bristol Community Hospital
SEDP	Strategic Estates Development Programme
SDEC	Same Day Emergency Care
SLT	Speech and Language Therapy
SOA	Schedules of accommodation
SOC	Strategic Outline Case
STP	Sustainable Transformation Program
UEAC	Urgent and Emergency Assessment Centre
UHBW	University Hospitals of Bristol and Weston NHS Foundation Trust
WGH	Weston General Hospital



1 Executive Summary

A capacity and demand analysis exercise was required for University Hospitals of Bristol and Weston NHS Foundation Trust (UHBW) to validate the existing business cases to date, inform future space requirements, identify where innovation could assist in clinical delivery and consider potential development options on the main BRI site.

The capacity and demand activities were based on the following areas;

- a) Adult general and specialist services (elective and non-elective);
- b) Bristol Oncology Centre (all work types);
- c) Paediatric Services (Elective and non-elective);
- d) Bristol Eye Hospital (Elective and non-elective, outpatient and diagnostic services).

Specifically, the analysis was focused the areas of the business case and strategic development programme such as outpatient's pre-operative assessment, dermatology, children, eye hospital and haematology and oncology centre.

There were three key criteria of the brief which needed to be met:

- a) Collate the capacity requirements across the range of proposed schemes and service developments.
- b) Test capacity and demand requirements, based on a consistent set of assumptions across current business cases.
- c) Outlining and evaluating a range of scenarios, based on the scope of the schemes within the programme and the available physical estate options, to deliver the required benefits of the overall programme.

Weston General Hospital (WGH) has been out of scope of the review, however, we did take account of anticipated ED flows from WGH as part of the process which was agreed with the Adult ED Clinicians. Covid restoration modelling is being undertaken in a separate workstream.

A total of 14 business cases and feasibility documents were reviewed in detail as part of the process and a series of stakeholder engagement sessions held with eight members of senior management teams of the relevant clinical division. Further stakeholder engagement was held with business intelligence, estates, and finance teams. This reflects the level of "check and challenge" applied to each case for change, and included robust interrogation of all assumptions made by the clinical teams.

The summary and key findings of the review are shown in Section 3 of the report: the results of the modelling exercise show that most planned service developments would require marginally less space than originally envisaged (with Trust's modelling being deemed to be on prudent side), however, the impact of this on physical space requirements would be minimal, as the Trust looks to adopt compliant and flexible clinical spaces in the future.



Where possible, the team have suggested clinical innovations or mitigations that could be implemented to help improve efficiency and reduce the overall increasing demand for physical space.

For example: whilst the model projects a substantial required uplift in non-elective medical inpatient beds, based on demand trends to FY35 (from 255 to c.400 under a 'Do Nothing' scenario i.e. projected growth with no efficiencies or service transformation applied), there is potential for the Trust to offset the majority of this demand pressure, by achieving expected levels of same day emergency care and reducing delayed discharge rates by 50%. This generates a realistic mid-case scenario of a 280 medical inpatient bed requirement by FY35.

Clearly, no single action or scheme will address all the Trust's strategic challenges, but a series of opportunities have been identified for UHBW to:

- move to best practice quartiles including Getting Right First Time (GRFT);
- undertake a proportion of outpatient appointments outside of hospital settings;
- increase throughput of patients;
- reduce length of stay;
- improve utilisation of space especially in core clinical areas;
- look for offsite opportunities such as community diagnostics hubs, Edith Cavell Centres and Health on the high street.

Sections 4 to 9 of the report consider the functional content required, following the modelling exercise. It is important to show the process to get from "activity = capacity = functional content". Functional content is used to produce departmental schedules of accommodation, essential for the master planning of the site, informing decisions around current and future space requirements and overall development control. The Functional Content, which is defined as the number of beds; consulting / examination rooms; theatres can only be determined by the expected patient activity and the criteria used. These criteria used includes the operational days and hours per week and the number of sessions per day. The Functional Content is the main driver for determining size of space required.

Section 10 of the report explores the strategic development options, in terms of opportunities to reuse, refurbish, extend and build new.

The "test to fit" options have been assessed at a high level only, at this stage, looking at the main service areas as per the business case, requiring the highest amount of space over the future years.

This review has substantiated and provided the evidence base for the previous work undertaken. This is an important process for articulating the case for change and supporting financial investment appraisals.

The most viable option is still a new build Urgent and Emergency Assessment Centre (UEAC) to include adult ED, radiology, assessment units and theatres as it would free up the necessary space to allow the expansion of children's ED and outpatients, this development would have the biggest impact to the Trust's strategic challenges, and it is SAFE:



S Suitable , in terms of addressing the strategic challenges	A Acceptable to the Trust, patients, visitors and staff and other stakeholders	F Feasible , in terms of the resource and capability to implement	E Enduring , in terms of its life expectancy
---	---	--	---

The major constraint for this development is the cost / financial resource to implement the required estate changes. As an organisation the Trust is committed to delivery of high-quality care in the most suitable environments. The required funding resources are likely to take the Trust beyond its five-year programme, potentially requiring compromise and flexibility of aspirations across the clinical services.

Other offsite opportunities are explored in Section 10 of the report, this is mainly concentrated on managing delayed discharge or facilitating step-down facilities for those medically fit patients: this would significantly reduce the anticipated future requirement of inpatient beds.

It is assumed that most of the Trust's clinical services will require expansion space in the future, without the offset of changes in clinical practice, relocating from the main site and digital innovation. Therefore, it may be possible to relocate other non-core services off-site, to provide space for future core clinical expansion, such as CSSD, some outpatients or elective day cases, diagnostic hubs, health on the high street and Edith Cavell Centres etc. These are national initiatives which look for system working and integration across public sector organisations.

Continuing to develop this approach, in collaboration with the Trust's system partners, could identify solutions to the challenges faced by all health and social care providers across the Sustainable Transformation Program. This thinking is already underway as part of Integrated Care Systems (ICS).

The Trust has a current Asset Management Group and a Non-Clinical and Corporate Space sub-group. The early findings are that the demand for office accommodation is high with little available space on the main BRI site. The Trust are looking to relocate administrative and back-office functions off-site into a newly acquired office block. Furthermore, the existing corporate HQ is sited on the earmarked expansion space on Marlborough Hill.

Given the current levels of demand for space and considering that it is outstripping the available supply, there is no opportunity to create sufficient space on-site to impact the proposed clinical service schemes.

The Trust are looking to develop a working policy for occupancy post covid which considers more flexible, hot-desk and home working accommodation. This should look to reduce the dependency of office space on-site.



The requirement for Adult ED cannot easily be accommodated on the current core site and its relocation to Marlborough Hill is the “corner stone” to unlocking other key site and service strategic developments for the Trust.

It will be necessary to look at the programme of strategic developments over the next 10 to 15 years, to determine which developments can be completed in the short, medium and longer term.

Next steps are covered in 11.1 of the report, setting out stages to create a framework and implementation plan for strategic estates development.

Draft for comment



2 Introduction

2.1 Background

University Hospitals Bristol and Weston NHS Foundation Trust has been developing a strategic capital programme over a number of years, with the aim of modernising and developing its estate to facilitate the delivery of the Trust strategy. A number of schemes have been developed within the programme and a review process is currently underway to evaluate its contents within the Trust's changing operational environment.

This has led the Trust to conclude that some alternative options may need to be sought to deliver the required benefits of the range of proposed schemes. The next step in the programme is to confirm and approve the final set of schemes against the available budget and to develop a suite of outline and full business cases.

To support these next steps, detailed work has been undertaken, based on robust activity and capacity modelling, to inform the future physical space required over the next 20 years. A key objective of this process is informing the future development plan for the main hospital campus site, set against some challenging constraints such as the physical site space, density, complex construction due to topography, capacity of existing M&E infrastructure and financial resource for overall delivery.

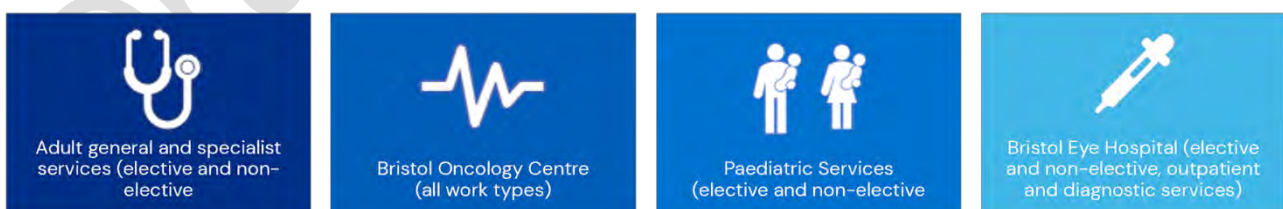
2.2 Methodology

Demand and Capacity Model

A demand and capacity model has been created using the Trust's baseline activity data, using agreed demographic and non-demographic growth factors.

The outcome is a series of projections of future activity and capacity requirements at 5-, 10- and 20-year periods for the following services:

Figure 1 – service categories in scope



These services have then been grouped accordingly to ensure in-depth coverage across all specialisms;



Figure 2 – Service groups in scope



Key Model Assumptions

Key assumptions include:

- FY20 months 1-11 baseline, uplifted for full year effect;*
- Principal planning horizon FY35, although the model produces outputs for every year to FY40;
- Office for National Statistics (ONS) demographic projections applied at patient level (adjusts for age, sex, location);
- Non demographic growth identified from historical trends / business cases / divisional analysis;
- Non demographic growth levels assumed to move to standard NHSEI planning assumption of 1% over 5 years (assumes integrated care system able to manage demand to this level over the medium to longer term) – excl. cancer and dermatology;
- Occupancy, utilisation and throughput retained at existing levels except where specific opportunities identified;
- Endoscopy and imaging growth, per Prof. Mike Richards' report¹;
- Same Day Emergency Care (SDEC) opportunity – modelled at diagnosis level and assumes Ambulatory Emergency Care Directory met at lower end of range, with throughput assumption of 4 patients per space per day;
- Length of Stay opportunity modelled on basis of saving 50% of delayed discharge bed days;
- Outpatient new to follow up ratios modelled on basis of achieving 50% of national best quartile opportunity;
- British Association of Day Surgery best practice opportunities for same-day surgery applied;
- Emergency Department non urgent attendance reduction of 4.3% based on NHS Digital dashboard.

* Source data for financial year 2019/20, months 1 to 11 (April 2019 to end of February 2020 (omitting impact of Covid in March 2020) and this is factored up to obtain a full year effect (using calendar days for unplanned activity and working days for planned activity).

¹ "Diagnostics: Recovery and Renewal – Report of the Independent Review of Diagnostic Services for NHS England", Professor Sir Mike Richards, November 2020 *



Business Case Review

As stated above, there are a number of individual business case that have been developed by the service leads over the last few years. Completion of the demand and capacity model has enabled a review of these business cases to test the activity, assumptions and capacity projections against the model findings.

We reviewed the following business cases:

- BRHC Expansion V6.1 (Feb 2019);
- BEH 5th theatre OBC v2;
- Business Case BHOC Redevelopment (Feb 2019);
- Dermatology Refurbishment V10;
- FBC BHOC Levels 4 and 5 SLT Final (Jul 2020);
- FBC CRU SCCS* PB (Sep 2020); *now known as the Strategic Estates Development Programme
- OBC NICU draft v 1.9 (June 2019);
- Combined GICU CICU Stage 1 Case v5 (Feb 2020);
- OBC Critical care expansion Ph 2 v0.7 SLT (Aug 2020);
- OBC D603 – SLT Final submission (Aug 2018);
- OBC BEH Ground Floor (Nov 2018);
- OBC Theatres expansion and refurb business case SCCS (Jul 2019);
- SOC Emergency Floor Inc. Radiology v7 (approved Dec 2019).

Departmental Stakeholder Engagement

On completion of review of the above, a series of Departmental User Group Sessions were held with teams from each of the key service areas, covered by the scope of work: Emergency Medicine, Surgery (including theatres and endoscopy), Children's Hospital, Eye Hospital, BHOC, Cardiac and Dermatology.

Typically, these meetings involved the divisional manager for the area in question – in some instances included clinical leads and finance leads – and focused on:

- Confirming the activity and capacity baseline position and key modelling assumptions;
- Identifying the Functional Content and “Ways of Working”;
- Patient environments and pathways that promote privacy and dignity;
- Clinical adjacencies that enhance safety, reduce clinical risk and maximise efficiency;
- The impact of future technologies and evolving models of care;
- Resilience through adaptability and flexibility.



Summary of key findings

The table below shows the key variances between the assumptions on requirements contained within the various business cases against the findings from the activity and demand modelling.

Table 1 – Key findings from business case review

Area	Key findings	Variance between business case and model output/s
Adult ED	Our model projects 36 cubicles required by FY35 which is closely aligned with the business case projections of 33 cubicles required in 10 years' time and 40 in 20 years' time.	Our projection for observation spaces of c.8 beds is lower than 12–16 per the business case. Our modelling assumes best practice in same day emergency care is implemented at the ED front door.
Children's ED	Business case requirement of 8 additional cubicles and 8 additional observation beds by FY28.	We project a lower requirement of 5 additional cubicles and 2–4 additional observation spaces by FY35, alongside c.6 SDEC spaces.
Children's outpatients	Business case identifies a requirement for 8 additional C/E rooms by FY28.	Our model suggests 3–5 needed by FY35.
Children's inpatients	Business case identifies 12 additional beds required by FY28.	Our modelling suggests 8 needed by FY28 and 16 by FY35.
Eye Hospital ED	Business case suggests uplift of 5 cubicles.	Our modelling suggests uplift of 3 cubicles.
Eye hospital outpatients	Business case identifies need for 20 additional C/E rooms.	Our modelling suggests only 8 required by FY35.
Eye hospital theatres	Business case and our modelling both identify need for an additional theatre.	Business case and our modelling are aligned.
Endoscopy	Our modelling projects a core additional endoscopy requirement of 6 rooms by FY35, which aligns with the business case projection of 6–8 rooms.	If Trust can move to a 5.5 day operating week and 9 hour operating day on average together with 85% utilisation, it would require 4 rather than 6 additional endoscopy rooms.
Theatres	Our modelling identifies a core additional requirement of 4 theatres by FY35, which aligns with the business case projection.	If Trust can move to a 5.5 day operating week and 9 hour operating day on average together with 85% utilisation, it would require 2 rather than 4 extra theatres.
Critical care	The business case requirement of 14 additional critical care beds across Bristol and Weston aligns with our modelled requirement to FY35.	The projected required uplift in beds would reduce to 10 if length of stay opportunities can be realised (although caution should be exercised given the need for critical care resilience).



Area	Key findings	Variance between business case and model output/s
Cardiac	Our modelling to FY35 predicts that the service will need c.25 additional elective and non elective beds. On top of this it would need approx. 3-5 beds to enable service expansion plans for specialist elective work.	The Cardiovascular Research Unit business case includes creating an additional 36 inpatient beds, which in turn would enable ward C808 to be freed up. The 36 beds is higher than our identified requirement of c.25-30 beds including service expansion.
BHOC	The modelling in the business case identifies a per annum uplift requirement of approx. 1 IP bed, 1 DC chair and 1 OP clinic room.	Our modelling identifies a required uplift of 15 inpatient beds and 14 C/E rooms over the next 15 years, which is well aligned with the business case. However our model projects a lower required uplift for day cases of c. 5 chairs (which could be accommodated in the capacity expansion currently taking place).
Dermatology	Business case identifies additional requirement of 3 C/E rooms and access to 3 theatres against a baseline of 2, based on FY28 demand.	We estimate an increased requirement of 2 outpatient rooms rather than 3 by FY28 (4 by FY35) assuming existing high utilisation levels are maintained. If Dermatology theatre lists can be protected and utilisation and operational hours optimised then 2 theatres should suffice.

The functional content, produced by the model, indicates that most of the schemes have a space requirement, either marginally smaller or equal to that detailed in the business cases. This process has helped to assure the Trust that it is modelling relatively accurately, however, a consistent methodology and approach should be used across all business cases. We have developed schedules of accommodation based on the model outputs, which will have a small impact on the space required, but not significant in the overall scheme development when considered in its entirety.

The next section of the report considers what mitigation or innovations from a clinical or workforce perspective could be adopted to slow the pace of demand for space on the core hospital site.

The report also considers the impact on bed capacity, which is useful when looking to halt the exponential growth of Trust ward requirements; this provides an alternative approach to providing clinical services in existing spaces, without the need to expand immediately. This would allow more time for capital to be generated to fund the build programme or show that a blended approach to development is also an option.



3 Departmental Review

This section sets out the findings from the demand and capacity modelling exercise and evaluation of individual business cases by department. A summary of the detailed findings is shown in the tables below.

Table 2 – Departmental review: C/E and SDEC

	C/E Rooms			Same Day Emergency Care Spaces		
	Baseline	FY35 Projected	Variance	Baseline	FY35 Projected	Variance
BHOC	13	27	14			
BRHC	22	25	3			
BEH	35	43	8			
ED – BRI	26	37	11	9	17	8
ED – BRHC	17	22	5	4	6	2
ED – BEH	10	13	3	1	1	0
Dermatology	9	13	4			

Table 3 – Departmental review: Day Case and Theatres

	Day Case Spaces			Theatres		
	Baseline	FY35 Projected	Variance	Baseline	FY35 Projected	Variance
BHOC	33	38	5			
BRHC	21	24	3	8	8	0
BHI	12	11	-1	4	4	0
BEH	16	21	5	4	5	1
Medicine	8	12	4			
Surgery	12	14	2	12	14	2
Dermatology	3	6	3	2	2	0
Endoscopy				6	10	4

Table 4 – Departmental review: Elective and Emergency Inpatient Beds

	Inpatient Beds Elective			Inpatient Beds Emergency		
	Baseline	FY35 Projected	Variance	Baseline	FY35 Projected	Variance
BHOC	35	45	10	22	27	5
BRHC	45	46	1	114	129	15
BHI	15	19	4	64	85	21
BEH	4	3	-1	7	11	4
Medicine	10	10	0	255	280	25
Surgery	28	32	4	103	123	20
Adult Critical Care				55	69	14



3.1 Emergency Medicine

Review of existing business case assumptions

The Department's assessment that base capacity is not well aligned with demand is confirmed by our analysis. Cubicles have increased from the pre-Covid baseline of c. 26 to 32.

Whilst the longer-term demand growth estimate of c. 3%, shown in the SOC, is not unreasonable, based on historical trends, as integrated and anticipatory care models mature, the system should move towards a longer-term growth trend, aligned with NHSEI's standard planning assumption of demographic growth plus a 1% allowance for non-demographic factors. The Department agrees there is significant opportunity to reduce ED attendances, although historically this demand reduction has not been realised – and requires a whole system strategy.

As agreed with ED Clinicians, as a reasonable working assumption, we have modelled on the basis of 50% of Weston attendances transferring to BRI.

Mitigation and innovation opportunities

As per the NHS Digital non-urgent care dashboard, the Trust had 4.3% potentially non urgent ED attendances in 19/20. This is likely to be a lower-end estimate, and we have phased in achieving this reduction over five years.

Our model projects that 36 cubicles will be required by FY35, which is closely aligned with the business case projections. We project an SDEC requirement of 17 trolleys/chairs, assuming that GIRFT / Ambulatory Emergency Care Directory best practice is met, and high patient throughput in the unit. Our projection for observation spaces is a little lower than the business case, at c. 8 beds.

Projected imaging requirements in the SOC look reasonable, based on the Prof. Richards report growth levels to FY30, but current utilisation levels for x-ray, fluoroscopy and ultrasound appear to be on the low side (could partly offset the requirement for additional capacity).

Whilst the model projects a substantial required uplift in medical inpatient beds, based on demand trends to FY35 (from 255 to c. 400 under a 'Do Nothing' scenario i.e. projected growth only with no efficiencies or service transformation applied) there is potential for the Trust to offset the majority of this demand pressure through:

- Achieving expected levels for Same Day Emergency Care;
- Achieving a 50% reduction in delayed discharge bed days.

This generates a realistic mid case scenario of a 280 Medical non elective inpatient bed requirement on the BRI site by FY35. The 50% delayed discharge bed days reduction equates to two or three wards of rehab/recovery activity that could potentially be re-located off-site (as per the scenarios later in this report).



Projections

Figure 3 – (Emergency Med) projected ED cubicles capacity

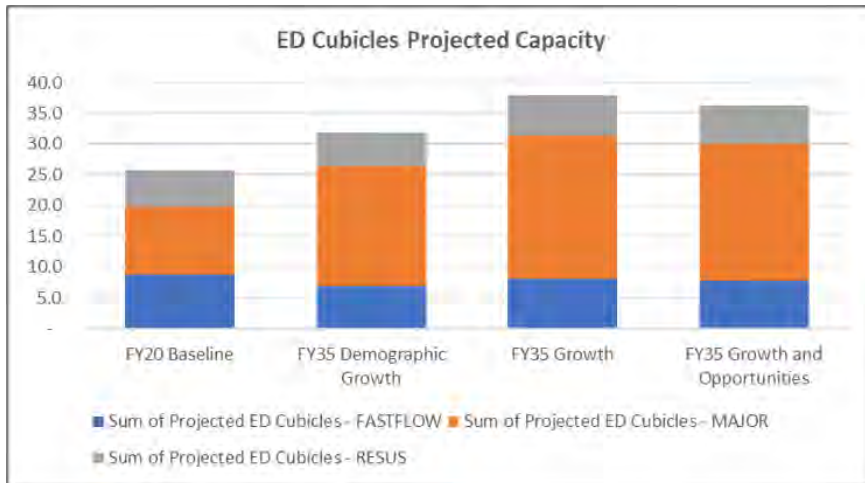


Figure 4 – (Emergency Med) projected SDEC capacity

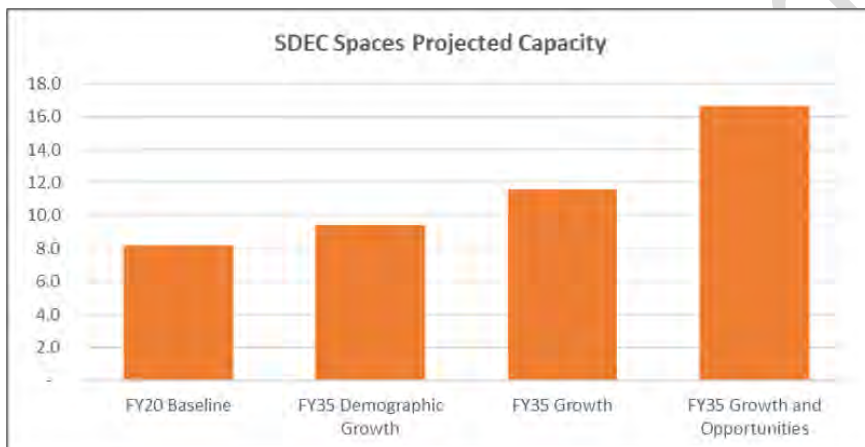
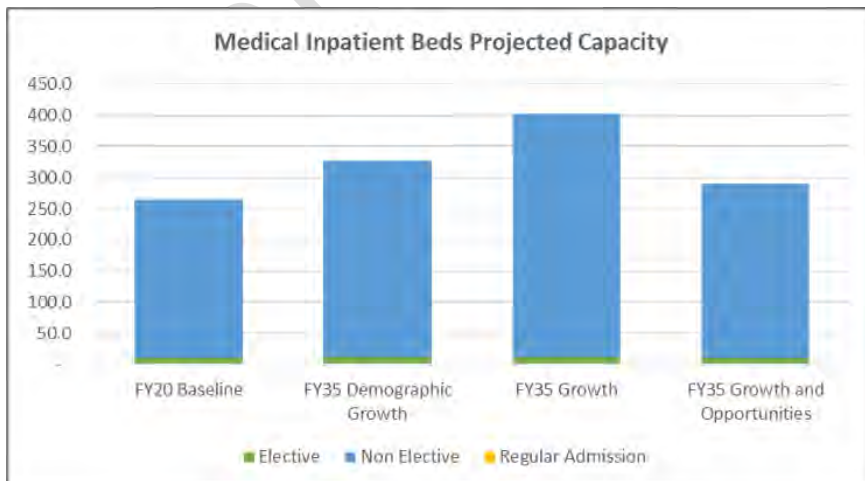


Figure 5 – (Emergency Med) projected Medical Inpatient bed capacity





3.2 Bristol Royal Hospital for Children (BRHC)

Review of existing business case assumptions

The SOC identifies growth levels for paediatric activity of 16% over three years for ED attendances, and 12% for non-elective admissions and outpatients.

Over the medium- to longer-term, an effective integrated care system should be able to manage demand of the projected demographic growth + 1% non-demographic growth and we have modelled phasing this in over five years.

Mitigation and innovation opportunities

We have also modelled the impact of moving to best practice same day care, as per the Ambulatory Emergency Care Directory benchmarks (referenced in GIRFT), and 50% of the peer best quartile opportunity for new outpatient to follow up ratios.

Based on these assumptions the current SOC capacity projections to FY28 look quite generous, and are higher than our projected capacity requirements to FY35:

- uplift in ED cubicles from 17 to 22 (rather than 25 in SOC);
- uplift in ED observatory beds (including SDEC) from 8 to 12 (SOC: 16) – assuming a well-functioning SDEC area with high throughput;
- uplift in PICU beds from 18 to 20–21 (SOC: 22–24);
- uplift in outpatient consult/exam rooms from 22 to 25 – on the BRHC site (SOC: 8) – uplift from 29 to 34 rooms if you include paediatric outpatient activity across all sites as per the chart below;
- uplift of 6 inpatient beds required by FY28 and 16 by FY35 (SOC: 12), assumes the Trust realises SDEC and length of stay opportunities.

BRHC Projections

Figure 6 – (BRHC) projected ED cubicle capacity

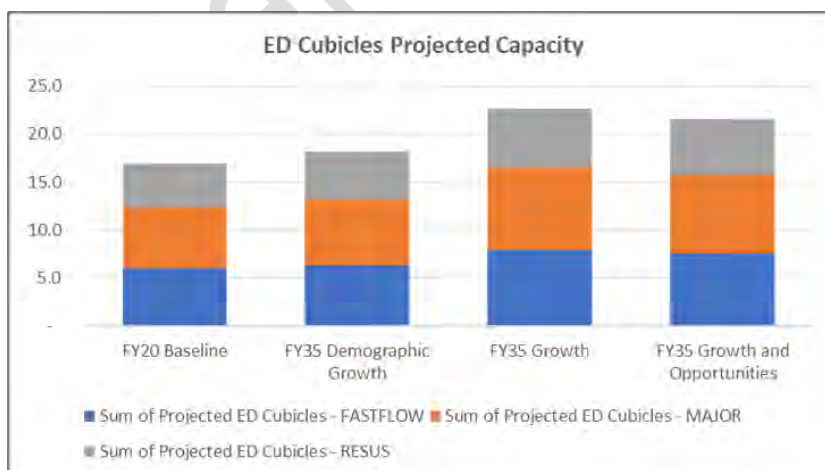




Figure 7 - (BRHC) projected SDEC capacity

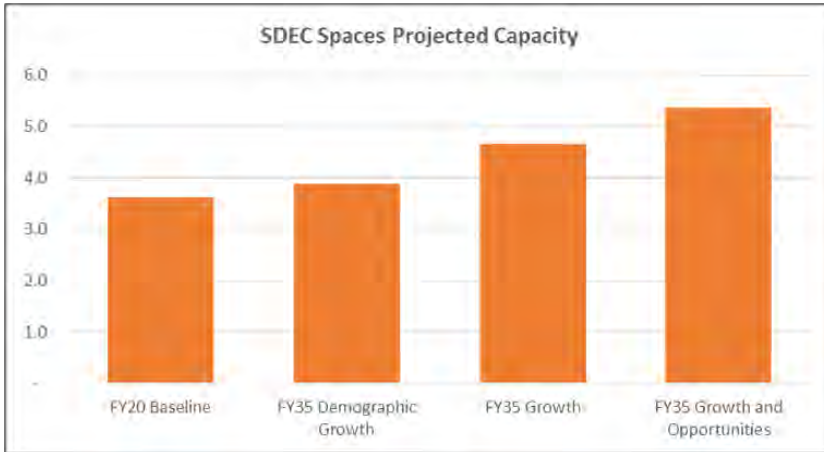


Figure 8 - (BRHC) projected Inpatient bed capacity

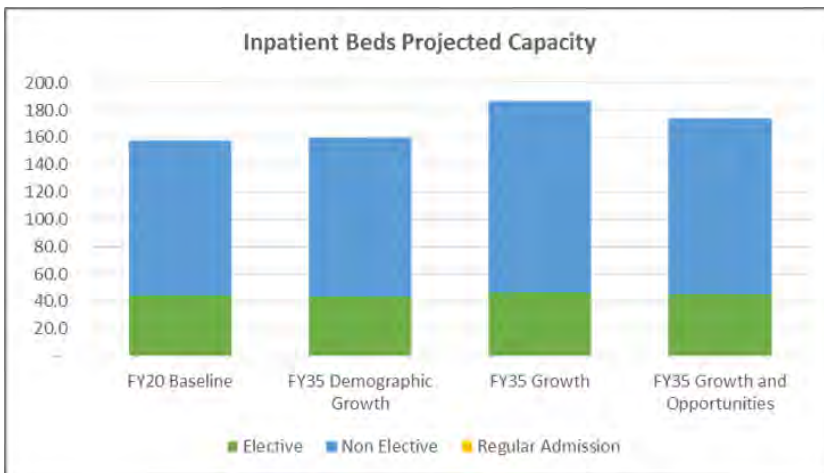
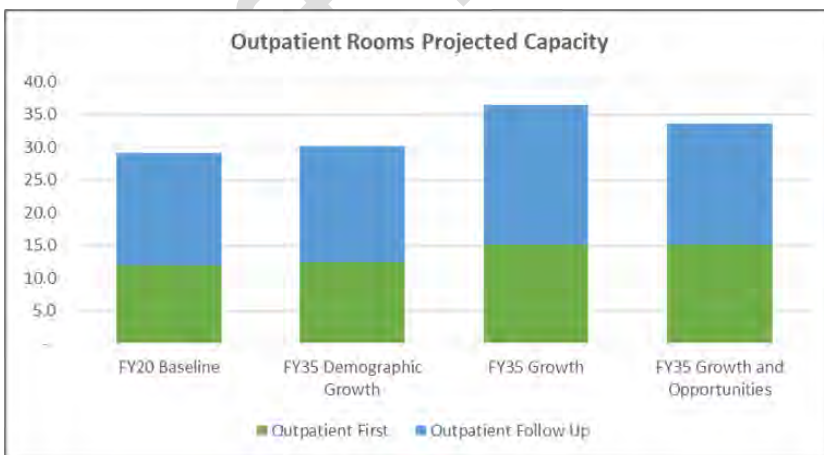


Figure 9 - (BRHC) projected Outpatient capacity





3.3 Bristol Eye Hospital (BEH)

Review of existing business case assumptions

The SOC references 7.4% annual growth for non-A&E activity, and this is borne out by our analysis of the last three years' activity. A&E growth in the SOC is modelled at 2.3% pa. which may be a little high, based on recent years' figures. Over the medium- to longer-term, a rate of demographic growth + 1% would be a reasonable mid case scenario.

Looking forward to FY35, the projected ED capacity increase (in the SOC) from nine assessment cubicles to 14, aligns broadly with our modelling results.

An uplift of 20 outpatient clinic rooms looks generous, even before considering opportunities for reducing avoidable follow ups. This type of uplift would only be required if growth levels continue at an annual compounded rate of 7.4%, however, this would be unsustainable over the medium to longer term. The Trust needs to consider how it could work with partners to manage demand differently and provide more services outside of the Eye Hospital, as well as reducing unnecessary follow up appointments.

Our modelling confirms there is a good case for a fifth eye theatre – the current four are highly utilised – and projected growth to FY35 equates to a requirement of almost exactly one whole additional theatre.

Mitigation and innovation opportunities

The requirement for additional outpatient clinic rooms reduces to c. 8 rooms if the Trust can achieve at least 50% of the peer best quartile new to follow up opportunity for ophthalmic activity. Projected ED capacity could reduce to 13 with improved utilisation.

We recommend the Trust seeks opportunities to move more clinics to an out of hospital setting.

BEH Projections

Figure 10 – (BEH) projected ED cubicle capacity

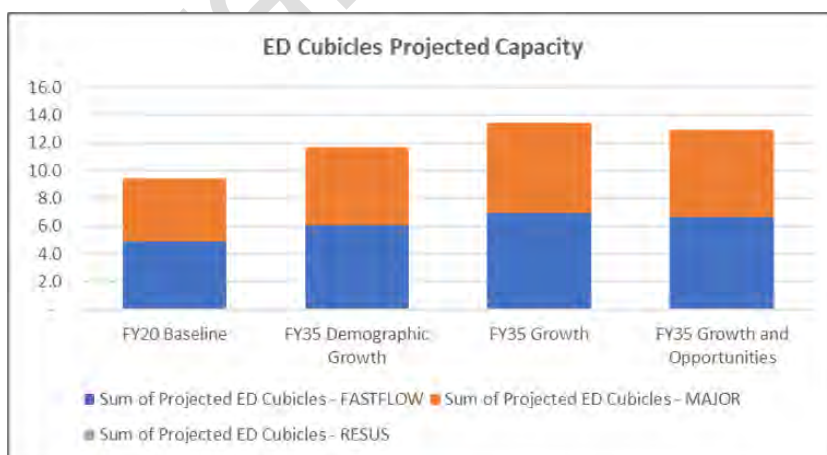




Figure 11- (BEH) projected *Cay Case* capacity

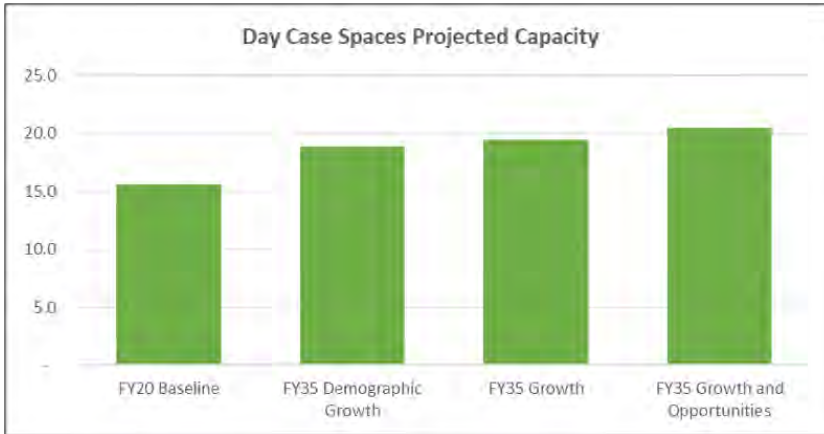


Figure 12- (BEH) projected *Theatre* capacity

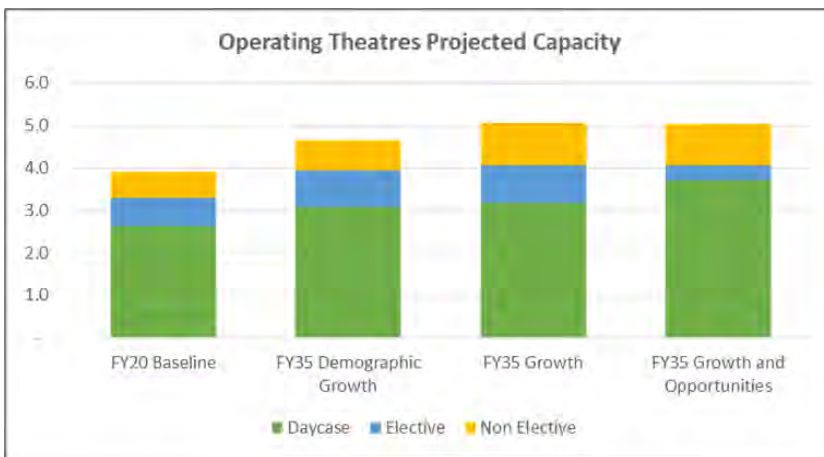
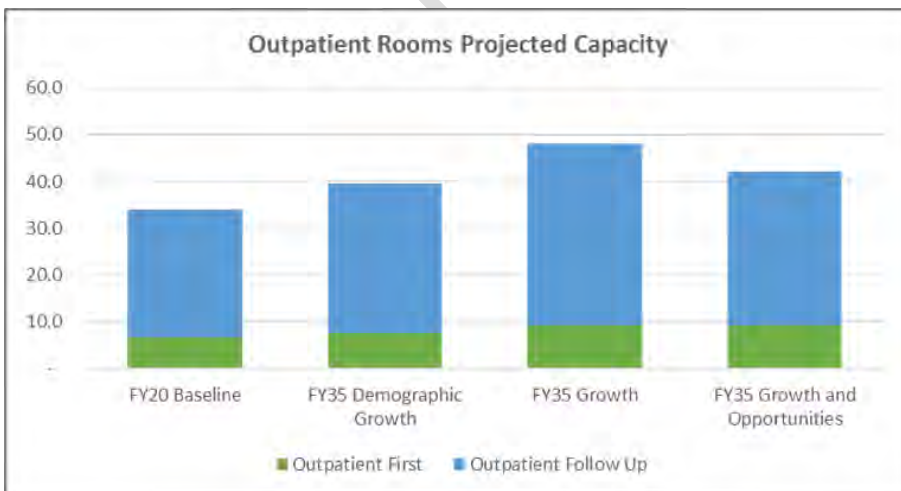


Figure 13- (BEH) projected *Outpatient* capacity





3.4 Bristol Haematology and Oncology Centre (BHOC)

Review of existing business case assumptions

Baseline capacity in FY20 was projected at 57 inpatient beds, 33 day case chairs, 13 outpatient consult/exam rooms.

BHOC is currently being reconfigured to deliver additional capacity of six day case chairs and seven outpatient consult/exam rooms.

Growth levels for haematology and oncology are high nationally (due to people living longer with cancer, as well as the introduction of new treatments) and this is reflected locally. The increase in demand for specialist services is also driving additional growth opportunities for BHOC e.g. CAR-T cell.

Assumptions of 3% growth for EL/DC and 5% for outpatients look reasonable, based on trends.

Our modelling suggests the Department's modelled per annum uplift requirement of one IP bed and one outpatient clinic room looks reasonable. The day case projected requirement looks high.

Mitigation and innovation opportunities

The service has already looked to deliver more activity off-site, but there are limited opportunities to go further, although increased day case activity at Weston is an option.

If day case throughput can be increased, by 0.25 patients per space per day, then the projected FY35 capacity uplift requirement could be accommodated within the additional six spaces currently being implemented.

Additional BHOC analysis following Feasibility Study

Element	Baseline capacity	SOC FY35 projected requirement	Archus FY35 projected requirement	Feasibility Study FY35 projected requirement
Day Case spaces	33	48 (15 chairs for general activity at BHOC *)	38	84
Inpatient beds	57	Not stated in SOC. Per discussions with service managers c. 72 beds needed by FY35.	72	78
Outpatient C/E rooms	13	29 (16 for general activity **)	27	64

* An additional requirement is identified of 10 chairs for general activity at satellite units and 6-9 chairs for CTU.

** An additional requirement is identified of 9 C/E rooms for supporting staff – CNSs (multiple per clinic pharmacy etc) and 5 C/E rooms for clinical trials.



Analysis

- We reviewed the February 2019 SOC for BHOC and held discussions with the BHOC general manager and finance manager to confirm our understanding.
- The SOC identified an additional capacity requirement of 16 general outpatient rooms by FY34/35, and 15 additional day case chairs over the same timeframe (roughly 1 per year over the period to FY35). When we spoke to the general and finance managers, they confirmed that an uplift of 1 OP room, 1 DC chair and 1 IP bed per year was in line with the SOC modelling.
- Our modelling found that these uplifts were reasonable for outpatient C/E rooms and inpatient beds, but looked quite high for day case spaces (our modelling included an increased throughput assumption of 0.25 day cases per space per day).
- The identified capacity requirements in the clinical brief for the Feasibility Study appear to be considerably higher than those identified in the February 2019 SOC and in our modelling. Reasons for this could include:
 - Higher growth rates now being applied.
 - Assumptions about increased capacity needed to accommodate research activity.
 - Less ambitious productivity assumptions.
 - Inclusion/exclusion of off-site activity (our brief was to model for BHOC site only).

