University Hospital Llandough - Theatre Development

Outline Business Case (Document 2)

February 2023 – Final v8

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Overview

1.0 OVERVIEW

This Outline Business Case (OBC) seeks the approval for a capital investment of £37.551m to enable the replacement of the existing theatres 5 and 6 within Cardiff and Vale Orthopaedic Centre (CAVOC) at the University Hospital of Llandough (UHL). The existing theatres 5 and 6 are no longer fit for purpose and cannot be utilised to deliver the clinical services required by the Health Board. It has therefore been deemed that the only solution is a direct replacement to ensure the continuation of these services by the Health Board.

1.1 Progress since the Strategic Outline Case

Since the submission of the SOC the scope of the project has changed and a decant ward is no longer included.

Also since the submission of the SOC the COVID pandemic has taken place. During the development of the preferred solution consideration has been given to the impact of this pandemic on healthcare services and where possible the design has been developed to facilitate the delivery of surgical services at UHL during a future pandemic scenario as well as offering potential capacity aligned with the emerging regional orthopaedic solution.

British Orthopaedic Association (BOA) also carried out an Elective Care Review (May 2021) of the orthopaedic services at UHL and made a range of important recommendations impacting the design solution in this business case.

1.2 Structure and Navigation of Document

This document describes the Outline Business Case (OBC) for this investment. It has been developed to reflect the guidance set out in HM Treasury's Green Book (a Guide to Investment Appraisal in the Public Sector) and the Infrastructure Investment Guidance for the NHS in Wales.

This OBC comprises the following sections:

- The Strategic Case section. This establishes the strategic context of the proposed investment, both in terms of national and local clinical services provided by the University Health Board (UHB). This section also sets out the case for change which sets out the business need for the investment regarding the existing situation, and the need for service improvement
- The Economic Case section. This section identifies the long list of options and the process by which the short-listed options are then established and summarises the key findings of the economic appraisal taking into consideration the needs of the service and optimises value for money (VfM)
- The Commercial Case section. This section summarises the procurement strategy and intended contractual arrangements, it also summarises the products and services intended for use and procurement regarding the recommended option along with the main risks associated with the scheme
- The Financial Case section. This confirms the funding arrangements and overall affordability of the scheme

- The Management Case Section. This summarises the approach to the management of the project, including the Health Board's governance structure, management team, programme implications and risk management demonstrating that the scheme can be successfully delivered to cost, time and quality

Strategic Case

2.0 THE STRATEGIC CASE

2.1 Introduction

This Outline Business Case (OBC) seeks the approval for a capital investment of £37.551m to enable the replacement of the existing theatres 5 and 6 within Cardiff and Vale Orthopaedic Centre (CAVOC) at the University Hospital of Llandough (UHL). The existing theatres 5 and 6 are no longer fit for purpose and cannot be utilised to deliver the clinical services required by the Health Board. This theatre capacity is critical to support the Health Board's delivery or core surgical capacity. The SOC successfully made to case for the replacement of this lost theatre capacity to ensure the continuation of core surgical services by the Health Board.

This section sets out the context within which the investment will be made and comprises:

- An overview of the organisation – the size and role of Cardiff and Vale University Health Board and the scale and nature of the demand in the area that it serves
- The national, regional and local strategies that underpin this investment
- The strategic drivers for this investment
- A compelling case for change

PART A: THE STRATEGIC CONTEXT

2.2 Organisational Overview

2.2.1 Profile of Cardiff and Vale University Health Board

Cardiff and Vale University Health Board (CVUHB) was established in October 2009 as part of a restructuring of NHS Wales and is one of the largest NHS organisations in the UK. It brings together the former Cardiff and Vale NHS Trust and two former Local Health Boards – Cardiff and the Vale of Glamorgan – with the core purpose of improving health and delivering integrated health services.

Since its establishment, Cardiff and Vale UHB's priority has been to provide safe, high quality and sustainable services that compare well with the best in the world, with a focus on developing centres of excellence that support the actions needed to progress and deliver the strategic mission 'Caring for People, Keeping People Well' with a vision that a person's chance of leading a healthy life is the same wherever they live and whoever they are.

Cardiff and Vale University Health Board is responsible for planning and delivering health services for people in Cardiff and the Vale of Glamorgan, a population of around 502,000 and is the main provider of specialist services for the people of South Wales – and for some services, the whole of Wales and the wider UK. This includes health promotion and public health functions as well as the provision of local primary care services (GP practices, dentists, optometrists and community pharmacies) and the running of hospitals, health centres, community health teams and mental health services. The Health Board employs approximately 15,000 staff and has an annual budget of £1.6 billion.

As a major teaching and research organisation, there are very close links to Cardiff University playing a significant role in the Welsh economy. This is alongside other academic links with Cardiff Metropolitan University and the University of South Wales. Training the next generation of clinical and non-clinical professionals, in order to develop expertise and improve clinical outcomes, is a key priority for the Health Board.

Figure 1: Map showing area covered by Cardiff and Vale UHB

The Health Board's hospital based services are currently provided from 6 hospital sites:

- University Hospital of Wales (UHW), which incorporates:
  - University Dental Hospital
  - Noah's Ark Children's Hospital for Wales

  UHW provides unselected emergency care, full A&E, Major Trauma Centre, critical care, specialised services and emergency and complex, elective surgery.
- University Hospital Llandough; (UHL) provides selected emergency care, Menta Health Facility, Rehabilitation services and routine, elective surgery
- Barry Hospital – range of community services
- Cardiff Royal Infirmary – range of community services
- Lansdowne Hospital – range of community services
- St. David's Hospital – range of community services

2.2.1.1 *The Area Served and its Needs*

The population served by the Health Board is:

- Growing rapidly in size, with the latest Welsh Government projections estimating an increase from 502,000 in 2021 to 521,000 in 2031, around 4%. In contrast to the previous projections published 4 years ago, the rate of growth in the Vale is predicted to exceed that of Cardiff, with growth in the Vale of 5.3% over 10 years compared

with 3.4% in Cardiff. Actual population growth, particularly in Cardiff, will be highly dependent on progress with large housing developments

- Relatively young in Cardiff compared with the rest of Wales. The proportion of infants (0-4 yrs) and the young working age population (20-39 yrs) is higher than the Wales average; this reflects in part, a significant number of students who study in Cardiff
- Ageing – The average age of people in both Cardiff and the Vale is increasing steadily, with a projected increase in people aged 85 and over in the Vale of 33% over the next 10 years, and 9% in Cardiff, and
- Ethnically very diverse, particularly compared with much of the rest of Wales, with a wide range of cultural backgrounds and languages spoken. Arabic, Polish, Chinese and Bengali are the four most common languages spoken after English and Welsh. Cardiff is an initial accommodation and dispersal centre for asylum seekers

2.2.1.2 Health Equity and Inequalities

There is considerable variation in healthy behaviours and health outcomes in the area, with variation in smoking rates, physical activity, diet and rates of overweight and obesity. Uptake of childhood vaccinations is also lower in more disadvantaged areas, and people are more likely to experience poor air quality. Life expectancy is around ten years lower in the most deprived areas compared with the least deprived, and for healthy life expectancy the gap is more than double this.

Deprivation is higher in neighbourhoods in South Cardiff, and in Central Vale.

The COVID pandemic exposed these deep-seated inequalities, with impacts seen more heavily in the more deprived areas, and amongst Black, Asian and minority ethnic communities.

There are also an increasing number of people across Health Board's catchment area with diabetes, as well as more people with dementia as the population ages. The number of people with more than one long-term illness is increasing.

The Health Board don't yet know the long-term health impact of the COVID pandemic on the population's health but expect there to be adverse impacts on mental well-being which could last for many years; and impacts from "long COVID". The Health Board also anticipate significant negative impacts on the wider determinants of health, for example levels employment and educational attainment; however, there may also be positive changes seen, for example in community cohesion and levels of walking and cycling.

With all these factors in mind, the Health Board has further developed a number of clinical and wellbeing strategies with the ambition to progress the integrated health and social care programme to achieve joined up care based on home first, avoiding harm, waste and variation, empowering people and delivering outcomes that matter to them.

2.3 Business Strategies

This section summarises the business strategies for Cardiff and Vale University Health Board and related national, regional or local strategies.

2.3.1 National Strategies

Some of the key Welsh Government policies that have shaped this OBC are:

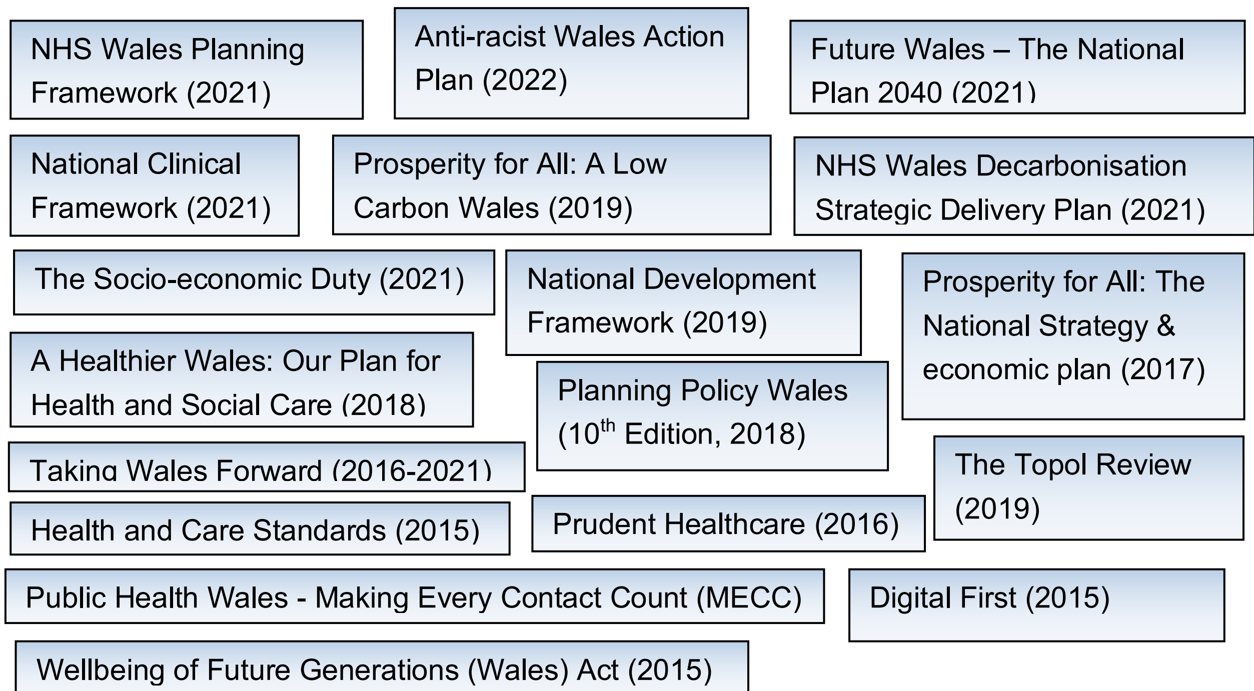

Figure 2: Key Strategies and Policies

The impact of the above legislation, policies and strategies is summarised in Appendix 1.

2.3.2 Context for Surgical Services

The delivery of both elective and acute surgical services has changed considerably over the last 3 years. From a position of reasonable stability and efficiency, the COVID pandemic has impacted significantly, devastating the elective, non-cancer surgical pathways across Wales.