BHOC Projections

Figure 14 – (BHOC) projected Inpatient bed capacity

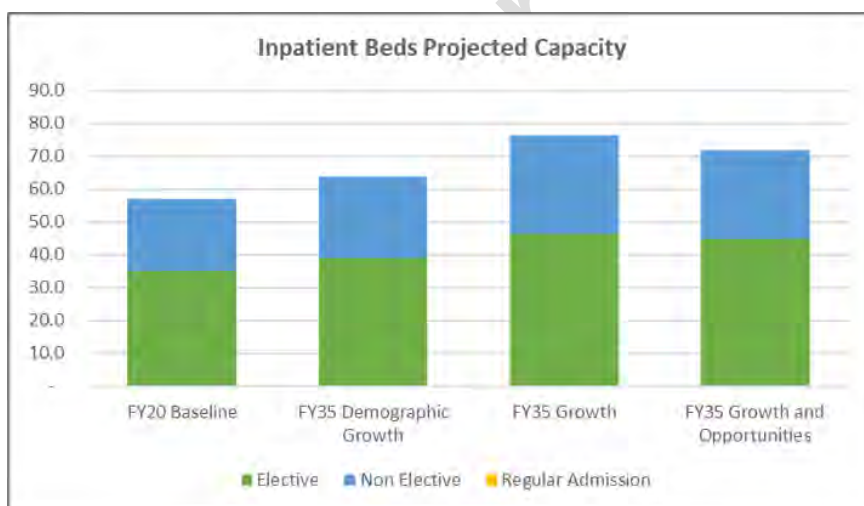




Figure 15 - (BHOc) projected Day Case capacity

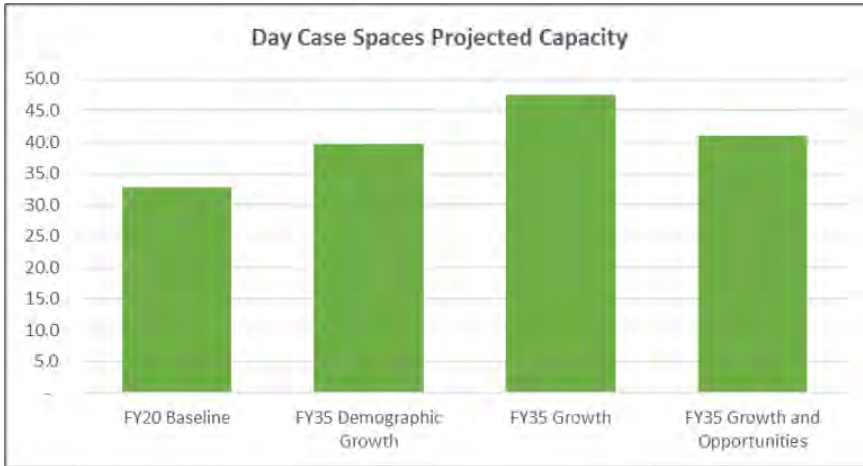
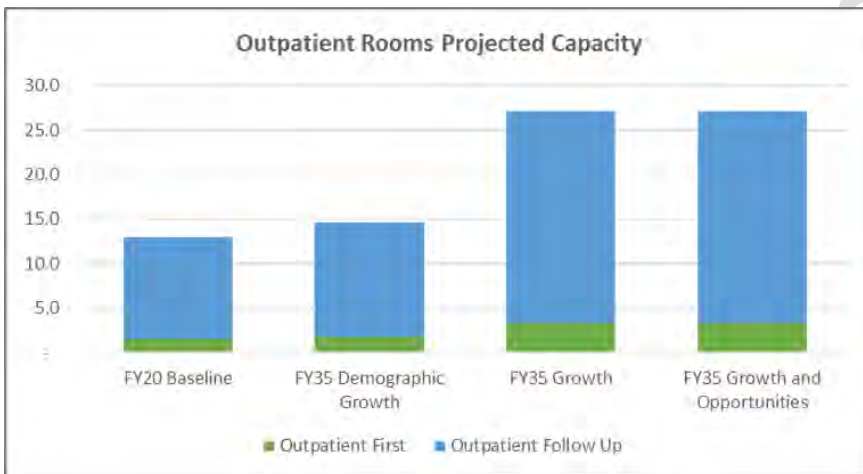


Figure 16 - (BHOc) projected Outpatient capacity





3.5 Dermatology

Review of existing business case assumptions

Dermatology is currently very stretched for space and some activity is being outsourced. The SOC identifies an underlying growth rate of 2.9% p.a. for outpatient activity. Growth in recent years has been higher but this is partly due to service changes.

The day case growth rate assumption in the SOC of 8% p.a. seems high and we have modelled on the basis of recent trends which reveal growth in the region of 3-5%.

We estimate an increased requirement of two on-site outpatient rooms rather than three by FY28 (four by FY35) if existing high utilisation levels are maintained.

The SOC identifies a requirement for increased access to operating theatre capacity from two theatres to three, on the BRI site (excludes SBCH requirement), although our modelling projects that, if Dermatology lists can be protected and utilisation and operational hours optimised, then access to two theatres would suffice.

Mitigation and Innovation opportunities

There is limited opportunity for additional capacity within the constraints of the existing site:

- Utilisation is already high;
- Follow up ratios are already better than peer best quartile performance.

The best opportunities for increased capacity therefore lie in increased use of telemedicine and increased delivery of off-site services.

Dermatology Projections

Figure 17 - (Dermatology) projected Day Case capacity

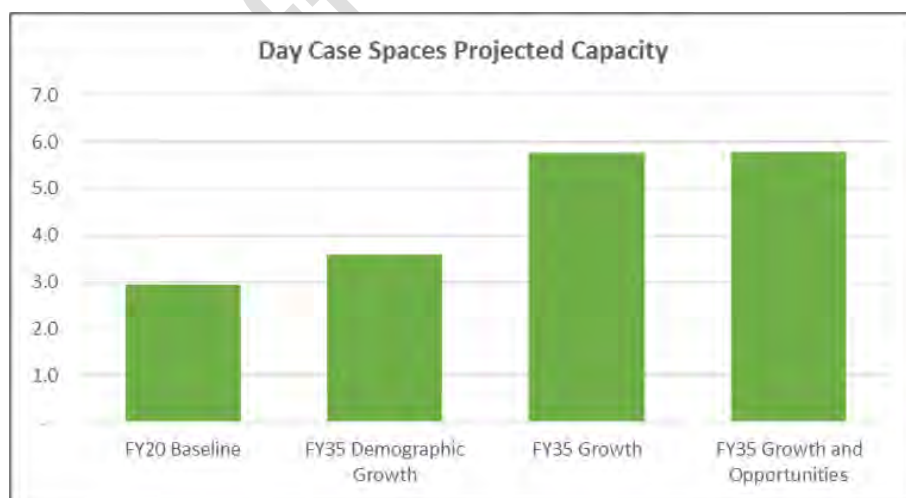




Figure 18 - (Dermatology) projected Theatre capacity

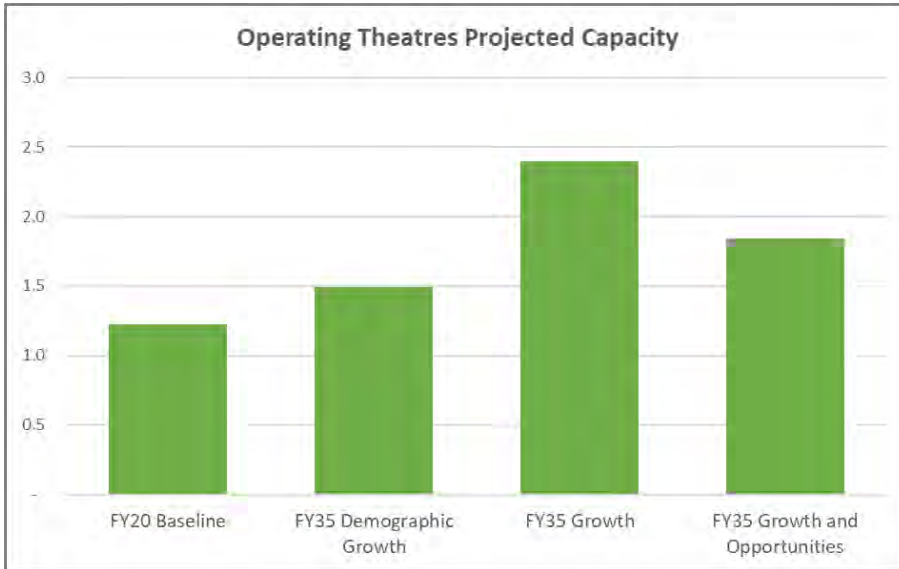
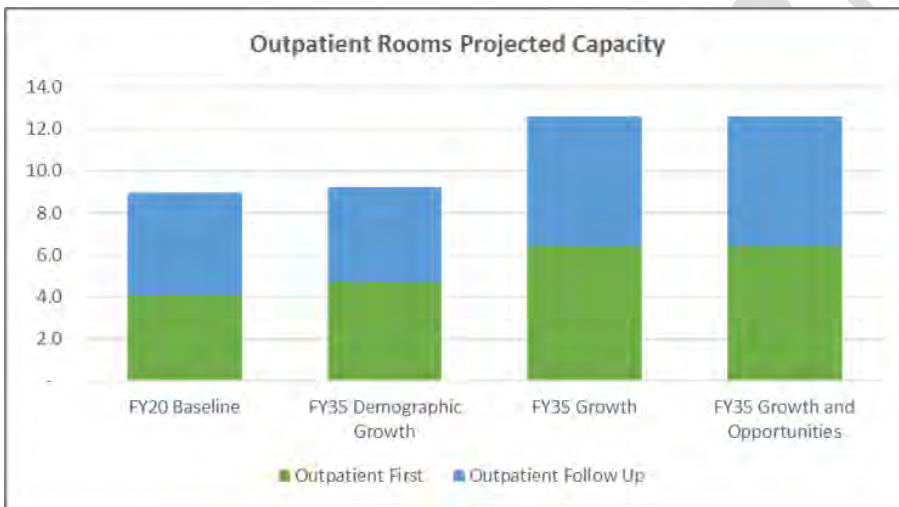


Figure 19 - (Dermatology) projected Outpatient capacity





3.6 Adult Cardiac

Review of existing business case assumptions

In FY20 there were c. 71 inpatient beds across three wards, but we have modified the baseline to c.78 beds to reflect the additional capacity being introduced through the current works (expected to be fully utilised immediately).

The business case reflects a joint proposal, with British Heart Foundation and University of Bristol, for a Cardiovascular Research Unit. This will include generating additional ward capacity on Level 7 of the Queen’s Building to, in turn, enable ward C808 at BHI to be used for expansion of the cardiac service.

Our modelling to FY35 predicts that the service will require an additional ward over this timeframe, and the proposal to use ward C808 seems logical, based on co-location of cardiac services within BHI.

Mitigation and innovation opportunities

Medical outliers are a problem – our analysis reveals that on average eight cardiac beds are being used by non-cardiac patients. If medical patients can be managed more effectively across the Trust as a whole, this could release capacity for further expansion of specialist cardiac services. The service sees opportunities for expanding its specialist elective work in the order of 100–150 elective admissions per year. Based on a current average length of stay, of 10 days, this equates to c. 3–5 beds per year required.

Day unit spaces do not currently limit the number of Cath Lab patients, throughput is low at 0.7 patients per space per day and growth to FY35 should be accommodated within the existing 16 spaces.

Cardiac Projections

Figure 20 - (Cardiac) projected Inpatient bed capacity

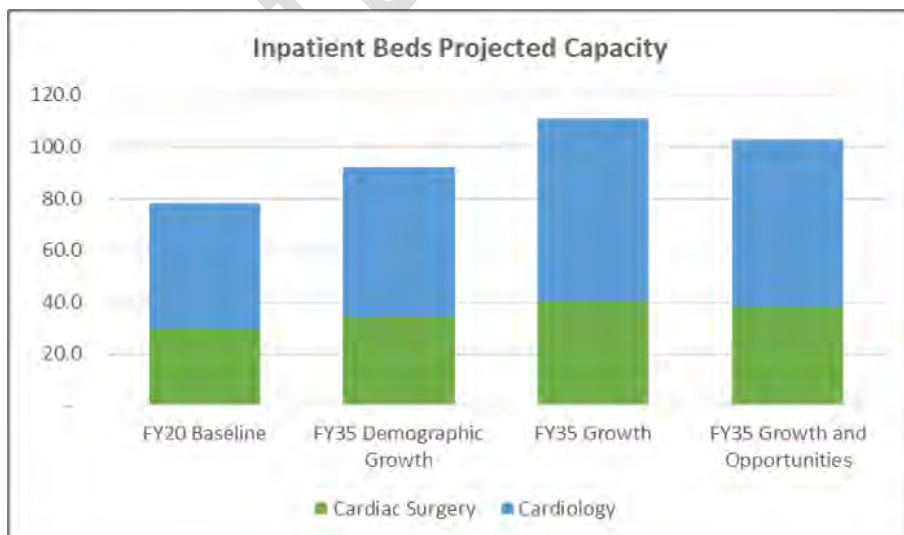




Figure 21 – (Cardiac) projected Day Case capacity

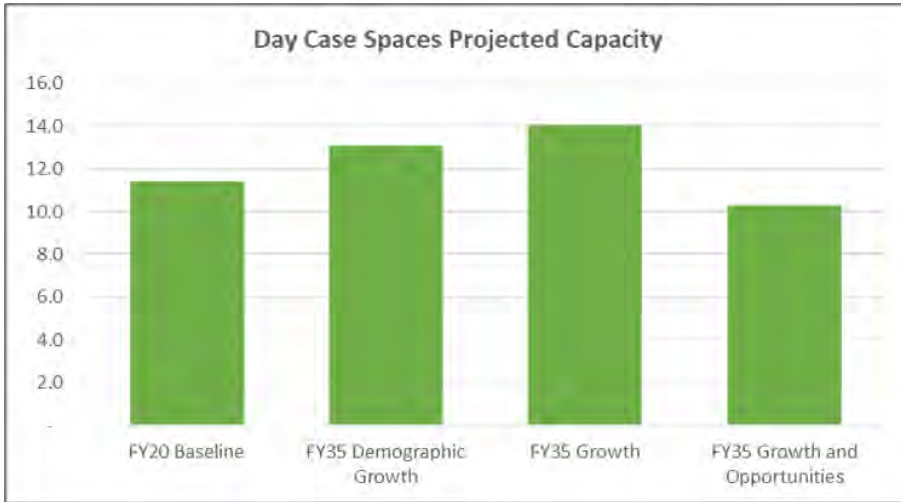
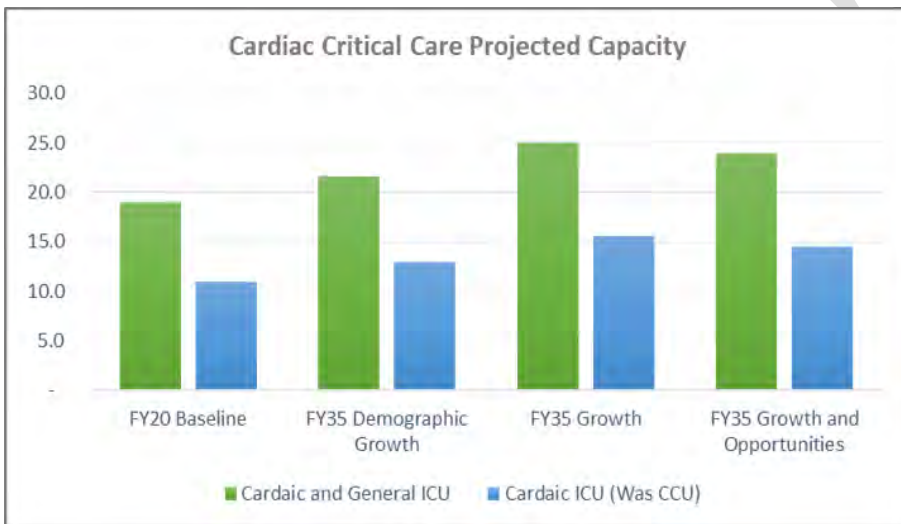


Figure 22 – (Cardiac) projected Critical Care capacity





3.7 Theatres and Endoscopy

Review of existing business case assumptions

There are 12 theatres (10 in Hey Groves Theatres and two in Queens Building) in scope of the expansion business case, and six endoscopy rooms (four at BRI and two at South Bristol Community Hospital). Based on growth trends, modelling projects an additional six endoscopy rooms will be required by FY35, which aligns with the business case projection of 6–8 additional rooms. We believe if the mitigation mentioned in this report is implemented it is possible to reduce the requirement to 4 additional endoscopy rooms. If Trust can move to a 5.5 day operating week and 9 hour operating day on average together with 85% utilisation, it would require 4 rather than 6 additional endoscopy rooms.

For theatres, our modelling identifies an additional requirement of four theatres over this timeframe (prior to additional operating hours and efficiency assumptions – see ‘stretch’ opportunities below) which also aligns with the business case projection.

There would be spare capacity within the additional four to account for current cancelled lists and unmet demand.

Mitigation and innovation opportunities

Baseline theatre utilisation is a little over 80%, which is reasonable, but 85% is the recognised best practice level. Improvements in utilisation will have only a relatively small impact on the sessions required and are unlikely to change the overall theatre capacity requirement.

The national direction of travel is towards longer operating days over 6/7 days where feasible. The business case makes good arguments for some of the limitations of these approaches (impact on workforce, and other constraints e.g. beds) but the Trust will need to consider and respond to this policy agenda, probably initially across certain specialties and lists.

We have modelled moving to an average of a 5.5 day operating week at BRI, together with 85% utilisation, and an average of a nine-hour operating day. Together these productivity improvements would mean two rather than four additional theatres would be required, and four rather than six endoscopy rooms.



Theatres/Endoscopy Projections

Figure 23 - (Theatres/Endoscopy) projected capacity

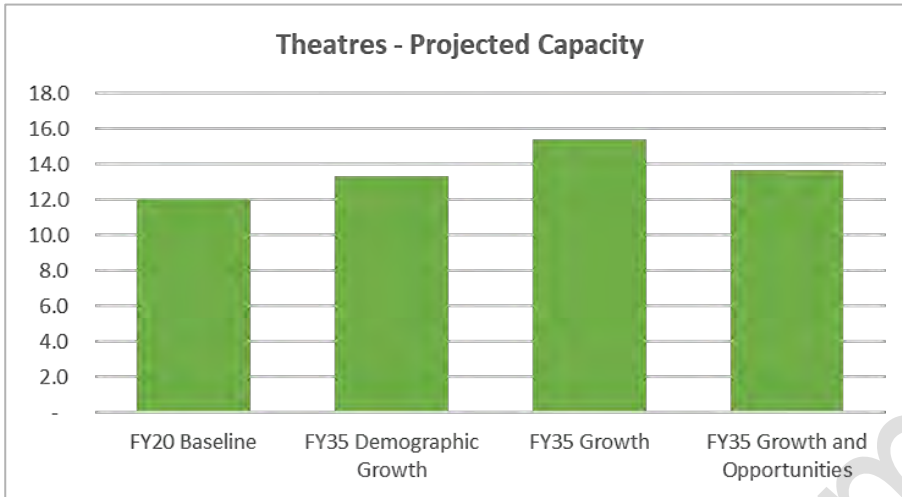
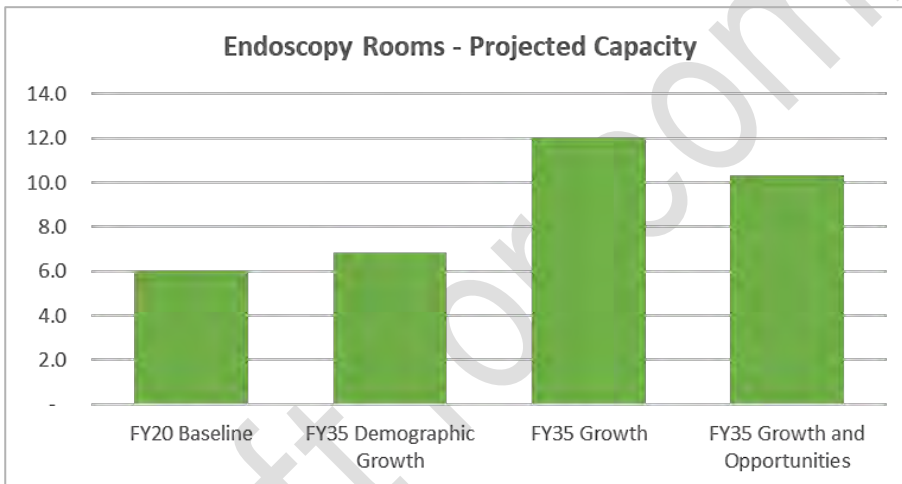


Figure 24 - (Endoscopy) projected capacity





3.8 Adult Critical Care (ACC)

Review of existing business case assumptions

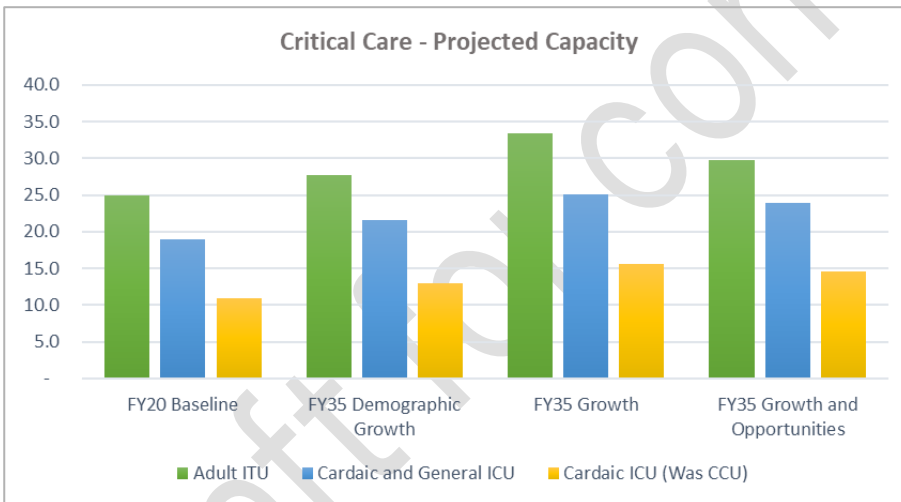
The business case for critical care expansion identifies a need for 14 additional critical care beds across Bristol and Weston. While Weston is not within the scope of our current work, our modelling for ward A600 (Adult ITU) and C604 (Cardiac and General ICU) aligns with the business case projection and identifies an uplift of 14 beds needed by FY35 based on growth trends.

Mitigation and innovation opportunities

The projected required uplift in beds would reduce from 14 to 10 if length of stay opportunities can be realised. However the uplift of 14 is certainly not unreasonable, particularly within the current context of the pandemic, together with the national policy imperative for building critical care capacity and resilience.

ACC Projections

Figure 25 - (ACC) project capacity





4 Activity Modelling Functional Content

Activity Modelling has been carried out to inform the future clinical requirements. It is important to show how the process works, getting from “activity = capacity = functional content”. The Functional Content, which can be defined as the number of beds; consulting / examination rooms; theatres can only be determined by the expected patient activity and the criteria used. The criteria includes operational days and hour in a working week and the number of sessions per day. The Functional Content is the main driver for determining sqm space.

The Schedules of Accommodation are derived by looking at the clinical rooms required; the clinical support spaces expected to support such spaces, an expected amount of facility management accommodation. All spaces are briefed as being Health Building Note compliant.

The activity model has been projected to 2035, which is in line with NHSE&I requirements. A five-year projection is useful to show the immediate future requirements, however, a longer term projection is required to support a greater level of detail for the masterplan. All schedules of accommodation are based on the Archus modelling.

4.1 Outpatients

The scope for activity and capacity modelling was limited to the service specific business cases only. The activity model suggests that there is a requirement to provide:

Table 5 – Projected Outpatient C/E requirement

Department	Consulting / Examination Rooms		
	Baseline	FY35 Projected	Variance
Haem Onc	13	27	+14
Children	22	25	+3
Eye	35	43	+8
Dermatology	9	13	+4

4.2 Adult ED and Children ED

Table 6 – Projected Adult and Children's ED requirement

Department	Consulting / Examination Rooms			Same Day Emergency Care Spaces		
	Baseline	FY35 Projected	Variance	Baseline	FY35 Projected	Variance
ED – Adults	26	37	+11	9	17	+8
ED – Children	17	22	+5	4	6	+2
ED – Eye Hospital	10	13	+3	1	1	-



It is noted that there is currently an eight-bed Children's ED observatory – working back from the activity data, the baseline position shows that c. four of these beds are SDEC and four for overnight assessment. Therefore, the latter 4 are included in the 129 Children's emergency beds in 4.3.

We note that the projections assume a lot more activity is done on an SDEC basis, in line with best practice, but that throughput is also increased, so there is only an insignificant uplift in SDEC space requirements.

It is assumed that this would probably be a new build facility and therefore scheduled accordingly.

4.3 Day Case, Elective and Emergency Beds

Table 7 – Projected Day Case, Elective and Emergency bed requirements

Department	Day Case Spaces			IP Elective			IP Emergency		
	Baseline	FY35 Proj.	Variance	Baseline	FY35 Proj.	Variance	Baseline	FY35 Proj.	Variance
Haem Onc	33	38	+5	35	45	+10	22	27	+5
Children	21	24	+3	45	46	+3	114	129	+15
Heart	12	11	-1	15	19	+4	64	85	+21
Dental	1	1	-	3	3	-	3	3	-
Eye	16	21	+5	4	7	+3	3	11	+8
Medicine	8	12	+4	10	10	-	255	280	+25
Surgery	28	35	+7	28	32	+4	103	123	+20
Dermatology	3	6	+3	0	0	-	0	0	-
Adult Critical Care					55		69		

Day case beds functional content

This assumes that growth is required and associated with existing facilities, i.e. Haem / Onc, Children's, Adult Cardiac, Eye.

It therefore requires an additional 11 medicine and surgical day case beds in the main BRI Block – this could be a 1 x 11 or 12 bed ward. Space would need to be identified from vacant accommodation and would necessitate a review of all day case spaces, to arrive at the right configuration for all medical and day case spaces. However, medicine day case numbers appear to be small, a total of 12 spaces, but day case surgery of 35 spaces is relatively high; this could be developed as a single identified zone, possibly as one unit of 36 cabins.

Elective and emergency beds

This assumes that growth is required and associated with existing facilities, i.e. Haem / Onc, Children's, Adult Cardiac, Eye.



It would require an additional 45 medicine and surgical beds in the main BRI Block; Space would need to be identified from vacant accommodation.

4.4 Theatres and Procedures

Table 8 – Projected Theatre and Procedures requirement

Department	Theatres		
	Baseline	FY35 Projected	Variance
Haem Onc	0	0	-
Children	8	8	-
Heart	4	4	-
Dental	0	0	-
Eye	4	5	+1
Medicine			
Surgery	12	14	+2
Dermatology	2	3	+1
Endoscopy	6	10	+4

In essence the model projects two additional theatres required on the BRI site, if there is a move to 5.5 days/week operating, average of nine-hour operating days, and 85% utilisation. Otherwise, the projection is for four additional theatres on the BRI site, which aligns with their business case (p.51 of Theatres expansion business case – new theatre suite comprising 4 theatres). There is also a need for an extra eye theatre and an extra Dermatology theatre.

For the purposes of briefing:

- 10 x Procedure Suite for Endoscopy;
- 3 x Procedure Suite for Dermatology.



5 Main Onsite Developments – Adult Emergency Department

Several scenarios have been developed to review the work of the Trust in the Urgent Emergency Assessment Centre, Theatres and Endoscopy. The purpose is to validate any previous work carried out by the Trust, but also to develop fully compliant schedules that can be used in business cases, site massing, building sizes, costing and development control plans. It will be necessary to prioritise certain developments before others, such as the recent decision to separate endoscopy from main strategic developments.

The below are illustrative schedules of accommodation (SOA) which can be amended and flexed to meet the Trust's needs.

- Illustration 1: as suggested and based around a new ED; Adult Assessment beds; Theatres and Endoscopy.
- Illustration 2: an enhanced new build based around a new ED; Adult Assessment beds; Theatres and Endoscopy; but with Pharmacy, Dermatology, CSSD. This scenario has been explored to demolish existing poor facilities but make better use of the site as a future development.

Illustration 1: Adult Emergency Dept; Adult Emergency Assessment Beds; Theatres; Endoscopy

This scenario assumes that there would be a major new development on the Marlborough Hill development site (existing Trust HQ site and progressing up the hill).

- New Adult Emergency Department of 3 x Triage; 8 x Resus; 10 x Minors; 16 x Majors; 6 x High Acuity Care; 16 x SDEC; 12 x bed Observation; 1 x CT and 1 x X-Ray;
- 3 x 32 bed Assessment Wards (this allows for additional capacity and creates 96 beds). This covers the 52 additional medical and surgical beds required from the site model to FY35 and the 25 beds on C808; it over-provides by 19 beds, but together with Ward A700 which gives 32 beds, can then be assumed that it allows for the replacement of Wards A609 (25 beds) and A522 (25 beds);
- An Endoscopy requirement of 10 x Procedure Rooms across the Trust; the business case suggested a new endoscopy suite of only 6 rooms of which 2 were additional. The modelling suggests that an additional 4 endoscopy rooms are required at BRI site;
- 2 x Theatres. Excluding the new Eye theatre and Dermatology facility, which is accounted for in its own departmental schedule). However, the opportunity should be taken to develop new Theatres as required (future proofing the space).



Based on the above Functional Content, the following is suggested:

Table 9 – Functional Content, Illustration 1

Department	Sqm
Entrance Zone	330
Main ED	3,669
ED Assessment Beds	1,513
ED Assessment Beds	1,513
ED Assessment Beds	1,513
2 x Theatres	1,257
Endoscopy	1,311
Total Dept Gross	11,105
Communications 22.5%	2,499
Plant 22.5%	2,499
Total (Gross)	16,102

Based on the above Functional Content but with a 4 x Theatre arrangement rather than 2, the following is the suggested SOA:

Table 10 – Functional content, Illustration 1

Department	Sqm
Entrance Zone	330
Main ED	3,669
ED Assessment Beds	1,513
ED Assessment Beds	1,513
ED Assessment Beds	1,513
4x Theatres	1,957
Endoscopy	1,311
Total Dept Gross	11,804
Communications 22.5%	2,656
Plant 22.5%	2,656
Total (Gross)	17,116



Illustration 2: Adult Emergency Dept; Adult Emergency Assessment Beds; Theatres; Endoscopy; Pharmacy; Dermatology; CSSD / HSDU

In addition to Illustration 1 the following has been added, allowing for the complete vacation of this part of the site.

- Pharmacy Department: typical of what would be expected within a General Hospital.
- Dermatology Department: a new department based on 13 x consulting / examination rooms; 4 x procedure rooms; 2 x puva rooms; 1 x additional treatment room.
- Reprovision of CSSD / HSDU: this could also be a facility developed off site.

Based on the above Functional Content, the following is suggested:

Table 11 – Functional Content, Illustration 2

Department	Sqm
Entrance Zone	330
Main ED	3,669
ED Assessment Beds	1,513
ED Assessment Beds	1,513
ED Assessment Beds	1,513
Theatres x 2	1,798
Endoscopy	1,311
Pharmacy	1,126
Dermatology	1,221
HSDU CSSD	1,102
Total Dept Gross	14,554
Communications 22.5%	3,275
Plant 22.5%	3,275
Total (Gross)	21,103



Based on the above Functional Content but with a 4 x Theatre arrangement rather than 2, the following is suggested:

Table 12 – Functional Content, Illustration 2

Department	Sqm
Entrance Zone	330
Main ED	3,669
ED Assessment Beds	1,513
ED Assessment Beds	1,513
ED Assessment Beds	1,513
Theatres	1,957
Endoscopy	1,311
Pharmacy	1,126
Dermatology	1,221
HSDU CSSD	1,102
Total Dept Gross	15,253
Communications 22.5%	3,432
Plant 22.5%	3,432
Total (Gross)	22,117



6 Children's Hospital

6.1 Children's Emergency Department

There is a requirement to provide for an expanded Children's ED. The modelling shows an increased ED requirement to 22 x cubicles and 6 x SDEC spaces. Similar in part to the discussions which suggested a future functional content of 18 x Assessment Cubicles; 7 x Resus Spaces; 16 x Observation beds including all associated ancillary space and supported functions.

If this were to be developed as a new department, this would be briefed as:

Table 13 - Children's ED space requirement

Department	Sqm
Children's ED	2,467
Total Dept Gross	2,467
Communications 22.5%	555
Plant 22.5%	555
Total (Gross)	3,578

If this were to be developed, by just adding the difference from existing to future requirements, the brief would be an additional 5 x cubicles and 2 x SDEC spaces:

Table 14 - Children's ED space requirement - Gap Analysis

Gap Analysis	Sqm
Children's ED (new build)	373
Total Dept Gross	373
Communications 22.5%	84
Plant 22.5%	84
Total (Gross)	540



6.2 Children Outpatient Department

There is a requirement to provide an expanded Children's OPD; the modelling shows an increased requirement of 25 cubicles. Similar in part to the discussions which suggested a future functional content of 29 x C/E and all associated support functions and ancillary space.

If this were to be developed as a new department, (scheduled as 24 x Con/Exam: 3 x 8 C/E modules), this would be briefed as:

Table 15 - Children's Outpatients, space requirement

Department	Sqm
Children's OPD	1263
Total Dept Gross	1,263
Communications 22.5%	284
Plant 22.5%	284
Total (Gross)	1,831

6.3 Children's Inpatient beds and Day Case Provision

The discussions also suggested that future requirements would include additional Children's beds. The discussion suggested 12, although the modelling shows a higher number of 18 inpatients and three for day case. The Trust's projection is for an additional 12 beds, based on projections to FY28. The Schedules are based on the projected sum to FY35 and a requirement for 21 beds.

Table 16 - Children's Inpatient and Day Case space requirement

Item	Sqm
Additional Children Beds	1,114
Total Dept Gross	1,114
Communications 22.5%	251
Plant 22.5%	251
Total (Gross)	1,616



6.4 Children's PICU beds

The discussions indicated that future requirements would include 4 x additional Children PICU beds.

Our own modelling suggests 2/3 are needed. However, given the current push for critical care resilience, four may be prudent.

Table 17 – Children's PICU space requirement

Item	Sqm
4 x Additional Children Beds	533
Total Dept Gross	533
Communications 22.5%	120
Plant 22.5%	120
Total (Gross)	773

The discussions also suggested a requirement for a

- New BMT Unit.
- New Child Eating Disorder Unit.

7 Adult Cardiology

The modelling suggests a requirement for an additional 25 x Cardiac Beds to go to a total of 104 beds. If briefed new, a 25 bed department would require a gross area of 1200sqm. This would require:

Table 18 – space requirement

Item / department	Sqm
Additional Cardiac Beds	1,200
Total Dept Gross	1,200
Communications 22.5%	270
Plant 22.5%	270
Total (Gross)	1,740



8 Ophthalmology

The modelling suggests a requirement for an additional:

- 1 x Eye Theatre to go to 5 theatres.
- 5 x day case beds and 11 beds.
- 8 additional C/E = a total of 43 C/E and an additional 3 x Emergency C/E = 13 C/E

This would require, but assumes within existing facility (therefore zero comms & plant):

Table 19 – Ophthalmology space requirement

Item / department	Sqm
Additional Theatre	376
Additional beds and day case	784
Additional consult / exam	338
Total Dept Gross	1,499
Communications 0%	0
Plant 0%	0
Total (Gross)	1,499

9 Haematology / Oncology

The modelling suggests a requirement for an additional

- 15 x beds.
- 5 x day case chairs
- An additional 14 Consulting / Examination Rooms

Table 20 – Haematology / Oncology space requirement

Item / department	Sqm
Additional Beds and Day Case	810
Additional Consult Exam	462
Additional Day Case Chairs	371
Total Dept Gross	1,643
Communications 22.5%	370
Plant 22.5%	370
Total (Gross)	2,382



10 Strategic Options for Development

Estate optimisation is an important consideration when planning the future development of the estate. Nationally, the New Hospital Programme (NHP) has gone over budget at an embryonic stage of the project life cycle: the first eight projects are already reporting an overspend from the original request of funding levels. The NHP is looking for evidence that the principles of good estate management practice are being followed. This would usually include the presence and implementation of robust estate strategy, masterplan and site development control plan.

Any request for capital funding from public money will be expected to illustrate that projects and programmes are achieving value for money and delivering hospital environments in an economic way, while achieving the Trust's strategic objectives and making best use of existing estate. In combination, these elements would provide a significant level of assurance and evidence that, after investigations, appraisals and checks, the optimum estates solution will be realised, and that decision making is well informed.

Activity and capacity modelling is fundamental in understanding future space requirements. There is an opportunity to model scenarios and assumptions and test the effect that changes in clinical practice, workforce, operational models, volumes and other variable aspects would have on future requirements for hospital development.

A number of guiding questions are key to decision making when informing a masterplan:

- 1) Is there a sufficient evidence base to support the design decisions made for the scheme?
- 2) Has the team considered all potential solutions and options when planning estate development, e.g. re-use, refurbish, extension, relocate or build new?
- 3) Can it be demonstrated that the optimum solution is being pursued, does it pass the Value for Money test (up-front capital cost vs life expectancy of the asset)?
- 4) Does the scheme achieve effective and efficient use of existing estate and facilities (where feasible)?
- 5) Does the scheme support national and local policy, including clinical best practice guidelines, HBNs, HTMs, net zero carbon, modern methods of construction, repeatable design, pandemic resilience etc?

Each service development business case should consider these five principles when planning future estate related solutions.



10.1 Onsite Development Options

The Trust has an available development site to the northwest of the main BRI campus site (Marlborough Hill); however any large scale development located here, could only be to maximise or optimise utilisation of existing space. Smaller, low density development on this land would risk sterilising the only expansion space available to the Trust.

It would be possible to build a solution that allows for later expansion and massing on top of the previously constructed buildings, however, this is not the most cost effective method for large scale development and would present challenges for undertaking construction in a live operational site. It is imperative that all construction and development is considered carefully as available expansion land is a scarce and a valuable commodity in this city centre location.

A new build UEAC on the development land appears to be the most viable and proceedable option, except for the limited financial resource required for such a large-scale specialist hospital development. Funding for the new the UEAC will take longer to put in place and will involve external financing sources outside of traditional reoccurring capital allowances.

Like most hospital campus sites, the main BRI location has factors and constraints that limit the availability of some strategic options. The opportunity to re-use, refurbish and extend must be exhausted before considering options involving new build construction.

There also needs to be a balance between any up-front capital costs, longer-term capital and revenue implications and life expectancy of the new build / investment; also taking account of difference in life expectancy, maintenance and costs of running a refurbished facility (circa 35 years) compared to that of the new build (circa 60+ years).

The ability to create high quality clinical environments, that are functionally suitable, meet health building standards and provide modern fit-for-purpose accommodation suitably future-proofed should also be considered.

Lastly, consideration of clinical adjacencies, patient journey, workforce, efficiency and financial resource available to support changes to the estate, should also be factored into any proposed solution.

The current position, issues and performance of the estate is well understood by the Trust. Some of the more "recent" buildings, such as the Queens Building (built 1960s), are difficult to convert, extend or make functionally suitable for modern clinical care delivery, this would be particularly true in attempting to upgrade the existing A&E dept and conversion of ward areas, (due to bed spacing, observation, single rooms etc).

Work to date has considered the activity and demand requirements to FY35, the functional and indicative schedules of accommodation (space required) to meet the demand.

The test to fit options are at a high level only at this stage and consider the main priority areas that will require the largest amount of space in the future: Adult and Children's ED, Children's Outpatients, theatres and inpatient beds, PICU and NICU. These services are located in some



of the more challenging environments to modify, expand or extend, due to the available space, and/or density of the core areas of the site.

For the avoidance of doubt the strategic options to re-use, refurbish and extend which have been discounted include:

1. Adult ED expands on Level 3, displacing Trauma and Orthopaedic clinics, and pharmacy – no solution for Children’s ED;
2. Adult ED is developed in A300/ Terrell Street, which is already a current interim ED solution: this is unsustainable as a long-term option and would be a sub-optimal clinical environment (as it was designed as a medical admissions unit).

These options were discounted for both clinical adjacency and functional suitability reasons, but the cost of refurbishment in these locations would also be disproportionately high, providing no space for future expansion, low life expectancy of the new asset, high revenue costs. The return on investment and value for the money would be poor.

Another major constraint is the lack of expansion space for the BRCH, unless it could utilise the adjacent Queens Building (currently Adult ED). However Adult ED requirements could not easily be accommodated on the core site and this department’s location appears to be the “key-stone” to unlocking the other priority site and service strategic developments.

The new build options considered for the development site included:

- Adult Emergency Dept (ED);
- Elective Centre;
- Outpatients;
- Children’s Emergency Dept (ED).

The most viable option for the development site appears to be a new Adult ED, as it would maintain its essential clinical adjacency with the rest of the site and vacating its current location would free up space to enable expansion of both Children’s ED and Outpatients. This development would have the most positive impact to the Trust’s strategic challenges, and would conform to the requirements of SAFE: being **S**uitable, **A**ceptable, **F**easible and **E**nduring. However, the cost and financial resource to implement the required estate changes presents a significant challenge.

The team also looked at offsite options for services such as CSSD, Estates, Diagnostics, and office consolidation.



10.2 Off Site Development Options

Other opportunities and scenarios exist to create accommodation off site. The purpose would be twofold; to create facilities that support healthcare and where patients do not necessarily have to travel to an acute hospital site and to lessen the mass of a new capital build on the existing site and leave a zone for further expansion. Other Trusts have started to look at similar arrangements, especially when considering developing facilities post-Covid.

As already mentioned, the modelling has projected a substantial required uplift in medical inpatient beds, based on demand trends to FY35 (from 255 to c.400 under a 'Do Nothing' scenario, i.e. including projected growth only and no efficiency or service transformation applied) and there is an opportunity for the Trust to offset the majority of this demand pressure through:

- Achieving expected levels for Same Day Emergency Care;
- Achieving a 50% reduction in delayed discharge bed days.

This generates a realistic mid case requirement for 280 medical, non-elective, inpatient beds on the BRI site by FY35. The 50% reduction in delayed discharge bed days equates to two or three wards of rehab / recovery activity, that could potentially be re-located off-site in partnership with community and social care.

The development of a separate facility may help the Trust in creating a different type of facility. This may be based around

- For example: 2 x 28 bed wards of Transitional or Rehabilitation beds;
- Supported with a Rehabilitation Facility.

Department	Sqm
Entrance Zone	265
Transition Rehab Ward 1	1,198
Transition Rehab Ward 2	1,198
OPD Rehab	853
Staff Zone	180
FM Zone	191
Total Dept Gross	3,885
Communications 22.5%	874
Plant 22.5%	874
Total (Gross)	5,633

A variant to this could be the beginnings of a "Healthcare Village", there are examples of new facilities being developed and are centred on:



- Outpatient and ambulatory facilities;
- Imaging facilities (in response to the Prof Richards report);
- 2 x day case theatres and 14 x patient cabins;
- Staff facilities.

These facilities could be extended, depending on discussions and involvement with the Local Authority and Social Services. There is also an opportunity for joint system working with North Bristol NHS Trust on campus-style health and wellbeing developments.

Table 21 - Off-site Outpatient and Day case facility space requirements

Department	Sqm
Entrance Zone	265
Transition Rehab Ward 1	1,198
Transition Rehab Ward 2	1,198
OPD Rehab	853
Outpatients and Imaging	918
Dermatology	1,221
Day Case Theatres	1,983
Day Case Cabins and Short Stay LOS	686
Staff Zone	180
FM Zone	191
Total Dept Gross	8,693
Communications 22.5%	1,956
Plant 22.5%	1,956
Total (Gross)	12,605

Taking this scenario further may provide an opportunity to create a facility with more elective activity, including two day case theatres and five elective theatres, plus 14 day case spaces and 36 beds. It does assume that specialist heart; haematology / oncology; children are retained within their specialist modalities and currently excludes endoscopy, although that could be included.

The key issue in creating an elective centre would start a conversation on having dedicated facilities with dedicated beds, that would not be occupied by emergency cases. It also starts to think differently and create facilities in a post-Covid era.

Table 22 - Off-site Outpatient and Elective facility space requirements

Department	Sqm
Entrance Zone	265
Transition Rehab Ward 1	1,198



Department	Sqm
Transition Rehab Ward 2	1,198
OPD Rehab	853
Outpatients	918
Dermatology	1,221
Main Theatres	2,921
Elective Ward	1,660
Day Case Cabins and Short Stay LOS	686
Staff Zone	180
FM Zone	191
Total Dept Gross	11,291
Communications 22.5%	2,540
Plant 22.5%	2,540
Total (Gross)	16,371

An additional variant could be the inclusion of CSSD; it would be dependent on the numbers of sterilizers and washers.

Table 23 – Additional CSSD requirements

Department	Sqm
CSSD	
Total Dept Gross	1,102
Communications 22.5%	248
Plant 22.5%	248
Total (Gross)	1,598



11 Summary and Conclusions

11.1 Summary

The objective of the work was to support the Trust in reviewing the Strategic Capital Programme and three of its main activities:

- a) Collating the capacity requirements across the range of proposed schemes and service developments;
- b) Testing anticipated capacity and demand requirements, based on a consistent set of assumptions across the existing business cases;
- c) Outlining and evaluating a range of scenarios, based on the scope of the schemes in the programme and the available physical estate options, to deliver the required benefits of the overall programme.

The team agreed a consistent assumptions framework for the activity and capacity modelling for all services in scope:

- Elective Surgery;
- Emergency and non-elective;
- Paediatric services;
- Ophthalmic services;
- Oncology and haematology.

Further analysis of specific requirements was undertaken in the stakeholder engagement sessions. All business cases for the existing schemes were reviewed, the summary, key findings and variances of these are highlighted in Section 2.2 of the report.

The review concluded that most schemes would need marginally less space than was outlined in the original business cases. However, this variance was not significant enough to constitute a change in building sizes when considering a need to create compliant clinical environments fit for future service delivery.

The modelling produced the findings from the demand and capacity exercise and evaluation of individual business cases by department. The net additional impact anticipated to FY35 against baseline capacity is as follows:

Table 24 – Net additional impact anticipated to FY35 against baseline capacity

Hospital Function	Additional FY35 requirements against baseline
Consult Exam Rooms	48
Same Day Emergency Care	10
Day Case Spaces	21

Hospital Function	Additional FY35 requirements against baseline
Inpatient beds elective	18
Inpatients beds emergency	104
Theatres	7



The figures above assume a reasonable mid-case scenario for growth, service transformation and efficiencies.

This review has looked specifically at the potential impact of any clinical mitigation and innovation opportunities, highlighted in section 3. A “blended” approach – looking at how services can be delivered differently to reduce the demand on physical space – will have to be adopted as the Trust moves forward with its strategic planning. Opportunities exist for system working, a left shift to the community and adoption of more digitally enabled hospital for the future.

Schedules of accommodation have been produced for all functional content, resulting from the activity and capacity modelling. These schedules can be used for future planning, design, and costing of the capital programme. They can also be used to help inform decisions regarding future estate investment for service delivery. The Functional Content, which is defined as the number of beds; consulting / examination rooms; theatres can only be determined by the expected patient activity and the criteria used. These criteria include the operational days and hours per week and the number of sessions per day. Functional Content is the main driver for determining size of space required.

The new capital regime, introduced in 2020/21, requires careful consideration as it sets a limit to system (STP) capital expenditure each year, with restrictions on annual spending, in line with Capital Departmental Expenditure Limit (CDEL), regardless of any cash reserves that a Trust may have.

The UBHW CDEL for 2020/21 is £53.16m and is expected to be at a similar level in 2021/22. In 2020/21 UHBW is expected to underspend by circa £20m against the CDEL, largely due to the continuing impact of Covid-19. CDEL prevents the addition of this year’s under-spend to next year’s capital programme. In real terms this results in significant limitations on the amount that the Trust could invest in infrastructure, environment, restoration, major medical, digital and other elements, from capital, in 2021/22. It is therefore necessary to review how the Trust plans its future capital expenditure and prioritises the various projects each year, within its strategic capital programme. It also means the Trust will have to find alternative financing solutions for future large-scale, strategic developments such as Category 2 and 3 schemes described below:

As a result the programme has been grouped into three categories:

- **Category 1: Infrastructure and Restoration** – 1-2 years:
 - Very high risk and high-risk infrastructure requirements – c£25m over 2 years;
 - Existing schemes linked to Restoration Framework:
 - Adult ward capacity – c£11m over 1 year;
 - Adult critical care capacity – c£12m over 2 years;
 - Medical Education facilities – c£2m over 1 year.
- **Category 2: Medium scale strategic development** – 2-4 years;
- **Category 3: Major strategic development** – 3-5+ years.



The strategic options for development have been explored in section 10 of this report. It is evident that the larger scale priority areas for service and estate development may take longer to fund and implement.

The requirement for the Adult ED cannot easily be accommodated in the current core site and its relocation to the Marlborough Hill is the “key-stone” to unlocking other site and service strategic developments for the Trust.

It will be necessary to look at the programme of strategic developments over the next 10 to 15 years, to determine which developments could be completed in the short, medium and longer terms; and which plans can be implemented to track the future hospital service and estate developments over that period. The activity and capacity planning can be used to inform clinical service delivery decisions. The schedules of accommodation can be utilised when completing hospital plans for physical estate changes, including informing business cases, development control, floor plans and financial resource requirements.

11.2 Next Steps

Archus recommends the following next steps:

- Consider the clinical mitigation and innovation opportunities discussed in this report;
- Consider the process for agreeing the prioritisation of category 2 and 3 schemes;
- Consider the strategic case for a new Adult UEAC in the context of the whole hospital development;
- Consider if any offsite opportunities (non-core clinical) will assist in creating more available expansion space;
- Consider the clinical off-site solutions, such as community diagnostic hubs, health on the high street and Edith Cavell Centres – system working across multidisciplinary teams.
- Undertake further work on the activity and capacity for other Trust services, including for Weston General Hospital, South Bristol Community Hospital, STP system working, and Covid-19 restoration planning;
- Complete a refreshed master planning options appraisal, including site drawings;
- Consider and understand the full impact on digital innovation for the Trust.



Appendix – Schedules of Accommodation (excel spreadsheets – attached separately)

Draft for comment

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Draft for comment

Appendix 4 – SOC Adult Emergency Floor including Radiology

STRATEGIC OUTLINE CASE REDEVELOPMENT OF THE ADULT EMERGENCY FRONT DOOR INCLUDING THE REDEVELOPMENT OF THE RADIOLOGY SERVICE

V.6 OCTOBER 2019

Version	Version notes	Author/ Updated by	Approved by	Date
0.1	1st Draft	Victoria Hastings		01/07/2019
0.2	Incorporating comments from Phase 5	Victoria Hastings		22/08/2019
0.3	Updated capacity modelling to bring in line with 5 year assumptions and updated cost estimates	Victoria Hastings		29/08/2019
0.4	Updated capacity modelling for 10 and 20 year projections.	Victoria Hastings		24/09/2018
0.5	Integrated Radiology SOC to create a single combined SOC	Sarah Swift		30/10/2019

0.6	Minor amendments to financial section – FINAL DRAFT	Victoria Hastings	08/10/2019
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Version	Approval Forum	Approved?	Date
0.7	Phase 5 Programme Board	Yes	05.11.2019
0.7	CPSG		
0.7	SLT		

1. Executive Summary

1.1 Background:

This is a joint Strategic Outline Case (SOC) created by the Divisions of Medicine and Diagnostic and Therapies covering the Redevelopment of the Adult Emergency Front Door and the Redevelopment of BRI Radiology across Levels 2 and 3 to support ED and inpatient care.

To note, this SOC does not address the needs of the Radiology department beyond those within the BRI.

The current Emergency Department has seen an increase in attendances of c.3% year on year which equates to an additional c.2,800 patients per year. Attendances now average over 200 per calendar day. Attendances are forecast to increase from c.74,000 per year to c.86,000 per year over the next 5 years – these are mitigated growth assumptions. This has created significant capacity constraints from both a staffing and estate perspective. In March 2018 the leaders of the Division of Medicine met with the mission of creating a new model of care for the management of emergency medical patients within University Hospitals Bristol and this programme was named ‘The Acute Care Assembly’.

The assembly was a collaboration of clinical and non-clinical staff representing the Emergency Department, Acute Physicians, Older person’s team and senior management for operations, finance and HR. It sought to offer solutions to the growing issues. From this work, there were four key recommendations, one of which was ‘capital investment to develop an Acute Floor which will provide an Emergency Department which streams effectively to other services while efficiently managing surges in emergency demand and short stay patients.’ The current physical capacity can no longer accommodate the demand and therefore we are regularly seeing significant quality and efficiency issues. This includes, but is not limited to, patients regularly queueing in the corridor, patients being seen in an inappropriate physical environment (majors patients seen in minors) and the creation of unacceptable working conditions for staff.

In addition, the admission ward (A300) does not have sufficient capacity to house the medical take. During winter of 2018/2019 a pilot was launched to move the medical take to A413 to create additional capacity. While this has supported more rapid assessment for medical patients it has created a suboptimal medical take model which is based over two floors. To ensure that the totality of the emergency front door operates efficiently this case includes the case for a purpose built Emergency Department in conjunction with the re-provision of the medical take area (currently A413).

The Radiology service is integral to almost every other clinical service in the Trust. In recent years, it has been experiencing mounting pressures linked to a steady growth in demand at the same time as an increased focus on turnaround times. These demands are heightened by seasonal pressures (e.g., winter) and other times when the hospital finds itself, increasingly, in Black escalation. Following project work undertaken by the Trust’s Transformation team, it was concluded that further productivity schemes alone will be very limited in their ability to impact improvements in Emergency

Department (ED) reporting turnaround times. To achieve meaningful and lasting results, the Radiology service and the Division of D&T have worked with the Division of Medicine on the present Strategic Outline Case.

The Radiology service has been seeing increased demand, year on year, to the point where the growth in activity has totalled 6.9% between 2015 and 2018 alone. The growth has been even higher in the BRI itself, sitting at 7.4% over that same time period. The current situation has in part resulted from a growing population, particularly in the catchment areas in the direct vicinity of the BRI. Seasonal pressures and other factors leading to heightened levels of Black Escalation routinely put additional strain on the department, leading to a risk of compromising the quality of clinical care being delivered.

The strain on the department's capacity is having indirect effects on other areas of the Trust, such as increased pressure on the ability to meet targets for Cancer Pathways, Referral to Treatment Time, Patient Flow and ED waiting times. Timely access to Radiology is also an important factor in minimising bottlenecks in Patient Flow across the Trust. The real challenge is that all of the above pressures must be met without compromising on Patient Safety nor the needs of the Trust's workforce.

The service has assessed that the change with the most potential for a significant impact would be the redevelopment of the main Radiology department, located in the Bristol Royal Infirmary (BRI). The primary objective would be to commit some new space (and/or review existing space) directly adjacent to the ED, which would be dedicated to Radiology and the scanning of emergency patients and inpatients. In order for this to happen Radiology services would need to be redeveloped on Level 2, potentially including the expansion of Radiology into areas currently occupied by other services.

This redesign would have the end result of bringing the BRI in line with the modern requirements and realities of an acute hospital setting. Co-locating Radiology within ED is one of the main ideas behind the new 'Major Emergency Centres' which are being developed across the UK. It is important to note that investing in some additional scanners and the appropriate staff would also be necessary, based on capacity gaps and activity growth as identified in the relevant modalities.

The current proposal would align with strategies at both local and national levels, as described in the Strategic Drivers section. The preferred recommendation (in conjunction with the Acute Care Assembly full business case) aims to describe the futureproofed, fit for purpose, financially sustainable Emergency Department, Medical Take capacity and Radiology service. Without these substantial changes the BRI will not be able to deliver the 4 hour access standard and other key diagnostic standards those relating to 6 weeks, cancer and internal ED turnaround are significantly at risk.

1.2 Drivers for Change:

There are a number of drivers for this case which are expanded upon within the paper. These can be summarised as:

1.2.1 Drivers relating to ED and the Medical Take

1. Increased emergency demand:
 - a. Demographic growth
 - b. Changes in time of presentation
 - c. Increasing acuity
 - d. Increasing age profile
 - e. Increasing mental health presentations
2. Fixed physical capacity leading to clinical quality and safety risks
3. Current level of risk associated with the Emergency Department estate
4. Evidence of Increased violence and aggression towards staff
5. Significant Infection control risks
6. Opportunities lost for key vulnerable groups such as those with mental health issues and patients with learning disabilities
7. Recruitment challenges compounded by estate limitations
8. Delivery of operational targets
9. Staff and Patient Experience

1.2.2 Drivers relating to Radiology

1. Growth in demand
2. Improve the design of spaces to support patient care and efficiency
3. Performance targets
4. Clinical quality and patient safety
5. Patient, family and staff experience
6. Future proofing capacity
7. Aligning with Trust strategy
8. Aligning with National strategy
9. Maintaining UH B's reputation as a healthcare provider, employer and teaching centre

1.3 Options for consideration

There are five options that have been considered within the strategic outline case. These are expanded on in the main body of the paper but in summary are;

1. Do Nothing

This option is not deemed credible given the growth predictions for the Radiology and ED Departments and the clinical impact due to the under provision of space.

2. Reconfiguration of the ED in its current footprint with the Medical take remaining on the 4th Floor

This option would create a small amount of additional ED clinical capacity but would not adequately address the current demand in Radiology or the predicted demand in ED, the Medical Take or Radiology. It is also likely to be prohibitively expensive for minimal gains.

3. Rebuild the ED to meet the needs of the demand and upgrade the current Medical take area

on the 4th Floor

This would address the needs of the internal ED capacity but would not mitigate the current bed shortage which in turn will create bottle necks to move patients out of the ED, not would it address the current and future demands of Radiology. If the needs of Radiology and the Medical take are not fully taken into account it is likely that the benefits brought from rebuilding ED would not be fully realised.

4. Rebuild the ED to meet the needs of the demand and with the addition of a co-located Medical Take area on the 3rd Floor of the BRI and a co-located Radiology department for inpatients and ED patients on the 3rd Floor of the BRI. This option also necessitates the rebuild and likely expansion of Radiology on Level 2 of the BRI.

This option would address the needs of ED, the Medical Take and Radiology. It would require the displacement of current services on Level 2 and Level 3 to create sufficient capacity.

5. Rebuild the ED and Radiology to meet the needs of demand with the addition of a co-located Medical take area in a new location

This option would address the needs of the ED, Radiology and Medical take. It could be purpose built and therefore minimise any disruptions to service. There would be loss of efficiencies due to its position away from the main site.

The preferred option is either Option 4 or Option 5. To fully determine which would be the most cost effective and operationally deliverable further design work must be undertaken.

1.4 Financial feasibility

Viability in respect of capital costs needs to be considered in the context of available capital and appropriate prioritisation. The current indicative capital costs are as follows:

New Emergency department (including take area) = £33m

Rebuild on the 3rd Floor (including take area) plus provision of existing services = £38m

Rebuild of Radiology on the 3rd Floor and the 2nd Floor = £9 million

Total =£42/ £47 million (note this does not take account of the costs of moving those services which are likely to be displaced by this proposal. Further scoping work is required to cost this).

The revenue cost of capital can be calculated once capital costs have been confirmed.

3% growth in ED attendances, year on year equates to c.£0.4m (gross) in year 1, compounded to c.£2.0m by year 5 in new revenue.

Assuming conversion rate holds, and per the recent 5 year modelling, a 3% growth in admissions to

the Observation Unit, year on year, equates to c.£0.2m (gross) in year 1, compounded to c.£1.1m by year 5 in new revenue.

Both SLA assumptions are above are subject to annual contract negotiation and the mechanics of any 'blended' urgent care contract.

For Radiology, costs would be recouped through the additional diagnostic activity that this would open up

Associated revenue costs in respect of workforce will likely grow commensurate with activity growth and have to be affordable within any new revenue 'envelope'. This will also need to be considered in the context of additional operational benefit and efficiency throughout the wider organisation (ie not just constrained to the Divisions of Medicine and Diagnostics and Therapies).

1.5 Recommendation:

In order to address the issues described, to resolve current clinical capacity pressures in times of peak demand in ED and to meet current and predicted growth in future demand for services in both the adult emergency front door and Radiology , it is recommend that:

1. The Trust supports the development of options 4 or 5. To fully determine which would be the most cost effective and operationally deliverable further design work must be undertaken.
2. The Trust commissions a full business case to further develop the detail around the proposal, which includes: full workforce and patient/parent representative engagement in proposed designs; and how to address current constraints in clinical and non-clinical spaces in order to meet current and future demand
3. A robust workforce and recruitment strategy is developed to align with and support the capital proposal

2. Drivers for Change

2.1 SWOT Analysis of Current Position for ED, the Medical Take and BRI Radiology:

Strengths	Weaknesses
Clinical & Quality	Clinical & Quality

<p>ED</p> <ul style="list-style-type: none"> Committed multi professional team who utilise an appropriate and robust structure for managing and mitigating risk. Excellent clinical outcomes for some groups of patients Innovative practice, which is recognised nationally (SHINE) Good education programmes for staff underpinning clinical practice. <p>Radiology</p> <ul style="list-style-type: none"> ISAS accredited <p>Reputational</p> <p>ED</p> <ul style="list-style-type: none"> BRI ED known to have excellent safety record Outstanding rating from CQC Proven ability to attract senior staff <p>Radiology</p> <ul style="list-style-type: none"> Advantage of being able to offer training opportunities not seen in many other Trusts <p>Workforce</p> <p>ED</p> <ul style="list-style-type: none"> Dedicated and committed ED workforce Success in embedding new roles, such as Cardiac ACP and Emergency Medicine ACPs <p>Radiology</p> <ul style="list-style-type: none"> Highly skilled staff members, of which many are grown within the service itself <p>Financial</p> <p>ED</p> <ul style="list-style-type: none"> Profitable SLR position <p>Radiology</p> <ul style="list-style-type: none"> Regular capital investments to replace ageing equipment on a rolling basis 	<p>ED</p> <ul style="list-style-type: none"> High levels of V+A against staff. Poor infection control management due to environment Lack of privacy and dignity for patients due to lack of space. Poor experience for patients who are very distressed (MH presentations, sensitive conditions such gynae etc) Lack of space leading to corridor queuing. Crowding and ‘surging’ leading to long waits and poor experiences. Poor 4 hour performance <p>Radiology</p> <ul style="list-style-type: none"> Performance against key targets slipping – 6 weeks, ED and cancer Flow issues connected to the fact that the department is currently spread over 3 floors <p>Reputational</p> <ul style="list-style-type: none"> Adult ED four hour performance is amongst the worst in the country Competing to recruit staff against NBT which has an impressive purpose built department BRI ED is known for its sustained and significant levels of corridor queuing and the pressure which trainees face OOH Inability to meet demands will reflect poorly on the Trust, impacting on other areas <p>Workforce</p> <p>ED</p> <ul style="list-style-type: none"> Staff are reporting that the current ED footprint is not a supportive environment impacting on sickness and retention levels Increased vacancy levels 2018 Staff Survey detail identified that ED medical staff feel unable to provide the level of care they aspire to <p>Radiology</p> <ul style="list-style-type: none"> Reliance on WLIs to make up for vacancies in some areas leading to staff “burn out” Lone working at night related to separation of inpatient and ED scanning areas <p>Financial</p> <p>ED</p> <ul style="list-style-type: none"> Growth could be constrained by any ‘blended’ urgent care contract. Ability to generate new revenue needs to be considered in context of wider organisation and not just constrained to existing
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	<p>'apportionment' basis</p> <p>Radiology</p> <ul style="list-style-type: none"> Loss of income from additional activity not being met, and cost pressures of having to outsource patients to meet targets
Opportunities	Threats
<p>Clinical & Quality</p> <p>ED</p> <ul style="list-style-type: none"> Improved environment contribute to improved staff recruitment, retention and well being. New roles being explored and created within and outside of ED. Increased resus offer. Flexible space which will allow for unexpected changes in demographics, demand or clinical services. <p>Radiology</p> <ul style="list-style-type: none"> Additional 'breathing room' for Radiology would allow it to take on new work and be more innovative and forward thinking, whilst maintaining high quality standards <p>Reputational</p> <ul style="list-style-type: none"> Opportunity to compete locally (and internationally) to attract staff to a purpose built, well-designed department Improvements to flow and performance through well-designed department with a focus on efficient flow and person-centred care The Trust's reputation at both a professional and educational level would be preserved <p>Workforce</p> <ul style="list-style-type: none"> Improved working environment would prevent/reduce incidents of violence and aggression Improve team working and staff experience Improve staff wellbeing/resilience More attractive working environment which may increase the attractiveness of ED and Radiology vacancies Reduce bank and agency usage Reduce need to staff queue and pull staff from inpatient areas <p>Financial</p> <ul style="list-style-type: none"> Growth assumptions are mitigated and therefore, subject to contract negotiation, 	<p>Clinical & Quality</p> <p>ED</p> <ul style="list-style-type: none"> High levels of V+A against staff and patients (e.g. due to poor waiting facilities). Risk of infection control management problems due to environment (e.g. lack of isolation facilities) Lack of privacy and dignity for patients due to lack of space. Poor experience for patients who are very distressed (MH presentations, sensitive conditions such gynae etc) Lack of space leading to corridor queuing. Crowding and 'surging' leading to long waits and poor experiences. <p>Radiology</p> <ul style="list-style-type: none"> Key targets will slip beyond levels which can be recovered without perpetual use of WLLs and agency staff <p>Reputational</p> <ul style="list-style-type: none"> ED four hour performance is amongst the worst in the country Competing to recruit staff against NBT which has an impressive purpose built department BRI ED is known for its sustained and significant levels of corridor queuing Likely CQC rating of required improvement due to the environment and subsequent impact on patients <p>Workforce</p> <ul style="list-style-type: none"> Staff are reporting that the current ED footprint is not a supportive environment impacting on sickness and retention levels Increased vacancy levels which could result in further deterioration of performance against key targets 2018 Staff Survey detail identified that ED medical staff feel unable to provide the level of care they aspire to <p>Financial</p>

<p>new revenue stream should follow growth</p>	<ul style="list-style-type: none"> • Contractual negotiations could restrict growth; • Costs could outstrip income if considered only in context of specialty of ED; • Absorbing growth in constrained estate could create pressure for expensive, temporary resources • High cost pressures due to an increased use of agency in an attempt to plug gaps
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2.3 Operational and Strategic Drivers

There are a number of drivers for this case which are expanded upon within the paper. These can be summarised for ED and the Medical Take as:

1. Increased emergency demand:
 - a. Demographic growth
 - b. Changes in time of presentation
 - c. Increasing acuity
 - d. Increasing age profile
 - e. Increasing mental health presentations
2. Fixed physical capacity leading to clinical quality and safety risks
3. Current level of risk associated with the Emergency Department estate
4. Evidence of Increased violence and aggression towards staff
5. Significant Infection control risks
6. Opportunities lost for key vulnerable groups such as those with mental health issues and patients with learning disabilities
7. Recruitment challenges compounded by estate limitations
8. Delivery of operational targets
9. Overall bed capacity (incl. Missed opportunities for same day emergency care (SDEC))
10. Staff and Patient Experience

These can be summarised for Radiology as:

1. Growth in demand
2. Improve the design of spaces to support patient care and efficiency
3. Performance targets
4. Clinical quality and patient safety
5. Patient, family and staff experience
6. Future proofing capacity

- 7. Aligning with Trust strategy
- 8. Aligning with National strategy
- 9. Maintaining UH B's reputation as a healthcare provider, employer and teaching centre

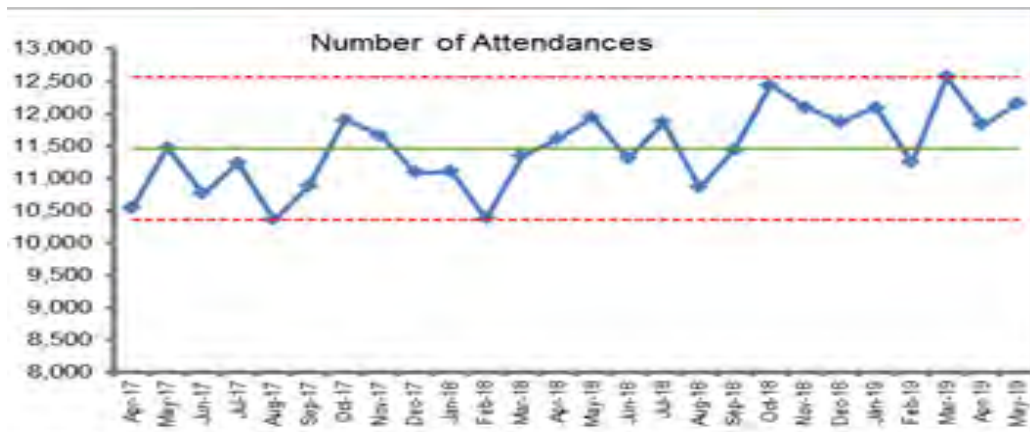
ED and Medical Take Drivers for Change

1. Growth in demand

The emergency department has seen a year on year increase in presentations which provides a significant challenge for physical capacity of the Emergency Department. In order to understand the requirements the Division have reviewed growth in terms of time of presentation, acuity, age and presenting complaint to ensure that the final configuration provides a future proofed, fit for purpose department.

1.a Demographic Growth

The department has seen a steady increase in attendances year on year. The below table demonstrates special cause variation in our attendance profile.



The below table demonstrates both the historic growth, and the anticipated future growth

Table 1 – ED Adult Growth by area

Year	Fast flow / minors	Majors	Resus	Waiting Room	Ambulance	Total (including weston)	Weston atts per year
2017/18	12289	26771	7586	18760	1220	67964	
2018/19	12896	30433	7636	17931	1031	71767	1840
2019/20	13632	32171	8072	18954	1090	73920	

2020/21	14041	33136	8314	19523	1123	76138
2021/22	14463	34130	8564	20109	1156	78422
2022/23	14896	35154	8821	20712	1191	80774
2023/24	15343	36209	9085	21333	1227	83198
2024/25	15804	37295	9358	21973	1263	85694
2025/26	16278	38414	9638	22633	1301	88264
2026/27	16766	39566	9928	23311	1340	90912
2027/28	17269	40753	10225	24011	1381	93640
2028/29	17787	41976	10532	24731	1422	96449
2029/30	18321	43235	10848	25473	1465	99342
2030/31	18870	44532	11174	26237	1509	102323
2031/32	19437	45868	11509	27024	1554	105392
2032/33	20020	47244	11854	27835	1601	108554
2033/34	20620	48661	12210	28670	1649	111811
2034/35	21239	50121	12576	29530	1698	115165
2035/36	21876	51625	12953	30416	1749	118620
2036/37	22532	53173	13342	31329	1801	122179
2037/38	23208	54769	13742	32269	1855	125844
2038/39	23904	56412	14154	33237	1911	129619
2039/40	24622	58104	14579	34234	1968	133508
2040/41	25360	59847	15016	35261	2027	137513

18.4%	43.5%	10.9%	25.6%	1.5%	100.0%
				Growth	3.00%

Assumptions:

Removes all weston patients from test data

Adds 1840 weston patients to 18/19 total to apply growth rate

Growth 3%

Location applies % weight to total attendance

28% of fastflow should be seen in Majors - This is applied to 2017/18 and 2018/19

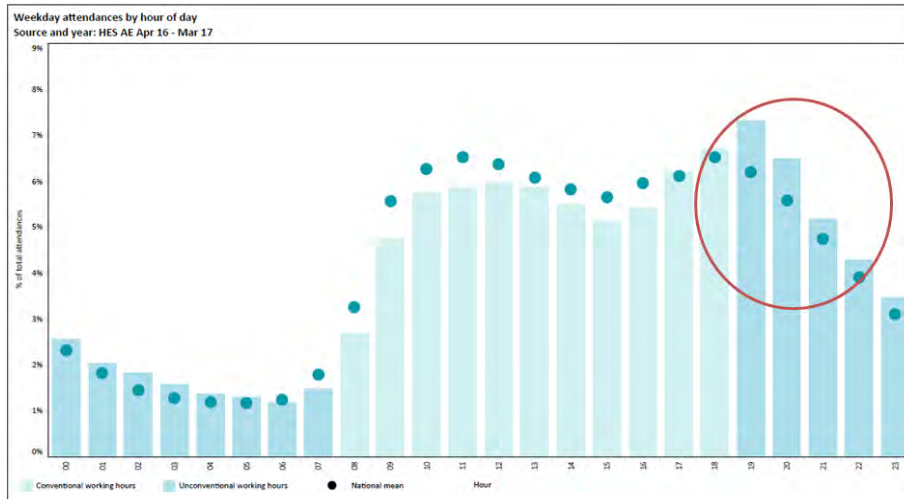
This equates to an additional 65,746 presentations by 2041 (91% increase). When considering the options for the emergency department it is important to note that the current footprint does not accommodate the 200 patients per day we are now averagely seeing.

While there has been significant work undertaken within the community to reduce overall LoS within the Acute Trusts there remains no credible plan to remove emergency ED attendances. There are growing plans to support a reduction in emergency attendances and while there is little evidence of success, our modelling for capacity requirements has assumed mitigation from primary care/community schemes.

1.b Time of Presentation

Caution must be applied when reviewing attendance numbers in isolation as a significant challenge comes not just in the totality of the attendances but in the arrival pattern. This creates predictable peaks where we see large increased variation from the 'norm' which must be accommodated. Below demonstrates our average arrival pattern which demonstrates this issue.

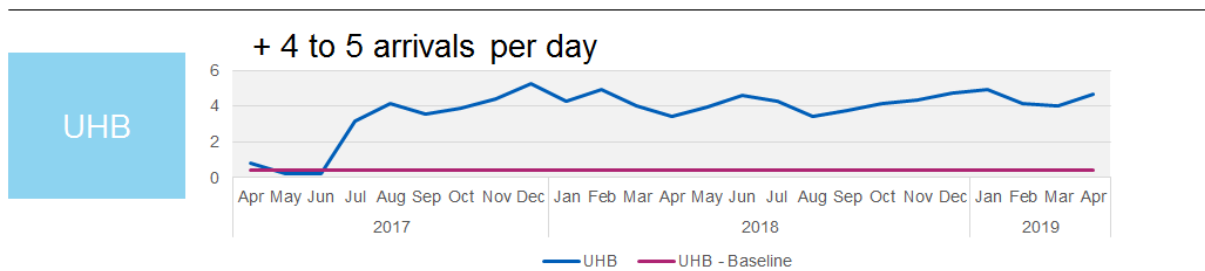
Graph 1: ED Attendance arrival time pattern



Therefore any modelling for physical capacity must be considered in line with the arrival pattern demonstrated above. When comparing the requirements in this way you see significant variation from assuming an average attendance profile.

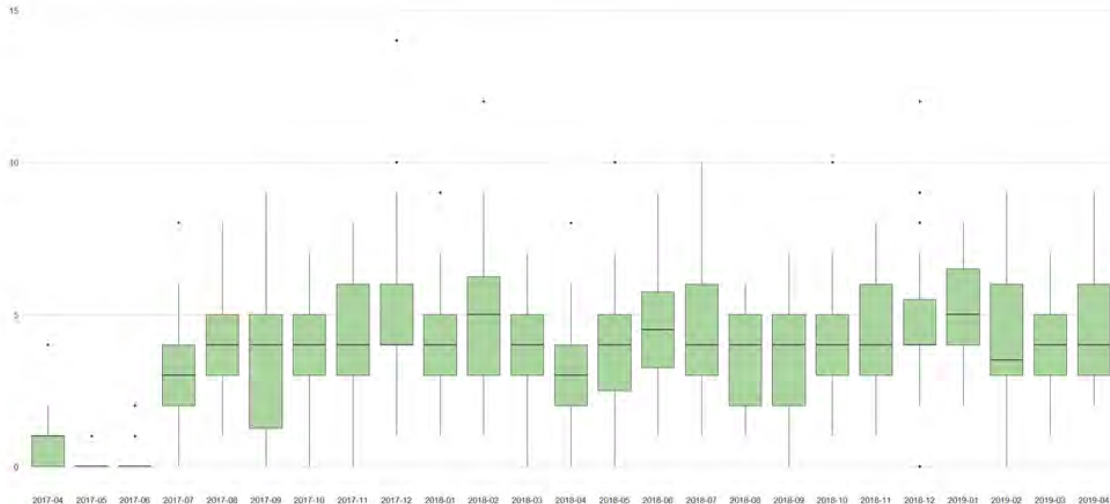
Weston Closure

In June 2017 Weston General Hospital closed its A&E from 22.00-07.45, this has resulted in a sustained increase in ambulance attendances to the BRI. The demographic of Weston patients is typically an older profile and due to the closure times have exacerbated the out of hour's arrival rate of complex patients requiring senior intervention and often admission.



Attends (Ambulance) – UHB

Weston Catchment Patients (16+): AE Attends - Ambulance
Provider PAS Attendance Data - Out of Hours (22:00-07:59)

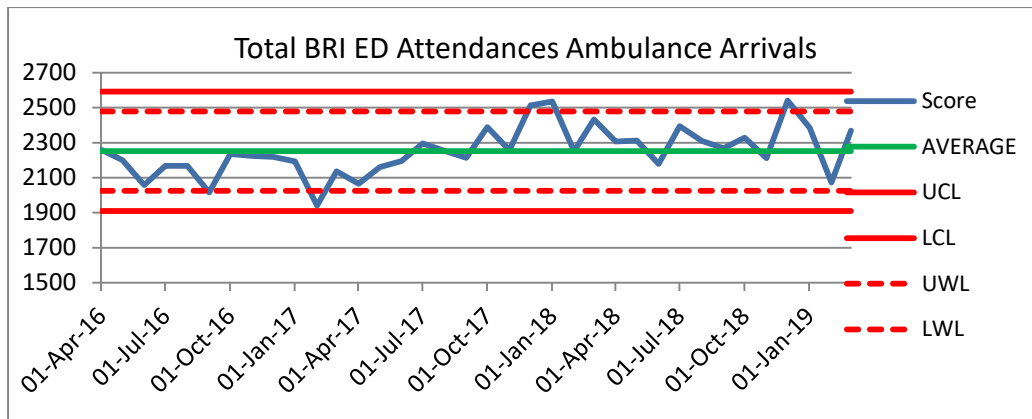


The above box plot shows the spread of overnight attendances (22:00-07:59) per day for Weston Catchment patients, with values grouped by month

1.c Increasing Acuity

Increased burden of complex and chronic disease coupled with expectation meaning more patients receiving resuscitation and ITU like care delivered by ED staff at the front door. Resus has not significantly expanded since it was built >20 years ago but the demand on it is exponentially bigger. This is in terms of numbers of patients but also the capability required to deliver modern resuscitation and critical against current expectations and good practice. A good example of this would be the very successful Out of Hospital Cardiac Arrest pathway which has great outcomes but typifies the increased complexity of care that is expected to be delivered in the Emergency Department despite no increase in resource to do so.

As there is no reliable data to accurately quantify acuity we have used ambulance arrivals as a proxy as the proportion of patients to be admitted from ambulances is higher than that of walk ins suggesting an increased dependency / acuity. Over time we have seen this number increase and therefore our overall acuity will have increased. This requires more resus and majors capacity which is currently limited within the BRI with patients regularly being seen in the wrong location for their level of acuity. Restrictions on majors and resuscitation space and a lack of SDEC streaming ability results in many 'majors' presentations being seen in fast flow which reduces the efficiency of this area, impacting performance.



1.d Increasing age profile

There is compelling evidence that the older the demographic within the ED the longer and more complex the ED stay required. As patients age there is increased chance of multiple complex physical and social co-morbidities. This prolongs the stay within the ED utilising physical capacity for a longer period. Given the current predicted growth within Bristol and the potential permanent overnight Weston closure (which has a significantly older population) there needs to be suitable physical capacity to see and treat this group. While the division continues to plan to create a frailty team within the BRI this will only be suitable for a proportion of older patients and therefore there will still be a remaining cohort who require emergency department support.

Within the last two years the BRI adult ED has seen 675 additional over 65 year olds with a 3.5% increase in >75 year olds. Bristol ONS data suggests that this is the beginning of a much more substantial increase in an older population.