Whilst the original context of this OBC was to replace the decommissioned Orthopaedic 5 and 6, any development considered post-COVID pandemic now must consider the impact of COVID on future surgical services in the context of Cardiff and Vale local patients, and the emerging regional picture for the provision of routine, high volume, low complexity, elective orthopaedics. Thus, both the original issues surrounding loss of theatre capacity and the additional constraints caused by the COVID pandemic need to be considered.

2.3.2.1 National Clinical Strategy for Orthopaedic Surgery (NCSOS) (2022)

This report describes the overarching strategy to enable Recovery of the Orthopaedic service across Wales in the aftermath of the COVID pandemic. The report was mandated by Welsh Government and involved clinical stakeholders from across all Health Boards as well as the input of all 182 orthopaedic consultants across Wales. The modelling is based on real time data as well as accurate workforce planning. It considers current and future fragilities within the service across Wales.

The favoured recommendation from both the Orthopaedic GIRFT and NCSOS reviews was for 3 dedicated supra-regional surgical hubs across Wales, capable of delivering High Volume Low Complexity (HVLC) and Low Volume High Complexity (LVHC) combined caseloads. Whilst these options are being tested, there remains a core capacity deficit within the Cardiff & Vale Orthopaedics surgical footprint which needs to be replaced to enable local surgical capacity to be optimised.

The requirement remains to establish an elective HVLC regional service alongside the reinstated capacity at UHL - a combined approach satisfying the WG mandate as well as the GIRFT and NCSOS recommendations, is for inpatient orthopaedic surgery to be optimised through existing cold elective sites. Currently very few units fulfil a "cold site" specification in Wales, University Hospital Llandough is one such site. Therefore, the current recommendations describe a fragile recovery model at high risk of succumbing to unscheduled care pressures, and a significant compromise to a sustainable high quality elective orthopaedic service that the population of Wales deserves.

It is very clear that the data predicts a complete collapse of Orthopaedic services unless there is capital investment. The SC & SE Regional Orthopaedic Programme is developing options for the potential HVLC unit, this must form part of an integrated model of orthopaedics surgical services across the region's existing hospitals – the role of UHL as an Orthopaedic elective surgical centre for local C&V appropriate orthopaedic casemix, alongside existing regional specialist services remains an important component of the emerging regional Orthopaedic model.

This report makes the following assessments and recommendations that are specific to this OBC:

- The national Orthopaedic surgical backlog will increase by 300% over the next five years if Orthopaedic capacity continues in its current model
- Even with the "mitigation" strategies detailed in this (the NCSOS) document, the national backlog will still increase by 59% over five years due to an overall inadequate theatre estate and lack of ring-fenced cold site bed base
- Capital funding must be provided by WG for the HB propositions to reinstate surgical capacity at University Hospital Llandough, but this must be aligned with the regional context for the benefit of the whole population
- Any additional capital and revenue related schemes from each HB must also be considered by WG and scrutinised through the Welsh Orthopaedic Network

- Through an appropriately resourced WON, national programmes of work must commence to maximise efficiencies such as GIRFT daycase pathways and ensure the GIRFT recommended case volumes used to model the NCSOS projections are met – this is being picked up by the Regional Orthopaedic Program
- National CRGs must develop standards and guidance for potential use of non-laminar flow theatres where appropriate. This will maximise utilisation of existing estate - this is being picked up by the Regional Orthopaedic Program

Further comments regarding Cardiff and Vale UHB:

CVUHB has one site that can deliver elective orthopaedic surgery through University Hospital Llandough (UHL) and the co-located CAVOC. The health board strategic direction is to develop a further two (sic four) laminar flow theatres by 2026 in UHL which in turn will allow reorganisation of the UHL and CAVOC theatres.

Current capacity in the Health Board is insufficient for both daycase and inpatient surgery, with the backlog increasing 3-fold until the additional capacity is provided.

Once the 2026 strategy (referring to that described in this OBC) is implemented, capacity will meet demand. However, there will be no net effect on the backlog due to insufficient laminar flow (LF) capacity.

The Health Board should be encouraged to increase the proposed 2026 theatre allocation in UHL for Orthopaedics to allow increased regional remit. This should be discussed within the SEW regional Orthopaedic breakout project and WON.

The report makes the following recommendations for WG regarding the Health Board plans: UHL development must be funded and commence as soon as feasible, but it must be for regional purpose.

2.3.2.2 Getting it Right First Time (GIRFT) Orthopaedic Review (2022)

This report was commissioned through Welsh Government (WG) as part of a Wales wide review, and completed in conjunction with the NCSOS workstream as described above. GIRFT represents a proven enabler of High Volume Low Complexity surgical efficiency and supports the establishment of surgical hubs, capable of delivering high volume throughput. The programme considers all factors from pre-referral pathways, through clinical review, booking processes, theatre efficiency, implant choice and follow-up.

The objectives are to:

- Identify system and organisation level unwarranted variation in access to and outcomes from care being delivered
- Drive for 'top decile' GIRFT performance of outcomes, productivity and equity of access
- Standardise procedure-level clinical pathways to be agreed across all providers developed by 'expert advisory panels' supported by professional societies and the work of the Wales Clinical Orthopaedic Strategy team

- Inform the decision-making process on the potential establishment of surgical hubs for high volume elective procedures
- Agree principles for working across clinical and operational groups e.g. theatre principles
- Leave a legacy of sustainable quality improvement by working in partnership with clinical, operational, and analytical teams to enable continued implementation and tracking of progress

The report highlights the unfavourable position of orthopaedic waiters in March 2022, a position that has only deteriorated since with the continuing limitations on returning to pre-COVID activity. The Executive recommendations within this report are widespread and cover all aspects of the surgical and non-surgical patient pathways. Many of these recommendations have already been met or are being addressed. Those of relevance to this OBC are:

- Carry out full demand and capacity planning and do this across the Health Board and in collaboration with neighbouring Health Boards and other providers who can serve CVUHB. It is crucial that elective recovery is seen as a regional imperative with all Health Boards working together. This will ensure that ALL existing assets available for Orthopaedic elective recovery are utilised - this is being picked up by the Regional Orthopaedic Program
- Hip and knee revisions and complex orthopaedic cases to be carried out at UHL. This will require, for the complex cases, the presence of an Enhanced Recovery Unit on site. This will allow UHL to become a regional centre for revision and infected cases - this is being picked up by the Regional Orthopaedic Program
- UHL to be HVLC centre with some of the more complex case-mix, working to top decile and embedding HVLC principles. Ensuring the right number of beds and introducing elective recovery unit. Ensure that effective holding bays are in place.
- Infection rates are higher due to cleanliness of site and the position of laminar flow within the hospital. This needs to be addressed urgently to reduce infection rates

2.3.2.3 British Orthopaedic Association (BOA) Elective Care Review (May 2021)

This report was commissioned externally by the BOA in response to identification of the knee surgery service in CAV being outside the accepted 3 standard deviation variance in outcomes for knee arthroplasty revisions. The BOA expanded their review to consider the whole elective arthroplasty service in CAV.

Concerns regarding the CAVOC theatre environment were noted, and included issues regarding theatre discipline, footfall through the operating theatres, a lack of division between clean and dirty areas and concerns relating to the laminar flow and air quality.

Several issues were highlighted with the CAVOC theatre environment. There was a common entrance to the CAVOC operating theatres and the ward, which was off a public corridor. A storeroom and staff changing rooms were off a public corridor, which meant staff must change into theatre scrubs and then enter the public corridor, passing bins and three public toilets, to reach the laminar flow theatres. Joint replacement instruments and equipment

were stored in the main theatres across the corridor, which meant crossing the corridor to access equipment. One storage room was only accessible via an operating theatre, resulting in constant foot traffic during operations.

The laminar flow canopies in the four main CAVOC operating theatres were reported as too small for all trays to fit underneath during revision surgery, with the result that many instruments ended up in the high or turbulent air flow area.

The specific recommendations relevant to the theatre environment were:

- Actions should be taken to ensure that there is never continuity between theatres and the outside world – i.e., public corridors. This is universally regarded as best practice
- There should be internal review of the operating theatres used for orthopaedic surgery to introduce a clear delineation between clean and dirty areas. No ward staff or members of the public should cross over into 'clean' theatres areas. Operating theatre staff should be able to change into scrubs and enter directly into the clean area. All equipment needed during operating should be kept within the clean area
- The orthopaedic team should develop a code of conduct specific to the orthopaedic theatres, which specifies expected behaviours, rules and responsibilities of all those who work in this environment. All members of the orthopaedic team, including theatre staff and staff from other disciplines, should be expected to sign-up to this code of conduct and to be held individually accountable to adhering to it

It was recognised that many of the issues surrounding the theatre pathway could be related back to the environment of the theatres in CAVOC.

2.3.2.4 Anaesthesia and Perioperative Medicine - GIRFT Programme National Specialty Report (September 2021)

The specialty of anaesthesia is undergoing a period of change as the perioperative model comes to the fore. Perioperative medicine is a multidisciplinary team-based approach to the care of surgical patients from contemplation of surgery to discharge and beyond. The pressure on the NHS in terms of surgical numbers (current and projected) was a cause for serious concern before the COVID pandemic; since COVID this has only increased. The main focus has been on increasing the efficiency of surgical pathways and improving patient outcomes. Insights gained from the first wave of the COVID pandemic have fed into the report.

The Getting It Right First Time (GIRFT) review of Anaesthesia and Perioperative Medicine has found a significant degree of unwarranted variation in a number of key areas.

The overarching challenge facing the speciality concerns surgical volumes. Particular factors include the growing demand for surgery, the ageing population, increasing co-morbidities in surgical patients and the unpredictable effects on elective inpatient surgery of emergency care. These factors indicate, among other things:

- A need for rigorous assessment of a patient's suitability for surgery and of their surgical risk

- A streamlined surgical pathway with reduced rates of cancellation and reduced length of stay wherever clinically appropriate
- A consistent, proactive and evidence-based approach to managing co-morbidities before, during and after surgery

The report makes 18 overall recommendations and identifies owners and timelines for each one.

2.3.3 Regional Strategies

2.3.3.1 The South East Regional Orthopaedic Programme

The regionalisation of the orthopaedic pathways is currently being developed across the South East region. Led by Cardiff and Vale, the programme looks to bring best practices and resources from across Cardiff and Vale UHB, Cwm Taf Morgannwg UHB (including Princess of Wales) and Aneurin Bevan UHB to improve orthopaedic care delivery.

It is anticipated that this programme will use the existing and planned future facilities across the region to deliver a standardised regionalised pathway for both High Volume Low Complexity (HVLC) and Low Volume High Complexity (LVHC) caseloads across the 3 participating Health Boards in line with the recommendations made in both the NCSOS and GIRFT reports.

The programme of activity is overseen by the South East Wales Regional Clinical Planning group.

2.3.4 Local Strategies

2.3.4.1 Shaping Our Future Wellbeing Strategy 2015 – 2025

Shaping Our Future Wellbeing (SOFW) is the 10-year strategy for transformation and improvement at Cardiff and Vale University Health Board and underpins a strategic portfolio of programmes, which will provide a co-ordinated approach to transforming services into the future. Whilst the direction of travel and much of the current strategy content remains extant, the Health Board has commenced to process of internal and external engagement to refresh and update the strategy with a proposed launch in Autumn 2023.