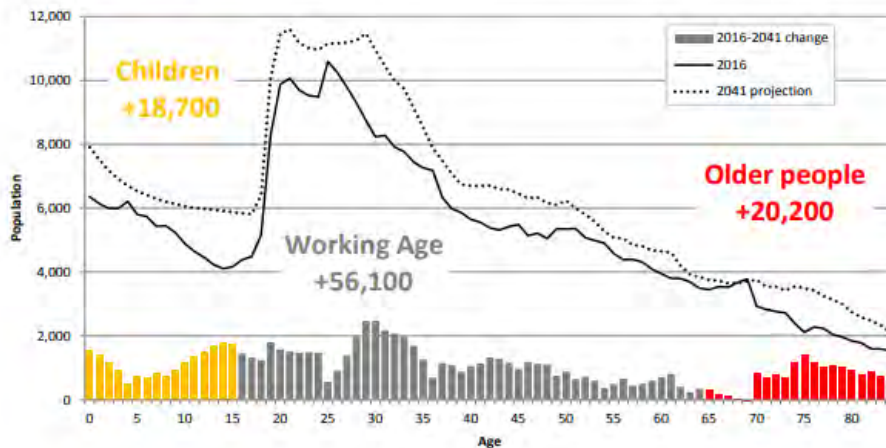
Graph 2. Bristol ONS growth predictions by age¹

¹

<https://www.bristol.gov.uk/documents/20182/33904/Population+of+Bristol+December+2018.pdf/e65be8b1-93a7-153d-da6d-62fbef265a04>

Figure 12. Change in Population Projections by age 2016 and 2041

Source: 2016-based Sub-national Population Projections, ONS



One of the key findings from the most recent population health management reports for BNSSG highlights that the age range that has seen the highest increase in numbers in BNSSG over the past 16 years is the population aged 85 and over. Those aged 60-74 years have been the second fastest growing population growing.²

1. e Increasing Mental Health attendances

The emergency department currently receives c.600 mental health presentations per month. This is approximately 250 more per annum than two years ago. This increasing trend is broadly attributable to:

- General increase in needs of the population.
- Increase in referrals along whole mental health care pathway.
- Ease of access: being open 24hr in the City centre 'attracts' attendance/footfall and 'social' presentations (homelessness, addictions etc)
- Every presentation is seen if they attend ED (50+% of MH attendees are already under AWP care (or very recently discharged) and patients become aware of this. We see approximately 70% of all referrals within an hour (in-hours).
- Patients attend out-of-hours knowing they can be kept safe/looked after until seen as they will not receive a service/care from the AWP Crisis Team.

This growth is compounded by a reduction in Community (AWP) provision and increase in ED attendance (recruitment problems in all AWP Bristol Teams); AWP are also signposting patients to the ED either directly or by signposting to GP/111 who then signposts to ED.

In addition we currently treat on average 1 patient with learning disabilities each day, however 1 in 20 of our frequent attenders have LD.

The current environment does not provide a therapeutic environment for these patients and in most

² BNSSG Population Health report 2019

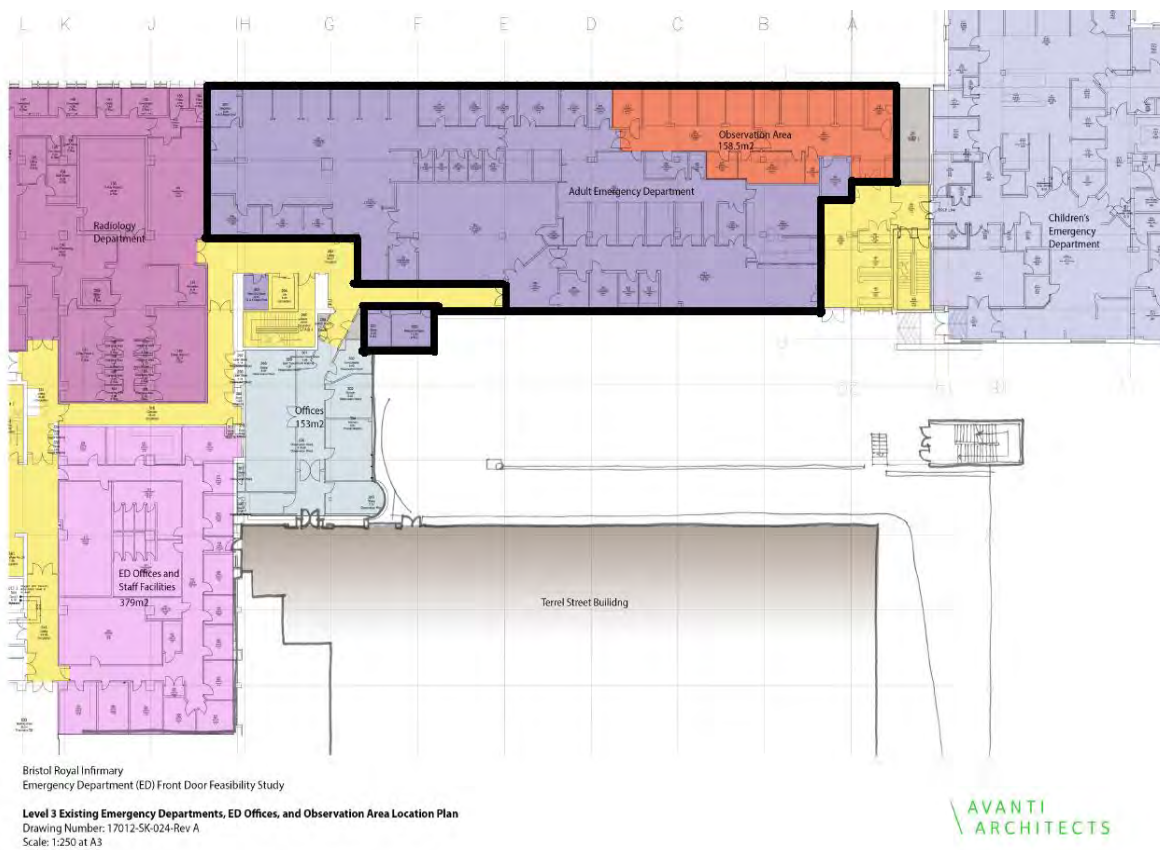
case exacerbates the presentation. A new design would allow us to focus on providing an area that was conducive to recovery and improve outcomes / experience for all patients within the ED.

2. Fixed physical capacity leading to clinical quality and safety risks due to poor flow

The current department comprises the following accommodation:

- 9 Minors Cubicles
- 11 Majors Cubicles
- 6 Resus Cubicles
- 8 Observation unit trolleys
- A small waiting room

This is supported by office and seminar room accommodation.



While there have been a number of small refurbishment/reconfiguration programmes within the department the overall footprint and structure has not been substantially upgraded since 2011. The current estate is no longer fit for purpose and is having significant impact on both the patients and staff experience. Demand and capacity modelling has shown the following requirements for the department.

	Fast Flow cubicles Required			Majors cubicles Required			Resus cubicles Required			Obs Trolleys Required		
	Ave	Busiest Day	Busiest Hr	Ave	Busiest Day	Busiest Hr	Ave	Busiest Day	Busiest Hr	Ave	Busiest Day	Busiest Hr
2019/20	4	6	22	13	17	40	3	5	22	8	12	57
2030/31	5	8	23	18	20	43	5	6	24	10	14	58
2040/41	7	10	25	24	22	46	6	8	25	12	16	61
Current Capacity	9			11			6			6		

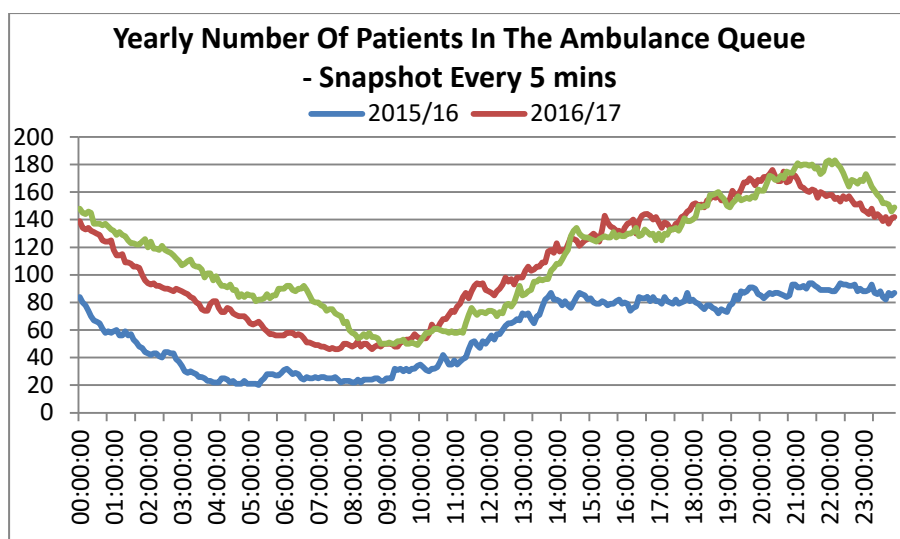
The current environment is exacerbated by delayed access to inpatient beds. The impact of this results in a cyclical productivity loss where poor access to the appropriate physical environment creates inefficiencies through outlying and poor admissions which in turn create less capacity. The impact of this can be typified by crowding within the ED and subsequent corridor queuing.

Crowding occurs when the number of patients occupying the emergency department is beyond the capacity for which the emergency department is designed and resourced to manage at any one time. This results in an inability to provide safe, timely and efficient care to those patients, and any subsequent patients who attend the department. There are different causes of crowding including surges in activity, insufficient staffing to manage normal activity etc.

There is a proven association between ED crowding and:

- Mortality
- Increased length of stay
- Reduced quality of care
- Poor patient experience
- Staff burnout
- Difficulty recruiting and retaining staff
- Increased rate of cancelled elective workload due to inappropriate admissions

When the department becomes crowded (n=35) the consequence manifests with patients no longer being able to access appropriate clinical space and are queued in the corridor. The organisation has seen a sustained level of patient's queuing within the corridor.



This is a completely unacceptable position for both staff and patients and is of the highest priority within the Division to resolve

Through this business case, and other related initiatives, the Division of Medicine seeks to assert its position in relation to queuing and the steps the Division would like to take in order to eliminate the queuing of medical patients outside the ED, in corridors or any other non-clinical areas.

3. Current level of risk associated with the Emergency Department estate

The current estate has a significant level of risk on both the departmental, divisional and Trust risk register. While steps have been taken to mitigate wherever possible, the totality of the growing cumulative risk must be addressed. The rebuild aims to reduce the following risks outlined within the Division of Medicine risk register:

ID	Opened	Title	Rating (current)	Risk level (current)
3040	29/01/2019	Risk of Adult ED junior medical staff shortages impacting on junior medical staff rota and other medical ED staff	12	High Risk
3042	29/01/2019	If the current recruitment & retention difficulties remain in the BRI ED ENP line we will not be able to retain our ENP service	12	High Risk
1595	04/05/2016	Risk that patients suffering from mental health disorders spend prolonged periods of time in the ED	12	High Risk
2619	12/06/2018	Risk that patients or staff are exposed to infectious diseases in the adult ED	12	High Risk
970	01/04/2014	Risk that failure of the ED 4-hour Wait target affects the Trusts overall improvement trajectory	12	High Risk
2029	02/03/2017	delays in triage assessment of ambulant patients	10	High Risk
2831	24/10/2018	Ultrasound scanning equipment	9	High Risk
3016	16/01/2019	Risk of violence and aggression in Emergency Department	9	High Risk
2567	10/05/2018	Risk of infection due lack of surface integrity in Minors seating	9	High Risk

2585	16/05/2018	ED waiting room pedestrian door	9	High Risk
2073	06/04/2017	Risk of patient deterioration for undiagnosed/ differential diagnosed Patients waiting to be triaged	9	High Risk
2383	19/12/2017	A risk to patient safety and experience due to current environment and facilities of the Resuscitation Area, Adult ED	9	High Risk
910	23/07/2015	Risk to the provision of timely and effective care and patient experience- due to being held in the ambulance queue	8	High Risk
1557	14/04/2016	ED Trauma Trolleys	8	High Risk
2858	29/10/2018	ED IT infrastructure	8	High Risk
3043	29/01/2019	Adult ED - Nursing workforce	8	High Risk
3167	09/04/2019	Risk of unsafe or delayed inter hospital transfer from Adult ED for Level 3 patients due to lack of appropriate staff	8	High Risk
288	02/01/2014	Out of Hours CAMHS service.	6	Moderate Risk
772	10/06/2014	Non compliance with multiple areas of statutory and mandatory training	6	Moderate Risk
1559	14/04/2016	ED Obs Unit Monitors	6	Moderate Risk
1574	21/04/2016	Resus room CO2 monitoring	6	Moderate Risk
2531	18/04/2018	Risk of staff feeling intimidated and risk of patient confidentiality breach due to recording without consent	6	Moderate Risk
2566	10/05/2018	BRI ED Office accommodation	6	Moderate Risk
57	18/06/2015	Anti-ligature assessment	5	Moderate Risk
678	01/10/2014	Patient harm due to non compliance with medical equipment training/ safety	4	Moderate Risk
88	11/03/2015	EBOLA and MERS risk for staff due to a lack of training.	3	Low Risk

4. Increased violence and aggression against staff

There is significant evidence that the environment within the ED has a material difference on the levels of violence and aggression experienced by staff. Any violence or aggression towards staff is totally unacceptable but many people become frustrated during their time in ED because of a lack of clear, effective information and guidance. This combined within anxiety and pain reduces people's tolerance levels and make them more likely to behave aggressively towards staff. During 2018/2019 there were over 300 incidents of violence and aggression in the ED. The Division has taken a number of remedial actions to reduce the impact of violence and aggression within the ED but recognises that these do not address one of the fundamental causes. Understanding the triggers for these behaviours creates an opportunity to design an environment to minimise these triggers wherever possible.

Triggers of Violence and Aggression³:

Clash of people: Many areas in A&E departments are crowded with a range of different people, forced together by difficult circumstances – each undergoing their own stress and dealing with their own complex mix of clinical and non-clinical needs.

Lack of progression: Whilst all Trusts aim to treat 95 per cent of patients within four hours, waiting for any length of time can be a difficult experience. There are few situations in our lives when we are forced to wait for such lengths of time without any sense of progression.

Inhospitable environments: Many people describe a dislike of hospitals, not least because they are full of sick people. Beyond the patients, hospitals can be uncomfortable places which are not pleasant to spend time in.

Dehumanising environments: When arriving at ED people can feel ‘out of sorts’ for a large number of reasons. Sometimes the way patients are managed can further lead to a loss of perspective.

Intense emotions: ED is a place where people may be experiencing extreme life events, suffering with pain or stress, or having to witness how other people are coping (or not) with their own stressful experiences.

Unsafe environments: ED is typically a very busy environment, with considerable amounts of equipment and large numbers of people using the space. Sometimes these factors can help to trigger or worsen violence and aggression.

Perceived inefficiency: From a patient’s perspective it can sometimes feel as if staff in ED environments are disorganised and lacking focus. Patients observe themselves and others seemingly waiting for hours, while staff ‘busy themselves’ with perceived non-essential tasks.

Inconsistent response: Hospital environments are often tightly controlled by policies, guidance, rules and regulations, much of which is difficult to decipher, inconsistently applied, and can be contrary to what happens in practice.

Staff fatigue: Working in an ED department is highly demanding on staff, many of whom work 12-hour shifts. Over time, staff can become both physically and emotionally tired, struggling to find the energy to deal with the constant flow of patients.

To address these issues a publication ‘Improving patient experience in A&E’⁴ has been created to provide a helpful toolkit to create an environment that is holistic for all patients. The study showed that where these improvements had been made, there had been an attributable 50% reduction in threatening body language and aggressive behaviour.

³

<https://www.designcouncil.org.uk/sites/default/files/asset/document/ReducingViolenceAndAggressionInAandE.pdf>

⁴ https://www.designcouncil.org.uk/sites/default/files/asset/document/a%26e_8steps.pdf

There is also a significant financial impact of violence and aggression in ED's. Studies have found that this costs the NHS £69m⁵ per year due to staff absence, loss of productivity and additional security. Within the BRI we are currently paying £70,000 for security within the ED.

5. Significant Infection Control Risks

There is currently a level 12 risk on the Divisional risk register (Datix 2619) describing the risk of exposure to infection diseases due to the limited isolation facilities within the adult emergency department. Within the current footprint if patients with a known or suspected infection (including diarrhoea and vomiting and high consequence infectious diseases, e.g. MERS) require isolation on admission (in line with local and national infection control guidelines) then patients presenting will come through the adult ED where there are no dedicated or specialist isolation facilities and limited alternative facilities for isolation purposes. This will result in a high risk of transmission of infection and cross contamination and a negative impact on ED capacity and crowding at peak times.

Some remedial actions have been taken which include identification of limited single rooms however these do not meet infection control requirements. There are currently two rooms (1 x examination couch in a side room in Fast Flow) available that may be considered to be suitable for segregation of patients with infection however these may not be adequate. Training for staff on basic infection control principles and fit testing is available and accessed, PPE available within the department and there is an identified category 4 cupboard within the department. Furthermore, information and support is available from the infection control team Monday – Friday, 8.30-4.30pm and consultant microbiologist out of hours.

However, there is recognition that these actions are not sufficient and the creation of an isolation space is required within the ED. Any rebuild of the department would include this facility.

6. Appropriate facilities for vulnerable patients such as those with Mental health issues or Learning Disabilities

Due to crowding and an outdated design the current emergency department cannot provide a therapeutic space for vulnerable patients such as those with mental health or learning disabilities. A new rebuild will provide the opportunity to work with key groups of patients to design a safer, calmer environment for mental health (as well as learning disability, Dementia etc) patients within the main area of the emergency department. Key features could include quiet and low stimulation space with safe/adapted signage. This could include a comfortable room for visitors/carers.

The approach is supported by NICE CG16 which states:

“If a person who has self-harmed has to wait for treatment, he or she should be offered an environment that is safe, supportive and minimises any distress. For many patients, this may be a separate, quiet room with supervision and regular contact with a named member of staff to ensure safety”.

⁵ <https://www.designcouncil.org.uk/what-we-do/social-innovation/reducing-violence-and-aggression-ae>

7. Recruitment challenges due to current estate.

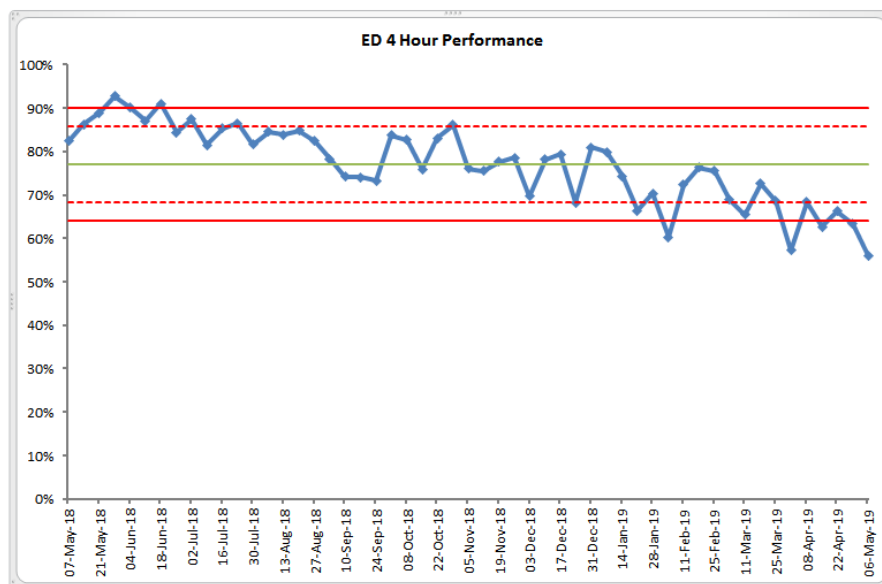
In a time of national shortages across the ED workforce it is essential that we are able to operate competitively and innovatively in order to attract high calibre candidates ensuring a safe, quality service for patients but also a safe and supportive working environment for staff.

There is now clear evidence that the intensity of working in highly pressurised healthcare environments is associated with an adverse impact on the health and wellbeing of clinical staff. The ED setting is amongst the most intense of these environments and numerous studies confirm Emergency Physicians' as being amongst those at highest risk of mental ill health, compassion fatigue and 'career burnout'. This is worsened in situations where crowding in EDs becomes a recurrent phenomenon due to wider system failures" RCEM Workforce Recommendations (2018). The 2018 staff survey reflected the challenging conditions faced within the BRI ED, of particular note within the ED medical staff team who felt their ability to provide the level of care to patients that they aspire to was well below the Divisional average of 65% (ED medical staff 43%).

Increasing demand, including many drug and alcohol related attendances can regrettably lead to long waits for patients to be seen especially at times of crowding and surge. This can lead to increased levels of verbal and physical abuse towards staff. Being exposed to this violence and aggression at work is unacceptable and can turn nurses (and other workforce members) away from wanting to work in front line, front door nursing.

8. Delivery of operational targets (ED 4 Hour access target).

While the safety concerns are the highest priority within this paper there is a clear link between the safety metrics and the deliverability of the performance challenge. Performance against the 4hr access target has been steadily deteriorating for the past year.



This has been driven by multiple factors which need to be addressed in parallel as there is no singular solution. The key drivers of the poor performance are:

- ED staffing challenges
- ED capacity constraints
- Access to beds beyond ED

The Division is responding to the three issues thorough the Acute CarA assembly programme (full business case available), OPP planning and delivery of best practice flow principles.

The Division is now recruiting to a frailty and ambulatory care model to support the inpatient bed base, there are very few described models to reduce the pressure on the emergency department. Therefore the growth must be housed within the ED footprint with modest assumptions for attendance reduction schemes. These assumptions are demonstrated within the capacity modelling.

Inability to deliver the 4 hour target has a significant impact on quality, financial performance and also the reputation of the Trust.

Reduction of Support Services

Due to financial and workforce constraints there has been a reduction in the support services available to the emergency department. This services are:

Brisdoc- Initial removal of GP streaming slots, subsequent removal of 1/3 daily shifts available resulting in notice being served to the team due to the unreliable service provided. (Full removal May 2019)

Core24- Due to the system financial recovery plan the recent addition of mental health support in the emergency department overnight has been removed (Due July 2019)

REACT – The recent expansion of REACT cover has been removed due to financial pressure.(Due August 2019)

This reduction in provision has created further pressure on the teams to manage patients previously streamed out of the department within the current estate (Brisdoc). Core24 and REACT reduction will come into effect from August 2019 and the team are working up mitigation options but it is important to note the further pressure on the clinical teams.

9. Staff and patient experience

As noted in section 3 above the current environment impacts negatively on both staff and patients in terms of the level of violence and aggression (V+A+) directed towards staff. There is clear evidence that improving the environment can reduce the levels of violence and aggression towards staff but this in turn improves the experience for patients, either individuals whose behaviour becomes unacceptable or those witnessing the behaviours.

Staff Experience

The 2018 staff survey evidenced that 52% of staff experienced violence and aggression and 76% experience bullying and harassment within the ED which is far in excess of the trust average (11.5% and 25%). In 2018 there were 324 formal reports of violence and / or aggression against staff in ED. Further, there is an 'informal' tally system where staff can register unacceptable behaviours that

amount to violence and aggression, these figures demonstrate between 35-50 verbal incidents and 3-10 physical incidents per month.

The opportunity to improve the environment, will allow the principles in the 'improving patient experience in A+E' toolkit to be integrated into the build of the ED.

The staff survey does not address the impact of environment on staff experience, however, informal feedback suggests that the effect of over crowding, the poor environment and the lack of space contribute to a negative experience for staff providing care.

Patients Experience

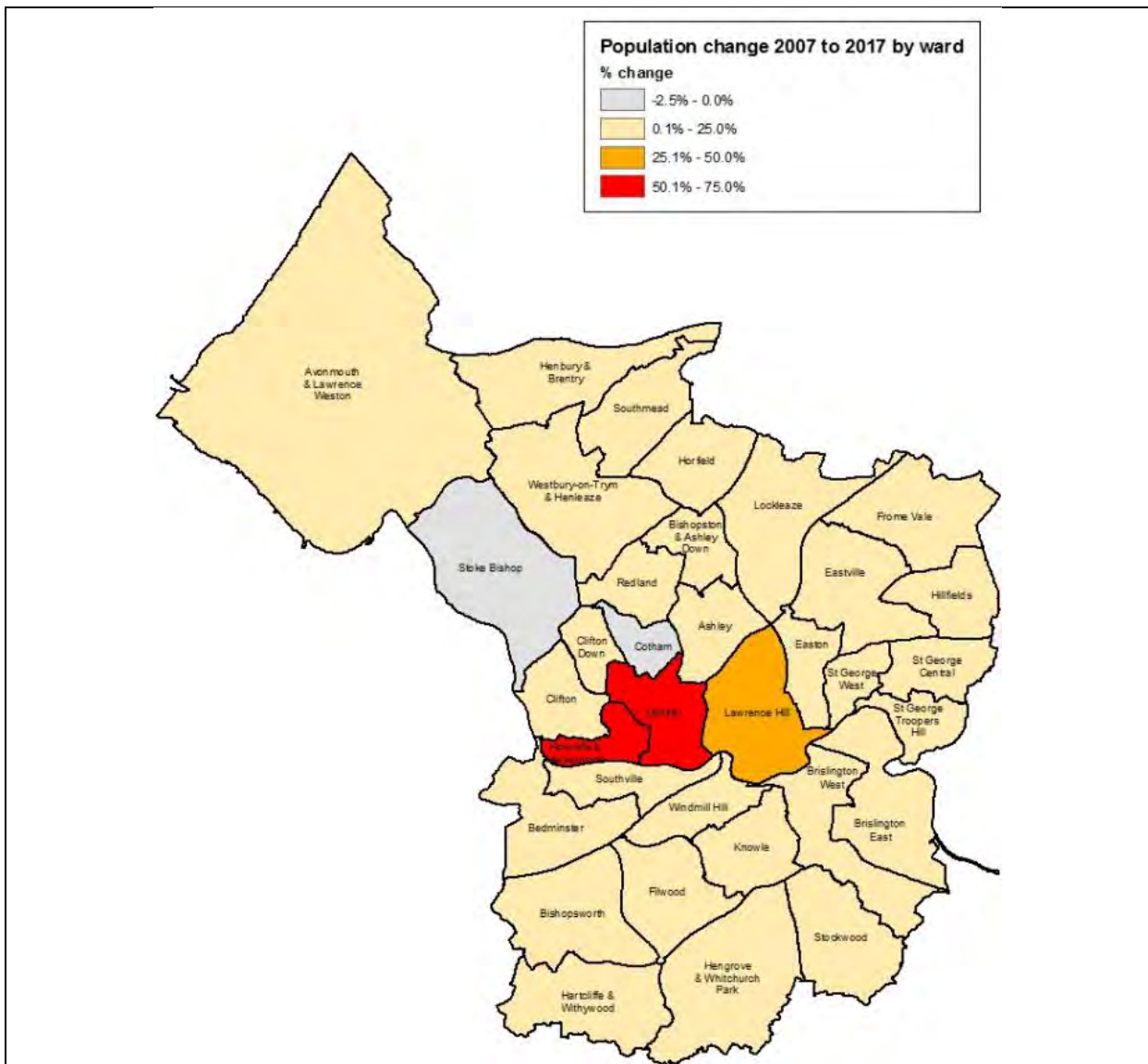
During 2018 there have been six formal complaints which specifically address the environment. One complainant noted that the environment was 'cramped, intimidating and made her feel scared'. Further, there was specific feedback from the friends and family test whereby a patient noted 'The shabby waiting area, no quiet place for people with severe mental health problems'. The lack of privacy given the limited space was raised a number of times either during the 'booking in' process or when sensitive news was given in the department.

Drivers relating to Radiology are as follows:

A. Growth in demand

A.1) Population growth

The population of Bristol has grown by 11% between 2007-2017. However, central areas within the BRI's direct catchment zone have experienced notably higher rates of growth; 70% in "Central" Bristol, 55% in "Hotwells & Harbourside", and 39% in "Lawrence Hill".



(Source: Bristol City Council;

<https://www.bristol.gov.uk/documents/20182/33904/Population+change+2006-2016+by+2016+ward/cbd76a01-3f3f-735c-bda9-0069ae5ca252>)

A.2) Activity growth

The aforementioned population growth is correlated with an increase in demand for Radiology services, with 7.4% growth seen in the BRI in the past three calendar years (2015 to 2018). Full details broken down by referral source are available in **Appendix 1**.

Growth of all BRI Radiology referrals across all modalities: 2015 - 2018

BRI (RA701) Only All Patient Types

Excludes Angio, Dopplers, Mammography, MRI Cardiac and Echo

		Patients Referred to Radiology (IP/OP/GP/A&E)				Growth Rates			
Modality	Age Group	2015	2016	2017	2018	2015 to 2016	2016 to 2017	2017 to 2018	2015 to 2018
CT Total		31,353	33,875	36,667	38,544	8%	8%	5%	22.9%
Fluoroscopy Total		4,372	4,129	4,042	4,263	-6%	-2%	5%	-2.5%
MRI Total		17,988	18,227	18,610	19,861	1%	2%	7%	10.4%
Nuclear Medicine Total		2,746	2,845	2,867	3,307	4%	1%	15%	20.4%
Radiology Total		92,759	92,456	93,103	92,917	0%	1%	0%	0.2%
Non-Obstetric Ultrasound Total		18,692	20,073	20,534	21,407	7%	2%	4%	14.5%
Grand Total		167,912	171,611	175,826	180,301	2%	2%	3%	7.4%

B. Improving the design of spaces to support patient care and efficiency

Aside from activity growth, the primary operational driver to redesign the department is its current layout, which is outdated and inefficient. Creating a dedicated space to scan emergency patients and inpatients in an area adjacent to ED would centralise the activity for this cohort of patients, who happen to have the most knock-on effects in terms of bottlenecks in Patient Flow. It would ensure visibility of emergency patients at all times between both ED and Radiology, minimising the need for the Site Team or Silver commanders to chase any actions that could otherwise fall between the gaps.

A redesign in this vein would bring the BRI in line with some of the cutting edge developments seen in Major Emergency Centres, as envisaged by former NHS Medical Director, Sir Bruce Keogh. One such centre, Northumbria Specialist Emergency Care Hospital in Cramlington, opened in 2015. Prior to its inauguration, one of the hospital’s key features, [as lauded](#) by Sir Keogh, was that, “*Locating diagnostics within the emergency care department will allow consultants to get test results quickly so they can start treating patients earlier.*”

It was rated Outstanding by the CQC in its [2016 report](#), which also highlighted its excellent ED performance: “*The department was achieving the government’s 95% target for admitting, transferring and discharging patients within four hours of arrival to the emergency department.*”

In one of its key findings, the CQC stated that, “*The opening of NSECH had resulted in a new model of care and different patient pathways in emergency, maternity and medical and surgical care at this hospital. This had resulted in different ways of working for some staff.*”

C. Performance Targets

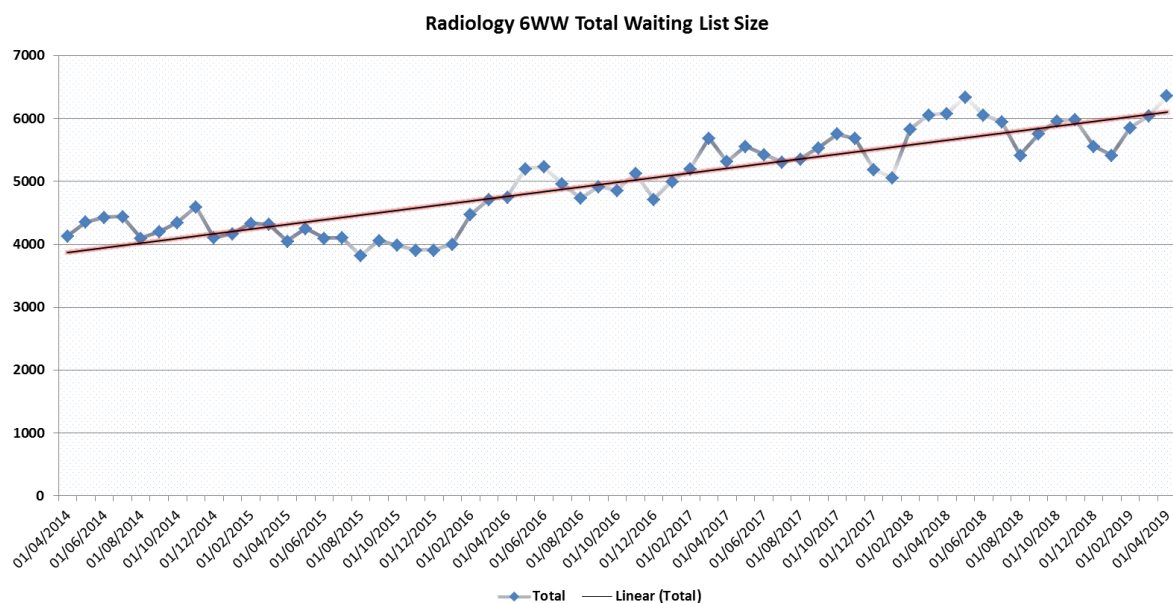
Between the beginning of 2015 and the end of 2018, the BRI's Radiology department saw a 10.1% growth in emergency referrals, 10.5% growth in GP referrals, 4.1% growth in IP referrals, and 6.5% growth in OP referrals. A number of charts in **Appendix 1** break down the detail and source of these various levels of growth. Even small impacts from annual leave or scanner breakdowns can easily cause the department to fall behind on targets. The ensuing recovery plans usually involve WLIs, which can be a burden both in terms of finances and staff morale. As a result of the latter, the Division of D&T finds itself in a position where fewer and fewer staff are willing to work on the WLIs.

Redeveloping the department and investing in new capacity would contribute towards improved performance against key measures, including:

1. 6-Week Wait standard

The total size of the waiting list for 6WW Radiology tests (Graph 1) has increased from 4,124 in April 2014 to 6,357 by the end of April 2019, a **54.1% increase**. Furthermore, Radiology's 6-Week Wait performance (Graph 2 – target of 99%) dropped from 99.32% in April 2014 to 96.1% by April 2019.

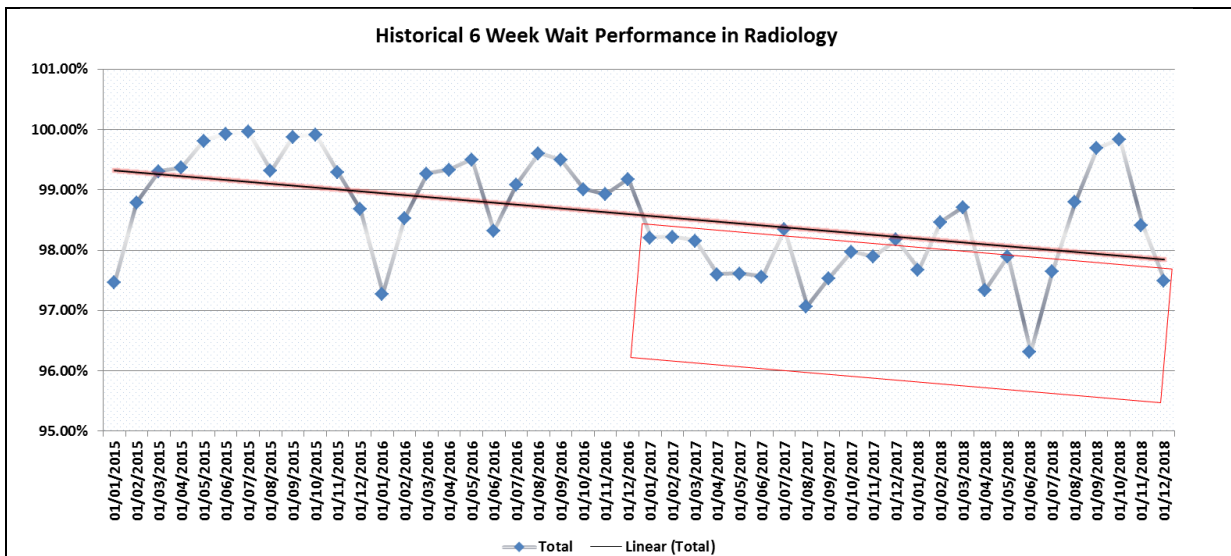
Graph 1



Source: InfoWeb

Despite the increase in the waiting list size, up until now, performance had been maintained throughout the years thanks to many productivity measures and an investment in workforce. However, performance is now starting to slowly drop off. Radiology's average, month-end, 6WW performance has been 98.58% since January 2015. In the past 2 years, or since January 2017, performance has dipped below said average in all but 4 months. In those same two years, there were only two separate occasions when Radiology hit its actual target (99%) at month end.

Graph 2



Source: InfoWeb

2. Emergency care indicators

KPI data shows dips in achievement of the 4 hour target correlating with peaks in demand. Improvements in working practices within the ED have turned around the performance in recent months and have demonstrated a sustained improvement in all of the other quality indicators. Expansion of the Radiology department would positively contribute to the team’s ability to meet key indicators, particularly those under a renewed focus, such as the 1 hour CT turnaround times.

3. Patient Flow

A redevelopment of the department would enable a faster response to requests from ED and wards. On the one hand, this would mean people waiting less time in ED before being admitted, therefore helping with flow and reducing ambulance queues. In turn, this would mean nurses spending less time staffing the queues and more time on the wards.

There would also be an impact on the opposite end of the pathway, at discharge. There are often small windows of opportunity towards the end of the day when a patient has a chance to go home, but only if the relevant information (such as a Radiology report) is available to the clinicians in charge. Even a small delay for a report to come back, towards the end of the day, could mean that a patient won’t be discharged until the following review the next day. As demand continues to grow, so will such scenarios.

4. Delays to Fast Track patients

The number of UHBristol’s 2-Week Wait cancer pathways increased from 13,521 in FY16/17 to 18,312 in FY18/19, a substantial 35.4% jump in only two years. Delays in Radiology can be a deciding factor on whether or not a pathway will be compliant or not within that 2-week window. Although the Radiology service routinely ‘works around’ the problem by moving routine or urgent patients to bring cancer patients forward within target, it is not ideal for any of our patients (particularly those being cancelled and rebooked at short notice) and it just passes the problem to the next step down, which is usually patients on RTT pathways.

5. Diagnostic Access and 18-Weeks Referral to Treatment Time targets

Increased radiology capacity would support achievement of the 18-Weeks RTT standard for elective patients. As a result of more capacity and fewer rebookings (usually to prioritise cancer performance), routine scans could be provided on a much faster basis, allowing patients to make quicker progress towards their First Definitive Treatment.

Whilst this does not fit in any particular performance category, the Radiology service will routinely accommodate patients from other Trusts in the region if the scanners within those other Trusts break down. This adds further pressure on the BRI, and it is also a reputational risk as UHBristol is sometimes forced to decline these transfers due to its own internal capacity issues.

D. Clinical Quality and Patient Safety

It is fundamentally important to ensure the ongoing quality and safety of the Trust's clinical care. To accomplish this, the Trust must ensure there is adequate capacity to meet growing demands. Ensuring timely access to services; delivering safe and reliable care; and improving outcomes/reducing mortality; these are three of the four key pillars underpinning the Trust's quality strategy. Further details relating to this are covered in the Strategic Drivers section.

E. Patient, Family and Staff experience

Both patient and staff experience are significant factors in the Trust's quality strategy. An overhaul of the BRI's Radiology department would allow for the revitalisation of the waiting area on Level 3, creating a more dignified environment for patients and their families. The patient waiting areas on Level 2, as well as the corridor on A227, also require redevelopment. This scheme could provide the opportunity to redevelop or reconfigure these areas to the large benefit of patients.

Optimising the layout of the department would also be a major boost to staff morale in Radiology, leading to a much better experience for them across several points:

1. Staff work areas

The redevelopment of areas such as the Radiology reporting hub would be a major improvement over the current cramped layout, where staff are prone to constant interruptions. In addition to the other pressures on Radiology staff, such conditions are adverse to their morale and have been cited as a grievance for a long time.

The lack of space in the Nuclear Medicine department is impeding the service, and the physics office in particular requires renovation following some marked deterioration. Future changes in the field of Nuclear Medicine and its legislation may also require some earmarking and reserving of additional space, if futureproofing the department for more than five years is to be considered. By that point, for instance, the Trust may be looking to reconsider ownership of a PET/CT machine.

Any of these changes to the work areas would be welcomed very positively by staff, leading to less stress in their day-to-day operations. As stress is a primary factor in the cause of staff sickness, this would also infer a reduction in staff absence levels.

Currently there are issues regarding lone working at night relating to the separation of inpatient and ED scanning. The colocation of these services in level 3 would address these safety issues for patients and staff.

2. Reduced impact on admin and support staff

Admin teams and support roles would equally benefit from the optimisation of the department. Much of their time is currently spent cancelling and rebooking patients due to capacity and flow. Though this is a natural expectation of prioritising clinically urgent patients, there is a point where it becomes excessive and detrimental to other pathways. Further scanning capacity would prevent this from being overbearing.

Dealing with the aggravation and complaints which ensue from hospital cancellations is a constraint on time and emotional resilience, as this is often cited by booking coordinators as being the worst part of their job due to its frequency of occurrence. By minimising the need to cancel and rebook patients, the experiences of the administrators would be much improved and they would have more time to spend on all their other duties. The accuracy of the work done by the administrative teams plays a key role in our performance, so this would be another positive by-product of this scheme.

3. Stabilised work/life balance

Due to current capacity pressures, staff are working regular WLIs and additional hours in an attempt to make up for shortfalls. They also end up doing unpaid work on an ad hoc, regular basis, as a result of overruns. A redesign of the department, coupled with an investment in radiologists, radiographers and radiographic assistants (proportional to any new scanners), would be well met by staff as it would also offer a better work/life balance within the service. This would help with retention and with the Trust's reputation as an employer.

4. Improved relations between staff in ED & Radiology

The opportunity to centralise Radiology and ED in the same area would lead to closer joint-working and much better communication between them. It would allow both staff groups to move on from some of the negative culture which has been observed in the past. Giving them visibility of one another would lead to a better understanding of the pressures on both sides.

3.3 Strategic Drivers

This scheme will support a number of strategic priorities for the Division and the Trust:

1. Future-proofing capacity

The redevelopment of Radiology would future-proof its capacity in the medium to long-term in order to meet growing demand that is arising from an increasing population in the region, existing unmet need, and changes in Radiology modalities at a national level.

The equipment requirements in this proposal (see **Appendix 2**) have been factored based on the latest developments in the field of Radiology. For instance, the service knows that in the coming years, chest X-Rays will be used a lot less often (with its activity estimated to drop to ~10% of current demand), in favour of chest CT scans which are far more efficient for the purpose of diagnoses, e.g., cancer, at early stages. In this instance, it is important that we prepare for such changes and take preparatory measures by investing in more CT capacity.

2. Aligning with Trust strategy

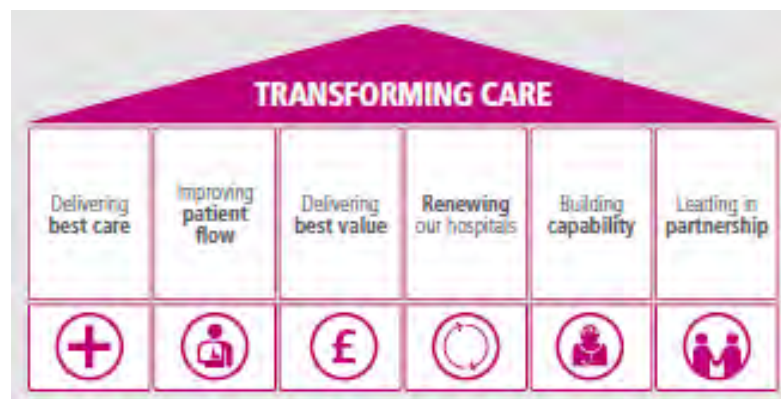
This case is aligned with the Trust's strategic priorities and intent based on its latest 5-Year Plan. The following table details those six key priorities:

Our Patients: We will excel in consistent delivery of high quality, patient centred care, delivered with compassion.
Our People: We will invest in our staff and their wellbeing, supporting them to care with pride and skill, educating and developing the workforce for the future.
Our Portfolio: We will consolidate and grow our specialist clinical services and improve how we manage demand for our general acute services, focussing on core areas of excellence and pursuing appropriate, effective out of hospital solutions.
Our Partners: We will lead, collaborate and co-create sustainable integrated models of care with our partners to improve the health of the communities we serve.
Our Potential: We will be at the leading edge of research and transformation that is translated rapidly into exceptional clinical care and embrace innovation.
Our Performance: We will deliver financial sustainability for the Trust and contribute to the financial recovery of our health system to safeguard the quality of our services for the future.

The present scheme fits in with the above as follows:

- **Our Patients:** By guaranteeing timely access standards, the scheme would have a significant impact on minimising the risk of having to compromise on quality and patient safety.
- **Our People:** It is an investment opportunity with the bonus by-product of increased training opportunities, and the enhancement of staff satisfaction and their day-to-day experiences.
- **Our Portfolio:** Reviewing the current layout of the department could allow us to shift certain activity off site where possible, allowing for the expansion of other modalities such as CT.
- **Our Potential:** Following the preferred recommendation would result in the development of a state-of-the-art hybrid Radiology/ED centre, which could serve as a model to other Trusts.
- **Our Performance:** The increased capacity would benefit both D&T and Trust targets, facilitating the achievement of ED turnaround times, cancer pathways, RTT and 6WW.

The scheme is also aligned with UHBristol's **Transforming Care** programme:



- **Delivering best care:** by ensuring we have the right scanners, in the right amount, to diagnose patients within the right timeframes
- **Improving patient flow:** by minimising diagnostic-related bottlenecks across the hospital
- **Delivering best value:** by meeting additional activity ourselves, and minimising the need for

the costly use of agency staff and outsourcing

- **Renewing our hospitals:** by redesigning Radiology's footprint in-line with modern needs
- **Building capability:** by attracting and retaining the best staff available
- **Leading in partnership:** by collaborating with ED in redesigning the foundations of our departments, potentially transforming UHBristol into an exemplar for Patient Flow

The above factors (highlighted in green below) feed into similar points from our **Quality Strategy:**



3. Aligning with national strategy

The Five-Year Forward View has put forward the challenge of shifting as much activity as reasonably possible out to the community, so as to leave hospitals like the BRI to deal solely with activity which is only possible to deliver in an acute setting. For Radiology, moving certain diagnostics such as plain film out to the community (SBCH) could free up space in the BRI to do more CT scanning for instance. An outline business case would allow the Division of D&T to explore this in more depth.

On a more regional level, whilst it is still too early to tell what the exact implications of the acquisition of the Weston Area Health Trust would be, an investment in the Radiology service could at least provide some buffer – or options – in case any activity from Weston were to be temporarily shifted here for any reason. Such instances of this already occur at present. The most recent example of this came up between April and May 2019; while Weston was unable to deliver DEXA scans, UHBristol subsequently stepped up to see the patients here in the BRI instead.

4. Maintaining UHB's reputation as a healthcare provider, employer, and teaching centre

Another challenge for UHBristol is its status as a University Hospital Trust, which means having to meet not only the healthcare needs of the local population but also the educational & training needs of future clinicians. This puts additional pressure on the Trust to maintain its reputation if it wants to continue attracting both the best staff and the best trainees. To meet all these concurrent demands, there is a need to ensure all the essentials and core elements are in place, such as a robust Radiology service.

3. Options summary

There are five key high-level options:

1. Do Nothing
2. Reconfiguration of the ED in its current footprint with the Medical take remaining on the 4th Floor
3. Rebuild the ED to meet the needs of the demand and upgrade the current Medical take area on the 4th Floor
4. Rebuild the ED to meet the needs of the demand and with the addition of a co-located Medical Take area on the 3rd Floor of the BRI and a co-located Radiology department for inpatients and ED patients on the 3rd Floor of the BRI. This option also necessitates the rebuild and likely expansion of Radiology on Level 2 of the BRI.
5. Rebuild the ED and Radiology to meet the needs of demand with the addition of a co-located Medical take area in a new location
- 6.

4. Options Appraisal

Option	Advantages	Disadvantages
1. Do nothing:	No capital cost incurred	Continued corridor queueing (including financial burden of staffing temporary

	Minimal disruption to current services	<p>queueing areas)</p> <p>Increased violence and aggression towards staff (including financial burden of increased security costs and loss of productivity through sickness and absence)</p> <p>Increased outliers within the main bed base resulting in poorer care and impacting on the elective programme</p> <p>Radiology department, Hospital bed base and environment not able to meet patient and staff needs.</p> <p>Continued and worsening challenges in patient flow, particularly in times of peak demand</p> <p>Inability to deliver timely, appropriate care and meet national standards</p> <p>Inability to maximise same day emergency care</p> <p>Ongoing/increasing complaints and worsening patient/family experience</p> <p>Worsening staff experience</p> <p>Potential reputational damage</p> <p>Ongoing need to outsource Radiology capacity or decline activity</p>
<p>2. Reconfiguration of the ED in its current footprint with the Medical take remaining on the 4th Floor</p>	<p>Less capital and workforce investment required</p> <p>Would deliver partial benefits ED crowding and flow</p> <p>Would remove any impact on adjoining services</p>	<p>Continued corridor queueing (including financial burden of staffing temporary queueing areas)</p> <p>Increased violence and aggression towards staff (including financial burden of increased security costs and loss of productivity through sickness and absence)</p> <p>Continued and worsening challenges in patient flow, particularly in times of peak demand</p> <p>Inability to deliver timely, appropriate care and meet national standards</p> <p>Ongoing/increasing complaints and worsening patient/family experience</p> <p>Worsening staff experience</p>

		<p>Potential reputational damage</p> <p>Radiology department not able to meet patient and staff needs</p> <p>Ongoing need to outsource Radiology capacity or decline activity</p>
<p>3. Rebuild the ED to meet the needs of the demand and upgrade the current Medical take area on the 4th Floor</p>	<p>Future-proofs capacity in both the emergency department and medical take area</p> <p>Improved quality outcomes</p> <p>Enhancing clinical teams' ability to deliver timely, appropriate care and meet national standards</p> <p>Opportunity to improve patient/family experience</p> <p>Opportunity to improve staff experience</p> <p>Reduction in corridor queues</p> <p>Reduction in violence and aggression against staff</p> <p>Improved 'unplanned' financial expenditure</p> <p>Some ability to maximise same day emergency care</p> <p>Reputation enhanced</p>	<p>Significant capital investment required</p> <p>Investment in workforce required</p> <p>Decant programme would impact operational delivery in the short term</p> <p>Underlying risk of recruitment challenges.</p> <p>Displacement of adjoining services to create capacity</p> <p>Unresolved inpatient bed capacity issues resulting in flow challenges</p> <p>Further capital scheme required to meet inpatient bed requirement</p> <p>Missed opportunity to co-locate medical SDEC area with the emergency department to create optimal flows</p> <p>Option not possible without redevelopment of Radiology as would require the displacement of Radiology. The following therefore applies to Radiology:</p> <p>Department unable to meet patient and staff needs.</p> <p>Worsening patient flow challenges, particularly in times of peak demand</p> <p>Inability to deliver timely, appropriate care and meet national standards</p> <p>Ongoing/increasing complaints and worsening patient/family experience</p> <p>Worsening staff experience</p> <p>Ongoing need to outsource capacity or decline activity</p> <p>Reputational damage</p>
<p>4. <u>Rebuild the ED to meet the needs of the demand and with the addition of a co-</u></p>	<p>As described in Option 3 but additionally;</p> <p>Improved access to inpatient beds</p>	<p>Significant capital investment required</p> <p>Investment in workforce required</p>

<p><u>located Medical Take area on the 3rd Floor of the BRI and a co-located Radiology department for inpatients and ED patients on the 3rd Floor of the BRI. This option also necessitates the rebuild and likely expansion of Radiology on Level 2 of the BRI</u></p> <p>5.</p>	<p>therefore negating the need for further inpatient schemes</p> <p>Potential to release space on the 4th floor to enable broader Trust expansion plans</p> <p>Economies of scale of larger build</p> <p>Maximises ability to provide medical SDEC co-located with the emergency department to ensure all patients referred to the medical take are managed on an ambulatory pathway until this is ruled out as clinically unsuitable.</p> <p>Future proofs capacity in Radiology</p> <p>Improved flow through Radiology</p> <p>Improved ability in Radiology to deliver timely and appropriate care and meet national standards</p> <p>Opportunity to improve patient and family experience in Radiology</p> <p>Opportunity to improve staff experience in Radiology and enable the Radiology service and Trust to be an employer of choice</p> <p>Reputation in Radiology upheld</p>	<p>Decant programme would impact operational delivery in the short term</p> <p>Displacement of adjoining services to create capacity</p>
<p>6. Rebuild the ED to meet the needs of demand with the addition of a co-located Medical take area in a new location</p>	<p>As described in Option 4 but additionally;</p> <p>No negative impact on operations whilst build is underway (not applicable to Radiology)</p> <p>No displacement of services (not applicable to Radiology)</p> <p>Cheaper option as no decant required (not applicable to Radiology)</p>	<p>Significant capital investment required</p> <p>Investment in workforce required</p> <p>Decant programme would impact operational delivery in the short term</p> <p>Underlying risk of recruitment challenges.</p>

5. Preferred option

6.1 Preferred Option: Our preferred option will be either Option 4 or Option 5. This will allow us to build a fit for purpose ED with a co-located medical take area, and a fit for purpose and future proofed Radiology department in the BRI.

We will need to undertake more detailed analysis to be able to make a final recommendation. Our primary ambition is that the solution creates a future proofed solution for the emergency department, the Medical Take and BRI Radiology.

Any plans to address emergency demand must be seen in the wider context of pathway changes supporting estate development. The rebuild of the emergency department, take area and BRI Radiology is considered in conjunction with the following developments.

1. Demand management out of hospital (create alternative appropriate settings in primary care / community)
2. Internal capacity capability within the Trust (Staffing models and estate within ED, BRI Radiology and the wider trust)
3. Patient transfer out of the Trust into a community setting (Rapid movement of patients out of the Trust into an appropriate community setting)

There is recognition that if any of these elements fail, the emergency pathway will bottleneck and create an unacceptable level of pressure within the emergency department and pressures within BRI Radiology. The suggested estate changes address internal capacity capability but this is one element which needs to be considered within the wider work to deliver demand management and patient transfer.

1. Demand Management

These models create ways of working that would enable patients to be seen in the most appropriate clinical environment while either minimising or eliminating their need for an attendance at the emergency department.

The key pathways that are being developed are:

- Primary Care pathways
- Frailty Community Hubs
- Community SDEC
- New work has been announced to review the crisis mental health pathway, which is likely to be relevant
- STP Diagnostics pathway work

2. Internal capacity capability

In order to maintain efficient patient and staff flows it would be optimal to reprovide the Emergency Medical Unit (EMU) function co-located with the new emergency department rebuild. The opportunities a co-located service would present include being able to run the front door into Medicine as a Same Day Emergency Care (SDEC) area for all patients referred by their GPs or DTA'd from ED. The presumption would be to treat all referrals in an ambulatory / SDEC fashion unless ruled out for clinical reasons (e.g. patient not stable enough or not functionally capable of receiving SDEC). This SDEC area would include capacity for co-location of our acute frailty team and the opportunities they will bring to front load MDT assessments for patients presenting with frailty. There would also be the opportunity, through the co-location, to move patients with more complex needs through to the SDEC area for their medical assessments than we are currently able to manage on EMU. This will help to decompress the ED.

GP streaming models will also be considered to develop new pathways within / out of the department to manage demand appropriately.

The ED is currently reviewing other opportunities for new ways of working and the team is currently arranging to go and view other departments to ensure we learn from others who have redeveloped their estates. One option currently being explored is to have a central "Pitstop" area through which the majority of emergency patients (not resus patients) would pass in order to have a front-loaded senior assessment (RATT), including early requests for diagnostics. The expectation is that this will reduce overall time spent in the department and make decision making more streamlined for clinicians.

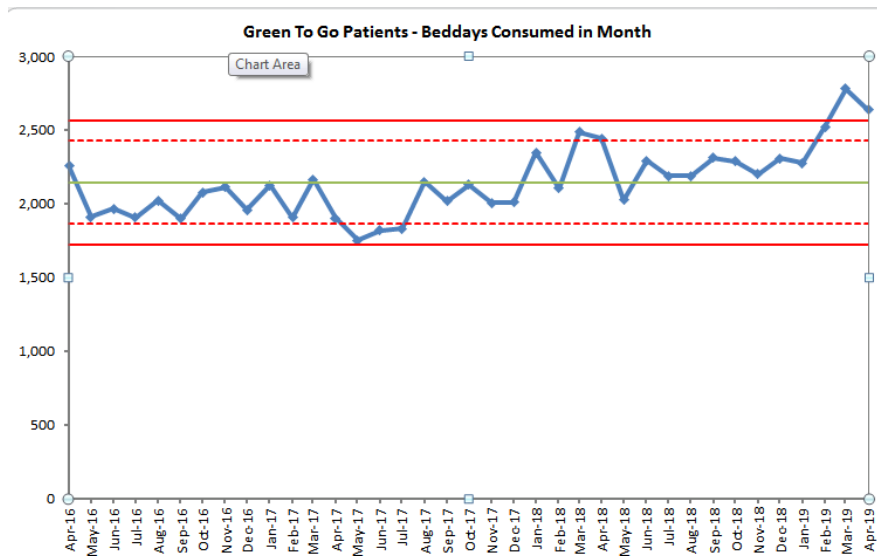
This will be supported by a full demand and capacity led workforce plan.

For full details please see the Acute Care Assembly (Summary Appendix 1).

Co-locating ED and inpatient scanners with the ED and take areas would reduce delays at the start of the Radiology pathway where requesting clinicians are required to discuss their requests with Radiologists. It would also reduce portering delays. The reduction of these delays will significantly contribute to Radiology's ability to meet the 60 minute target from ED request to report – without these estate changes remaining improvements are likely to be small and incremental in nature. Finally the co-located of inpatient scanning with ED scanning addresses issues concerning lone working at night.

3. Patient Transfer

The number of beds occupied by green to go patients have increased year on year.



A full work plan is currently being enacted with support from Bristol city council, the CCG and community colleagues. There is a focus on:

- Trusted assessment
- External capacity
- Domiciliary care capacity

5.2 Outline assessment of preferred option against 4 viability questions

Strategic alignment

The proposal is fully aligned with both the Trust and the Division’s current strategies, as highlighted in section 3.3 above.

Operational viability

The BRI is already struggling to meet peaks in demand for service and seeing growth in demand for services. Building adequate capacity to ensure key services remain sustainable is an operational priority. Improved capacity and reducing existing occupancy pressures will support the BRI to meet peaks in demand and achieve key performance targets.

Architects have identified several potential options to expand the key clinical areas within the scope of this case but in terms of project delivery, options 2,3 and 4 would lead to significant disruption to services, but these are felt to be surmountable and in the long term best interests of the emergency department’s staff and patients.

One of the key principles of this case is that clinical space will be a priority over non-clinical. Within the current configuration there is significant office and seminar space across ED and Radiology. While a core amount of non-clinical space would need to remain there would be a requirement to

develop office space at an alternative location.

In addition if the emergency department is to remain in its current location there will need to be a displacement of other clinical services.

The key issue surrounding operational viability beyond undertaking significant building work and the need to move clinical services relates to the inherent challenges in recruiting and retaining the additional workforce required to operationalise new physical capacity. This will remain a challenge to both Divisions regardless of the outcome of this case as the growth in attendances will need to be serviced. As such, a robust workforce and recruitment strategy will be required in order to meet the workforce requirements of a planned expansion. This may need to include development of new roles, training of existing staff into expanded roles, recruitment from overseas and other novel approaches to workforce-related challenges.

Given the complexity described above it is the request of the Divisions that agreement is given to move to OBC stage to allow more detailed designs and interdependences to be described. This will be supported by the new Phase 5 Programme manager.

Finally, it should be noted that Above and Beyond have also expressed an interest in fundraising for areas of additionally such as improvement to the mental health, older persons or learning disability patient groups.

Financial viability

Viability in respect of capital costs needs to be considered in the context of available capital and appropriate prioritisation. The current indicative capital costs are as follows:

New Emergency department (including medical take area) = £33m

Rebuild of current emergency department on the 3rd floor (including medical take) = £38m

Rebuild of Radiology on the 3rd Floor and the 2nd Floor = £9 million

Total = £47 million (note this does not take account of the costs of moving those services which are likely to be displaced by this proposal. Further scoping work is required to cost this).

The revenue cost of capital can be calculated once capital costs have been confirmed.

3% growth in ED attendances, year on year equates to c.£0.4m (gross) in year 1, compounded to c.£2.0m by year 5 in new revenue.

Assuming conversion rate holds, and per the recent 5 year modelling, a 3% growth in admissions to the Observation Unit, year on year, equates to c.£0.2m (gross) in year 1, compounded to c.£1.1m by year 5 in new revenue.

Both SLA assumptions are above are subject to annual contract negotiation and the mechanics of any 'blended' urgent care contract.

For Radiology, costs would be recouped through the additional diagnostic activity that this would open up. The continuous level of growth the Trust is seeing is not sustainable within the current footprint, and although productivity and efficiency measures will contribute to some offset in capacity requirements, without an expansion to deal with future growth overall capacity will limit the opportunity to deliver additional activity and income.

Another direct result of extra capacity from additional scanners is that the Trust would become much more self-reliant, meaning less spend on outsourcing.

Associated revenue costs in respect of workforce will likely grow commensurate with activity growth and have to be affordable within any new revenue 'envelope'. This will also need to be considered in the context of additional operational benefit and efficiency throughout the wider organisation (ie not just constrained to the Division of Medicine and the Division of Diagnostics and Therapies).

Clinical viability

This proposal will enable efficient delivery of high quality and effective clinical care. It provides a sustainable solution to meet rising demand for emergency care and Radiology services in the BRI. It provides opportunity for new and more efficient clinical pathways and models of care, and an opportunity to significantly improve patient and family experience.

6. Demand and Capacity

Summary of high level capacity and demand planning

Emergency Department

Demand and capacity modelling has been undertaken for each of the clinical areas to create a guide for the footprint required to support the models of care described in the Acute Care Assembly. This has led to two key corrections in our assumptions:

1. It has been assumed that all patients are seen in the most appropriate clinical space. In the current configuration majors patients are regularly seen in minors due to lack of capacity. An audit has been undertaken to assess the level of clinical work that would transfer to Majors if capacity was available and this has equated to 28% of work transferring from minors.
2. The queue has been modelled into the majors capacity requirement.

The below tables describes the cubicle requirement based on modelling the average, the busiest day and finally the busiest hour. The following caveats have been added into the data below:

- 3% growth each year has been applied
- 28% Fast Flow activity has been moved into majors (in line with clinical audit work which

shows we are currently managing people in the wrong areas due to space constraints)

- Persistent corridor queue has been moved into majors
- Obs modelling includes ability to manage head injuries and all toxicology

	Fast Flow cubicles			Majors cubicles			Resus cubicles			Obs Units		
	Ave	Busie st Day	Busie st Hr	Ave	Busie st Day	Busie st Hr	Ave	Busie st Day	Busie st Hr	Av e	Busie st Day	Busie st Hr
2019/20	3.7	6.3	21.7	13.2	16.8	40.3	3.2	4.6	22.1	7.7	12.3	56.9
2020/21	3.7	6.5	21.8	13.5	17.1	40.7	3.5	5	22.1	7.7	12.3	56.9
2021/22	3.9	6.5	21.8	13.9	17.1	40.7	3.5	5	22.1	8.4	12.3	56.9
2022/23	3.9	6.7	22.1	14.3	17.5	41	3.5	5	22.5	8.4	12.3	56.9
2023/24	4.1	6.9	22.4	14.6	17.8	41.4	3.9	5.4	22.5	8.4	12.3	56.9
2024/25	4.1	6.9	22.4	15.3	17.8	41.4	3.9	5.4	22.5	8.4	13.1	56.9
2025/26	4.4	7.2	22.5	15.7	18.6	41.8	3.9	5.4	22.8	9.2	13.1	57.7
2026/27	4.4	7.2	22.5	16.1	18.6	41.8	4.3	5.7	22.8	9.2	13.1	57.7
2027/28	4.6	7.4	22.8	16.8	18.9	42.1	4.3	5.7	22.8	9.2	13.1	57.7
2028/29	4.6	7.6	23.1	17.1	19.3	42.5	4.3	5.7	23.2	9.2	13.8	57.7
2029/30	4.8	7.6	23.1	17.5	19.3	42.5	4.6	6	23.2	10	13.8	58.4
2030/31	5.1	7.9	23.2	17.8	19.6	43.2	4.6	6	23.6	10	13.8	58.4
2031/32	5.1	8.1	23.4	18.6	20	43.6	4.6	6	23.6	10	13.8	58.4
2032/33	5.3	8.1	23.4	19.3	20	43.6	5	6.4	23.6	10	14.6	58.4
2033/34	5.5	8.3	23.7	20	20.3	43.9	5	6.4	23.9	10.7	14.6	59.3
2034/35	5.5	8.6	23.9	20.3	20.7	44.3	5.3	7.8	23.9	10.7	14.6	59.3
2035/36	5.8	8.6	23.9	21	20.7	44.3	5.3	7.8	24.9	10.7	14.6	59.3
2036/37	6	8.8	24.1	21.4	21.1	44.6	5.3	7.1	24.9	10.7	15.4	60
2037/38	6	9	24.4	22.5	21.4	45	5.7	7.1	24.6	11.6	15.4	60
2038/	6.3	9	24.4	22.8	21.4	45	5.7	7.5	24.6	11	15.4	60

39										.6		
2039/ 40	6.7	9.3	24.6	23.5	21.8	45.3	6	7.5	25	11 .6	16.1	60
2040/ 41	6.7	9.5	24.8	24.2	22.1	45.7	6	7.8	25	12 .3	16.1	60.7

Highlighted areas show requirements for current demand, demand in 2030 and demand in 2040.

Using this modelling as a baseline the estates team have worked with the clinical team to create a pragmatic assessment of the clinical space required to meet demand whilst assuming a degree of mitigation from primary care and community schemes. This has led to a request to colleagues in Estates to cost the following rebuild / reconfiguration options:

	Current capacity	Option 1 – Build to current demand	Option 2 – Build to 10 year's growth	Option 3 – Build to 20 year's growth
Fast Flow	9 (includes 28% majors seen in Fast Flow)	7	8	10
Majors	11 (plus corridor queue)	12	14	16
High care	0	4	5	6
Resus	6	5	6	8
Obs	7	12	14	16

Each of these configuration options will require the relocation of services adjacent to the current ED if the option to rebuild within the 3rd Floor is selected. The Division has not worked through these options for the SOC stage but would be a pivotal part of the outline business case. It is also important to note that these requirements are indicative figures and will need to be finalised during the OBC. It is likely that fracture clinic and the current offices for the CSM team and transport leads would need to be re-provided.

Medical Take Area

The current EMU has 9 trolleys for provision of both the medical take and the daycase work. Modelling the growth in the emergency medical take at 3% means the emergency medical take will have doubled within the next 15 years:

Year	2.00%	3.00%	4.00%	4.70%
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2017/18	14309	14309	14309	14309
2018/19	15523	15523	15523	15523
2019/20	15833	15989	16144	16252
2020/21	16150	16468	16790	17015
2021/22	16473	16962	17461	17813
2022/23	16803	17471	18160	18650
2023/24	17139	17995	18886	19525
2024/25	17481	18535	19642	20442
2025/26	17831	19091	20427	21401
2026/27	18188	19664	21244	22406
2027/28	18551	20254	22094	23458
2028/29	18922	20862	22978	24559
2029/30	19301	21487	23897	25712
2030/31	19687	22132	24853	26919
2031/32	20081	22796	25847	28182
2032/33	20482	23480	26881	29505
2033/34	20892	24184	27956	30890
2034/35	21310	24910	29074	32340
2035/36	21736	25657	30237	33859

There are ways in which this growth will be partially offset, for example through the development of community schemes such as the STP frailty work, development of locality hubs and through reconfiguration of services such as stroke. Further modelling work is required, but our early estimate shows that the new area would require a combination of 22 trolleys and chairs in total in order to manage the whole take during opening hours (7am to 10pm).

Both of these elements would also require a re-provision of supporting clinical space (patients toilets, waiting room etc) and non-clinical space. These are detailed in Appendix 2 for the Emergency Department and Appendix 3 for the re-provision of the medical take.

Radiology

The demand figures that have been used to inform the proposed footprint for Radiology are contained within appendix xxx.

The clinical space requirements to deliver options 4 or 5 for Radiology are listed below. Additional required resources are in **bold**:

<p>ED Service: To be collocated within the ED department (Level 3)</p>	<p>CT scanner and control room; 2 Plain X-ray rooms with cubicles and separate image review area; 2x U/S room with dimmable lighting and reporting workstation; Small patient wait area with trolley bays and med gases; Radiologist reporting room with 2 reporting workstations; Storage space for Consumables and Drugs; Waste cupboards and sharps cupboards</p>
<p>Inpatient Service: To be close to or with direct access to the main ward block (Level 3)</p>	<p>CT scanner and control room (and controlled area around room to prevent accidental entry; IRMER); Plain X-ray room with cubicles and separate image review area U/S room large enough to undertake interventions with dimmable lighting and reporting workstation; Radiologist reporting room (Hub); patient wait area with trolley bays and med gases; Storage space for Consumables and Drugs; Waste cupboards and sharps cupboards; Reception; Toilet - disabled</p>
<p>GP and OP services (Level 2)</p>	<p>Main Reception with small patient wait area; RTOP desk for 3 appointment clerks</p> <p>Observation area 4 bay high dependency; 2 bay med dependency; 4 chair low dependency; Nurses desk</p> <p>Quiet room; Cannulation room with 4 cannulation seats and post contrast recovery chairs for 8 patients; Nurses office; Pre assessment room; Storage space for Consumables and Drugs; Waste cupboards and sharps cupboards; Sub-waits areas for each modality.</p> <p>CT 2 x CT scanners and control room, 1 additional CT scanner (and controlled areas around each CT room to prevent accidental entry; IRMER); Small patient wait area and cubicles</p> <p>Cardiac prep and recovery area for 4 patients Admin office for Supt; MRI (and controlled area around room to prevent accidental entry; ISAS): 3 x MRI scanners and control room (1x additional to current requirements) ; Small patient wait and cubicles; GA room; GA recovery room; Admin office for Supt</p> <p>Nuclear Medicine: Self-Check in unit; 2 x SPECT CT scanners; Prep room; Separate IP and OP wait areas and Paed and Adult wait areas; Post inject wait area; Radioactive toilet and non-radioactive toilet; Admin office for Supt; Med Physics offices x 2; Cardiac Stress room. Also need to consider future direction and possible</p>

	<p>legislative changes</p> <p>U/S: 5 x U/s rooms (1 additional to current requirements)– 2 large enough to do interventional cases – with dimmable lighting and reporting stations in the room (2 additional to current level of workstations); Sluice and decontamination room; DVT scan room; patient wait and cubicles; Admin office for principals and Consultant sonographer and u/s admin</p> <p>Plain Film And Fluoroscopy: Patient wait; 2 x general X-ray rooms & patient cubicles; 1 x Fluoro/gen x-ray room & patient cubicles; 1 x Chest x-ray room & patient cubicles; 1 x general Fluoro room & patient cubicles; 1 X interventional room & patient cubicles; sluice; 1 x DEXA room & patient cubicles; Admin office for 2x Supt radiographers; Central reporting for plain film</p>
Other requirements	<p>Staff rooms for each location, toilets; Changing rooms for 80 staff; MEMO office; MEMO portable X-ray device (mobiles and II's) repair room; PACS office; PACS Training Room; Student Rad rest room; Film Library; SPR rest and study room; Reporting accommodation with independent dimmable lighting for 28 Consultants (6 additional to current requirements);</p> <p>Centralised booking room for 10 appointments clerks and Photocopy room; Admin offices for: HoS, Admin Lead, Quality Manager, Operations Manager, Radiology section Heads, Principal Radiographers and Sonographers, Consultant Radiographers, 6-7 admins, & Radiology Clinical Directors</p> <p>Space for MEMO: storage room, and a room for X-Ray testing</p>
Equipment over and above current assets	6 x reporting work stations; 2 x U/S machine; 2 x U/S couch; 2 x CT scanner; 3 CRIS PC's; 16 x Chair /trolley combo's; Self -Check in unit; 2 x X-ray room; 2 x MRI scanners; 6 reporting workstations

7. Workforce

ED

Irrespective of the rebuild there is a requirement for the workforce to develop in line with growth. As part of the full business case a full workforce modelling exercise would be undertaken. A new build would allow the teams to create space with a logical flow and created a space that minimised inefficiencies in staffing.

The Division has outlined a clear approach to recruitment and retention to support the Emergency pathway within the 2019-2020 OPP. Key tenants of this plan are expanding new roles and ensuring that the experience of staff is maximised in order to minimise turnover.

The below table describes the current staffing levels within the Emergency Department.

Organisation Name	Payscale Description	Assignment Category	Values	
			Headcoun	FTE
387 101018 Nurse Consultant ED	Review Body Band 8 - Range C	Permanent	1	1
387 101018 Nurse Consultant ED Total			1	1
387 101177 ED Department (A332)	Non Review Body Band 2	Permanent	1	0.87
	Review Body Band 2	Permanent	5	4.04
	Review Body Band 3	Permanent	2	1.8
	Review Body Band 5	Permanent	36	32.01
	Review Body Band 6	Permanent	19	15.56
	Review Body Band 7	Fixed Term Temp	1	0.4
		Permanent	29	21.33
	Review Body Band 8 - Range A	Permanent	3	2.38
387 101177 ED Department (A332) Total			98	78.38
387 101307 ED Medical Staff	Consultant (Medical)	Permanent	1	0.14
	Consultant (post 31 Oct)	Permanent	13	12.67
	Consultant (pre 31 Oct) - 5yrs Snr	Permanent	1	1
	Salaried GP in Primary Care Org	Fixed Term Temp	1	0.2
	Specialty Doctor	Fixed Term Temp	1	0.2
		Permanent	1	0.34
	Specialty Registrar	Fixed Term Temp	9	9
		Locum	1	1
	Specialty Registrar - Locum	Bank	1	0
	Specialty Registrar CT 1	Fixed Term Temp	2	2
	Specialty Registrar ST4/SpR4	Fixed Term Temp	6	5.91
	ST1/ST2 SpR1/SpR2 Trust Grade	Fixed Term Temp	1	1
	ST3-ST7 SpR3 - SpR 8 Trust Grade	Fixed Term Temp	2	1.81
387 101307 ED Medical Staff Total			46	35.26

Radiology

The projected workforce requirements, by type, role and whole time equivalent (WTE) for the additional capacity being requested in the preferred option are outlined in the table below:

Modality	Details
CT: 2 x 1 WTE (Band 6) Radiographer; 1 x 1 WTE (Band 2) Assistant	08:30-17:00 cover
MRI: 2 x 1 WTE (Band 6) Radiographer; 1 x 1 WTE (Band 2) Assistant	08:30-17:00 cover
USS: 1 x 1 WTE (Band 7) Sonographer; 1 x 1 WTE (Band 2) Assistant	08:30-17:00 cover

n.b., an increase in Radiologist staffing would also need to be taken into account, proportional to the increase in Radiographers and scanners.

8. Financial Appraisal of Preferred Option

Viability in respect of capital costs needs to be considered in the context of available capital and appropriate prioritisation. The current indicative capital costs are as follows:

New Emergency department (including medical take area) = £33m

Rebuild of current emergency department on the 3rd floor (including medical take) = £38m

Rebuild of Radiology on the 3rd Floor and the 2nd Floor = £9 million

Total = £47 million (note this does not take account of the costs of moving those services which are likely to be displaced by this proposal. Further scoping work is required to cost this).

The revenue cost of capital can be calculated once capital costs have been confirmed.

3% growth in ED attendances, year on year equates to c.£0.4m (gross) in year 1, compounded to c.£2.0m by year 5 in new revenue.

Assuming conversion rate holds, and per the recent 5 year modelling, a 3% growth in admissions to the Observation Unit, year on year, equates to c.£0.2m (gross) in year 1, compounded to c.£1.1m by year 5 in new revenue.

Both SLA assumptions are above are subject to annual contract negotiation and the mechanics of any 'blended' urgent care contract.

For Radiology, costs would be recouped through the additional diagnostic activity that this would open up. The continuous level of growth the Trust is seeing is not sustainable within the current footprint, and although productivity and efficiency measures will contribute to some offset in capacity requirements, without an expansion to deal with future growth overall capacity will limit the opportunity to deliver additional activity and income.

Another direct result of extra capacity from additional scanners is that the Trust would become much more self-reliant, meaning less spend on use of agency staff and outsourcing.

Associated revenue costs in respect of workforce will likely grow commensurate with activity growth and have to be affordable within any new revenue 'envelope'. This will also need to be considered in the context of additional operational benefit and efficiency throughout the wider organisation (ie not just constrained to the Division of Medicine and the Division of Diagnostics and Therapies).

9. Stakeholder Mapping

Within the Trust:

- Clinical and administrative teams across the Emergency Department, Acute Medicine, Older Persons and Radiology will need close involvement with the development of detailed designs and plans for the proposal
- The Division of Medicine, Diagnostics and Therapies and Surgery have adjacent services and therefore there will be a significant impact on their current estate.
- The Division of Diagnostics and Therapies is a key partner in the delivery of the proposal relating to emergency radiology services,
- The Divisions of Medicine and Diagnostics and Therapies will need to work closely with Trust Services (Estates and Facilities and Communications) on the delivery of the project. Redevelopment of Level 2 also has the potential to impact on accommodation for Facilities staff.

Externally:

- Commissioners – there will be a short term impact on ED performance while the programme is underway, therefore early discussions and agreements are vital. Both specialised (NHS England) and local (Clinical Commissioning Group) would need to be appraised of this development
- Engagement with our charity partners and in particular the Above and Beyond who have principally agreed to support any additionally included in the case
- Discussions with system partners (NBT, Community and BCC) will enable us to design additional support in advance of any building disruption.
- Engagement with our patient and parent representatives to co-design new clinical/public areas

10. Recommendations and Next Steps

In order to address the issues described, to resolve current clinical capacity pressures in times of peak demand in ED and to meet current and predicted growth in future demand for services in both the adult emergency front door and Radiology, it is recommended that:

1. The Trust supports the development of options 4 or 5. To fully determine which would be the most cost effective and operationally deliverable further design work must be

undertaken.