Health Board will use the next 6 months (Jan – June 2023) to engage with all stakeholders to review the delivery against the strategy and develop a programme of engagement and co-production to develop a strategy for 2023-33.

2.3.4.2 Shaping Our Future Wellbeing – Future Hospitals Programme Business Case (September 2021)

This Programme Business Case (PBC) sets out the principles and component parts of the transformational change in the way the Health Board delivers its clinical services to the local and national population, and the associated infrastructure and service changes that need to take place to support the implementation of the clinical strategy and vision.

The proposed programme is comprised of the following constituent projects:

1. Project 1: Clinical service transformation in line with a new clinical model and vision, which underpin the physical elements of the programme. It will deliver world-leading services, while investing in creating much more co-ordinated and effective population health management
2. Project 2: Potential redevelopment of hospital infrastructure at University Hospital Wales and University Hospital Llandough sites, enabling net zero carbon and including associated improvements to IT and digital infrastructure and medical equipment. This work will consider the options that present themselves based upon the Health Board's strategy and a comprehensive assessment of those options to determine a recommended preferred way forward
3. Project 3: Development of an Academic Health Sciences Hub and a Life Sciences Eco-system to allow the Health Board, Cardiff University and industry players to collaborate and support innovation, research, and development

The purpose of the PBC is to:

- Articulate an ambitious vision for the Board as a whole and the future of CVUHB as an anchor institution for the wider region
- Articulate the case for change for the overall programme, going beyond just noting the poor quality of the existing estate
- Articulate the clinical services strategy and the IT and digital strategies which underpin this, developed in line with emerging science and best practice from elsewhere, both for the local population and within the wider NHS
- Set out an indicative longlist of options that would enable delivery of a set of critical success factors including the clinical services strategy, focusing on service change that needs to take place
- Present the range of unquantified benefits the programme could be expected to deliver and the methodology for quantifying these in later stages
- Set out possible commercialisation opportunities within the programme to assist with revenue affordability, such as the Academic Health Sciences Hub and potential private hospital
- Set out the programme governance arrangements and outline the next steps in moving from the PBC to individual project business cases

2.3.4.3 Shaping Our Future Clinical Services Plan

In 2018 the Health Board identified the need to set out in more detail how clinical services need to develop over the next decade and into the mid-21st century to realise the vision set out in the strategy and to respond to the many drivers of change the Health Board is facing.

Shaping Our Future Clinical Services is the Health Board's proposed approach to developing more detailed clinical plans which is a clinically led process, and in relation to services delivered in the community, is being developed with public service partners. The Health

Board has conducted an initial public engagement exercise over the winter of 2020-21 on Shaping Our Future Clinical Services to seek feedback from the public and partners on the proposed approach to the transformation and configuration of future clinical services. Shaping Our Future Clinical Services will continue to evolve as new treatments and approaches are developed and feedback and input from the public and partners shapes thinking and planning. With this in mind, Shaping Our Future Clinical Services does not describe all of services in detail. It signals how the Health Board will develop services overall, clarifying the role that each of the Health Board facilities will provide and what needs to change.

In relation to how the Health Board see its clinical services developing over the next decade, there are a series of overarching planning principles which guide this work:

- The Health Board will work collaboratively with neighbouring UHBs, Local Authority and other public and third sector partners to provide care through a connected health and social care system to improve health and wellbeing
- Citizens should receive care at home or as close to home as possible – hospitals should only provide assessment or care that cannot be provided in the community;
- Patients requiring hospital admission should receive high quality, high value, and evidence-driven, safe and compassionate care
- Hospital care should provide the appropriate package of specialist care co-ordinated to meet the needs of the patient and focussed on improving outcomes
- Innovative workforce models, new technologies and a flexible digital platform across clinical and wider care providers will support new models of care
- Redesigned clinical pathways and services driven by the Health Board's Transformation programme will deliver improved outcomes and value-based healthcare
- Research & Development activities will enable patients to have access to a wider range of treatment options by participating in research and clinical trials
- Creating a climate, with the necessary facilities, which facilitates and promotes clinical innovation and health inventions to benefit patient care through better outcomes and contributing to economic growth in the region

The following figure is the draft shaping our future clinical services overview:

Figure 3: Shaping Our Future Clinical Services Overview

The delivery of the clinical services plan will be phased over 10 years, in line with evolving service provision, shaped by wide stakeholder engagement and enabled by continuing development of digital and infrastructure solutions.

The Health Board's long term, prudent and appropriate infrastructure plan aims to ensure that it is able to deliver services in environments which aid healing and recovery, and are fit for purpose, whilst being as adaptable as possible for further future change. The role of University Hospital Llandough will be a centre for rehabilitation, mental health and elective surgery. The Health Board is already making good progress with the Shaping Our Future Wellbeing in our Community programme which will see Cluster Wellbeing Hubs and Locality Health and Wellbeing Centres established in support of the new integrated model for primary and community based services.

The long term vision for the current UHW site is to replace the current hospital to enable the re-provision of University Hospital of Wales (UHW2) within a health park and life sciences quarter in collaboration with Cardiff University and regional partners. The Health Board's vision is that the new hospital will be for: (i) patients from Cardiff and the Vale of Glamorgan needing emergency, high acuity or high intensity care (ii) patients from other Health Boards in the SE and wider South Wales Regions in the Health Board's role as the hub for some regional and supra-regional service provision and (iii) patients from across Wales, in the Health Board's role as the largest provider of tertiary services in the country, requiring highly specialised regional services. It will be built with and have the latest design and technology

for the full spectrum of specialities available 24/7 for local, regional, supra-regional and national services. The clinical approach for UHW is:

- Site for acutely ill and complex medical/surgical patients
- Regional, supra-regional and national tertiary services
- Acute services dependant on co-location with 24/7 specialist services e.g. Critical Care (L3) and specialised radiology
- Referral and repatriation pathways agreed with regional Health Board partners. People supported back to the appropriate care location when no longer requiring high intensity/ specialist care

However, this vision is currently in the initial stages of planning and will take a minimum of 10 years to deliver and the Health Board will need to meet demand for these services in the meantime. The condition and functional suitability of some key infrastructure and essential clinical accommodation means that there will need to be some significant interim capital investment to maintain essential, safe service provision until this vision can be realised.

2.3.4.4 2023 – 2026 Integrated Medium Term Plan (June 2022)

Whilst the Health Board is currently updating its 3 year plan for submission in March 2023 in line with the new ministerial priorities, much of the current IMTP remains relevant and describes:

- Key deliverables in ongoing readiness and response to the challenges of COVID-19 whilst turning focus to service recovery and redesign to respond to the ongoing and backlog of demand for Planned and Urgent and Emergency Care services
- The strategic context and priorities which frame the Health Board's partnership approach to longer term system transformation and how this aligns with the immediate readiness, recovery and redesign plans
- The enabling programmes that describe how recovery, redesign and transformation efforts will seamlessly align

The financial recovery programme sets clear guiding principles to inform the cost reduction programme that:

- Ensures our emphasis is driving quality and value and the plans must
- Preserve or improve patient safety or quality
- Preserve or improve access times to healthcare for patients waiting for services
- Preserve or improve staff wellbeing
- Invests in services with clear benefits realisation plans which more than cover the investment
- Ensures a balanced focus on tertiary services for the wider population we serve, and the Cardiff and Vale population
- Balances baseline operational cost reduction appropriately with COVID-19 cost reduction
- Commits to reducing our underlying deficit as a Health Board without expectation of increased resources from Welsh Government

2.3.4.5 *Cardiff and Vale People and Culture Plan 2023 – 2026*

The impact of COVID-19 on the health and care system in Cardiff and the Vale of Glamorgan has been immense: services, processes and, vitally, people have all been changed in some way as a result of the pandemic.

While many people were able to adapt, innovate and face the challenges presented to them, the physical and emotional strain of doing so, as well as the toll of simply doing their jobs in such unprecedented conditions cannot be overstated.

The People and Culture Plan sets out the actions the Health Board will take over the next three years, with a clear focus on improving the wellbeing, inclusion, capability and engagement of the workforce and is the Health Board's opportunity to improve the experience of staff, to ensure the improvements that have been made over recent years continue, and to confront the challenges which have arisen as a result of the pandemic and subsequent recovery period.

The Plan is built around 7 themes which are based on the themes set out in the Workforce Strategy for Health and Social Care, with an added emphasis on retention in theme 3 to recognise the importance of retaining the workforce as well as recruiting new people:

- Seamless workforce models - to support multi-professional and multi-agency working through integration of Health and Social Care services and the development of alternative workforce models to deliver a seamless, co-ordinated approach with partners based on outcomes that matter to the person
- Engaged, motivated and healthy workforce - to have a workforce that feels valued and supported wherever they work
- Attract, recruit and retain - to recruit and retain the right people with the right skills
- Building a digitally ready workforce - to have a workforce that is digitally ready, with both the technology available and the skills to utilise this effectively
- Excellent education and learning - to invest in education and learning to deliver the skills and capabilities needed to meet the future needs of the people we care for and support our people to progress their careers
- Leadership and succession - to have leaders in the health care system who embody inclusive, collective and compassionate leadership
- Workforce supply and shape - to have a sustainable workforce in sufficient numbers to meet the health and social care needs of the population

2.3.4.6 *Cardiff and Vale UHB Delivering Digital: a Five Year Strategy – Building a learning health and care system (July 2020)*

This digital strategy has been being produced to provide a clear roadmap for how digital technology will enable the transformation of clinical services described by the Cardiff & Vale University Health Board overarching strategy, 'Shaping Our Future Well-being'.

The objective of the NHS in Wales was set out in the Welsh Government document A Healthier Wales, declaring the ambition for an integrated health and social care system

which enables seamless care and the ability to promote health and well-being as close to home as possible. The document very clearly sets out the need for a modern digital infrastructure to enable this transformational change.

The Health Board's digital strategy has been written after engagement with staff across the organisation, taking particular note of the attendees of the clinical information management and technology group, the clinical boards, the executive board and information available from patient feedback. The strategy sets out a significant step change in the approach that the Health Board will take towards a digital future for healthcare services.

Digital services are a key enabler to transforming the way health and care services are delivered in Wales, and in enabling patients to have greater involvement in managing their health and well-being.