2. The Trust commissions a full business case to further develop the detail around the proposal, which includes: full workforce and patient/parent representative engagement in proposed designs; and how to address current constraints in clinical and non-clinical spaces in order to meet current and future demand
3. A robust workforce and recruitment strategy is developed to align with and support the capital proposal

Appendix 1: Preliminary Schedule of Accommodation for Level 3

17012-Bristol
NHS Foundation
Trust
ED /Acute Floor
Feasibility Study
Preliminary Schedule of Accommodation for
Level 3
17012-SCH-001

27.11.18

AVANTI
ARCHITECTS

Emergency Department /Level 3			
Facility	ED	DH Guidance m2	Notes
Facilities listed in BRI's <i>Capital Work to Create an Acute Floor</i> BRI comments 20.11.2018	m 2	Current HBN 15-01 has no area allowances superseded HBN 22 allowances quoted , HBN 00-03, HBN 12	
Public Entrance			
Main entrance draft lobby	11 .0	11m2	
Parking bay (4 Portes chairs)	6. 0	6m2	wheelchair bay not required. Requirement for 4x Portes chairs, comment from 20.11.18
Reception desk (4 places)	20 .0	HBN 00-03 10m2 staff base 2 place	4x places confirmed 20.11.18.
Reception storage	3. 0		
Triage / interview rooms (2x)		11m2	2x rooms confirmed, coments from 20.11.18
Waiting area 70	12 9. 5	1.85m2 per place (30+) HBN 00-03 (table 1)	18m2 for room with hinged 1.5 door HBN 15-01 (approx. 3.6 x 4.8m)
Toilets (for 70 waiting places)	36 .0	8 x 2.5m2 WC + 4.5m2 WC wheelchair	HBN includes allowance for 10% wheelchair places and play area for children accompanying adult patients
Drinking water + vending	3. 5	3.5m2	
Ambulance Entrance			
Main entrance draft lobby	11 .0	11m2	
Parking bay (3 trolleys + 3 wheelchairs)	12 .0	12m2	

Resus room (8 bays + 6 High care)	22 4. 0	16m2 per place (extrapolated from HBN 22 schedule)	Minimum 4.9m width bay, area 24m2 bay only, allowance for shared circulation and storage reduces as number of bays increase 30m2 (3 bays) to 28m2
Resus Store added	6. 0		Separate room, comment 20.11.18
Relatives Rooms x 1	11 .0	Allowance added as interview rooms 11m2 each tbc	confirmed as sitting rooms 20.11.18
Mental Health			
Quiet waiting room			<i>area added for 6 people @ 2.5m each</i>
Interview rooms additional room	22 .0	11m2	Two rooms required
Workstations x 3- psychiatry liaison	13 .0	Adjacency to mental health assessment rooms? Dedicated office / hot desk within general office?	Options - 13-16m2 (2 person office with small meeting table), hot desk within general office 6.5m2 or cellular office 8-9m2 for 1, 11-12m2 for 2
Fast Flow Area (Minors + Primary Care)			
Cubicles / bays (10 places)	13 0. 0		13m2 curtained cubicle / sliding door (min 3.6m width). Assumed 15 bays
Staff Base (5 places)	22 .0	HBN 00-03 10m2 staff base 2 place	2x staff confirmed, comment from 20.11.18
Fast Flow Store	6. 0		Dedicated store added
Clean Utility / Medicines	14 .0	14m2	
Dirty Utility	12 .0	12m2	
Specimen Acc WC	4. 5	4.5m2	
WCs (F + M semi-ambulant)	5. 0	2 x 2.5m2	
Near patient testing	8. 5	8.5m2	
Majors			
Majors bays (a total of 16)	19 2. 0	12m2 curtained cubicle / sliding door (min 3.6m width)	360° access to patient. Avanti assumed a total of 20 bays
Isolation rooms (2)	48 .0	23m2 (18m2 room + 5m2 WC en-suite)	18m2 for room with hinged 1.5 door HBN 15-01 (approx. 3.6 x 4.8m) additional staff escape door required, and 4x rooms with en-suite, but no lobby required, comment from 20.11.18

Side rooms (2)	36 .0	18m2	18m2 for room with hinged 1.5 door HBN 15-01 (approx. 3.6 x 4.8m) additional staff escape door required, and 4x rooms with en-suite, but no lobby required, comment from 20.11.18
Fit to sit' chairs (8)		7m2 (based on HBN 00-03 generic bay 2.5 x 2.8m)	1-2 mental health assessment rooms (2 entry/exit door room, en-suite)
Hot office (10 staff places)	46 .0	HBN 00-03 10m2 staff base 2 place	
Clean Utility / Medicines	14 .0	14m2	With good visibility - not linear as at present
Dirty Utility	12 .0	12m2	
Specimen Acc WC?	4. 5	4.5m2	
WCs (F + M semi-ambulant)	5. 0	2 x 2.5m2	
Near patient testing	8. 5	8.5m2	
Observation Ward			
Bed spaces (12 + 4 spaces)	27 2. 0		270° access to patient. ?13m2 curtained cubicle / sliding door (min 3.6m width)
Fit to sit' chairs (8 spaces)		7m2 based on HBN 00-03 generic bay 2.5 x 2.8m	18m2 for room with hinged 1.5 door HBN 15-01 (approx. 3.6 x 4.8m)
WCs	14 .0	14m2 (2 x 4.5m, 2 x 2.5m)	Suggest 2 (M + F) wheelchair WCs + 2 semi-ambulant WCs
Showers	9. 0	9m2 (2 x 4.5m2)	2 (M + F) semi-ambulant showers + unisex wheelchair shower
Staff base (4 staff)	24 .0	HBN 00-03 10m2 staff base 2 place	4x rooms confirmed, coments from 20.11.18
Clean Utility / Medicines	14 .0	14m2	Added 12.11.2018
Dirty Utility	12 .0	12m2	Added 12.11.2018
Miscellaneous Support			
Pit stop area	62 .0		
Major incident equipment store	6. 0	6m2	
Sterile supplies store	15 .0	15m2	
Medical gas bottle store	9. 0	9m2	
Expensive equipment store(USS	6. 0		Centrally located, comment 20.11.18

machine,etc)			
Uniform store	6. 0		Current space equates to 3 large wardrobe style cupboards, comment 20.11.18
Linen store	4. 0		
Staff WCs	9. 5	1 x 4.5m, 2 x 2.5m	
Disposal Hold/s	12 .0	6m2 (HBN 12)	2x rooms, 1x at each end of department, comment from 20.11.18
Cleaners	14 .0	7m2 (HBN 12)	2x rooms, 1x at each end of department, comment from 20.11.18
CSMs/ GOATs	3. 0	Assessment tools CSM for injury & GOATs for PTSD (Galveston Orientation and Amnesia Test).	This will be dependant on the IT infra structure supplied, if there is a wall mounted networked PC in each bay this will not be required. If shared mobile it is required some walk in storage will be required for it, comment 20.11.18
Office (5 hot desks)		6.5m2 per desk (HBN 00-03 ratio 1 desk:4 persons)	Yes a group of hot desks in a single space is fine, comment 20.11.18
Break out space for 1:1 discussion	12 .0	x 2	room requested, comment 20.11.18
Staff rest / break out space (20 place)	36 .0	1.8m2 per place (HBN 00-03 table 2, figure 98)	incorporating mini kitchen, basin, table/s, easy chairs. 12x staff confirmed, comment 20.11.18
CT including viewing room - existing	47 .5	HBN 6 volume 1 CT scanner room 32 + control room 16 = 48	
X-ray existing / relocated	60 .0	HBN 6 volume 1 general X ray room incl. control cubicle 30	
Plaster	16 .0		1x room confirmed, comment 20.11.18
Plaster store	3. 0		Area to be integral to plaster room , comment from 20.11.18
Kitchen	9. 0	-	Room requested, to be used for x3 daily hot food provision for Obs unit patients, regular sandwich and frequent hot drink rounds, comment 20.11.18
TOTALS - NIA	17 51 .0		

Allowances at lowest end of variation 48%	25 91 .5		Gross Internal Areas GIA include: 5% Planning (walls, columns etc.) 3%Engineering (service zones and cupboards within clinical areas - not plant rooms) 25-35% Circulation within depts. 10-20% Communication between depts included. 5-15% Refurbishment factor (allowance
Allowances at highest end of variation 78%	31 16 .8		
Median allowance	26		

53%	79 .0	for inefficient planning due to existing shell)
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List of existing rooms not re-provided in the Preliminary Schedule of Accommodation for ED:		
Meeting room	15 .8	total of 2x rooms
Consultant Office Major	18 .4	total of 2x rooms
Consulting Minor/ Fast track	7. 1	
Nursing Office Major	7. 3	
Registrar room Major	9. 5	
Examination room Major	8. 5	
Resource room	10 .2	
total NIA	76 .7	

27
55
.8

Appendix 2: Preliminary Schedule of Accommodation for Level 4 (Proxy)

	Room areas indicative m2	Room qty	Indicative net internal area m2	Notes
Reception area	15	1	15.0	2-3 staff
Adult Waiting area: 25 persons including 2 wheelchair users	61.5	1	61.5	room to have 6 reclining seats for frail patients (1.5m2 per person, 3m2 per wheelchair and 5m2 per recliner)
Assessment and Triage room	16	1	16.0	
Nurse station (4 places)	26	1	26.0	large, centrally located, similar to majors
Treatment room	16.5	1	16.5	including plenty of storage and cupboards for drugs
Consulting room	16.5	4	66.0	
Isolation room	19	2	38.0	
Office/Workstation (7x)	25	1	25.0	4.5sqm per desk+ access zones to desk
Trolley area	7	22	154.0	22x trolley areas
Ambulatory Chair/treatment area	7	15	105.0	15x

				comfortable chairs (area per chair)
Pharmacy	48	1	48.0	dispensing cupboards/ drugs room
Toilets:				
Female WC & handwash: semi ambulant	2.5	2	5.0	2x each
Male WC & handwash: semi ambulant	2.5	2	5.0	2x each
WC & handwash: accessible, wheelchair	4.5	1	4.5	
Staff WC	2.5	2	5.0	numbers to be reviewed when staff numbers confirmed
Small kitchen	9	1	9.0	tea/coffee
Sluice/DU	14	1	14.0	linen room with 2x commodes
POC Testing room	8	1	8.0	(d dimer, ABG machine) assuming a near-patient testing room
Staff coffee room (20 people)	25	1	25.0	
Staff male change room (20 places)	11.5	1	11.5	locker room
Staff female change room (30 places)	16	1	16.0	locker room
Large Office	30	1	30.0	6x hot desks (4.5sqm per desk)+ access zones to

				desk
Waste disposal	8	1	8.0	x3 bins
Equipment bay	5	1	5.0	crash trolley, portable machines
Cleaner's room	8	1	8.0	
Net Internal Area m2			725.0	
5% Planning allowance			36.3	
3% Engineering allowance			21.8	
33% Circulation allowance			239.3	
Sub-Total Gross Internal Area m2			1022.3	
10% Non-Departmental Communication allowance			102.2	
Total Gross Internal Area m2			1124.5	

Appendix 3: Current schedule of accommodation in BRI Radiology

**BRI Radiology
Department, as
Currently Dispersed
across 3 Floors**



BRI Level 3 – ED

- CT scanner & control room; waiting area including trolley bay, med gases and reception desk
- Patients toilet (disabled)
- 3 X-Ray rooms
- Waiting area including trolley bay, medical gases and reception desk
- Image review area, staff room and office
- Staff Toilets
- Radiology Hub, PACS office, SPR rest and study area
- Reporting accommodation for 21 Radiologists and office accommodation for HOS, Admin Lead, Quality Manager and 6/7 admin team members

BRI Level 2 – Outpatients

Suite A:

5 U/S rooms, including 2 interventional rooms
U/S Decontamination room
Fluoroscopy Room
CT scanner
DVT scan room (not radiology)
Reporting area, appointments office and office space for A&C, and Supt activities

Suite B:

Fluoroscopy/X-ray room & patient cubicles
Nurse assessment room
General X-ray room and cubicles
Nurse office
Supt Office
Central reporting area
Appointments office
2x MRI scan rooms and central control room
Patient wait area

GA room

Patient prep area

Suite C

CT scanner and control room
Chest X-ray room
Patient wait area
DEXA room
Patient cubicles
Interventional X-ray room
SPECT CT scanner room
Central Appointments area for 10 appointments clerks and office for lead Radiographer Assistant and photocopy room
Office for Operations Manager
Lockable Waste cupboards and Sharps cupboards
Patient/Staff toilet
Sluice

Nuclear med area

Patient wait area and reception desk
Supt Office
Radioactive toilet and non-radioactive toilet
Nurse drug store
Post radioactive injection wait room
SPECT CT scanner room
Prep room
Medical Physics Office x2
Paediatric wait room and cannulation room
Staff changing room

Patient Observation area:

4 bay high dependency
2 bay med dependency
4 chair low dependency
Nurses desk

BRI Level 1 – Logistics & Support

- Film Library
- PACS Training room
- Student radiographers' rest room

Appendix 4 Growth of BRI Radiology referrals across all modalities and referral sources: 2015 - 2018

BRI (RA701) Only All Patient Types

Excludes Angio, Dopplers, Mammography, MRI Cardiac and Echo

Modality	Age Group	Patients Referred to Radiology (IP/OP/GP/A&E)				Growth Rates			2015 to 2018
		2015	2016	2017	2018	2015 to 2016	2016 to 2017	2017 to 2018	
CT Total		31,353	33,875	36,667	38,544	8%	8%	5%	22.9%
Fluoroscopy Total		4,372	4,129	4,042	4,263	-6%	-2%	5%	-2.5%
MRI Total		17,988	18,227	18,610	19,861	1%	2%	7%	10.4%
Nuclear Medicine Total		2,746	2,845	2,867	3,307	4%	1%	15%	20.4%
Radiology Total		92,759	92,456	93,103	92,917	0%	1%	0%	0.3%
Non-Obstetric Ultrasound Total		18,692	20,073	20,534	21,407	7%	2%	4%	14.5%
Grand Total		167,912	171,611	175,826	180,301	2%	2%	3%	7.4%

BRI (RA701) Only A&E

Excludes Angio, Dopplers, Mammography, MRI Cardiac and Echo

Modality	Age Group	Patients Referred to Radiology (IP/OP/GP/A&E)				Growth Rates			2015 to 2018
		2015	2016	2017	2018	2015 to 2016	2016 to 2017	2017 to 2018	
CT Total		7,519	8,255	9,217	10,385	10%	12%	13%	38.1%
Fluoroscopy Total		130	121	33	35	-7%	-73%	6%	-73.1%
MRI Total		183	257	249	247	40%	-3%	-1%	35%
Nuclear Medicine Total		24	37	39	34	54%	5%	-13%	41.7%
Radiology Total		28,399	29,557	28,971	29,098	4%	-2%	0%	2.5%
Non-Obstetric Ultrasound Total		472	718	595	625	52%	-17%	5%	32.4%
Grand Total		36,728	38,946	39,104	40,424	6%	0%	3%	10.1%

BRI (RA701) Only

Outpatient

Excludes Angio, Dopplers, Mammography, MRI Cardiac and Echo

		Patients Referred to Radiology (IP/OP/GP/A&E)				Growth Rates			
Modality	Age Group	2015	2016	2017	2018	2015 to 2016	2016 to 2017	2017 to 2018	2015 to 2018
CT Total		11,570	12,569	13,511	13,755	9%	7%	2%	18.9%
Fluoroscopy Total		1,500	1,452	1,501	1,637	-3%	3%	9%	9.1%
MRI Total		10,050	9,780	10,332	10,976	-3%	6%	6%	9.2%
Nuclear Medicine Total		2,231	2,299	2,379	2,964	3%	3%	25%	32.9%
Radiology Total		20,253	18,866	19,068	18,671	-7%	1%	-2%	-7.8%
Non-Obstetric Ultrasound Total		3,654	3,723	3,983	4,470	2%	7%	12%	22.3%
Grand Total		49,258	48,691	50,776	52,474	-1%	4%	3%	6.5%

BRI (RA701) Only

Inpatient

Excludes Angio, Dopplers, Mammography, MRI Cardiac and Echo

		Patients Referred to Radiology (IP/OP/GP/A&E)				Growth Rates			
Modality	Age Group	2015	2016	2017	2018	2015 to 2016	2016 to 2017	2017 to 2018	2015 to 2018
CT Total		8,739	9,020	9,894	10,377	3%	10%	5%	18.7%
Fluoroscopy Total		2,429	2,257	2,209	2,278	-7%	-2%	3%	-6.2%
MRI Total		2,397	2,476	2,463	2,424	3%	-1%	-2%	1.1%
Nuclear Medicine Total		390	399	355	212	2%	-11%	-40%	-45.6%
Radiology Total		28,662	27,813	28,762	28,813	-3%	3%	0%	0.5%
Non-Obstetric Ultrasound Total		6,335	6,358	6,871	6,874	0%	8%	0%	8.5%
Grand Total		48,953	48,326	50,555	50,979	-1%	5%	1%	4.1%

BRI (RA701) Only

GP

Excludes Angio, Dopplers, Mammography, MRI Cardiac and Echo

		Patients Referred to Radiology (IP/OP/GP/A&E)				Growth Rates			
Modality	Age Group	2015	2016	2017	2018	2015 to 2016	2016 to 2017	2017 to 2018	2015 to 2018
CT Total		3,525	4,031	4,045	4,027	14%	0%	0%	14.2%
Fluoroscopy Total		313	299	299	313	-4%	0%	5%	0%
MRI Total		5,358	5,714	5,566	6,214	7%	-3%	12%	16%
Nuclear Medicine Total		101	110	94	97	9%	-15%	3%	-4%
Radiology Total		15,445	16,220	16,302	16,335	5%	1%	0%	5.8%
Non-Obstetric Ultrasound Total		8,231	9,274	9,085	9,438	13%	-2%	4%	14.7%
Grand Total		32,973	35,648	35,391	36,424	8%	-1%	3%	10.5%

The Acute Care Assembly – Summary Paper

1. Background

In March 2018 the leaders of the Division of Medicine met with the mission of creating a new model of care for the management of emergency medical patients within University Hospital Bristol. The assembly was a collaboration of clinical and non-clinical staff representing the Emergency department, Acute Physicians, Older person's team and senior management for operations, finance and HR. This work was driven by a significant number of very well-rehearsed challenges emerging within the emergency pathway resulting in poor experience for both staff and patients. These are described in detail within the body of the main report.

There have been many incremental improvements to the pathway over the years but this was an opportunity to take a bolder approach and describe what the future of medicine should look like. The assembly had the following **10 aims**:

1. Eliminate Emergency Department (and all other Medical) corridor queues.
2. Eliminate medical outliers (linked to business case for development of Medical bedbase).
3. Converge acute ambulatory care pathways into one comprehensive service.
4. Assess the role of GPSU and make a recommendation for future provision.
5. Create a system that allows proactive and not reactive management.
6. Evenly distribute risk through the hospital system.
7. Create a flexible targeting of resources in the acute care timeline to maintain quality and flow.
8. Create pathways that ensure patients would be seen by the most clinically appropriate member of the team, including managing the medical take through ambulatory care and the medical assessment area in AMU, not through ED.
9. Deliver NHSE compliant 7 day services to facilitate admission avoidance and proactive discharge
10. Reduce levels of violence and aggression towards staff through reducing ED crowding

2. Approach

The Division took a four stage approach which is outlined below:

Stage 1 – Preparation

- Preparatory Work into national best practice
- Cross specialty discussions

Stage 2 – The Assembly

- Presentation and discussion of potential models
- Prioritisation of key changes

Stage 3 – The Challenge

- Multi professional challenge session
- Finalisation of agreed approach and prioritisation

Stage 4 – Mobilisation

- Final paper presented

3. Key Recommendations

The assembly created a vision for the group which was defined as:

“To achieve integrated acute medical pathways in order to achieve quality of patient care and experience, manage a 24 hour take within the acute medical pathways and achieve our performance targets”

The full business case sets out a 3 year plan for developing, recruiting and creating capacity for appropriate models of care for sustaining and improving patient flows within the hospital. The **six** key recommendations are outlined below:

- Create alternative pathways before, or after, the Emergency department to avoid crowding
- Front load care within the and Ambulatory setting, AMU and OPAU to minimise LoS, increase patient experience and improve outcomes for patients.
- Engage more meaningfully with GP and community partners to ensure that developments are in line with system plans
- Make estate changes to AMU and the Emergency department to ensure a sustainable space
- Implement a long view recruitment plan which incrementally addresses the needs of a changing patient group

- Finally, once the changes described above have been implemented, review and amend the wider medical models (the take and junior doctor provision) to create a joined up system.

4. Implementation plan

The steps outlined below will be incrementally delivered to ensure that funding requirements and recruitment pipelines are phased across a realistic timeframe whilst ensuring that the key benefits are delivered at the earliest point.

There is recognition that this is an ambitious plan and a degree of financial risk will be required to enable the initial phases to be tested. We have outlined the perceived cost and benefits in the section below but this must be taken in the light of a rapidly changing environment. We have suggested clear points of review which would enable plans to be amended to ensure that schemes that were delivering maximum benefit could be enhanced and any which had not delivered could be removed.

All the significant models outlined in this paper have a national evidence base of success.

Phase 1 (In year 2018-2019)

The first phase of work will focus on five key deliverables, these are:

1. Increased Acute Physicians and associated Ambulatory Care to reduce LoS
2. Estate improvements in AMU and GPSU to support maximum capacity to reduce LoS
3. Front door frailty model to reduce LoS
4. ACP roles in cardiology to avoid admissions
5. GP interface and improvements to cross organisational working

Key Changes

1. Ambulatory Care

Current Model	Key Changes	Key Benefits
Patchy provision of ambulatory care pathways	New service offers protocolised pathway for each ambulatory care sensitive condition. Suitable patients are referred directly (e.g. all GP expected patients) or are streamed from ED	Maximise access to Same Day Emergency Care BPT
Nurse led model	Acute Physicians covering ACU 5 hours per day	Reduce crowding in ED by taking all expected patients, increased opportunities for same day emergency care work

Highly skilled nursing team	Review of nursing workforce and development of ACP and ANP roles to deliver competency based strategy rather than role based.	This would form part of phase two and would enable opportunities for career development and provision of a stable workforce in ACU
Limited input from D&T specialist teams	Review of Pharmacy, OT, Physio support	Offer robust same day discharge plans through MDT working
Reception support provided to ACU	Review of administrative support, to include a Patient Flow Co-ordinator for the area	Opportunities for A&C staff to take on some of the flow work currently done by clinical staff
Planned daycase work provided from ACU	Relocation of current planned daycase services into a discrete Infusions Centre (to join with current Dermatology and Rheumatology cases work)	Centralise daycase work for increased efficiency, and create space for acute patients in ACU

2. Acute Medical Unit

Current Model	Key Changes	Key Benefits
Acute Physicians cover the take 9am to 1pm.	Increase in Acute Physician cover to support 9am till 8pm on the medical take.	Reduce crowding in ED, increase opportunities for same day and expedited discharge
GP referrals seen through BrisDoc provided block contract	Provide current GPSU service in house	Increase efficiency within AMU/On call team, consistent senior review
6 Acute Assessment trolleys	Increase trolley capacity by a further 6	Achieve national standards for Acute Care (consultant review, bd review)
No current provision from REACT	Opportunity being scoped with REACT to provide community services to facilitate early discharge from AMU.	Separate business case will be presented to the CCG.
	Release GIM Consultant PA's to support OOH working (to be scoped)	

3. Acute Frailty Unit

Current Model	Key Changes	Key Benefits
Frail patients are seen	A dedicated area within the	Early opportunities to

by ED and DTA to the general medical take (via AAU / AMU or OPAU)	Ambulatory Care Unit on level 4 for the assessment of frail patients streamed from ED	maximise ambulatory care and avoid admission, thereby freeing up OPAU to focus on assessment of the most complex frail patients.
First input by Consultant Geriatrician is either by the medical take when COE on-call (depending on the GIM call rota, this is approx. 1/week), or otherwise is the following day, via admission to OPAU	Geriatrician of the day providing an on call, front door (ED / ACU) focussed service. Provides expertise in management of elderly and frail patients, direct liaison with GPs, nursing/care homes and community to assess patient in relation to individual patientl 'norms'	Increased opportunities to avoid admission and facilitate early discharge
Patients are referred to REACT depending on capacity of the REACT team	Wrap around MDT service, including OT, physio, pharmacy and integrated working with REACT	Provision of holistic assessment and implementation of care plans to support admission avoidance and reduce length of stay.
Ward based generalist pharmacists	New role of Older Person's Pharmacist (separate business case to be progressed with D&T)	A key member of the Frailty team, this post would provide early management of complex presentations and facilitate opportunities to outreach to complex patients in the community to improve management and rationalise medications. Clear potential to reduce admissions due to medication incidents (such as side-effects and interactions) and reduce prolonged length of stay related to medication incidents in hospital, as demonstrated during brief winter pressures intervention
Patients with mental health problems, including dementia, are seen and assessed on the wards	Front-door Liaison Psychiatry Team (a separate business case is being overseen by the CCG as part of the Core 24 development work)	Opportunities to provide complex case management from early in the patient's journey, including where possible to avoid admissions.
RACOP available at smaller scale	Expansion of RACOP (Rapid Assessment Clinic for Older People) at SBCH	A flexible approach is facilitated where patients can be reviewed after an early discharge, or brought back in order to avoid admission altogether.

When these models are successfully implemented it will change the patient flow within the organisation as shown below, with associated reductions in bed days on the base wards.

Subsequent Phases (2019-2020 onwards)

As the plan is sequential in nature, there will be multiple review points to ensure that we are content that the next phase is robust and fit for purpose. This will happen after year one and year two. There are an agreed set of metrics (a dashboard is being developed) to ensure that this is consistent and robust.

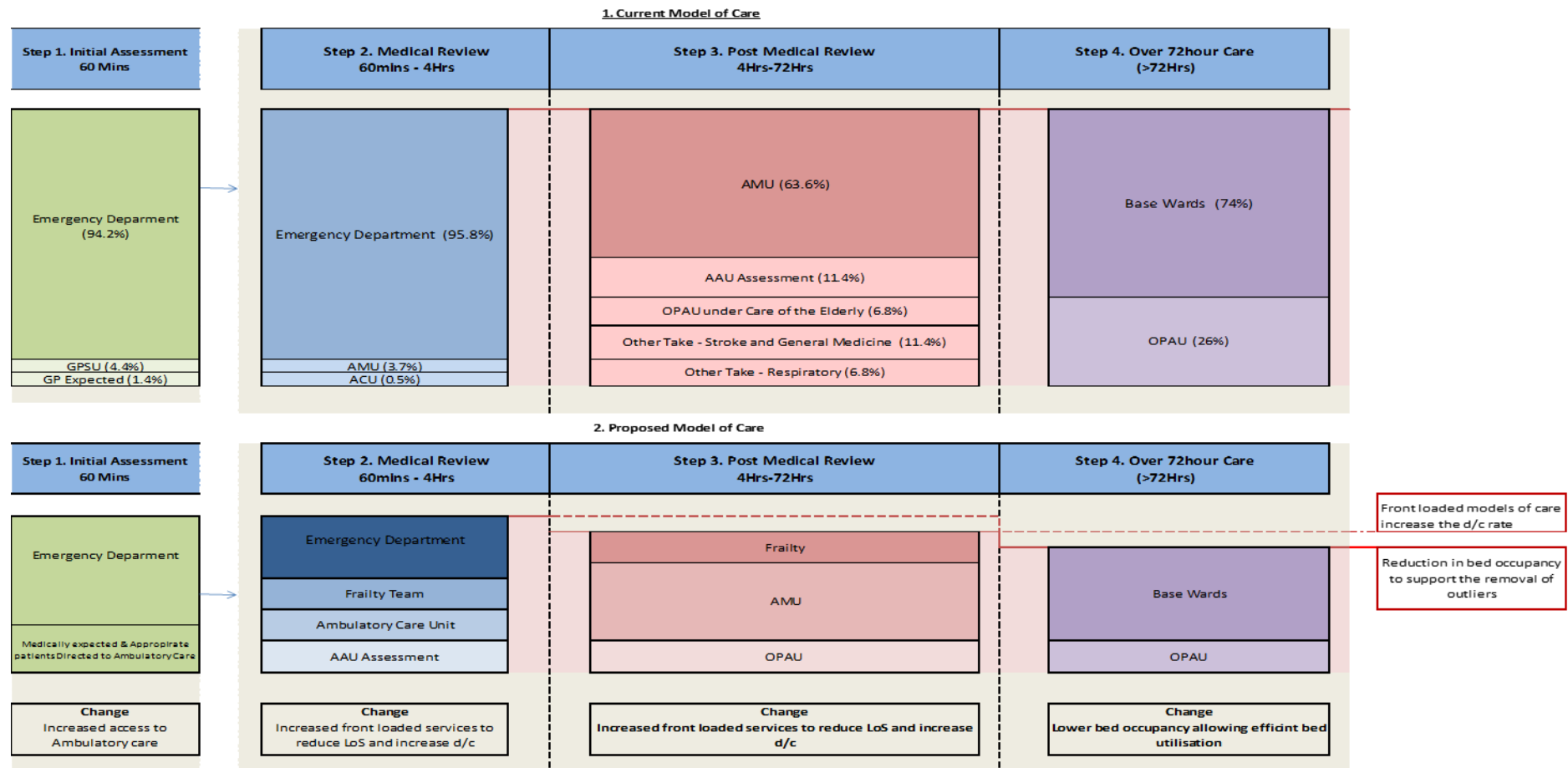
Once the year one review has been undertaken, if it is deemed appropriate, the following developments will be implemented:

1. An ED estates development to ensure physical capacity is fit for purpose
2. Development of ACP roles
3. Development of resus roles to support the increased acuity

Finally a gap analysis will be undertaken to quantify the impact post changes on the medical take and therefore what adjustments should be made to ensure the correct provision.

Full analysis provided within the main paper.

Anticipated changes in flow through new models of care:



Note: The height of the bar represents the **total volume** of patients while the size of each grouping represents the **proportion** within each pathway. The current state is based on UHB data whereas the proposed models are illustrative to demonstrate the potential changes in patient flows.

5. Workforce Analysis

Whilst a robust workforce plan has been incorporated into this business case it is important to recognise the recruitment challenges associated with its delivery and the ability of moving forward will in part, be based on whether successful recruitment can occur as predicted. The workforce model is aimed at achieving a competency based strategy rather than roll based (i.e. the right person with the right skills rather than the right job title). As such, there is ongoing scoping and development work of ANP and ACP roles to deliver this and shape our future workforce. In addition, there are potential opportunities to deliver alternative to Consultant posts with the proposed re-opening of the Associate Specialist grade, pending current Trust review.

These staffing changes will be made incrementally with the initial recruitment centred around Part 1- Expansion of the Acute Medicine and the appointment of a 4th Acute Physician. Whilst we have been successful in the recent recruitment of a 3rd Acute Physician, we anticipate that there may be challenges in finding suitable candidates to appoint into this role. However, it is hoped that the now established Acute Physician model will be an attractive incentive for potential candidates which the division must capitalise on.

Part 2 – Acute Frailty Model and the recruitment of additional Geriatricians is a specialty that has proven challenging given the labour market available to us, both within the medical and nursing workforce based on previous attempts to recruit into existing vacancies. Therefore the division will look to work with the Recruitment Team and Advertising agency to assist in maximising the labour market.

We do not anticipate any risk to recruiting into the additional admin and clerical roles and would look to utilise the Apprenticeship programme as appropriate within both the a&c and nursing roles.

A benefit will be the creation of Advanced Nurse Practitioners which will enable the career progression of our existing ENP nursing workforce and provide nursing opportunities within the ENP workforce.

Acute Care Assembly Recommendations

		2018/19													Total
		Base line	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	FTE
			FTE	FTE	FTE	FTE	FTE	FTE	FTE	FTE	FTE	FTE	FTE	FTE	FTE
Scheme 1 Acute Medicine															
Consultants		3.00					0.50	1.00					1.00		2.50
Medical Secretary subject to the recruitment of 4th Acute Physician, band 4								1.00							1.00
Acute Assessment Unit Ward Clerk band 2								2.90							2.90
			0.00	0.00	0.00	0.00	0.50	4.90	0.00	0.00	0.00	0.00	1.00	0.00	6.40

Scheme 2 Acute Frailty Model

Advanced Clinical Practitioner (ACP) Band 8a	To lead the nursing service										1.00				1.00
Advanced Nurse Practitioners (ANP) Band 7	7 day service 8am-7pm										2.00				2.00
Advanced Practitioners (Dual Role Occupational Therapists and Physios) band	Referring to REACT/ Rapid in-reach										3.00				3.00
Consultants	front door / ACU Mon - Fri or 7 days										1.50				1.50
Therapists	clinic per week										TBC				
Pharmacist band 7											1.00				1.00
			0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.50	0.00	0.00	0.00	8.50

Scheme 3 Expansion of the ED workforce

		Base line	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Total
GP	Embedded within the fast flow area (6 weeks pilot for 28 hours)				0.70	0.35	-1.05								0.00
GP	Subject to success						0.70								0.70
Emergency Nurse Practitioner	Additional 'See and Treat' ENP						1.70								1.70
Emergency Nurse Practitioner	To expand pipeline of ENPs in						0.50								0.50
Fast Flow Co-ordinator, - Registered Nurse Band 6	Role currently being piloted. To manage performance and							5.00							5.00
Advanced Physiotherapy Practitioner (APP)	Potential to manage up to 30%		TBC												0.00
Advanced Clinical Practitioner Cardiology 8A	7 days a week based in fast flow										1.70				1.70
Resus Nurse Band 5	To cover early and	3.00						1.00							1.00
Nursing Assistant	Expand pool to provide an NA in										3.00				3.00
Obs Nurse	Retain 2 band 5	2.00													0.00
Middle Grade Clinical Fellow	75%-25% ?						1.00								1.00
SHO Clinical Fellow	80%/20% Is this an						1.00								1.00
Patient Flow Co-ordinator Band 3	75%-25% ?														
	Expansion to provide additional										3.00				3.00
			0.00	0.00	0.70	0.35	3.85	6.00	0.00	0.00	7.70	0.00	0.00	0.00	18.60

6. Financial and Benefit analysis of Phase One (2018-2019).

<u>Acute Medicine</u>			
		£'000	
Q2 onwards 18/19	<u>Sources</u>		
	Ambulatory/SDEC pathways	434	See Appendix - assessment of likely BPT income in 6 months
	BrisDoc contract termination	(124)	Cessation of existing charges to BrisDoc
		311	
	<u>Applications</u>		
	Cost of delivery, 18/19	(231)	
	Cost savings	42	ED queue (50% cost reduction assumed)
		(189)	
	Net contribution/(deficit)	122	
Currently in 18/19 plan	279		
<u>Frailty - front door model</u>			
Q3 onwards 18/19	<u>Sources</u>	£'000	
	New revenue	0	
	Growth in emergency/elective activity from other clinical divisions - TBC		Subject to release of bed days and utilisation of beds by other Divisions
		0	
	<u>Applications</u>		
	Cost of delivery, 18/19	(165)	
	Cost savings	20	Reduced cost of ECO nurses. Released bed day cost TBC
		(145)	
	Net contribution/(deficit)	(145)	
Currently in 18/19 plan	0		
<u>ED development</u>			
Q2 onwards 18/19	<u>Sources</u>	£'000	
	2018/19 contract transfer (attendances, net)	350	
	2017/18 over performance (attendances, net)	(390)	
	2018/19 forecast growth - not in contract	144	Not in 18/19 contract but early evidence in month 1 that growth could be 2%
		104	
	<u>Applications</u>		
	Cost of delivery, 18/19	(586)	
	Cost savings	31	Reduced cost of locum SHOs
		(555)	
Net contribution/(deficit)	(451)		
Currently in 18/19 plan	0		

Per section 8 in the FBC, the investment is not affordable considered in its own right and solely within the turnover of the Division of Medicine.

Financial consideration and agreement is required in respect of the following;

1. Growth in ED attendances – any growth in excess of the 2% assumed to date (on 17/18 outturn) will yield c.£75k net (£100k gross) in additional revenue per 1% of growth;
2. The paper outlining the case to expand the physical bed base references the contract growth in respect of emergency admissions. This has been restricted to 1.15% of 17/18 outturn but any growth in excess of this (evident in month 1 of 18/19) could yield c. £236k net (£380k gross) in additional revenue per 1% of growth;
3. Utilisation of released bed days for elective/emergency activity across other clinical divisions.

The cost of nursing staff in any redesign/redevelopment of the AMU has been accounted for (with contract income assumptions) in the paper outlining changes to the bed base and not included here to avoid any risk of double counting either a source or application of funds.

The reconfiguration of the existing GPSU is, per this paper and the bed base expansion paper, deemed affordable in its own right.

7.Non-Financial Benefit Analysis

There are significant non-financial benefits of undertaking this programme which are described in detail within the main paper, for the benefit of this summary we have outlined the key metrics below:

1. Elimination of medical patients from queueing outside ED improving quality
2. Improved access to ambulatory care reducing LoS and experience for patients
3. Improved staff satisfaction in the management of patients
4. Builds on nationally recognised best practise models to ensure productivity and efficiency best practice. In line with GIRFT for ED and COE
5. Appropriate utilisation of the skills of our workforce with the benefits of: improved productivity, efficiency and patient care.
6. Develop a skilled and sustainable workforce that is engaged in meeting the challenges of acute care
7. Reputational benefit of an efficient and integrated model of care

8.Risk and Governance

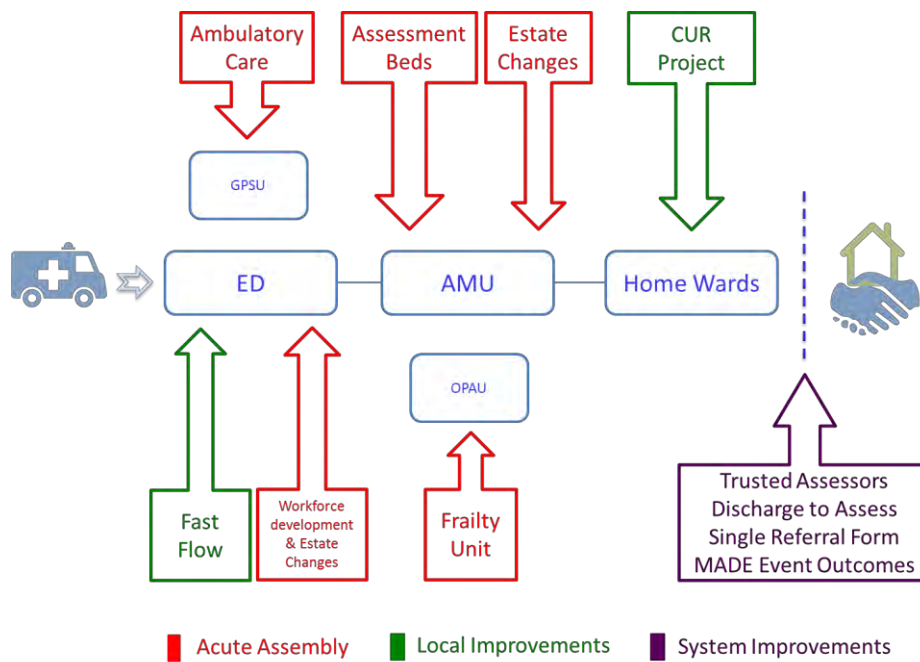
This proposal reduces or mitigates the following risks on the Division of Medicine risk register.

Risk No	Risk	Rating	Grade
1595	Risk of patients suffering from mental health disorders spending prolonged time in the ED	High Risk	8
970	Risk of non-compliance with NHSI's core 4-hour Wait Clinical Indicators against agreed Trust trajectory	High Risk	12
910	Risk to the provision of timely and effective care and patient experience due to being held in the ambulance queue	High Risk	12
2073	Risk of patient deterioration for undiagnosed/ differential diagnosed Patients waiting to be triaged	High Risk	9
1000	Financial implications of ambulance patients not being handed over to the ED within 30 minutes of arrival	High Risk	12
868	ED shortage of junior doctors / middle grade roles	High Risk	9
2029	delays in triage assessment of ambulant patients	High Risk	10
2383	A risk to patient safety and experience due to current environment and facilities of the Resuscitation Area, Adult ED	High Risk	12
1638	Cost pressure for the Division of Medicine due to additional temporary staffing to nurse patients in the ED queue	High Risk	9
2332	Risk of non compliance with NHSE/I recommendations around 7 day working	High Risk	8
2254	Risk of reduced ED performance as a consequence of additional WGH attendances overnight	High Risk	10
1002	Risk to patient care and experience due to the delivery of specialist clinical care in non-specialist beds	High Risk	10

A quality impact assessment has been undertaken and this proposal is scored as 'SOME positive benefit.

If successful the work from this assembly will sit within a wider Divisional Programme board focusing on flow and would formally report to the Urgent Care Steering Group.

Flow Focus Programme Board governs:



9. Conclusion and Next Steps

The current challenges facing urgent and emergency care are only going to worsen over the coming years and it is our belief that in order to create a robust solution to these issues, the Division must create an ambitious and challenging plan. There is a clear need to do things differently; with the current clinical engagement following this Assembly, plus the drive and vision of the Executive team, there is now also a real opportunity to deliver.

The work outlined within this paper has taken four months to conclude and has considered the views of a wide range of stakeholders both clinical and non-clinical. We believe it is a robust and achievable plan which has clinical support and momentum.