The following diagram summaries the aims of the Health Board's digital strategy over the next five years:

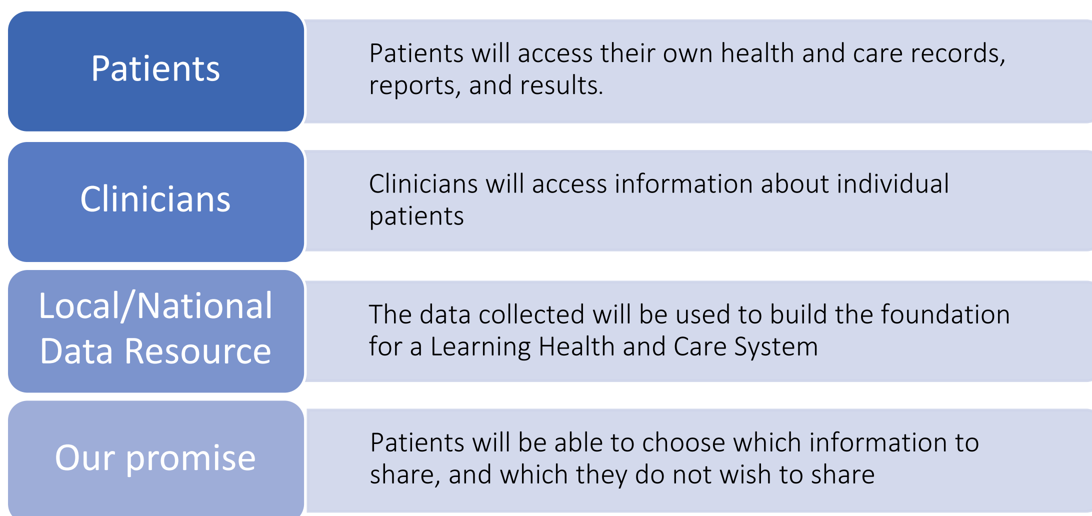

Figure 4: Overview of the five year aims of the Health Board's Digital Strategy

2.3.4.7 Cardiff and Vale UHB Estates Strategy

In 2018, the Health Board developed an estates strategy describing the current state of the estate and setting out a ten year programme for delivering the infrastructure needed in order to realise the vision and aims of the Health Board's strategy and to enable full implementation of the clinical services plan.

The plan identified that much of the current infrastructure is no longer suitable for current and future use and is not conducive to the best patient outcomes and experience, nor staff wellbeing.

The estates strategy sets out the case for change for major investment in the infrastructure, outlining the developments needed at key sites over the next decade. It provides a specific focus on the need to re-provide the majority of facilities currently at UHW and sets out a

compelling vision to develop a new hospital as part of health science campus with university, government and industry partners.

The document remains a working document which is regularly updated to reflect progress and changes that are needed. Below is a summary of the objectives of the estates strategy:

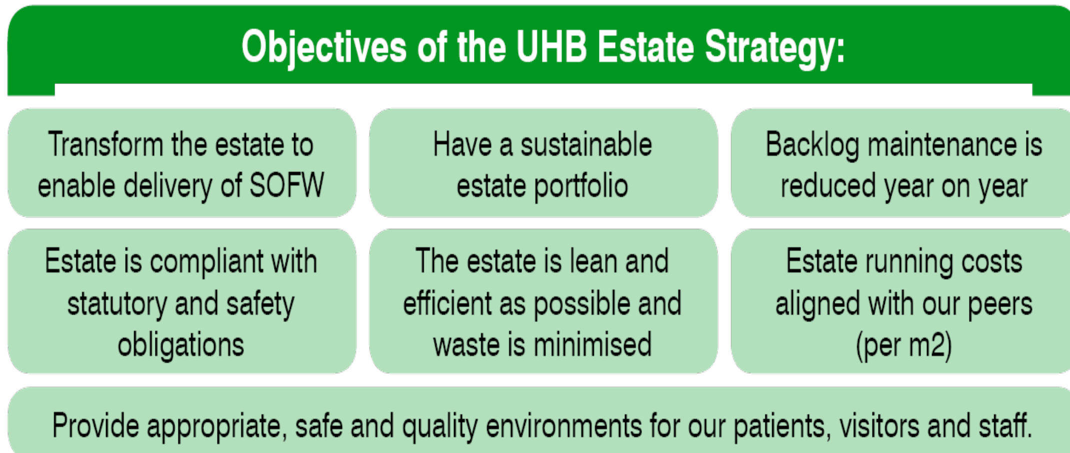

Figure 5: Estates Strategy Objectives

These objectives are key to the achievement of the aspiration for carbon neutrality by 2030.

A parallel piece of work has also been undertaken to assess current location accessibility and the future potential to support the implementation of SOFW: In Our Community. This takes account of deprivation, access/travel times, condition and location of current facilities and opportunity to join up services with the local authority. The outcome suggests there is potential to streamline capacity and facilities, and the remodelling of the estate to reflect the strategic direction of rebalancing services to primary and community settings wherever possible.

PART B: THE CASE FOR CHANGE

This section sets out the case for change from a service and estates perspective, setting out the spending objectives; an overview of the drivers for change; the current issues impacting services and highlights the benefits and risks associated with the project.

2.4 Spending Objectives

The spending objectives for this project are as follows:

Spending Objective 1: Provide a high quality physical environment	
All facilities will be compliant with statutory Welsh Health Technical Memoranda (WHTM), Healthcare Inspectorate Wales (HIW) and other relevant environmental standards	
Specific	All theatres will be compliant with statutory WHTM, HIW and other relevant environmental standards including requirements for privacy and dignity and infection prevention
Measurable	Audit against WHTMs
Achievable	WHTMs are a recognised national standard utilised across NHS Wales
Relevant	This investment will contribute to the following objective within the Wales Infrastructure Investment Plan for Growth and Jobs 2012: To continuously improve and update the existing estate, address backlog maintenance, improve sustainability and maximise energy efficiency
Time-bound	The accommodation to support a high quality physical environment will be completed by May 2028. This date is dependent upon the timing of approval of this OBC and the subsequent FBC
Spending Objective 2: Provide appropriate service capacity	
To provide accommodation that will meet the required current service capacity	
Specific	To provide accommodation that will meet the required service capacity and is capable of responding to future clinical, epidemiological, population and demographic changes
Measurable	Monitoring and recording of activity information to include cancelled and delayed operations
Achievable	The Health Board has undertaken robust activity and capacity planning to ensure the appropriate number of theatres across it's sites
Relevant	This investment is in line with the NHS Infrastructure Investment Objectives, in particular: Promote the use of innovation to improve the quality of care, to reduce costs and to deliver the necessary service change.
Time-bound	The accommodation to support the service capacity will be completed by May 2028. This date is dependent upon the timing of approval of this OBC and the subsequent FBC
Spending Objective 3: Facilitate the delivery of the model of care and high quality patient services	
To deliver facilities that will allow the Health Board to achieve best possible outcomes of care for patients that are effective across the continuum of the surgical pathway	
Specific	To provide accommodation for theatre teams that will enable the Health Board to deliver the required model of surgical care and ensure the best possible outcomes for patients and to provide suitable inpatient accommodation to allow the Health Board to meet its capacity needs

Measurable	The accommodation will be completed and available for occupation as per the agreed schedule of accommodation, design brief and building specifications and will be subject to post project evaluation
Achievable	The Project Team will monitor the outputs and evaluate against recognised best practice models
Relevant	This investment will contribute to the following objective within the Wales Infrastructure Investment Plan for Growth and Jobs 2012: Services which are accessible to patients and carers (providing the right services in the right places).
Time-bound	The accommodation to support the model of care will be completed by May 2028. This date is dependent upon the timing of approval of this OBC and the subsequent FBC
Spending Objective 4: Effective use of Resources	
Providing a solution that makes optimum use of human, capital and estate resources	
Specific	To provide an environment that maximises the use of available resources and promotes improved service efficiency
Measurable	To assess the departmental plans with regard to workflows and pathways during the design development and to assess space utilisation through a post occupancy survey
Achievable	The Project Team is confident that the correct support is in place and resources are available to develop a solution that maximises efficiency
Relevant	This investment is in line with the NHS Infrastructure Investment Objectives, in particular: Promote the maximum efficient utilisation of assets and to improve asset condition and performance
Time-bound	The accommodation to support the effective use of resources will be completed by May 2028. This date is dependent upon the timing of approval of this OBC and the subsequent FBC

Table 1: Spending Objectives

2.5 Existing Arrangements

The utilisation of orthopaedic theatres has been significantly altered due the COVID pandemic. Alongside all other routine services, activity was reduced to facilitate the release of staff and infrastructure to support the urgent and unscheduled care priorities across both COVID and non-COVID pathways. Orthopaedic theatre capacity was particularly impacted due to the transfer of cardiothoracic surgical activity from UHW to UHL. This led to some of the orthopaedic theatres and much of the orthopaedic ward areas being no longer available for elective orthopaedics. As the organisation continues its recovery from COVID, plans are underway to firstly restore and then increase the pre-COVID elective orthopaedic capacity. This will include the transfer of cardiothoracic back to UHW. The recruitment of additional theatre workforce has been prioritised as part of the recovery programme, including in orthopaedic theatres, in order to help address the significant increases in orthopaedic waiting lists that have occurred over the last two years.

The text within this section relations to the existing arrangements prior to the impact of the COVID pandemic.

2.6 Business Needs

2.6.1 Cardiff and Vale Orthopaedic Centre as Part of UHL

The Cardiff and Vale Orthopaedic Centre (CAVOC) has 4 laminar flow theatres and additional access to one non-laminar theatre and one laminar flow theatre of the existing four theatres in "main theatres". The CAV Orthopaedics Service are, therefore, currently utilising six teahtres on the UHL site – of which five have laminar flow and one does not.

The CAVOC theatre complex has recently been reviewed by the British Orthopaedic Association (BOA) (2021) and the GIRFT Wales wide initiative (2022). Concerns were raised regarding the increased infection risks associated with major joint arthroplasty performed in these theatres. The reports identified significant cross-infection risks with the patient pathways within the CAVOC and UHL main theatres footprint. As such, the number of laminar flow theatres suitable for major joint arthroplasty is further diminished, compounding those problems encountered from the loss of theatres 5 and 6.

The proposed development will replace CAVOC 5 & 6, restoring the UHL overall orthopaedic theatre capacity to that in 2019 when they were decommissioned i.e. 8 theatres. The replacement theatres will be large, laminar flow theatres, capable of accommodating revision arthroplasty surgeries in line with those recommendations made by the BOA (2021).

Furthermore, the two existing theatres already used by Orthopaedics within the main theatre complex will have compliant laminar flow infrastructure installed to comply with the BOA report infection prevention and control improvement requirements.

Finally, the main theatre complex will undergo internal reorganisation allowing for improved patient flow, infection control measures, and theatre efficiency. This addresses those points raised in both the GIRFT and BOA reviews.

This scheme is essential to address the local and regional backlog of elective orthopaedic cases as described in the NCSOS report (2022). It is essential to note that this development should be viewed as supplementary to the emerging plan for a regional orthopaedic elective centre in line with the regional orthopaedic programme.

Further theatre reorganisation in the current CAVOC and Day Case theatres will permit improved access to day case theatre capacity and flexible theatre solutions for other surgical specialities. This will maximise theatre utility across the elective surgical specialties in UHL.

2.6.1.1 Activity

In a typical week 55 orthopaedic patients were treated in these theatres, meaning a loss of 660 patients each quarter or 2,640 per annum, based on 48 week working. Historically, the lost activity from theatres 5 and 6 was being provided in a number of ways pre-COVID:

- Temporary theatre (CAVOC 5)
- Any unused lists across the theatre suite, for example, backfilling unfilled sessions due to surgeon leave

- Additional sessions in-house are being provided where possible, and
- Private provider outsourcing

Mitigation beyond additional theatre capacity were also being taken to minimise the impact:

- Prioritising specialities with waiting list problems over those with less demand/breach concerns
- Flexible job planning to allow surgeons with no immediate waiting list breach problems to release operating capacity in favour of out-patient clinics
- Careful and continued scrutiny of waiting lists, ensuring an appropriate mix of cohort patients
- High levels of backfilling of theatre lists by both Consultant and Fellow workforce;
- Flexible waiting lists allowing some consultants with shorter waiting lists to deliver capacity for those with longer lists
- Working in conjunction with other Directorates such as Breast Surgery to swap theatres, thus enabling more major cases to be undertaken

Despite the internal measures being taken to limit activity loss, the Health Board was unable to accommodate the lost activity resulting in excessively long waits.

The long-term unavailability of theatres 5 and 6 had a significant effect on waiting times before the COVID pandemic. The situation has been compounded by the COVID-19 restrictions, but recovery will be impossible without an increase in capacity.

The tables below demonstrate the immediate pre-COVID and post-COVID positions defined by sub-speciality:

March 2020	0-26	27-52	53-78	79-104	105-130	131-156	156+	Total by sub-specialty
Shoulder	116	24	0	0	0	0	0	140
Elbow	40	5	0	0	0	0	0	45
Hand	902	153	0	0	0	0	0	1055
Hip	260	91	0	0	0	0	0	351
Knee	511	138	0	0	0	0	0	649
Foot and Ankle	365	107	0	0	0	0	0	472
Total	**2194**	**518**	**0**	**0**	**0**	**0**	**0**	**2712**

Table 2: Immediate Pre-COVID and Post-COVID Positions Defined by Sub-speciality

(Spines have been excluded from these figures as during COVID the spinal service centralised to the UHW site.)

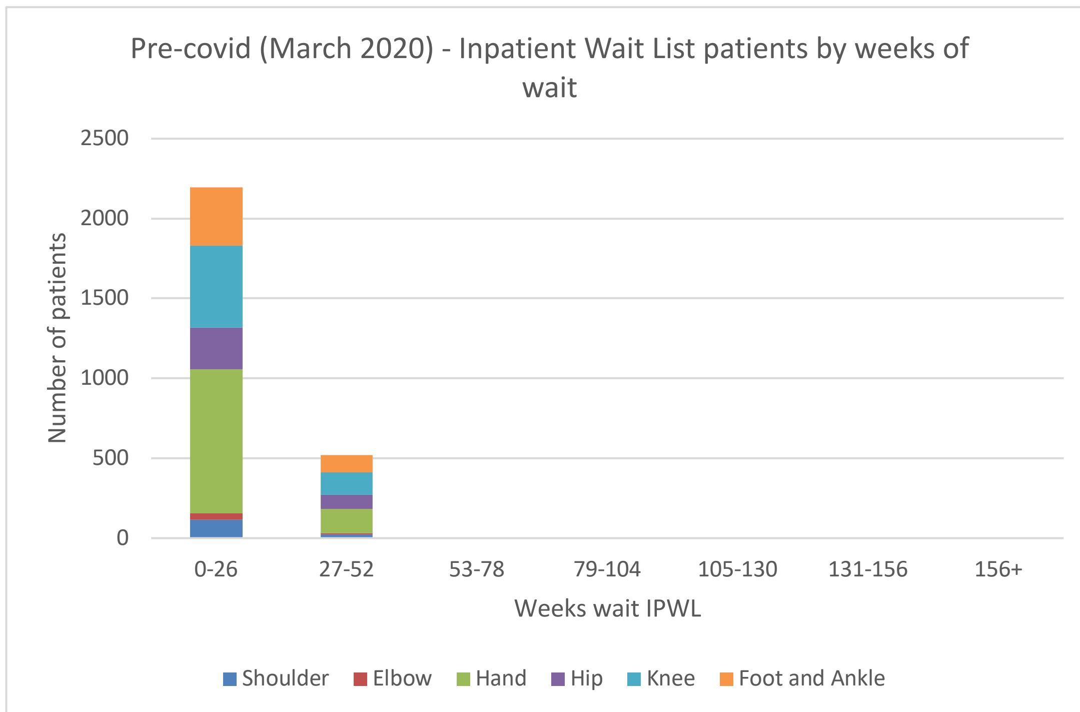

Figure 6: Historical position of inpatient waiting list (March 2020, immediately pre-COVID)

The current position of inpatient waiting list (December 2022, COVID recovery):

December 2022	0-26	27-52	53-78	79-104	105-130	131-156	156+	Total by sub-specialty
Shoulder	73	43	38	6	9	4	2	205
Elbow	7	4	0	0	2	2	0	18
Hand	717	382	152	78	34	23	6	1727
Hip	168	142	85	86	74	24	6	611
Knee	379	269	225	184	99	53	43	1362
Foot and Ankle	130	113	65	36	15	23	10	409
Total	**1474**	**953**	**565**	**390**	**233**	**129**	**67**	**4332**

Table 3: Inpatient Waiting List (December 2022)

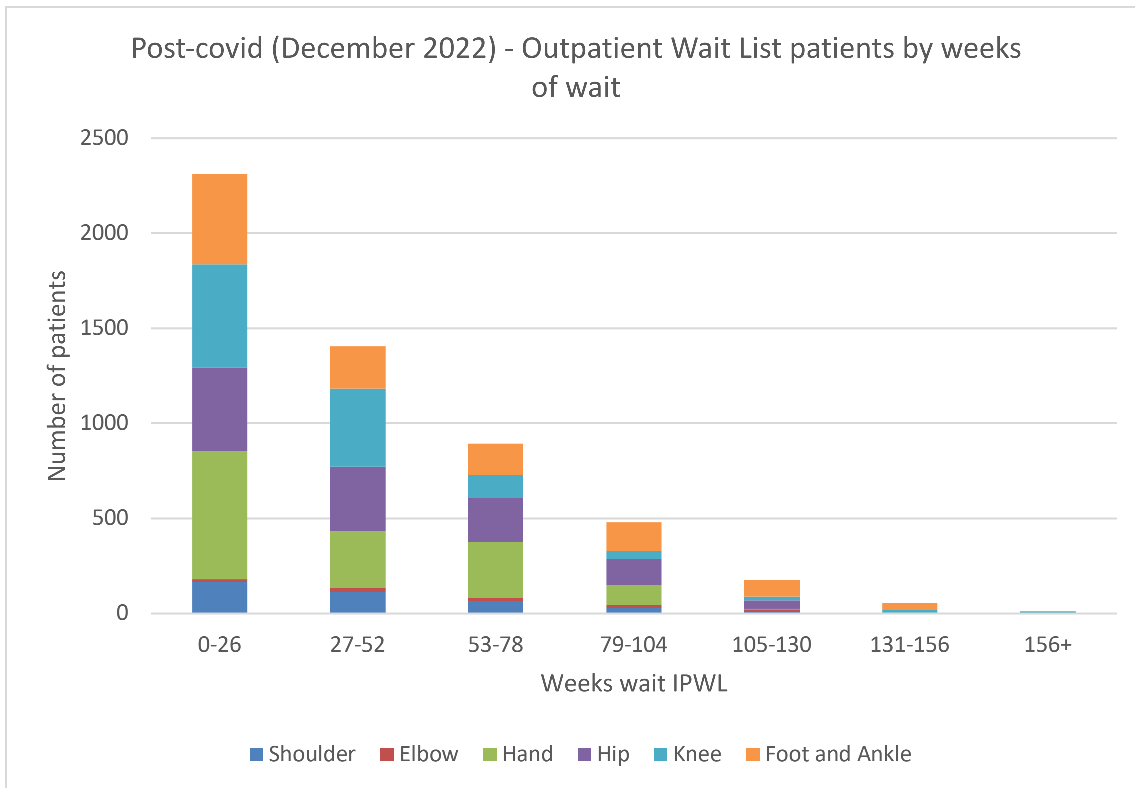

Figure 7: Post COVID – Outpatient Waiting List Patients by Weeks of Wait

Prior to COVID the loss of capacity from the decommissioning of theatres 5 and 6 was mitigated by a Health Board spend in excess of £380k on outsourcing. Clearly, COVID has meant significant additional costs on third party private sector outsourcing but a continued worsening of the in-patient waiting list position.

The internal measures undertaken to mitigate activity loss historically improved the position, particularly when temporary CAVOC 5 became operational in 2017. Though this is not a sustainable position post-COVID.

The advent of the Major Trauma Centre (MTC) has had a further impact. There has been a 143% uplift in the emergency caseload across all surgical specialties post-COVID, and trauma creep into UHL since the Major Trauma Centre became operational. Within orthopaedics, there is additional trauma demand displacing elective sessions at UHL, extending waiting times for routine patients. This is in addition to the over-burdened service as a result of COVID pandemic.

Although internal mitigation strategies have minimised the impact of this burden – flexible job-planning, robust backfilling of available sessions, and day case trauma operating – there remains a demonstrable additional burden.

2.6.1.2 *Suggested solution*

The proposed development is described in Section 3.10 and the accompanying Estates Annex.

The proposed development will replace the theatres 5 and 6, restoring the UHL overall theatre capacity to that in 2019 when they were decommissioned. These will be large, laminar flow theatres, capable of accommodating revision arthroplasty surgeries in line with those recommendations made by the BOA (2021).

Furthermore, two existing theatres within the main theatre complex will be converted to laminar flow, increasing the UHL laminar flow capabilities by two. This will address the backlog deficiencies as described in the NCSOS report (2022) as well as provide capacity for the planned increased regional working via the South East Wales Regional Clinical Planning Group.

Finally, the main theatre complex will undergo internal reorganisation allowing for improved patient flows, infection control measures, and theatre efficiency. This addresses those points raised in both the GIRFT and BOA reviews.

Further theatre reorganisation in the current CAVOC and Day Case theatres will permit improved access to day case theatre capacity and flexible theatre solutions for other surgical specialities. This will maximise theatre utility across the elective surgical specialties in UHL.

2.7 Potential Business Scope and Key Service Requirements

This section describes the potential scope for the project in relation to the spending objectives and business needs.

In line with Welsh Government guidance, the scope has been assessed against a continuum of need ranging from:

- A minimum – essential or core requirements/outcomes
- An intermediate – essential and desirable requirements/outcomes
- A maximum – essential, desirable and optional requirements/outcomes

Minimum	Intermediate	Maximum
A theatre unit that meets minimum statutory requirements with regard to environmental standards	A theatre unit that meets statutory requirements with regard to environmental standards	A theatre unit that meets statutory requirements with regard to environmental standards, best practice models and addresses service model, known capacity issues and clinical flows
Sized to meet current demand	Sized to meet current demand and future demand	Sized to meet current, projected future and potential future demand (following outcome of regional reviews)

Table 4: Potential Scope

This project will take forward the intermediate scope which is to provide fit for purpose theatres which will deliver the current and future demand. The maximum scope has been excluded at this stage as the outcomes of the various workstreams will not be delivered within an acceptable timescale as there is some urgency around addressing the issues within the current theatres at UHL.

2.8 Main Benefits

This section describes the main benefits associated with the implementation of the potential scope in relation to business needs.

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

Benefits are expressed in relation to the developed appraisal criteria that were derived from the spending objectives as follows:

- **CRB** - cash releasing benefits (e.g. avoided costs);
- **Non CRB** - non cash releasing benefits (e.g. staff time saved);
- **QB** - quantifiable benefits (e.g. achievement of targets);
- **Non QB** - non-quantifiable or qualitative benefits (e.g. improvement in staff morale).