There is recognised financial challenge with the deliverability of this paper and we would welcome an opportunity to discuss this further with Executive colleagues to seek agreement for:

- 1) Progression of recruitment to roles
- 2) Engage the CCG to discuss potential future models for enhanced GP service
- 3) Service BrisDoc notice

Appendix 2: Preliminary Schedule of Accommodation for Level 3

17012-Bristol NHS
Foundation Trust
ED /Acute Floor
Feasibility Study



Preliminary Schedule of Accommodation for Level 3

17012-SCH-001

27.11.18

Emergency Department /Level 3			
Facility	ED	DH Guidance m2	Notes
Facilities listed in BRI's <i>Capital Work to Create an Acute Floor</i> BRI comments 20.11.2018	m2	Current HBN 15-01 has no area allowances superseded HBN 22 allowances quoted , HBN 00-03, HBN 12	
Public Entrance			
Main entrance draft lobby	11.0	11m2	
Parking bay (4 Portes chairs)	6.0	6m2	wheelchair bay not required. Requirement for 4x Portes chairs, comment from 20.11.18
Reception desk (4 places)	20.0	HBN 00-03 10m2 staff base 2 place	4x places confirmed 20.11.18.
Reception storage	3.0		
Triage / interview rooms (2x)		11m2	2x rooms confirmed, coments from 20.11.18
Waiting area 70	12 9.5	1.85m2 per place (30+) HBN 00-03 (table 1)	18m2 for room with hinged 1.5 door HBN 15-01 (approx. 3.6 x 4.8m)
Toilets (for 70 waiting places)	36.0	8 x 2.5m2 WC + 4.5m2 WC wheelchair	HBN includes allowance for 10% wheelchair places and play area for children accompanying adult patients
Drinking water + vending	3.5	3.5m2	
Ambulance Entrance			
Main entrance draft lobby	11.0	11m2	
Parking bay (3 trolleys + 3 wheelchairs)	12.0	12m2	
Resus room (8 bays + 6 High care)	22 4.0	16m2 per place (extrapolated from HBN 22 schedule)	Minimum 4.9m width bay, area 24m2 bay only, allowance for shared circulation and storage reduces as number of bays increase 30m2 (3 bays) to 28m2
Resus Store added	6.0		Separate room, comment 20.11.18
Relatives Rooms x 1	11.0	Allowance added as interview rooms 11m2 each tbc	confirmed as sitting rooms 20.11.18

Mental Health			
Quiet waiting room			<i>area added for 6 people @ 2.5m each</i>
Interview rooms additional room	22.0	11m2	Two rooms required
Workstations x 3- psychiatry liaison	13.0	Adjacency to mental health assessment rooms? Dedicated office / hot desk within general office?	Options - 13-16m2 (2 person office with small meeting table), hot desk within general office 6.5m2 or cellular office 8-9m2 for 1, 11-12m2 for 2
Fast Flow Area (Minors + Primary Care)			
Cubicles / bays (10 places)	13.0		13m2 curtained cubicle / sliding door (min 3.6m width). Assumed 15 bays
Staff Base (5 places)	22.0	HBN 00-03 10m2 staff base 2 place	2x staff confirmed, comment from 20.11.18
Fast Flow Store	6.0		Dedicated store added
Clean Utility / Medicines	14.0	14m2	
Dirty Utility	12.0	12m2	
Specimen Acc WC	4.5	4.5m2	
WCs (F + M semi-ambulant)	5.0	2 x 2.5m2	
Near patient testing	8.5	8.5m2	
Majors			
Majors bays (a total of 16)	19.2	12m2 curtained cubicle / sliding door (min 3.6m width)	360° access to patient. Avanti assumed a total of 20 bays
Isolation rooms (2)	48.0	23m2 (18m2 room + 5m2 WC en-suite)	18m2 for room with hinged 1.5 door HBN 15-01 (approx. 3.6 x 4.8m) additional staff escape door required, and 4x rooms with en-suite, but no lobby required, comment from 20.11.18
Side rooms (2)	36.0	18m2	18m2 for room with hinged 1.5 door HBN 15-01 (approx. 3.6 x 4.8m) additional staff escape door required, and 4x rooms with en-suite, but no lobby required, comment from 20.11.18
Fit to sit' chairs (8)		7m2 (based on HBN 00-03 generic bay 2.5 x 2.8m)	1-2 mental health assessment rooms (2 entry/exit door room, en-suite)
Hot office (10 staff places)	46.0	HBN 00-03 10m2 staff base 2 place	
Clean Utility / Medicines	14.0	14m2	With good visibility - not linear as at present
Dirty Utility	12.0	12m2	

Specimen Acc WC?	4.5	4.5m2	
WCs (F + M semi-ambulant)	5.0	2 x 2.5m2	
Near patient testing	8.5	8.5m2	
Observation Ward			
Bed spaces (12 + 4 spaces)	27 2.0		270° access to patient. ?13m2 curtained cubicle / sliding door (min 3.6m width)
Fit to sit' chairs (8 spaces)		7m2 based on HBN 00-03 generic bay 2.5 x 2.8m	18m2 for room with hinged 1.5 door HBN 15-01 (approx. 3.6 x 4.8m)
WCs	14. 0	14m2 (2 x 4.5m, 2 x 2.5m)	Suggest 2 (M + F) wheelchair WCs + 2 semi-ambulant WCs
Showers	9.0	9m2 (2 x 4.5m2)	2 (M + F) semi-ambulant showers + unisex wheelchair shower
Staff base (4 staff)	24. 0	HBN 00-03 10m2 staff base 2 place	4x rooms confirmed, coments from 20.11.18
Clean Utility / Medicines	14. 0	14m2	Added 12.11.2018
Dirty Utility	12. 0	12m2	Added 12.11.2018
Miscellaneous Support			
Pit stop area	62. 0		
Major incident equipment store	6.0	6m2	
Sterile supplies store	15. 0	15m2	
Medical gas bottle store	9.0	9m2	
Expensive equipment store(USS machine,etc)	6.0		Centrally located, comment 20.11.18
Uniform store	6.0		Current space equates to 3 large wardrobe style cupboards, comment 20.11.18
Linen store	4.0		
Staff WCs	9.5	1 x 4.5m, 2 x 2.5m	
Disposal Hold/s	12. 0	6m2 (HBN 12)	2x rooms, 1x at each end of department, comment from 20.11.18
Cleaners	14. 0	7m2 (HBN 12)	2x rooms, 1x at each end of department, comment from 20.11.18
CSMs/ GOATs	3.0	Assessment tools CSM for injury & GOATs for PTSD (Galveston Orientation and Amnesia Test).	This will be dependant on the IT infra structure supplied, if there is a wall mounted networked PC in each bay this will not be required. If shared mobile it is required some walk in storage will be required for it, comment 20.11.18
Office (5 hot desks)		6.5m2 per desk (HBN 00-03)	Yes a group of hot desks in a single space is

		ratio 1 desk:4 persons)	fine, comment 20.11.18
Break out space for 1:1 discussion	12.0	x 2	room requested, comment 20.11.18
Staff rest / break out space (20 place)	36.0	1.8m2 per place (HBN 00-03 table 2, figure 98)	incorporating mini kitchen, basin, table/s, easy chairs. 12x staff confirmed, comment 20.11.18
CT including viewing room - existing	47.5	HBN 6 volume 1 CT scanner room 32 + control room 16 = 48	
X-ray existing / relocated	60.0	HBN 6 volume 1 general X ray room incl. control cubicle 30	
Plaster	16.0		1x room confirmed, comment 20.11.18
Plaster store	3.0		Area to be integral to plaster room , comment from 20.11.18
Kitchen	9.0	-	Room requested, to be used for x3 daily hot food provision for Obs unit patients, regular sandwich and frequent hot drink rounds, comment 20.11.18
TOTALS - NIA	175.0		

Allowances at lowest end of variation 48%	25.91.5		Gross Internal Areas GIA include: 5% Planning (walls, columns etc.) 3%Engineering (service zones and cupboards within clinical areas - not plant rooms) 25-35% Circulation within depts. 10-20% Communication between depts included. 5-15% Refurbishment factor (allowance for inefficient planning due to existing shell)
Allowances at highest end of variation 78%	31.16.8		
Median allowance 53%	26.79.0		

List of existing rooms not re-provided in the Preliminary Schedule of Accommodation for ED:		
Meeting room	15.8	total of 2x rooms
Consultant Office Major	18.4	total of 2x rooms
Consulting Minor/ Fast track	7.1	
Nursing Office Major	7.3	
Registrar room Major	9.5	
Examination room Major	8.5	
Resource room	10.2	
total NIA	76.	

	7	
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27 55. 8

Appendix 3: Preliminary Schedule of Accommodation for Level 4 (Proxy)

	Room areas indicative m2	Room qty	Indicative net internal area m2	Notes
Reception area	15	1	15.0	2-3 staff
Adult Waiting area: 25 persons including 2 wheelchair users	61.5	1	61.5	room to have 6 reclining seats for frail patients (1.5m2 per person, 3m2 per (1.5m2 per person, 3m2 per wheelchair and 5m2 per recliner)
Assessment and Triage room	16	1	16.0	
Nurse station (4 places)	26	1	26.0	large, centrally located, similar to majors
Treatment room	16.5	1	16.5	including plenty of storage and cupboards for drugs
Consulting room	16.5	4	66.0	
Isolation room	19	2	38.0	
Office/Workstation (7x)	25	1	25.0	4.5sqm per desk+ access zones to desk
Trolley area	7	22	154.0	22x trolley areas
Ambulatory Chair/treatment area	7	15	105.0	15x comforta

				ble chairs (area per chair)
Pharmacy	48	1	48.0	dispensin g cupboard s/ drugs room
Toilets:				
Female WC & handwash: semi ambulant	2.5	2	5.0	2x each
Male WC & handwash: semi ambulant	2.5	2	5.0	2x each
WC & handwash:accessible, wheelchair	4.5	1	4.5	
Staff WC	2.5	2	5.0	numbers to be reviewed when staff numbers confirmed
Small kitchen	9	1	9.0	tea/coffe e
Sluice/DU	14	1	14.0	linen room with 2x commode s
POC Testing room	8	1	8.0	(d dimer, ABG machine) assuming a near- patient testing room
Staff coffee room (20 people)	25	1	25.0	
Staff male change room (20 places)	11.5	1	11.5	locker room
Staff female change room (30 places)	16	1	16.0	locker room
Large Office	30	1	30.0	6x hot desks (4.5sqm per desk)+ access zones to desk
Waste disposal	8	1	8.0	x3 bins
Equipment bay	5	1	5.0	crash

				trolley, portable machines
Cleaner's room	8	1	8.0	
Net Internal Area m2			725.0	
5% Planning allowance			36.3	
3% Engineering allowance			21.8	
33% Circulation allowance			239.3	
Sub-Total Gross Internal Area m2			1022.3	
10% Non-Departmental Communication allowance			102.2	
Total Gross Internal Area m2			1124.5	



Appendix 5 – Stakeholder Letter of Support

TBC

Appendix 6 – UHBW Sustainable Development Strategy



University Hospitals Bristol
NHS Foundation Trust

Sustainable Development Strategy

2020–2025

Respecting everyone
Embracing change
Recognising success
Working together
Our hospitals.

Contents

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“ The goal of sustainable development is to meet the needs of today, without compromising the needs of tomorrow.”

Foreword



As an Outstanding hospital Trust we are meeting the needs of our communities today but we also have a duty to ensure we continue to deliver exceptional healthcare in a responsible way that embraces our role as an anchor organisation in Bristol.

We are committed to delivering the ambitious plans set out in this Sustainable Development Strategy providing high standards of quality healthcare whilst addressing the environmental impact this creates. This strategy shows how, through developing sustainably, we can make a significant contribution to the local economy, society and environment.

Climate change has been declared as 'the greatest threat to global health' (Lancet, 2017) which will have serious implications for our health, wellbeing, livelihoods, and the structure of organised society. Failure to act quickly will heighten existing national health challenges, place further financial strain on the NHS, and worsen health inequalities within the UK and internationally.

In recognition of the urgency of the threat that climate breakdown poses to public health, we are publically declaring a climate emergency. We wish to be leaders in fast tracking plans to achieve carbon neutrality – improving the health of our

population in the process. This strategy commits us to a carbon neutrality target of 2030, improving air quality and reducing our use of single use plastics. These targets are challenging but show our commitment to working with partners to deliver Bristol's One City Plan and the vision for a "Fair, healthy and sustainable city".

Robert Woolley
Chief executive



Introduction

As one of the largest organisations in Bristol we have a significant environmental impact. We generate substantial waste and carbon as a result of our clinical activities, and the travel and transport needed to deliver goods and services and move staff, patients and visitors impacts on local air quality. Putting in place a clear strategy will enable us to manage and reduce our environmental impact, improve efficiency and resilience and control the cost of delivering our services.

As an anchor Institution we are committed to embedding sustainability across our own organisation, leading by example in our sector and improving the health and wellbeing of the communities we serve. We will collaborate with our healthcare partners and key stakeholders to ensure that our work is aligned to deliver a shared set of goals. Everyone has a part to play in delivering this plan and by working together, we will achieve more and deliver sustainable healthcare.



Setting a carbon neutrality target of 2030



Calling for the necessary policy and funding



Establishing a sustainable procurement framework to ensure suppliers support us in reducing our carbon footprint



Strategy renewal

Our previous strategy focused on the savings that could be achieved through making estates efficiencies around energy, water, waste and travel. The scope of our new strategy has been expanded to encompass wider issues of health, wellbeing and social value, whilst contributing to our long term carbon reduction targets.

To inform the content of this strategy, we have engaged extensively with our staff. From that engagement we have developed objectives across the 10 modules of the healthcare sector tool for measuring and improving sustainability performance. This tool is known as the Sustainable Development Assessment Tool, or SDAT. Using the ten SDAT modules ensures that we covered all aspects of sustainability.



The UN Sustainable Development Goals (SDGs)

Our strategy is aligned with the United Nation's 17 Sustainable Development Goals (2015-2030), an ambitious collection of global aims intended to encourage countries to end all forms of poverty, fight inequalities and

climate change, whilst ensuring that no one is left behind. We have considered how UH Bristol can contribute to the SDGs as a whole, as well as how sustainability objectives contribute towards the delivery of this strategy.



Drivers for change

Legislative:
Climate Change Act, New Clean Air Act

Economic: 10 year recession, NHS to save £22bn

Technological:
4th Industrial Revolution, digitisation in health

Political: Brexit

Environmental:
Plastics, CO2 reduction, fossil fuels running out

Social: 20% of UK in Poverty, increased Health and Social Inequalities, Extinction Rebellion

NHS Long Term Plan gives clear direction on Sustainable Development:

Reducing Carbon emissions

Driving Energy Efficiency

Improving Air Pollution

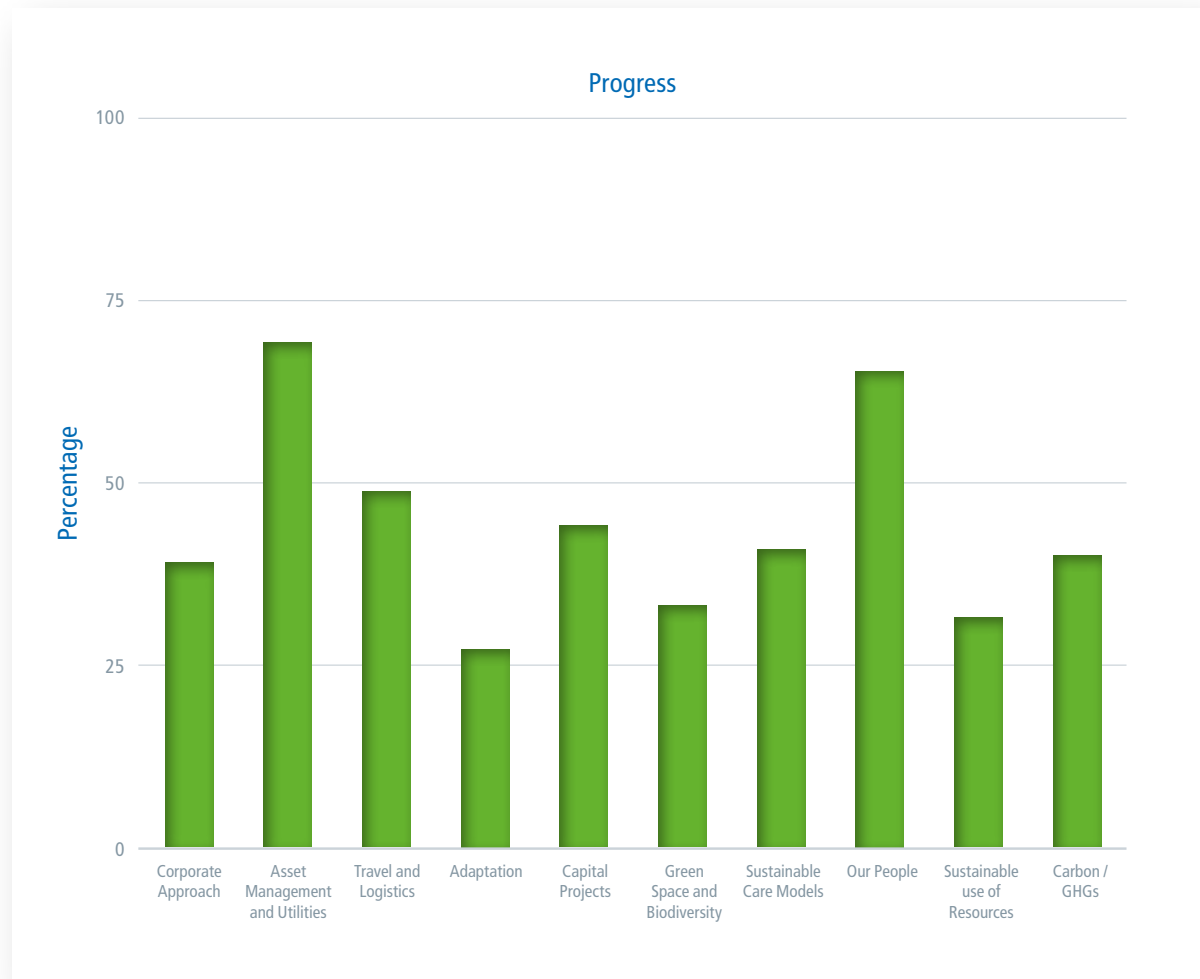
Reducing Plastics and Anaesthetic Gases

Using Resources Efficiently and Effectively: Energy, Water and Waste

Progress on Sustainable Development

We measure our progress on sustainable development through the use of the Sustainable Development Assessment Tool (SDAT). Our most recent application of the Sustainable Development Assessment Tool was in October 2018, scoring 44 percent improving on our March 2018, score of 30 percent. Plans to further improve this are included in this Sustainable Development Strategy.

The UN SDGs give an international context against which to align the Trust's sustainable development plans. The SDAT assessment shows the Trust is starting to contribute to these Sustainable Development Goals at a local level, as shown with the icons on the right.

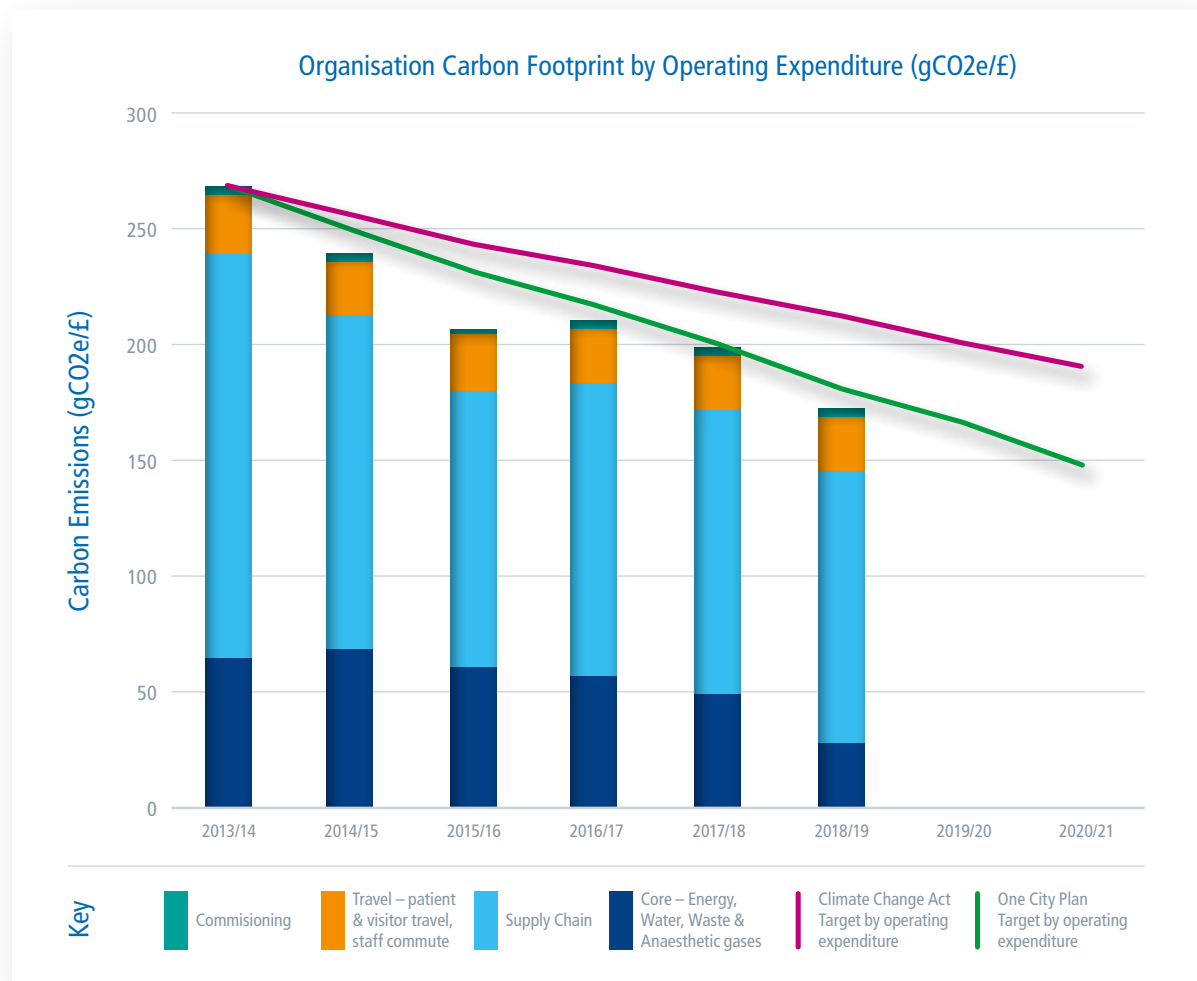


Progress on carbon emissions

All our activities have a carbon footprint and we have categorised these into the following areas:

Carbon Footprint Category	% CO2e
Core – Energy, Water, Waste & Anaesthetic gases	12%
Supply Chain	72%
Commissioning	2%
Travel – Patient, Visitor and Staff commute	14%

Our carbon intensity has reduced year on year, but we have more to do.



Current contribution to the UN SDGs

Goals

Contributions

No Poverty End Poverty in all its forms everywhere

We are an accredited Investors in People organisation. The Homelessness Support Team was introduced in early 2017 to help provide a specialist service to homeless patients, focussing on their post-discharge arrangements. Since then, the Team has received over five hundred referrals. We have started a fuel poverty project to embed support within the hospital discharge team to refer suitable patients for home energy efficiency measures. This in turn helps with patient recovery, reduces re-admissions, and provides environmental benefits.

Zero Hunger End hunger, achieve food security and improve nutrition and promote sustainable agriculture

We have a Nutrition Steering Group who ensure the nutritional needs of our patients are met, as well as promoting the Sugar Smart campaign across the Trust. The Trust has also been awarded the Bristol Eating Better Award. We achieved the Food and Drink CQUIN for food and drink from 2014-18 and provide Step into Health courses for staff which cover Physical Activity & Health, Nutrition & Weight Management and Stress Management. The Trust's Nutrition and Dietetics team provide a wealth of healthy eating guidance to aid general understanding; to support colleagues in their professional and personal lives We provide meals to breast-feeding mothers when their child is an in-patient.

Good Health and Well-being Ensure healthy lives and promote well-being for all ages

Maintaining and improving the health and wellbeing of colleagues is of paramount importance and central to UH Bristol Trust values. Our Workplace Wellbeing Team coordinate numerous initiatives, including psychological support, which are further promoted by 178 Workplace Wellbeing Advocates. Advocates also act as a point of contact for staff to talk about health and wellbeing at work. We encourage staff to actively travel to work, promote healthy diets through initiatives such as Sugar Smart and offer flexible-working

Quality Education Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

Our vision for 2025, as a University Hospitals Trust, is to be a beacon for outstanding education and research with a culture of innovation. This ambition is detailed in the Trust's Education, Learning and Development Strategy. We provide outstanding education to apprentices and medical students as well as clinical skills, leadership and management skills, mentorships and preceptorships, quality improvement projects and essential staff training. We have a strong focus on staff-development. Our Children's Hospital has a dedicated and inclusive inpatient school delivering high-quality education to children spending long periods in hospital.



Goals	Contributions
Gender Equality Achieve gender equality and empower all women and girls	The Trust publishes an Equality and Diversity Report each year to provide information about our performance on gender equality of staff and in recruitment. The Trust reports on the gender pay gap. We have an Equality and Diversity Group who have produced a new Diversity and Inclusion strategy.
Clean Water and sanitation Ensure availability and sustainable management of water and sanitation for all	The Trust has a Water Safety Policy and Plan, managed by a Water Hygiene and Compliance Estates Officer and Risk Management Group. Collectively they manage and control the risk of water-borne pathogens within the Trust. Clean drinking water is provided throughout the Trust for staff, patients and visitors via water stations. We are conducting water leak surveys to reduce our losses.
Affordable and Clean Energy Ensure access to affordable, reliable sustainable energy for all	The Trust currently uses 100% renewable electricity and have made a wide range of investment in energy efficiency measures including tripling the size of the current Combined Heat and Power engine and installing £750,000 of LED lighting. We have solar panels installed on the roof of one of our hospitals contributing to our renewable energy supply.
Decent Work & Economic Growth Promote sustained, inclusive economic growth, full productive employment and decent work for all	The Trust contributes to routes to employment and improved work opportunities by providing student placements, traineeships and work placements, in particular for those with learning disabilities. We attend school and college fairs promoting work opportunities. We support small and medium enterprises in accessing contracts.
Industry, innovation and infrastructure Build resilient infrastructure, promote inclusive and sustainable industrialisation and foster innovation	<p>Our mission is to deliver exceptional care, teaching and research every day. Our vision for the next 5 years is to grow our specialist services and our position as a leading provider in south west England and beyond; work more closely with our health and care partners to provide more joined up local healthcare services and support the improvement of the health and wellbeing of our communities; become a beacon for outstanding education and research and our culture of innovation.</p> <p>Research and innovation forms part of UH Bristol's tripartite mission to provide patient care, education and research of the highest quality. Innovation is supported at the Trust by our Transformation Team and their Quality Improvement programmes. We are an NHS England flagship Global Digital Exemplar site leading on the transition to a digital healthcare system, such as the Electronic Prescribing and Medicines Administration project, part of the Clinical System Implementation Programme which is integral to Trust Strategy As a founding member of Bristol Health Partners we have worked with NHS organisations, Bristol City Council, University of Bristol and the University of West of England to bring research findings into clinical care and everyday practise. We have successfully bid to establish a Genomics Medicines Centre and a Biomedical Research Centre and to host local and regional Clinical Research Centres.</p>

Goals	Contributions
Reduced Inequalities Reduce inequality within and among countries	The Trust has an Equality, Diversity and Human Rights Policy and is committed to developing and enhancing a diverse and inclusive culture. Equality, Diversity and Human Rights training is included in corporate induction and essential staff training, updated every 3 years. We have an Equality and Diversity Group, who now produce an annual Diversity and Inclusion strategy.
Sustainable Cities and Communities Make cities and human settlements inclusive, safe, resilient and sustainable	The Trust has a Board-approved Sustainable Development Strategy and are working with Bristol and Weston NHS Purchasing Consortium to embed sustainability within the procurement process.
Responsible Consumption and Production Ensure sustainable consumption and production patterns	We are embedding sustainability within our supply chain by considering whole life cycle costs of products and services we procure.
Climate Action Take urgent action to combat climate change and its impacts	We have reduced our carbon footprint via sourcing renewable energy, engaging staff in sustainable behaviour change and focusing on hotspots such as anaesthetic gases. We have worked in partnership across the STP region to produce a Climate Change Adaptation strategy for our organisations and climate change risk assessment for our Trust
Life Below Water Conserve and sustainably use the oceans, seas and marine resources for sustainable development	The Trust has implemented significant changes to our consumption of single-use plastics; a material found to be polluting our global waters on an extraordinary scale. We no longer purchase plastic straws, or polystyrene food containers and our cutlery and coffee stirrers are now wooden.
Life on Land Protect, restore and promote sustainable use of terrestrial ecosystems, reverse degradation and halt biodiversity loss	We have protected and restored areas of greenspace across our site, promoting the biodiversity, air quality and health benefits that they provide.
Peace, Justice and Strong institutions Promote peaceful and inclusive societies, access to justice and build effective, accountable and inclusive institutions	As an outstanding Foundation Trust we have demonstrated strong governance with transparent reporting on organisational performance
Partnership for the goals Strengthen the means of implementation and revitalise the Global Partnership for Sustainable Development	We are actively engaged in the partnerships across our region; Bristol, North Somerset and South Gloucestershire. We are signed up to Bristol City Council's One City Plan and are a member of the Bristol Green Capital Partnership. We are core members of the Healthier Together Estates group and the Sustainability and Health Group which feeds into this.



What we want to achieve

Our Sustainable Development Strategy aims to reduce our environmental impact, protect our natural environment, empower staff to operate responsibly, enhance social value and work with partners across the system to improve the health and wellbeing for all who live and work within the communities we serve.

We have set the following specific goals which will be supported by the objectives in our key areas of focus.

1

Carbon neutral by 2030 - Benchmarked against our operating expenditure.

2

Contributing to all the UN Sustainable Development Goals – Benchmarked by achieving 70% rating in our Sustainable Development Assessment tool by 2025.

3

Cutting air pollution - Benchmarked by achieving excellent rating on the Clean Air Hospital framework by 2025.

4

Resource efficiency – zero waste to landfill by 2025 and reducing our consumption of energy and water.

Key Areas

Informed by our assessment of current progress and following consultation with staff, we have set our objectives for each of these key areas of focus, how we will achieve them and how we will measure progress. We also indicate the SDGs they will contribute to in each area.

13 | Corporate Approach

14 | Capital Projects

15 | Asset Management & Utilities

16 | Sustainable Use of Resources

17 | Carbon/GHGs

18 | Climate Change Adaptation

19 | Greenspace and Biodiversity

20 | Sustainable Care Models

21 | Travel and Logistics

22 | Our People

Corporate Approach

What do we want to achieve?

Ensure sustainability is embedded within organisational decision making:

- Deliver, monitor and report on sustainability progress,
- Senior staff, stakeholders and governors are engaged in, and accountable for, delivering our SDS, and policies, procedures, business cases and processes reflect this.

How can we achieve it?

- Maintain an ambitious and up to date Strategy.
- Report performance quarterly to senior management and annually to the Board.
- Support Bristol and Weston Purchasing Consortium to develop and deliver a sustainable procurement strategy.
- Play an active role as an Anchor Institution, creating opportunities for local communities such as work experience and access to employment, thus contributing to the local economy and improving local population health.

How will we measure it?

- Assess SDAT score in line with target of 70%.
- Percentage of reports and business cases including a sustainability impact assessment.
- Clear, measurable targets in annual Divisional Operating Plans.
- Carry out annual sustainability surveys to measure staff awareness levels.
- Include a comprehensive sustainability section in the annual report.



Capital Projects

What do we want to achieve?

Reduce the environmental impact of building works during design, refurbishment, construction, operation and decommissioning stages:

- Embed sustainability and efficiency using smart design and emerging technologies across our improvement works, including refurbishment and new build.
- Take a whole life cycle approach to projects by scrutinising sustainability in design, construction, commissioning, operation and decommissioning, helping to future-proof our organisation.

How can we achieve it?

- Include Sustainability Impact Assessment in all Capital business cases.
- Develop sustainability guidelines for all Capital Projects including major refurbishments, driving resource efficiency through the Estates Strategy and standard specification.
- Establish a process for reuse of furniture and equipment.
- Work with contractors to take a whole life costing approach to new building design and refurbishment and maximise in-use energy and water efficiency.
- Weight social value outcomes when procuring, for example, use of local suppliers and SMEs.

How will we measure it?

- Energy and water consumption, including design and in-use performance.
- Achieve an excellent BREEAM score for all new capital projects and very good for refurbishment projects.

Asset Management & Utilities

What do we want to achieve?

Derive 100% of our energy from renewable sources, embed energy and water efficient technologies and practices throughout our Estate and services and deliver year-on-year reductions in consumption:

- Accurately measure utilities and reduce consumption to make sure we're getting the best value for money and minimising environmental impact.
- Embed more efficient practices, new technologies and improve staff awareness to improve utility efficiency across everyday activities and as part of longer-term plans.

How can we achieve it?

- Deliver a programme of targeted energy and water efficiency schemes to manage and drive down use.
- Inform and educate staff, patients and visitors about how their actions affect energy and water consumption.
- Work collaboratively with community partners to maximise the use of built assets and grounds.
- Assess lifecycle costs of energy and water when purchasing new equipment and use this as a criteria in decision-making.

How will we measure it?

- Annual ERIC returns.
- Monitor utility consumption and cost, broken down by individual buildings.
- Percentage of energy from renewable sources.

Sustainable Use of Resources

What do we want to achieve?

Work to minimise our use of resources, improve our waste management, and reduce waste production year-on-year:

- Meet legal responsibilities to make sure that waste is properly segregated, handled and disposed of.
- Reduce unnecessary use of resources across all of our organisational activities. Procurement constitutes the largest proportion of our carbon footprint.
- Apply the waste hierarchy, rethinking traditional waste models and working closely with our staff and supply chain, we can move towards a circular economy approach and away from a throwaway culture.
- Zero waste to landfill.

How can we achieve it?

- Target action on the 15 plastic product groups responsible for 69% estimated overall plastic content goods; almost all are also high carbon impact product groups.
- Work with organisations innovating new sustainable waste disposal alternatives.
- Replace single use products with reusable alternatives where there is a viable and lower carbon option.
- Deliver initiatives to reduce food waste and ensure that it is treated in the most sustainable way.
- Promote a culture of reuse and refurbishment of items if it is cost effective, rather than buying new.
- Use our purchasing power wisely, by working with suppliers to procure products that minimise packaging use and offer innovative solutions to waste reduction, including take back schemes.

How will we measure it?

- Procurement carbon footprint.
- Volume collected for each waste stream.
- Number of suppliers engaged with sustainability.
- Number of procurement schemes undertaking whole lifecycle costing.
- Progress with Waste Management Plan.

Carbon/GHGs

What do we want to achieve?

Carbon neutral by 2030

- Engage staff, suppliers and contractors with our SDS to reduce our carbon footprint.
- Measure our carbon emissions, identify hotspots and take targeted action to reduce this year-on-year in line with our 2030 carbon neutrality target.

How can we achieve it?

- Calculate and report carbon emissions, targeting hotspots.
- Contribute to the One City Plan and other city-wide sustainability initiatives.
- Calculate and report carbon emissions from procurement activities. Improve methodology for calculations of procurement footprint
- Engage with suppliers on sustainability and carbon reduction.

How will we measure it?

- Carbon footprint as published in our annual report.
- Carbon footprint from procurement broken down by key areas.
- Carbon footprint from anaesthetic gases.

Climate Change Adaptation

What do we want to achieve?

Ensure our whole organisation is prepared to deal with the effects of climate change, particularly extreme weather events, and continues to invest in adaptation and mitigation measures:

- Assess the impacts of climate change and adapt to mitigate the negative effects of past and future climate-altering actions.
- Reduce the impact on public health from climate change.
- Ensure our infrastructure, services, procurement, local communities and colleagues are prepared for the impacts of climate change.

How can we achieve it?

- Nominate an Adaptation Lead and incorporate adaptation into our sustainability governance structure, corporate risk register and reporting processes.
- Work with key internal and external stakeholders and partners to deliver and update our Healthier Together Climate Change Adaptation Plan (CCAP).
- Update our Trust Climate Change risk assessment following national healthcare guidance.
- Ensure that our emergency plans consider that vulnerable communities are supported during any extreme weather events.

How will we measure it?

- BREEAM Building Standard or other sustainable buildings methodology scores.
- Monitor and report the progress of our Climate Change Adaptation Plan (CCAP).
- Reduce risk rating in our climate change risk assessment.



Greenspace and Biodiversity

What do we want to achieve?

Maximise the quality and benefits from our green spaces and reduce biodiversity loss by protecting and enhancing natural assets:

- Improve green spaces to maximise benefits for mental and physical wellbeing. Improved air quality, noise reduction, support biodiversity and help combat climate change.
- By collaborating with partners and local communities we will implement a clear strategy that helps us contribute to local biodiversity and make the best use of available green space.

How can we achieve it?

- Develop a biodiversity and greenspace strategy that encompass the challenges and opportunities across our Estate.
- Produce a biodiversity and greenspace action plan that details actions and those responsible for maintaining our greenspaces.
- Repurpose unused areas, such as roof space and walls with a focus on improving green space for biodiversity including wildflower areas and installing beehives.
- Work with staff and local community organisations to provide quality accessible urban green spaces and encourage their use.

How will we measure it?

- Progress against delivery of biodiversity and greenspace action plan.
- Value of natural capital.



Sustainable Care Models

🎯 What do we want to achieve?

Deliver the best quality of care while being mindful of its social, environmental and financial impact and take a whole systems approach to the way it is delivered:

- Improve the environmental sustainability of care pathways, and better integrate healthcare services to improve efficiency.
- Embrace new and existing digital technologies to reduce the environmental impact of care, prevent ill health and manage long-term health conditions.
- Work with partners and stakeholders to identify and deliver solutions that reduce the number of hospital visits, such as the provision of treatment closer to home.

🚩 How can we achieve it?

- Identify carbon hotspots such as medical equipment and pharmaceuticals and ensure that action plans identify and mitigate environmental impacts.
- Reduce carbon emissions associated with areas of high impact such as pharmaceuticals and anaesthetic gases by educating staff and encouraging lower impact alternatives.
- Work with partner organisations to support vulnerable patients upon discharge such as improving home energy efficiency.
- Pilot the redesign of selected care pathways to drive out any unnecessary stages.
- Increase digital and other options for outpatient care.

🔍 How will we measure it?

- Patient feedback and scores (e.g. PLACE).
- Feedback relating to the care environment (e.g. temperature, light).
- Financial and social co-benefits from sustainable models of care initiatives delivered.
- Reduction in hospital admissions.
- Increase in non-face to face outpatient contacts.



Travel and Logistics

🎯 What do we want to achieve?

Minimise the environmental and health impacts associated with the movement of goods and people on Trust business:

- Increase in use of sustainable and active travel options that deliver environmental and health benefits.
- Decarbonising our travel and transport operations.
- Care closer to or at home.

🚩 How can we achieve it?

- Deploy leading digital technologies through our IM&T Strategy in order to transform the delivery of services and patient care.
- Continue to develop our electric vehicle fleet and an electric bicycle fleet. Increase charging points.
- Improving green travel and access options for staff, patients and visitors.
- Work with our strategic partners to reduce traffic impacts and promote the use of public transport and active travel.
- Improve our facilities for staff actively traveling to work.
- Increase access to the Trust's cycle-scheme, car sharing, park & ride and discounted bus fares.
- Become a Clean Air Hospital.

🔍 How will we measure it?

- Consideration of travel options and impacts when planning changes to our services (using Health Outcomes of Travel Tool).
- Clean air hospital framework score.
- Improve data and reporting of CO2 from business travel.
- Annual staff travel survey to improve engagement with staff and capture data on staff commuting.
- Monitor air quality within and external to our buildings.



Our People

What do we want to achieve?

Support staff to improve sustainability at work and home and empower them to make sustainable choices and improve their health and wellbeing:

- Staff engaged and enabled to adopt sustainable practices and to take ownership within their own areas of influence.
- All staff clear in their roles in delivering this strategy.
- Sustainability leadership in our communities; staff empowered to make sustainable choices at work, home, across our supply chain and beyond.

How can we achieve it?

- Deliver programmes to raise sustainability awareness and provide staff with opportunities to contribute.
- Include sustainability in job descriptions and performance reviews.
- Expand participation in the Green Impact Awards and develop ways to encourage sustainable behaviours and reward staff.
- Provide staff with a variety of development and training opportunities that support our SDS.
- Working with partners to make a difference in our communities and improve people's lives.

How will we measure it?

- Number of environmentally-focused staff benefits.
- Staff participation in sustainability programmes.
- Social Value Calculator. CQUIN performance.
- Staff sickness.



Communicating and embedding the Strategy

To help drive change across the whole organisation, we will take a considered, structured and engaging approach to disseminating the strategy and embedding our approach to sustainability.

A communication plan for the strategy will be developed that shows what we are doing both within and outside of the organisation, highlight key priorities and show excellence in sustainable development leading others to join us in making improvements.

Embedding sustainability in decision making from individual actions to major projects requires engaging individuals and developing our organisational processes. This includes making the tools (eg sustainability impact assessment) and support available for all staff to be able to integrate sustainability into their activities.



Tracking progress

We will be measuring the progress of this strategy using both qualitative and quantitative methods. The main way in which we'll measure the qualitative progress is by carrying out an annual assessment using the SDAT. We have set a goal of achieving an overall score of 70% within the five year lifetime of this plan, which corresponds to a 26% increase on our current position.

We have a number of quantitative reporting processes in place for other areas, examples of which are outlined below. The Governance section outlines where we will be reporting progress to, both within and outside our organisation

Energy and utilities

We monitor consumption of energy and water on a monthly basis, across each site as well as for individual buildings. This helps us target and see where our interventions are having the desired effect and quickly identify any issues. We are working towards a greater level of automation with this process.

Carbon footprint

Organisational carbon footprint is measured and reported annually using sector guidance. This includes all scopes of emissions, and helps us to focus interventions on carbon hotspots. We will develop the monitoring of our procurement carbon footprint to improve the accuracy.

Waste

We monitor waste volumes every month for each waste stream. We will develop our recording of waste avoidance such as where we increase re-use.

Sustainable travel

An annual travel survey is undertaken to determine changes in how staff travel to work and collate feedback. Data is analysed using the HOTT (Health Outcomes Travel Tool) to see which interventions will have the best effect in making progress.