Spending Objective	Stakeholder Group	Main Benefits
Spending Objective 1: Provide a high quality physical environment	Patients	Non QB – Provide safe and appropriate environments of care for patients and improving the patient experience Non QB – Maintaining appropriate privacy and dignity
	Staff	Non QB –Provide a safe and appropriate environment for staff Non QB – Improved clinical morale gained from improved access to modern equipment, technologies and facilities
	Health Community	QB – Improved BREEAM rating QB – Compliance with statutory standards QB – Compliance with NHS guidance/best practice QB – Improved environments to enable productivity gains CRB – Remove various short life expectancy and inefficient plant CRB – Realise revenue benefits of new efficient M&E plant
Spending Objective 2: Maintain current service capacity	Patients	QB – Improved waiting times QB – Reduction in the number of theatre lists not available due to theatres not being fit for purpose
	Staff	QB – Reduction in the number of theatre lists that overrun due to delays caused by building/plant failure

	Health Community	QB – Reduced pressures on other facilities and provides appropriate capacity for the population
Spending Objective 3: Facilitate the delivery of the model of care and high quality patient services	Patients	Non QB - High quality patient care QB – Reduced risk of airborne cross infection due to replacement of theatre plant QB – Improvements in health and safety (reduced incidents)
	Staff	Non QB – Maintain continuity of services for both theatres and inpatients QB – Improvements in health and safety (reduced incidents) QB – Staff recruitment and retention will improve as investment in new facilities will help attract and retain high quality professional staff
	Health Community	Non QB – High quality care given to all patients
Spending Objective 4: Effective use of Resources	Patients	QB – Improved waiting times
	Staff	Non CRB – Reduced delays, cancellations maximises use of staff
	Health Community	Non QB - Maximise use of existing accommodation to enable estate rationalisation and improved utilisation Non QB - Maximise flexibility of facilities

Table 5: Main Benefits

2.9 Main Risks

The main business and service risks associated with the potential scope for this project are shown below, together with their counter measures:

Risk	Counter Measures
Service Risks	
Increase costs of providing service during works (eg storage, housekeeping, medical records)	Detailed logistical planning to minimise impact upon operational services
Reduction in operational efficiency during works	Liaison with construction team to ensure works are fully understood and robust planning to ensure no impact on clinical services
Capital investment not secured	Continual dialogue with Welsh Government and Shared Services. Ensure a robust Business Case excluding costs.
Unexpected inflation	Where unexpected cost increases occur escalation to WG.
Risk of contamination of residual theatre during building process and impact on type of work possible	Agreement with IP&C teams to agree and appropriate protection.

Table 6: Main Risks and their Counter Measures

2.10 Constraints

The project is subject to the following constraints:

- Physical works will need to be delivered in order to have the least possible impact on service provision
- Any plans must maintain revenue neutrality unless alternative/new funding streams are clearly identified
- Project must be delivered through funding from the All Wales Capital Programme

2.11 Dependencies

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

- Approval from Welsh Government and release of capital form the All Wales Capital Programme

Economic Case

3.0 THE ECONOMIC CASE

3.1 Introduction

In accordance with the Infrastructure Investment Guidance and requirements of HM Treasury's Green Book (A Guide to Investment Appraisal in the Public Sector), this section of the OBC documents the wide range of options that have been considered in response to the potential scope identified within the strategic case.

3.2 Critical Success Factors

The Critical Success Factors (CSFs) for this project are:

CSF1: Strategic Fit

- Can satisfy the existing needs of the service and NHS Wales

CSF2: Service Need

- Can provide a holistic fit and synergy with other key elements of the National, Regional and Local Strategies

CSF3: Flexibility

- Can be adapted to meet the changing needs of the population and future service developments

CSF4 Potential Achievability

- Can be achieved within the planning timescales of the project

3.3 The Long Listed Options

The long list of options was generated in accordance with best practice contained in the Infrastructure Investment Guidance. The evaluation was undertaken in accordance with how well each option met the spending objectives and CSFs.

This process resulted in options either being discounted or carried forward for further consideration in the short list.

The long list of options for this investment was generated within the following key categories of choice:

Scoping options – choices in terms of coverage (the what)

The choices for potential scope are driven by business needs and the strategic objectives at both national and local levels. In practice, these may range from business functionality to geographical, customer and organisational coverage. Key considerations at this stage are 'what's in?' 'what's out?' and service needs.

Service solution options – choices in terms of solution (the how)

The choices for potential solution are driven by new technologies, new services and new approaches and new ways of working, including business process re-engineering. In practice, these will range from services to how the estate of an organisation might be configured. Key considerations range from 'what ways are there to do it?' to 'what processes could we use?'

Service delivery options – choices in terms of delivery (the who)

The choices for service delivery are driven by the availability of service providers. In practice, these will range from within the organisation (in-house), to outsourcing, to use of the public sector as opposed to the private sector, or some combination of each category. The use of some form of public private sector partnership (PPP) may be relevant here.

Implementation options – choices in terms of the delivery timescale

The choices for implementation are driven by the ability of the supply side to produce the required products and services, VFM, affordability and service need. In practice, these will range from the phasing of the solution over time, to the modular, incremental introduction of services.

Funding options – choices in terms of financing and funding

The choices for financing the scheme (public versus private) and funding (central versus local) will be driven by the availability of capital and revenue, potential VFM, and the effectiveness or relevance/ appropriateness of funding sources.

3.3.1 Scoping Options

In accordance with the Treasury Green Book and Infrastructure Investment Guidance, the business as usual option has been considered as a benchmark for potential VFM.

An infinite number of options and permutations are possible; however, within the broad scope outlined in the strategic case, the following main options have been considered:

- Option 1.1 – business as usual
- Option 1.2 – do 'minimum' – replace the existing theatre plant and ducts
- Option 1.3 – replace the existing theatre plant and ducts and refurbish the existing theatres without altering the layout
- Option 1.4 – re-provide the theatres to WHBN/WHTM standards (including two laminar flow)

3.3.1.1 Option 1.1: Business As Usual

Description

This option would retain the existing theatres.

Advantages

The only advantage is that there would be no capital investment required.

Disadvantages

The main disadvantages are that:

- Does not resolve the issue that some current theatres are not fit for purpose
- Current issues mean there are no procedures carried out within them
- Reduce operating capacity significantly as both theatres are currently not acceptable for use by the surgeons and therefore the overall capacity is reduced, furthermore there is the possibility that continued issues with the second theatre may result in surgeons losing confidence in it
- Theatre plant breakdowns and disruption to services would continue
- Does not resolve any backlog maintenance issues and risks
- Existing building layout does not provide appropriate spatial standards for surgical services

3.3.1.2 Option 1.2: Do minimum – replace the existing theatre plant and ducts

Description

This option would replace the theatre plant and ducts but there would be no improvements to the theatres themselves. This would include short term maintenance solutions for the theatres 5 and 6 in order to continue to use them.

Advantages

The main advantages are that:

- Minimal capital investment required
- Would resolve the current issues with plant breakdowns and some elements of backlog maintenance

Disadvantages

The main disadvantages are that:

- Does not resolve the issue that some current theatres are not fit for purpose
- Does not resolve all backlog maintenance issues and risks
- Existing building layout does not provide appropriate spatial standards for surgical services
- Is not supported by the clinical community
- Would be difficult to implement without major disruption to services or significant decant accommodation would be required

3.3.1.3 Option 1.3: replace the existing theatre plant and ducts and refurbish the existing theatres without altering the layout

Description

This option would include replacing the theatre plant and ducts and refurbishing the existing theatres in terms of finishes, mechanical and electrical fittings and equipment but would not alter the departmental layout (i.e. existing wall/doors/windows remain unaltered).

Advantages

The main advantages are that:

- Would resolve the current issues with plant breakdowns and all elements of backlog maintenance
- Partially resolves the issue that some current theatres are not fit for purpose
- Improved infection prevention measures due to replacement of wall and floor finishes
- Would provide a modern theatre environment in terms of mechanical and electrical fittings and equipment

Disadvantages

The main disadvantages are that:

- Significant capital investment would be required
- Existing building layout does not provide appropriate spatial standards for surgical services
- Is not supported by the clinical community
- Would be difficult to implement without major disruption to services or significant decant accommodation would be required

3.3.1.4 Option 1.4: – re-provide theatres 5 and 6 to WHBN/WHTM standards

Description

This option would include replacing the theatre plant and ducts and refurbishing the existing theatres in terms of finishes, mechanical and electrical fittings and equipment and would provide theatre spaces which achieve current spatial standards.

Advantages

The main advantages are that:

- Would resolve the current issues with plant breakdowns and all elements of backlog maintenance
- Fully resolves the issue that some current theatres are not fit for purpose
- Improved infection prevention measures due to replacement of wall and floor finishes
- Would provide a modern theatre environment in terms of mechanical and electrical fittings and equipment
- The layout will provide appropriate spatial standards for surgical services

Disadvantages

The main disadvantages are that:

- Significant capital investment would be required

3.3.1.5 *Overall conclusion: scoping options*

The table below summarises the assessment of each option against the spending objectives and CSFs:

	Option 1.1 Business as usual	Option 1.2 Minimum	Option 1.3 Refurbish	Option 1.4 Re-provide
Spending Objectives				
1: Provide a high quality physical environment	✓	✓	✓	✓✓
2: Provide appropriate service capacity	✓	✓✓	✓✓	✓✓
3: Facilitate the delivery of the model of care and high quality patient services	✓	✓	✓	✓✓
4: Effective use of Resources	✓	✓	✓✓	✓✓
Critical Success Factors				
Strategic Fit	✓	✓	✓	✓✓
Service Need	✓	✓	✓	✓✓
Flexibility	✓	✓	✓	✓✓
Achievability	✓✓	✓	✓	✓✓
Summary	Discounted	Discounted	Possible	Preferred

Table 7: Summary Assessment of Scoping Options

Key:

✓✓ - fully achieves ✓ - partially achieves X - does not achieve

Option 1.1: business as usual

This option has been discounted because it does not resolve the issues with some theatres and is not consistent with providing high quality facilities from which to deliver surgical services. The current position is unsustainable.

This option has been carried forward for comparative purposes only.

Option 1.2: do minimum – replace the existing theatre plant and ducts

This option has been discounted because although it resolves the current issues regarding the theatre plant and duct work it will not provide the Health Board with theatres which comply to current standards. This option would be very difficult to implement without significant disruption to services and is unlikely to be supported by the clinical community.

Option 1.3: replace the existing theatre plant and ducts and refurbish the existing theatres without altering the layout

This option is possible because does resolve the current issues regarding the theatre plant and duct work and would further enhance the theatre environment by refurbishing the current theatres, however it would not provide the Health Board with all theatres that comply to current standards.

Option 1.4: re-provide the theatres to WHBN/WHTM standards (including two laminar flow)

This option is preferred because it fully meets all the spending objectives and critical success factors. It would deliver a high quality patient and staff environment and would ensure that all theatres meet current standards. It resolves the current issues regarding the theatre plant and duct work and would maximise the existing accommodation at UHL.

3.3.2 Service Solution Options

This range of options considers potential solutions in relation to the preferred scope. The range of options that have been considered are:

- Option 2.1: Provide new build on platform at the side but near the front of the existing Cardiff and Vale Orthopaedic Centre (CAVOC) at UHL
- Option 2.2: Provide two new buildings on platforms either side of at UHL
- Option 2.3: Provide new build on platform at the side but near the rear of the existing Cardiff and Vale Orthopaedic Centre (CAVOC) at UHL
- Option 2.4: Provide new build adjacent to the existing main theatres at UHL
- Option 2.5: Replacement of the Cardiff and Vale Orthopaedic Centre (CAVOC) in a new build on the UHL site

3.3.2.1 Option 2.1: Provide new build on platform at the side but near the front of the existing Cardiff and Vale Orthopaedic Centre (CAVOC)

Description

This option would provide additional accommodation adjacent to CAVOC along with some internal reconfiguration of the existing department to allow replacement of the existing theatres 5 and 6, whilst retaining those existing theatres that are deemed to be in acceptable condition.

Advantages

The main advantages are that:

- Provides two WHBN/WHTM compliant laminar flow theatres
- Allows continuity of service during construction

Disadvantages

The main disadvantages are that:

- Difficult to create links with existing department due to the configuration of the current accommodation, including the location of structural walls
- Location of new build element limits the opportunity for improving the patient flows within the department
- Some disruption to clinical services during break through to the existing department

3.3.2.2 Option 2.2: Provide two new buildings on platforms either side of Cardiff and Vale Orthopaedic Centre (CAVOC)

Description

This option would provide two new theatres, one on either side of CAVOC to replace the existing theatres 5 and 6, whilst retaining those existing theatres that are deemed to be in acceptable condition.

Consideration

This option was considered as a possible way forward, however, due to the relocation of the specialist neuro and spinal rehabilitation services relocating from Rookwood Hospital (part refurbishment but with some new build) this option is no longer possible and has, therefore, been discounted from further consideration.

3.3.2.3 Option 2.3: Provide new build on platform at the side but near the rear of the existing Cardiff and Vale Orthopaedic Centre (CAVOC)

Description

This option would include a modular building to provide staff changing facilities and provide two additional theatres within the existing footprint along with a reconfiguration of the department to improve flows and provide the appropriate recovery spaces.

The main advantages are that:

- Provides two WHBN/WHTM compliant laminar flow theatres
- Allows continuity of service during construction
- Location of new build provides opportunities for improving patient flows within the department
- Disruption to clinical services during breakthrough could be minimised due to the function of adjacent accommodation (i.e. offices)
- Allows the possibility of a break through from the main corridor to improve patient flows

Disadvantages

The main disadvantages are that:

- Some disruption during break through to the existing department.

3.3.2.4 *Option 2.4: New build adjacent to the existing main theatres at UHL*

Description

This option would provide new build adjacent to the existing main theatres at UHL through the demolition of the existing theatres 5 and 6 and the construction of a 2-storey building with the new theatres on the first floor and the ground floor providing shell accommodation only;

Advantages

The main advantages are that:

- Provides two WHBN/WHTM compliant laminar flow theatres
- Allows continuity of service during construction
- Location of new build provides opportunities for improving patient flows within general theatres
- Provides adjacency to existing main theatres with some shared facilities
- Allows shell space for further development in the future

Disadvantages

The main disadvantages are that:

- Some disruption to clinical services during break through to the existing department

3.3.2.5 *Option 2.5: Replacement of the Cardiff and Vale Orthopaedic Centre (Inpatient element only) in a new build on the UHL site*

Description

This option would replace the inpatient facilities for the Cardiff and Vale Orthopaedic Centre as a new build on the UHL site.

Advantages

The main advantages are that:

- Provides WHBN/WHTM compliant laminar flow theatres for all theatres
- Allows the opportunity to provide a fit for purpose department with optimum patient, staff and goods flows
- No disruption to existing department during construction (although possible impact on other services on the UHL site)
- Once vacated the existing department provides opportunities for other service developments

Disadvantages

The main disadvantages are that:

- Significant capital costs
- A suitable location with appropriate adjacencies is not available on the UHL site

Whilst this option has some advantages it would not be possible to find a suitable location on the UHL site and therefore this option must be discounted.

3.3.2.6 Overall conclusion: service solutions options

The table below summarises the assessment of each option against the spending objectives and CSFs:

	Option 2.1 New build at front of CAVOC	Option 2.2 New build either side of CAVOC	Option 2.3 New build at rear of CAVOC	Option 2.4 New build adjacent to the existing main theatres at UHL	Option 2.5 New build entire department
Spending Objectives					
1: Provide a high quality physical environment	✓✓	This option is not possible and has, therefore, not been considered	✓✓	✓✓	✓✓
2: Provide appropriate service capacity	✓✓		✓✓	✓✓	✓✓
3: Facilitate the delivery of the model of care and high quality patient services	✓✓		✓✓	✓✓	✓✓
4: Effective use of Resources	✓✓		✓✓	✓✓	✓
Critical Success Factors					
Strategic Fit	✓✓		✓✓	✓✓	✓
Service Need	✓✓		✓✓	✓✓	✓✓
Flexibility	✓		✓	✓✓	✓✓
Achievability	✓		✓	✓✓	x
Summary	Possible	Discounted	Possible	Preferred	Discounted

Table 8: Summary Assessment of Service Solution Options

Key:

✓✓ - fully achieves ✓ - partially achieves X - does not achieve

Option 2.1: Provide new build on platform at the side but near the front of the existing Cardiff and Vale Orthopaedic Centre (CAVOC)

This option is possible because it provides the Health Board with theatres which are compliant with current standards and whilst less flexible than a new build it maximises the

use of the existing accommodation at UHL and is likely to require less capital investment than a new build option.

Option 2.2; Provide two new buildings on platforms either side of CAVOC

This option is not possible and has been discounted.

Option 2.3; Provide new build on platform at the side but near the rear of the existing Cardiff and Vale Orthopaedic Centre (CAVOC)

This option is possible because it provides the Health Board with theatres which are compliant with current standards and whilst less flexible than a new build it maximises the use of the existing accommodation at UHL and provides the opportunity to reconfigure the department to optimise patient flows, including a possible breakthrough to the main corridor.

Option 2.4 New build adjacent to the existing main theatres at UHL

This option is preferred because it provides two new fully compliant laminar flow theatres, provides adjacency to existing main theatres with some shared facilities and allows future development through the provision of shell accommodation on the ground floor.

Option 2.5: Replacement of the Cardiff and Vale Orthopaedic Centre (CAVOC) in a new build on the UHL site

This option has been discounted as a suitable location could not be found on the UHL site and it would not be appropriate to consider moving the services off-site.

3.3.3 Service Delivery Options

This range of options considers the options for service delivery in relation to the preferred scope and potential solution.

The ranges of options that have been examined are:

- Option 3.1: In-house
- Option 3.2: Outsource
- Option 3.3: Strategic Partnership

3.3.3.1 Option 3.1: In-house

Description

This option describes the provision of surgical services currently at UHL by Cardiff and Vale University Health Board

Advantages

The main advantages are that:

- Retains the income stream for this work
- Retains control over the quality of the service
- Maintain care closer to home for patients
- Maintains the orthopaedic surgery skills within the Health Board
- Ensures seamless pathways for patients

Disadvantages

The main disadvantages are that:

- Requirement to provide a suitable, fit for purpose environment
- Capital investment required

3.3.3.2 Option 3.2: Partial Outsource

Description

This option describes the provision of outsourcing orthopaedic capacity to another provider

Advantages

The main advantages are that:

- No capital investment required

Disadvantages

The main disadvantages are that:

- Revenue cost of £8million+ per year
- Loss of the income stream for this work
- Loss of control over the quality of the service
- Patients will have to travel further for their care
- Finding a suitable provider who can provide the required capacity within the timescales
- Potential loss of orthopaedic surgery skills within the Health Board
- Patients will move between providers which could complicate the pathway and cause delays

3.3.3.3 Option 3.3: Strategic Partnership

Description

This option describes the provision of surgical services through a strategic partnership

Advantages

The main advantages are that:

- No capital investment required

Disadvantages

The main disadvantages are that:

- Potential increase in revenue cost
- Some loss of the income stream for this work
- Some loss of control over the quality of the service
- Patients may have to travel further for their care
- Finding a suitable partner who can provide the required services and capacity within the timescales
- Potential loss of orthopaedic surgery skills within the Health Board

- Patients will move between providers which could complicate the pathway and cause delays

3.3.3.4 Overall conclusion: service delivery options

The table below summarises the assessment of each option against the spending objectives and CSFs:

	Option 3.1 In-house	Option 3.2 Partial Outsourced	Option 3.3 Strategic Partnership
Spending Objectives			
1: Provide a high quality physical environment	✓✓	✓✓	✓✓
2: Provide appropriate service capacity	✓✓	✓✓	✓✓
3: Facilitate the delivery of the model of care and high quality patient services	✓✓	✓	✓
4: Effective use of Resources	✓✓	✓	✓
Critical Success Factors			
Strategic Fit	✓✓	✓	✓
Service Need	✓✓	✓✓	✓✓
Flexibility	✓✓	✓	✓
Achievability	✓✓	✓	✓
Summary	Preferred	Discounted	Discounted

Table 9: Summary Assessment of Service Delivery Options

Key:

✓✓ - fully achieves ✓ - partially achieves X - does not achieve

Option 3.1: In-house

This option would deliver the spending objectives and critical success factors and would meet the strategic vision for the Health Board in the short, medium and long terms.

This option is preferred because it will retain overall responsibility, accountability and control together with sustainable expertise and staffing levels.

Option 3.2: Partial Outsource

This option would not deliver the spending objectives or critical success factors

This option has been discounted because it has the potential of loss of control, expertise and staffing levels and maintaining surgical services across the Health Board could be compromised. It is also unlikely that a suitable provider could be found.

Option 3.3: Strategic Partnership

This option would not deliver the spending objectives or critical success factors. This option has also been discounted because it has the potential of loss of control, expertise and

staffing levels and maintaining surgical services across the Health Board could be compromised, providing full surgical services is considered fundamentally critical to the Health Board. Whilst it may be possible for another Health Board to become a strategic partner It is also unlikely that this would benefit either Health Board, staff or patients.

3.3.4 Implementation Options

This range of options considers the choices for implementation in relation to the preferred scope, solution and method of service delivery.

- Option 4.1: 'Big Bang'
- Option 4.2: Phased

3.3.4.1 Option 4.1: 'Big Bang'

Description

This option assumes that all the required services could be delivered within one phase.

Advantages

The main advantages are:

- Shorter timescales
- Potentially lower costs
- Less disruption to existing services

Disadvantages

The main disadvantages are that

- Does not deliver the preferred service solution option

3.3.4.2 Option 4.2: Phased

Description

This option assumes that the implementation of the required services would be phased on an incremental basis in order to maintain the appropriate service capacity throughout the project.

Advantages

The main advantages are that:

- Delivers the preferred service solution option

Disadvantages

The main disadvantages are that

- Longer timescales and may not deliver the scheme within the required timescales
- Potentially higher costs
- Could disrupt current services for longer

3.3.4.3 Overall conclusion: implementation options

The table below summarises the assessment of each option against the spending objectives and CSFs:

	Option 4.1 'Big Bang'	Option 4.2 Phased
Spending Objectives		
1: Provide a high quality physical environment	✓✓	✓✓
2: Provide appropriate service capacity	✓	✓✓
3: Facilitate the delivery of the model of care and high quality patient services	✓✓	✓✓
4: Effective use of Resources	✓✓	✓✓
Critical Success Factors		
Strategic Fit	✓✓	✓✓
Service Need	✓✓	✓✓
Flexibility	✓✓	✓✓
Achievability	✓	✓✓
Summary	Discounted	Preferred

Table 10: Summary Assessment of Implementation Options

Key:

✓✓ - fully achieves ✓ - partially achieves X - does not achieve

Option 4.1: 'Big Bang'

This option has been discounted because it does not deliver the preferred service solution option.