Governance and reporting

Clear leadership is vital to ensure we successfully deliver the commitments in this strategy. Our sustainable development policy sets out governance arrangements.

As this strategy is broad and encompasses a wide range of work areas, there are other detailed documents that underpin our approach. Some of these have already been developed, such as our Climate Change Adaptation Plan, and some will be developed or revised in the future, such as a Green Space and Biodiversity strategy, Waste Management plan, Green travel plan, Estates Strategy, Estates standard specification, Divisional operating plans.

Clear reporting is required to monitor progress and ensure delivery is on track:

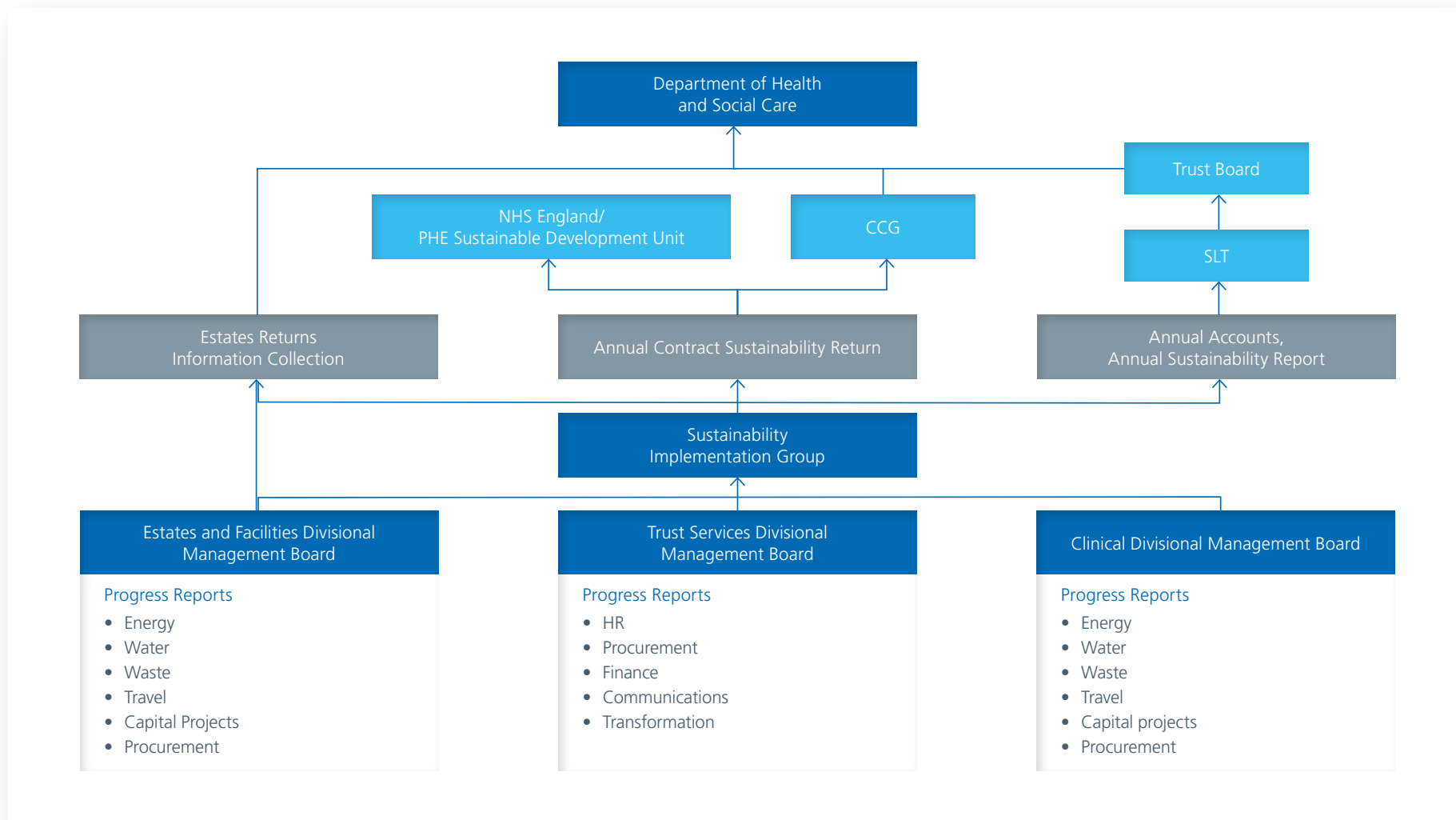
Annual reports

- **Sustainable Development Assessment Tool (SDAT)**
This will measure our qualitative progress on sustainability for the previous year, inform plans for the coming year, and will enable comparative performance against similar Trusts.
- **NHSI/SDU Sustainability Reporting Portal**
This informs the sustainability section of the Trust's Annual Report and calculates the Trust's carbon emissions.
- **Trust Sustainability report**
This reports progress against the SDS and provides highlights of the main activities delivered throughout the year.
- **ERIC (Estates Return Information Collection)**
A mandatory data collection for all NHS Trusts required by the Department of Health.

Progress reports

Internal progress reports are produced for the bimonthly Sustainability Implementation Group, monthly Estates and Facilities Management Board Monitoring KPIs for utilities, waste data and other data.

Reporting framework



Your Contribution

Review the Sustainable Development Strategy and see how you can contribute within your own role. No matter what your role is at the Trust, there will be something for you!

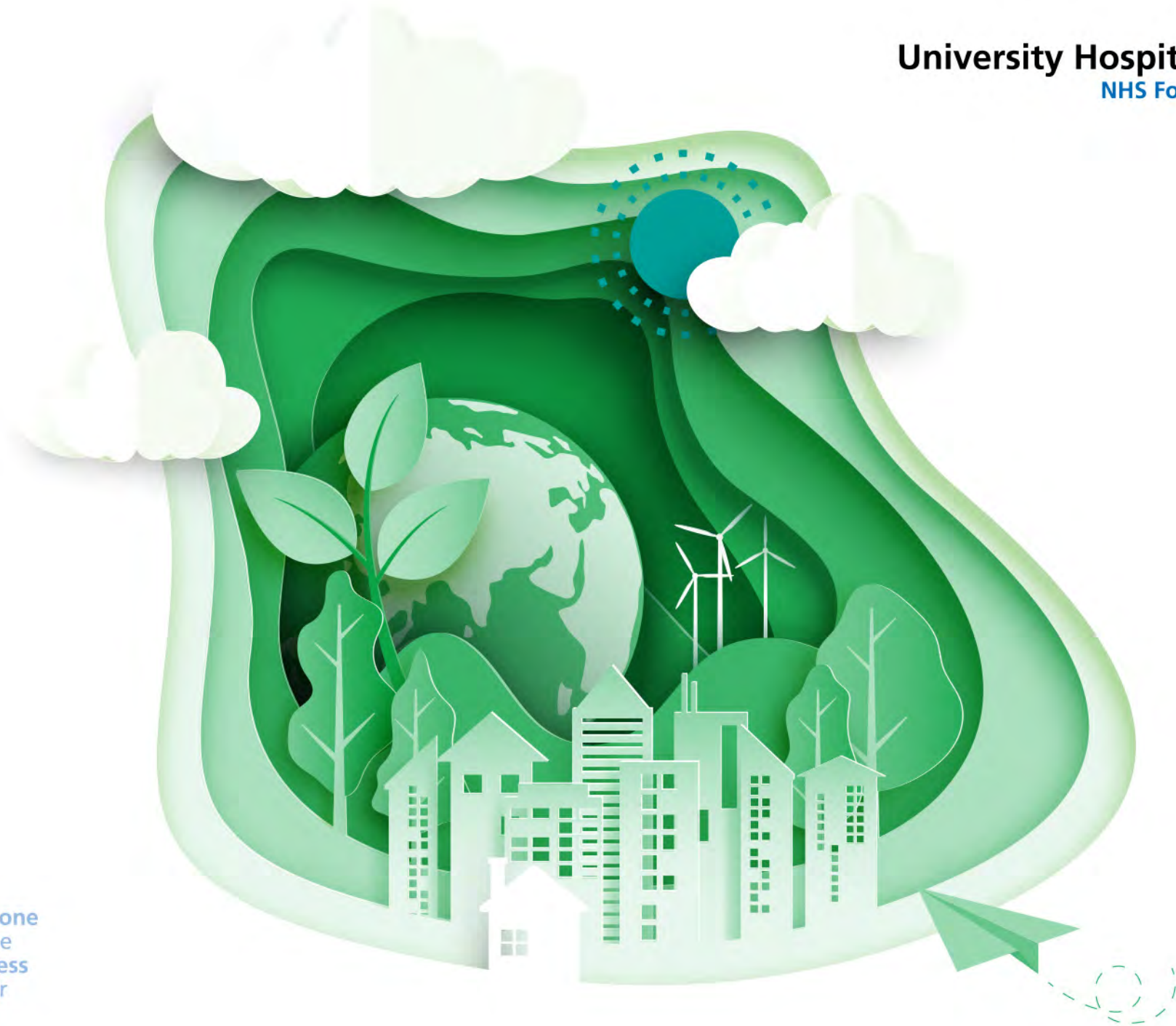
Find out more:

- Visit the Big Green Scheme Connect pages.
- Share your ideas
- Get advice and support
- Email the Big Green Scheme
- Sign up to the sustainability newsletter
- Subscribe to the Big Green Scheme mailing list
- Be recognised for embedding sustainability in your work and engage your colleagues - sign up your area for to the Green Impact Awards.





University Hospitals Bristol
NHS Foundation Trust



Respecting everyone
Embracing change
Recognising success
Working together
Our hospitals.

Appendix 7 – UEAC Feasibility Study 2020

(attached separately)

Appendix 8 – Capital Costs: Option 2

OUTLINE BUSINESS CASE FOR MARLBOROUGH HILL: REFURBISHMENT OPTION

TRUST/ORGANISATION:	UNIVERSITY HOSPITAL BRISTOL AND WESTON	ORGANISATIONAL CODE:
SCHEME:	MARLBOROUGH HILL: REFURBISHMENT OPTION	
STRATEGIC HA:		
PHASE:		
PROJECT DIRECTOR:		

CAPITAL COSTS SUMMARY

		Cost Excl.		VAT	Cost Incl.	
		VAT	£	£	VAT	£
1	Departmental Costs (from Form OB2)		17,566,844		3,513,369	21,080,213
2	On Costs (from Form OB3) (37.00% of Departmental Cost)		6,499,732		1,299,946	7,799,679
3	Works Cost Total (1+2) at 250 PUBSEC (3Q17)		24,066,576		4,813,315	28,879,891
4	Provisional location adjustment (if applicable) % of Works Cost (b)					
5	Sub Total (3+4)		24,066,576		4,813,315	28,879,891
6	Fees (c) (20.00% of sub-total 5)		4,813,315		N/A	4,813,315
7	Non-Works Costs (from Form OB4) (e) Land Other		481,332		96,266	577,598
8	Equipment Costs (from Form OB2) (32.28% of Departmental Cost)		5,670,968		1,134,194	6,805,161
9	Contingencies 15.0%		5,254,829		1,050,966	6,305,794
10	TOTAL (for approval purposes) @ PUBSEC 250		40,287,019		7,094,741	47,381,760
11	Optimism Bias 15.0%		6,043,053		1,208,611	7,251,663
12	Sub Total (10+11)		46,330,072		8,303,351	54,633,424
13	Inflation Adjustments to notional PUBSEC index based on OBC submission Date	To Date	BCIS Published Index			
		2Q2023	299	9,080,694	1,816,139	10,896,833
	Inflation Adjustments to notional PUBSEC index based on forecast from OBC submission to construction mid-point	3Q2026	329			
	PUBSEC Uplift		10.03%	4,648,502	929,700	5,578,203
	Inflation Adjustments to notional All in TPI index based on OBC submission Date	2Q2023	381			
	Inflation Adjustments to notional All in TPI index based on forecast from OBC submission to construction mid-point	3Q2026	423			
	All in TPI uplift		11.02%			
	Additional Inflation uplift required from PUBSEC to All in TPI		0.99%	458,750	91,750	550,500
14	FORECAST OUTTURN BUSINESS CASE TOTAL (12+13)			60,518,018	11,140,941	71,658,959

Cash Flow:- Year yy/yy	SOURCE			£
	TBC	OTHER GOVERNMENT	PRIVATE	TOTAL
	Total Cost (as 10 above)			

Total (for approval purposes) match against Cashflow ERROR

Appendix 9 – Capital Costs: Option 7a

OUTLINE BUSINESS CASE FOR MARLBOROUGH HILL: OPTION 04 FULL SCHEME (INCL PHARMACY) - THEATRES AND ENDOSCOPY SHELL ONLY

TRUST/ORGANISATION:	UNIVERSITY HOSPITALS BRISTOL AND WESTON	ORGANISATIONAL CODE:	
SCHEME:	MARLBOROUGH HILL: OPTION 04 FULL SCHEME (INCL PHARMACY) - THEATRES AND ENDOSCOPY SHELL ONLY		
STRATEGIC HA:			
PHASE:			
PROJECT DIRECTOR:			

CAPITAL COSTS SUMMARY

		Cost Excl. VAT £	VAT £	Cost Incl. VAT £
1	Departmental Costs (from Form OB2)	53,439,925	10,687,985	64,127,909
2	On Costs (from Form OB3) (47.94% of Departmental Cost)	25,621,382	5,124,276	30,745,658
3	Works Cost Total (1 265 PUBSEC (1Q20))	79,061,306	15,812,261	94,873,567
4	Provisional location adjustment (if applicable) % of Works Cost (b)		Inc.	
5	Sub Total (3+4)	79,061,306	15,812,261	94,873,567
6	Fees (c) (15.78% of sub-total 5)	12,477,481	N/A	12,477,481
7	Non-Works Costs (from Form OB4) (e) Land Other	1,581,226	316,245	1,897,471
8	Equipment Costs (from Form OB2) (15.78% of Departmental Cost)	8,431,526	1,686,305	10,117,832
9	Contingencies 9.0%	9,139,639	1,827,928	10,967,566
10	TOTAL (for approval purposes) @ PUBSEC 265	110,691,179	19,642,739	130,333,918
11	Optimism Bias 9.0%	9,962,206	1,992,441	11,954,647
12	Sub Total (10+11)	120,653,385	21,635,181	142,288,565
13	Inflation adjustments - PUBSEC 305 - 4Q2023	18,211,832	3,642,366	21,854,198
14	FORECAST OUTTURN BUSINESS CASE TOTAL (12+13)	138,865,216	25,277,547	164,142,763

Cash Flow:- Year yy/yy	SOURCE			£
	TBC	OTHER GOVERNMENT	PRIVATE	TOTAL
	Total Cost (as 10 above)			

Total (for approval purposes) match against Cashflow ERROR

Appendix 10 – Capital Costs: Option 7b

OUTLINE BUSINESS CASE FOR MARLBOROUGH HILL: OPTION 04 FULL SCHEME (INCL PHARMACY)

TRUST/ORGANISATION:	UNIVERSITY HOSPITALS BRISTOL AND WESTON	ORGANISATIONAL CODE:	
SCHEME:	MARLBOROUGH HILL: OPTION 04 FULL SCHEME (INCL PHARMACY)		
STRATEGIC HA:			
PHASE:			
PROJECT DIRECTOR:			

CAPITAL COSTS SUMMARY

		Cost Excl. VAT £	VAT £	Cost Incl. VAT £
1	Departmental Costs (from Form OB2)	67,900,046	13,580,009	81,480,055
2	On Costs (from Form OB3) (39.07% of Departmental Cost)	26,529,477	5,305,895	31,835,373
3	Works Cost Total (1 265 PUBSEC (1Q20))	94,429,524	18,885,905	113,315,428
4	Provisional location adjustment (if applicable) % of Works Cost (b)		Inc.	
5	Sub Total (3+4)	94,429,524	18,885,905	113,315,428
6	Fees (c) (15.60% of sub-total 5)	14,728,925	N/A	14,728,925
7	Non-Works Costs (from Form OB4) (e) Land Other	1,888,590	377,718	2,266,309
8	Equipment Costs (from Form OB2) (12.42% of Departmental Cost)	8,431,526	1,686,305	10,117,832
9	Contingencies 9.0%	10,753,071	2,150,614	12,903,685
10	TOTAL (for approval purposes) @ PUBSEC 265	130,231,637	23,100,542	153,332,179
11	Optimism Bias 9.0%	11,720,847	2,344,169	14,065,017
12	Sub Total (10+11)	141,952,484	25,444,712	167,397,196
13	Inflation adjustments - PUBSEC 305 - 4Q2023	21,426,790	4,285,358	25,712,148
14	FORECAST OUTTURN BUSINESS CASE TOTAL (12+13)	163,379,274	29,730,070	193,109,344

Cash Flow:- Year yy/yy	SOURCE			£
	TBC	OTHER GOVERNMENT	PRIVATE	TOTAL
Total Cost (as 10 above)				

Total (for approval purposes) match against Cashflow ERROR

OUTLINE BUSINESS CASE FOR MARLBOROUGH HILL: OPTION 04 FULL SCHEME (INCL PHAR COST FORM OB2

TRUST/ORGANISATION: UNIVERSITY HOSPITALS BRISTOL AND WESTON

SCHEME: MARLBOROUGH HILL: OPTION 04 FULL SCHEME (INCL PHARMACY)

PHASE:

PROJECT DIRECTOR:

CAPITAL COSTS: DEPARTMENTAL COSTS AND EQUIPMENT COSTS

Functional Content	Functional Units/Space Requirements (1)	N/A/C (2)	Cost Allowance Version	Equipment Cost Version
<u>Facility</u>				
Emergency	5,191 m2	N	17,016,278	3,349,032
Acute admissions unit (AMU)	1,950 m2	N	6,810,347	320,000
Older person's assessment (OPAU)	1,967 m2	N	6,869,719	320,000
Theatres (4 Theatres)	2,730 m2	N	11,876,289	2,000,000
Theatres (2 Theatres) - Shell only	293 m2	N	382,390	
Endoscopy (6 rooms, 2 transferred)	2,139 m2	N	8,781,028	1,200,000
Endoscopy (2 rooms) - Shell only	96 m2		118,230	
Surgical / trauma assessment unit	1,953 m2	N	6,820,824	320,000
Cycle change	212 m2	N	617,006	61,701
Pharmacy	1,203 m2	N	4,938,558	493,856
White Space	757 m2	N	2,365,516	236,552
Entrance	448 m2	N	1,303,861	130,386
	18,939 m2			
Departmental Costs and Equipment Costs Carried Forward £			67,900,046	8,431,526

Cost allowances should be based on Departmental Cost Allowances where appropriate and include allowances for essential complementary accommodation and optional accommodation and services where details not available.

Identify separately any proposed adjustment (over or under cost allowances) justifiable in value for money terms (details to be provided).

* Delete as appropriate

1. State area and rate if departmental cost allowance not available.
2. Insert:
 N for new build.
 A for adaptations for alternative use or
 C for upgrading existing building retaining current use.
3. Insert relevant version number of HCI listing of Departmental Cost Allowances and Equipment Cost allowances.
4. Provide details where appropriate.

Completed by

Name (capitals)	DARREN BAKER
Position	DIRECTOR
Address	PENINSULA PROJECT CONSULTNG
	EXETER
Telephone	0777 44 234 09

Authorised for issue Project Director

Date

PLEASE RETURN TO:

NHS Estates, Department of Health, 1 Trevelyan Square, Boar Lane, Leeds LS1 6AE
 Email: CIMReturns@dh.gsi.gov.uk

TRUST/ORGANISATION: UNIVERSITY HOSPITALS BRISTOL AND WESTON

SCHEME: MARLBOROUGH HILL: OPTION 04 FULL SCHEME (INCL PHARMACY)

PHASE:

CAPITAL COSTS: ON COSTS

	Estimated Cost (exc. VAT)	Percentage of Departmental Cost
£	£	%
<u>Building:</u>		
Increase in margin to reflect BAM P22 margin (6.28%, 5% allowed within HPCG)	869,121	1.28%
Preliminaries allowance increased from 15% to 20%	3,395,002	5.00%
External Works; regrading etc.	980,000	1.44%
Demolition of old buildings where the site sits	1,433,750	2.11%
Diversion of existing storm water drainage	62,500	0.09%
Diversion of existing foul water drainage - dia assumed 225mm	81,250	0.12%
Allowance for surface water attenuation below car park level	625,000	0.92%
Allowance for external steps/ramps/lifts	375,000	0.55%
New private highway for Ambulance use only	468,750	0.69%
Allowance to widen public highway	187,500	0.28%
Upgrade works to private trust highway	421,875	0.62%
Cut and fill	1,500,000	2.21%
Piled foundations	2,450,000	3.61%
Drainage	1,420,425	2.09%
Deck car parking	872,000	1.28%
Retaining walls	4,460,000	6.57%
Extra over for bridge structure	250,000	0.37%
External walls - adjustment for area and specification	1,740,258	2.56%
Enhanced finish to roof areas	600,000	0.88%
<u>Engineering:</u>		
HV network costs (including allowance for building works)	2,070,146	3.05%
Vodafone network costs	181,250	0.27%
Gaseous suppression to 2 substations	250,000	0.37%
1750m2 PV array	656,250	0.97%
MEP to below deck car park	174,400	0.26%
WPD network reinforcement	280,000	0.41%
Virgin media network adjustments	100,000	0.15%
Allowance for service diversions	625,000	0.92%
	-	
Total On-Costs to Summary OB1	£ 26,529,477	39.07%

Notes: Must be based on scheme specific assessments/measurements; attach details to define scope of works as appropriate.
Identify separately any proposed additional capital expenditure justifiable in value for money terms (details to be provided).

- * Delete as appropriate.
- (1) "External" to Departments
- (2) Identify any enabling or preliminary works to prepare the site in advance e.g. demolitions; service diversions; decanting costs; site investigation and other exploratory works.

Completed by		Authorised for issue
Name (capitals)	DARREN BAKER	
Position	DIRECTOR	Project Director
Address	PENINSULA PROJECT CONSULTNG EXETER	
Telephone	0777 44 234 09	Date

TRUST/ORGANISATION: UNIVERSITY HOSPITALS BRISTOL AND WESTON

SCHEME: MARLBOROUGH HILL: OPTION 04 FULL SCHEME (INCL PHARMACY)

PHASE:

CAPITAL COSTS: FEES AND NON-WORKS COSTS

Fees (including "in-house" resource costs)	£	Percentage of Works Cost %
PSCP Fees:		
a. PSCP	£ 944,295	1.00%
b. Architect and Lead Consultant	£ 3,305,033	3.50%
c. Principal Designer	£ 94,430	0.10%
d. Interior Designer	£ 141,644	0.15%
e. Acoustics	£ 125,000	0.13%
f. Landscape Architecture	£ 188,859	0.20%
g. Transportation (Incl Highways)	£ 250,000	0.26%
h. C&S Engineering	£ 1,038,725	1.10%
i. M&E Engineering	£ 1,463,658	1.55%
j. BREEAM / Sustainability	£ 50,000	0.05%
k. Fire Engineering	£ 60,000	0.06%
l. Vertical Transportation	£ 30,000	0.03%
m. Planning	£ 100,000	0.11%
n. Equipping	£ 200,000	0.21%
o. RPA	£ 30,000	0.03%
p. PSCP Cost Advisor	£ 708,221	0.75%
q. Indoor air quality	£ 50,000	0.05%
Trust Fees:		
r. Project Manager	£ 944,295	1.00%
s. Cost Advisor	£ 755,436	0.80%
t. Supervisor	£ 944,295	1.00%
u. Internal fees	£ 2,360,738	2.50%
v. Allowance for other unidentified fees	£ 944,295	1.00%
Total Fees to Summary (OB1)	£ 14,728,925	15.60%

	£
Non-Works Costs (Decant, cleaning and commissioning etc) Allow @ 2% for budget purposes	
Non-Works Costs to Summary (OB1)	£ 1,888,590

Delete as appropriate.

Name (capitals)	DARREN BAKER	Authorised for issue	
Position	DIRECTOR		Project Director
Address	PENINSULA PROJECT CONSULTNG		
	EXETER		
Telephone	0777 44 234 09	Date	

Appendix 11 – Draft Benefits Log

Benefits log - Marlborough Hill SOC UNBW		Benefits class key: CRB = Cash Releasing Benefit Non CRB = Non Cash Releasing Benefit QB = Quantifiable Qual = Qualitative					
Ref	Benefit Category (CRB/Non CRB/Qual/Qual)	Benefit name	Further detail	Beneficiary (to whom it will be of value)	Benefit Class (how the benefit will be measured)	Investment Objective (Associated with Benefit - IO ref no.)	Notes/Actions
1	QB	Improved patient experience, privacy & dignity	Increased ratio of single bedrooms and the use of universal cubicles will minimise the need to move patients and allow services to come to them	Staff/Patients; improved experience	Patient/staff surveys		
2	QB/Non CRB	Expanded theatre space on level 6	6 additional theatres with support spaces on level 6, improving capacity to meet demand, with improved patient & staff experience	Staff & Patients; Elective & Non Elective Care?	Number of operations?		
3	Qual/CRB	Locating cohorts of assessment beds adjacent to ED, helping to reduce admissions	Location of assessment beds adjacent to ED will help to reduce admissions and therefore improve patient flow, creating a streamlined service through ED improving patient flow, directing patients to the right place at the right/first time, reduced LOS	Staff; relieve pressures on site managers to find beds, less medical outliers in surgical beds Patients; not having to be admitted	LOS currently Number of outliers		
4	QB	Separation of elective and non-elective care	Separation of planned and unplanned care, will avoid disruption to planned care services	Elective patients & staff; improved experience, less cancellations of electives (CS elective care strategy)	Reduced elective cancellations		Is this a negative benefit i.e. given the discussions in workshops re Surgical not wanting to link to Medicine etc?
5	Qual	Flexible spaces and rooms to accommodate future needs in healthcare	Flexible spaces/rooms allow for future adaptability, changes in clinical models an operational flexibility	Staff have unrestricted spaces to use Patients could be seen more quickly/more can be seen potentially	Number of rooms/number of patients seen?		
6	Qual	Improved site efficiency through links to the KEB	Improved staff experience and efficiency, allowing better access to KEB and new BEAC/theatres etc.	Staff; efficiency (time saved) Patients; less time to move between required departments, better access to urgent care	Footfall/Staff time study		
7	QB	Improved 4 hour wait A&E	Improved 4 hour wait in A&E	Patients; receive care required faster - better experience Staff; meet 4 hour target, relieves stress/pressure	4 hour wait target/current reporting		
8	QB	Reduced ambulance queues	Reduced ambulance queues due to increased/improved ambulance waiting area/access	Ambulance/ED staff/site managers; reduction in stress/improved staff experience - better staff retention/wellbeing? Patients; improved patient flow, improved experience, faster treatment	current reporting?/SWASMT?		
9	CRB	Reduced Estates Backlog	Works will reduce current backlog and generally improve facilities for staff and patients	Staff; improved working environment with modern facilities Patients; improved modern facilities Trust; reduction in backlog costs/improved O&M inspections	Cost of backlog currently as baseline		
10	Qual	Create future expansion opportunities for other services	Capacity released for other areas/services/hospital sites once others relocate e.g. current ED space for Children's	Staff; service expansion potentially Patients; more patients could be seen/better environment	sq/m created?		
11	QB/Qual	Larger SDEC	A larger SDEC provision will improve surgical flow through ED	Patients; improved patient experience	Patient flow through ED?		Not currently in scope for SOC - add to OBC benefits?
12	QB/Qual	Improved recovery for HGT	Improvements for HGT, better patient experience/safety	Patients; reduced risk/improved safety and experience Staff; better/best practice working environment - staff retention improved?	Patient /Staff Survey		Advised in workshops HGT are not currently fit for purpose - not in scope for HMT?
13	QB/Qual	IAG compliant Endoscopy	Sufficient endoscopy suites and support areas	Patients; improved service/experience/environment Staff; improved facilities - staff retention Trust; meet best practice/IAG compliance re established	Patient /Staff Survey IAG compliance inspection		
14							
15							
16							
17							
18							
19							
20							

Appendix 12 – Project Risk Register

ID	Opened	Division	Department	Speciality	Risk Type	Subtype	Monitoring	Handler	Owner	Title	Description	Inherent			Controls					Target				Review							
												C	L	S	Risk level	Controls in place			Adequacy	C	L	S	Risk level	Actions Summary	Due date	C	L	S	Risk level	Review date	Status
6204	26/07/2022	Trust Services			Departmental	Business	Marlborough Hill Project Board	Chke, Paul	Miss. Callin	Risk that the demand and capacity assumptions are not recognised and agreed by clinical teams	If the clinical teams do not agree with the demand and capacity assumptions Then the design teams and business case authors will be unable to progress the outline business case Resulting in the scheme being unable to proceed.	Moderate	Possible	9	High Risk	Commissioned a report from Archus to review capacity and demand assumptions. Report signed off by SLT	Inadequate	Moderate	Possible	9	High Risk			Minor	Unlikely	4	Moderate Risk	28/10/2022	Action Required Risks		
6205	26/07/2022	Trust Services			Departmental	Business	Marlborough Hill Project Board	Headlam, Andy	Palmer, Carly	Risk that the scheme is unable to accommodate SDEC	If the current footprint of the preferred option is unable to accommodate SDEC Then the scheme will not be able to deliver best practice pathways for acute care Resulting in poor patient outcomes.	Major	Possible	12	High Risk	The design team have been instructed to include within the OBC design.	Adequate	Major	Possible	12	High Risk			Minor	Unlikely	4	Moderate Risk	28/10/2022	Action Required Risks		
6206	26/07/2022	Trust Services		Endoscopy	Departmental	Business	Marlborough Hill Project Board	Headlam, Andy	Palmer, Carly	Risk that easy access to Endoscopy cannot be achieved	If easy access to Endoscopy services cannot be achieved from other parts of the campus Then access for emergency GI bleeds will be compromised Resulting in patient harm.	Moderate	Unlikely	6	Moderate Risk	Design team have been asked to find a solution.	Adequate	Moderate	Unlikely	6	Moderate Risk			Negligible	Unlikely	2	Low Risk	28/10/2022	Action Required Risks		
6207	26/07/2022	Trust Services			Departmental	Business	Marlborough Hill Project Board	Headlam, Andy	Palmer, Carly	Risk that we cannot achieve vacant possession of Eugene Street flats	If vacant possession of the Trust tenancies cannot be achieved to meet the development programme Then construction works are unable to commence Resulting in the scheme being unable to proceed.	Major	Likely	16	Very High Risk	Plan to consolidate all Trust tenancies into Montague block and issue new tenancy agreements that will give the required control.	Inadequate	Major	Likely	16	Very High Risk			Minor	Unlikely	4	Moderate Risk	28/10/2022	Action Required Risks		
6208	26/07/2022	Trust Services			Departmental	Business	Marlborough Hill Project Board	Headlam, Andy	Palmer, Carly	Risk that we cannot achieve vacant possession of no.9 Eugene Street flats	If agreement cannot be reached with Bristol City Council that the tenancy of no.9 has ceased Then the Trust is unable to exercise its pre-emption agreement to purchase the flat Resulting in the scheme being unable to proceed.	Major	Likely	16	Very High Risk	Currently in discussion with BCC to resolve the lease issue which appears to be making progress and is linked to the request from BCC regarding temporary use of the vacant flats to assist managing the Council's homeless housing requirements. There is pre-emption agreement which gives the Trust the 'right-to-buy' once the lease is terminated. Currently the flat is unoccupied.	Adequate	Major	Likely	16	Very High Risk			Minor	Unlikely	4	Moderate Risk	28/10/2022	Action Required Risks		
6209	26/07/2022	Trust Services			Departmental	Financial	Marlborough Hill Project Board	Headlam, Andy	Palmer, Carly	Risk that the site infrastructure is unable to accommodate the new development	If the site infrastructure is insufficient to meet the needs of the proposed development Then additional funding may be required to resolve the issue Resulting in an increase to the scheme cost which may make the scheme unaffordable.	Moderate	Very Likely	15	Very High Risk	This will be part of the OBC design outputs.	Adequate	Moderate	Very Likely	15	Very High Risk			Minor	Likely	8	High Risk	28/10/2022	Action Required Risks		

ID	Created	Division	Department	Speciality	Risk Type	Subtype	Monitoring	Handler	Owner	Title	Description	Inherent			Controls					Target				Review								
												C	L	S	Risk level	Controls in place			Adequacy	C	L	S	Risk level	Actions Summary		Due date	C	L	S	Risk level	Review date	Status
6210	26/07/2022	Trust Services			Departmental	Financial	Marlborough Hill Project Board	Headston, Andy	Palmer, Carly	Risk that the scheme design cannot achieve carbon neutrality	If the scheme design requires significantly more investment to achieve carbon targets Then additional funding may be required to resolve the issue Resulting in an increase to the scheme cost which may make the scheme unaffordable.	Moderate	Likely	12	High Risk	Design team instructed and aware of targets/goals.	Adequate	Moderate	Likely	12	High Risk				Minor	Unlikely	4	Moderate Risk	28/10/2022	Action Required Risks		
6211	26/07/2022	Trust Services			Departmental	Business	Marlborough Hill Project Board	Headston, Andy	Palmer, Carly	Risk that planning permission is not achieved	If a planning permission cannot be agreed with Bristol City Council Then the scheme may need to be significantly changed Resulting in additional cost, potential delays or the not proceeding.	Catastrophic	Possible	15	Very High Risk	Planning consultants appointed and early engagement with BCC planning team.	Adequate	Catastrophic	Possible	15	Very High Risk				Negligible	Unlikely	2	Low Risk	28/10/2022	Action Required Risks		
6212	26/07/2022	Trust Services			Departmental	Financial	Marlborough Hill Project Board	Kemsley, Neil	Searing, Jeremy	Risk that the scheme is not financially viable	If the Trust is unable to identify a source of Capital funding or is unable to support the resulting revenue costs to the scheme Then the scheme will be financially unviable Resulting in the scheme being unable to proceed.	Major	Likely	16	Very High Risk	Explore potential funding options as part of the SOC/OBC development.	Inadequate	Major	Likely	16	Very High Risk				Moderate	Possible	9	High Risk	28/10/2022	Action Required Risks		
6213	26/07/2022	Trust Services			Departmental	Business	Marlborough Hill Project Board	Headston, Andy	Palmer, Carly	Risk that an interim solution for Pharmacy Services cannot be found	If an interim solution for Pharmacy Services at Level 3 of KEB cannot be found Then this will have a major impact on construction of the new building Resulting in either additional costs, programme delay or the scheme being unable to proceed.	Major	Possible	12	High Risk	Design team have been instructed to find a solution.	Adequate	Major	Possible	12	High Risk				Minor	Unlikely	4	Moderate Risk	28/10/2022	Action Required Risks		
6214	26/07/2022	Trust Services			Departmental	Business	Marlborough Hill Project Board	Headston, Andy	Palmer, Carly	Risk that a permanent location for Pharmacy Services cannot be identified	If the proposed new building footprint is unable to accommodate a permanent solution or location for Pharmacy Services Then an alternative location will need to be identified within the existing hospital footprint Resulting in either additional costs, programme delay or the scheme being unable to proceed.	Moderate	Possible	9	High Risk	Design team instructed to incorporate within scheme.	Adequate	Moderate	Possible	9	High Risk				Negligible	Unlikely	2	Low Risk	28/10/2022	Action Required Risks		
6215	26/07/2022	Trust Services			Departmental	Business	Marlborough Hill Project Board	Headston, Andy	Palmer, Carly	Risk that vacant possession of Trust Headquarters cannot be achieved	If vacant possession of Trust Headquarters cannot be achieved to meet the development programme Then construction works are unable to commence Resulting in the scheme being unable to proceed.	Moderate	Possible	9	High Risk	St James' Court has been purchased to facilitate future THQ decant.	Adequate	Moderate	Possible	9	High Risk				Minor	Unlikely	4	Moderate Risk	28/10/2022	Action Required Risks		

ID	Opened	Division	Department	Speciality	Risk Type	Subtype	Monitoring	Handler	Owner	Title	Description	Inherent			Controls					Target				Review							
												C	L	S	Risk level	Controls in place			Adequacy	C	L	S	Risk level	Actions Summary	Due date	C	L	S	Risk level	Review date	Status
6216	26/07/2022	Trust Services			Departmental	Workforce	Marlborough Hill Project Board	Headlam, Andy	Palmer, Carly	Risk of significant workforce impact due to the loss of parking	If the loss of 140 staff parking spaces at Trust Headquarters cannot be managed for alternative provision made available Then this could have a material impact on the workforce Resulting in greater staff turnover.	Moderate	Very Likely	15	Very High Risk	No mitigation at present. Will need to be resolved as part of the parking policy.	Inadequate	Moderate	Very Likely	15	Very High Risk			Negligible	Very Likely	5	Moderate Risk	28/10/2022	Action Required Risks		
6217	26/07/2022	Trust Services			Departmental	Business	Marlborough Hill Project Board	Headlam, Andy	Palmer, Carly	Risk that there is a significant operational impact during construction phase	If comprehensive stakeholder identification is not conducted earlier enough to fully assess any operational impact of construction works Then the smooth operation of hospital services could be impacted Resulting in patient safety issues and general servicing of the site issues.	Moderate	Possible	9	High Risk	Construction partner to develop construction plan.	Inadequate	Moderate	Possible	9	High Risk			Minor	Possible	6	Moderate Risk	28/10/2022	Action Required Risks		
6219	26/07/2022	Trust Services			Departmental	Business	Marlborough Hill Project Board	Headlam, Andy	Palmer, Carly	Risk that vacant possession of Montague South Street cannot be achieved (currently occupied by MTCs)	If vacant possession of Montague South Street cannot be achieved to meet the development programme Then construction works are unable to commence Resulting in the scheme being unable to proceed.	Moderate	Possible	9	High Risk	No solution identified.	Uncontrolled	Moderate	Possible	9	High Risk			Minor	Possible	6	Moderate Risk	28/10/2022	Action Required Risks		
6220	26/07/2022	Trust Services			Departmental	Business	Marlborough Hill Project Board	Clarke, Paul	Moss, Caitlin	Risk that clinical engagement to develop the design cannot be maintained due to current operational pressures	If operational pressures within the Trust increase Then clinical teams may not have sufficient time to support the design development Resulting in the scheme being delayed.	Moderate	Possible	9	High Risk	Engagement through M/Hill Project Board and we have established a design development working group.	Adequate	Moderate	Possible	9	High Risk	To support design development of M/Hill scheme	18/08/2022	Minor	Possible	6	Moderate Risk	28/10/2022	Action Required Risks		
6221	26/07/2022	Trust Services			Departmental	Business	Marlborough Hill Project Board	Clarke, Paul	Moss, Caitlin	Risk that ICS/NHSE do not support the Outline Business Case	If there is insufficient engagement with system partners at an early stage to gain support for the scheme Then the OBC may not be approved Resulting in the scheme being unable to proceed.	Major	Possible	12	High Risk	We have system support in relation to the New Hospitals Programme bid.	Inadequate	Major	Possible	12	High Risk			Minor	Possible	6	Moderate Risk	28/10/2022	Action Required Risks		
6222	26/07/2022	Trust Services			Departmental	Business	Marlborough Hill Project Board	Clarke, Paul	Moss, Caitlin	System-wide capacity and demand modelling does not support the proposed development of Marlborough Hill	If there are no outcomes from system-wide capacity and demand modelling available to meet the Marlborough Hill development programme Then the development of the business case and design solution may not be able to be completed Resulting in either a delay to the scheme or the scheme being developed using incorrect capacity assumptions which may mean the scheme is unsupported	Major	Likely	16	Very High Risk	None in place	Uncontrolled	Major	Likely	16	Very High Risk			Minor	Possible	6	Moderate Risk	28/10/2022	Action Required Risks		

ID	Opened	Division	Department	Speciality	Risk Type	Subtype	Monitoring	Handler	Owner	Title	Description	Inherent			Controls					Target				Review					
												C	L	S	Risk level	Controls in place	Adequacy	C	L	S	Risk level	Actions Summary	Due date	C	L	S	Risk level	Review date	Status
6223	26/07/2022	Trust Services			Departmental	Business	Marlborough Hill Project Board	Charles, Paul	Moss, Caitlin	Insufficient capacity within corporate team to support the Marlborough Hill development	If corporate teams have insufficient capacity Then the programme may be impacted Resulting in a delay to the scheme.	Moderate	Likely	12	High Risk	Appointed external consultants	Inadequate	Moderate	Likely	12	High Risk			Minor	Possible	6	Moderate Risk	28/10/2022	Action Required Risks

Appendix 13 – CIA Model

TBC



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