Option 4.2: Phased

This option is preferred because in order to deliver the preferred service solution option only a phased approach can be taken.

3.3.5 Funding Options

It has been agreed that the scheme will be publicly funded as part of Welsh Government's All Wales Capital Programme, it is, therefore, unnecessary to consider the use of alternative methods of finance.

3.4 The Long List: Inclusions and Exclusions

The long list has appraised a wide range of possible options, the table below provides a summary of the assessment of each of these:

Option	Finding
1.0 Scope	
1.1 Business As Usual	Discounted (carried forward for comparative purposes)
1.2 Do Minimum	Discounted
1.3 Refurbish	Possible
1.4 Re-provide	Preferred
2.0 Service Solutions	
2.1: New build at front of CAVOC	Possible
2.2: Two new builds either side of CAVOC	Discounted
2.3: New build at rear of CAVOC	Possible
2.4: Provide new build adjacent to the existing main theatres at UHL	Preferred
2.5: Departmental new build	Discounted
3.0 Service Delivery	
3.1 In House	Preferred
3.2 Partial Outsource	Discounted
3.3 Strategic Partnership	Discounted
4.0 Implementation	
4.1 Big Bang	Discounted
4.2 Phased	Preferred
5.0 Funding	
Only public funding has been considered as it has been agreed with Welsh Government that this project will be supported.	

Table 11: Summary of Inclusions, Exclusions and Possible Options

3.5 The Short Listed Options

The 'preferred' and 'possible' options identified in the table above have been carried forward into the short list for further appraisal and evaluation. All the options that were discounted as impracticable have been excluded at this stage, with the exception of the business as usual option which has been carried forward for comparative purposes only.

On the basis of this analysis, the recommended short list for further appraisal is as follows:

	Scope	Service Solution	Service Delivery	Implementation	Funding
Option 0	Business as usual				
Option 1	Refurbish the existing theatres	Refurbishment	In-house	Phased	Public
Option 2	Provide 2 theatres	New build at front of CAVOC	In-house	Phased	Public
Option 3	Provide 2 theatres	New build at rear of CAVOC	In-house	Phased	Public
Option 4	Provide 2 theatres	New build adjacent to the existing main theatres at UHL	In-house	Phased	Public

Table 12: Summary of Short Listed Options

In summary the short-listed options are:

- Option 0 – business as usual
- Option 1 – do minimum - replace the theatre plant and ducts and refurbish the existing theatres without altering the layout
- Option 2 – supply and install two modular laminar flow theatres adjacent to CAVOC with direct access utilising existing recovery and trolley bay area
- Option 3 – a modular building to provide staff changing facilities and provide two additional theatres within the existing footprint along with a reconfiguration of the department to improve flows and provide the appropriate recovery spaces
- Option 4 – a new build option to provide two replacement laminar flow theatres, recovery and support accommodation adjacent to the existing main theatres

Appendix 1 includes diagrams for the short listed options 2, 3 and 4.

3.6 Qualitative Benefits Appraisal

A workshop event was held at University Hospital of Wales on the 3rd July 2017 to evaluate the qualitative benefits associated with each of the shortlisted options. The workshop was attended by project team members, service leads and clinical representatives. A list of attendees is attached as Appendix 2.

3.6.1 Methodology

The appraisal of the qualitative benefits associated with each option was undertaken by:

- Identifying the benefits criteria related to each of the spending objectives
- Weighting the relative importance (%) of each benefit criteria in relation to each spending objective
- Scoring each of the shortlisted options against each of the benefit criteria on a scale of 1 to 10
- Deriving a weighted benefit score for each option

3.6.2 Qualitative Benefits Criteria

The benefits criteria were derived from further analysis of the Spending Objectives and Main Benefits set out within the Strategic Case and were weighted as follows:

Spending Objective	Benefit Criteria	Weight %
1: Provide a high quality physical environment	Provide safe and appropriate environments of care for patients and improving the patient experience	18%
	Maintaining appropriate privacy and dignity	10%
	Improved staff morale gained from improved access to modern equipment, technologies and facilities	6%
2: Provide appropriate service capacity	Provides sufficient theatre and inpatient capacity to enable service delivery within required targets (e.g. waiting times)	16%
3: Facilitate the delivery of the model of care and high quality patient services	Enables the Health Board to deliver high quality patient care	14%
	Provides appropriate departmental adjacencies and minimises patient journeys	12%
	Maintain continuity of services	9%
4: Effective use of Resources	Maximise use of existing accommodation to enable estate rationalisation and improved utilisation	8%
	Maximise flexibility of facilities	7%

Table 13: Qualitative Benefits

The chart below shows the qualitative benefits weightings:

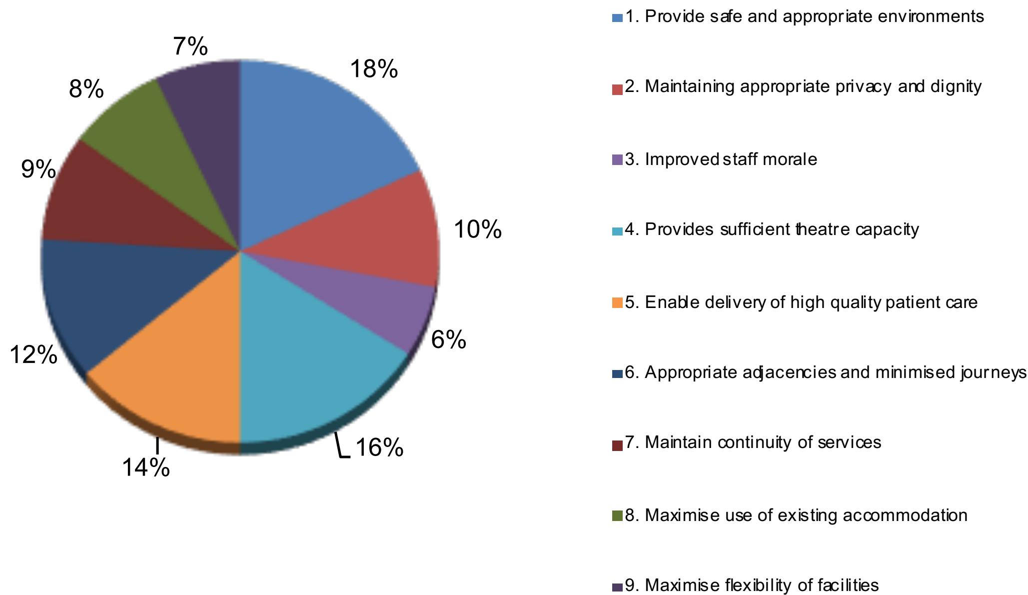

Figure 8: Qualitative Benefits weightings

3.6.3 Qualitative Benefits Scoring

Benefit scores were allocated on a range of 1-10 (rising scale) for each option and agreed through rigorous discussion by the workshop participants to confirm that the scores were agreed as fair and reasonable. The summary results of this exercise were as follows:

Benefit Criteria	**Weighted Scores**				
	Option 0	**Option 1**	**Option 2**	**Option 3**	**Option 4**
Provide safe and appropriate environments of care for patients and improving the patient experience	0	72	180	180	180
Maintaining appropriate privacy and dignity	40	40	70	90	90
Improved staff morale gained from improved access to modern equipment, technologies and facilities	0	18	36	42	42
Provides sufficient theatre capacity to enable service delivery within required targets (e.g. waiting times)	0	96	160	160	160
Enables the Health Board to deliver high quality patient care	0	70	126	126	126
Provides appropriate departmental adjacencies and minimises patient journeys	96	96	84	120	120
Maintain continuity of services	18	36	54	54	72
Maximise use of existing accommodation to enable estate rationalisation and improved utilisation	40	80	56	56	64
Maximise flexibility of facilities	35	35	42	56	63
TOTALS	**229**	**543**	**808**	**884**	**917**
RANK (weighted)	**5**	**4**	**3**	**2**	**1**

Table 14: Summary Results of Option Appraisal

The results are demonstrated graphically below:

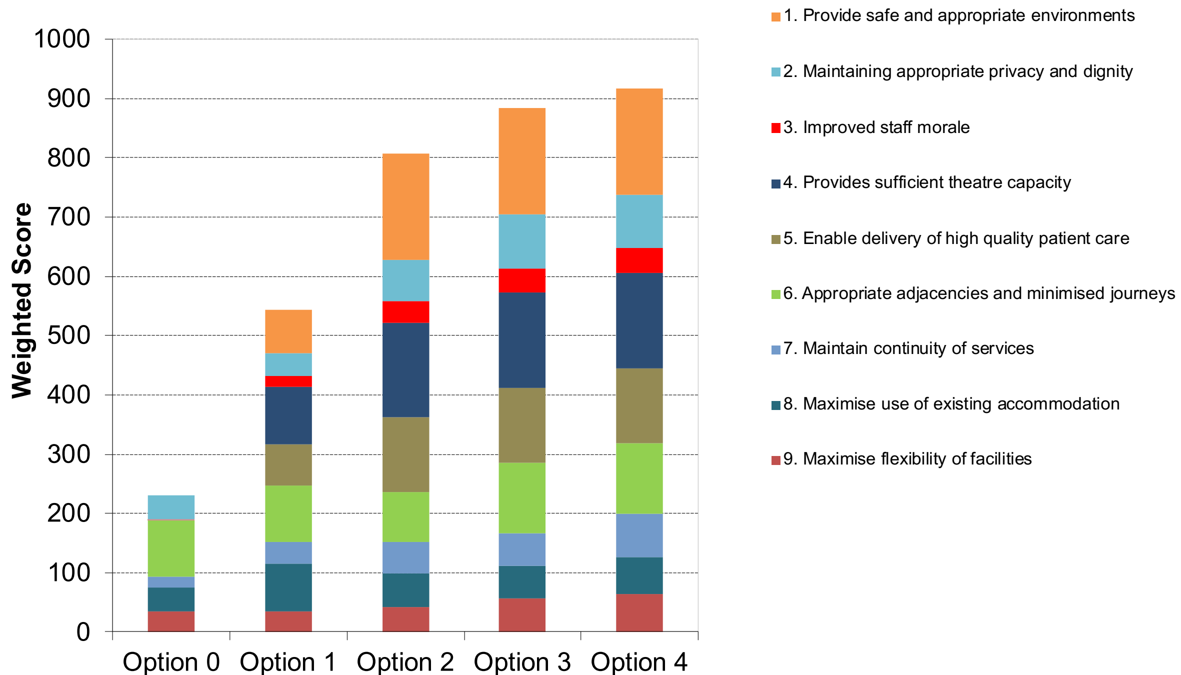

Figure 9: Qualitative Benefits Scoring

3.6.4 Analysis of Key Results

Key considerations that influenced the scores achieved by the various options were as follows:

- Option 0 – business as usual, this option ranks 5th (last) of particular concern is the fact that is doesn't provide a safe environment and will continue to limit the available theatre capacity as theatres 5 and 6 are not fit for purpose
- Option 1 – this option ranks 4th, whilst it resolves the immediate environmental concerns it does not provide a good medium/long term solution. Also, clinical staff have lost confidence in theatres 5 and 6 which were designed to last 7 years and have been in service some 20 years
- Options 2 ranked 3rd. The main concern being the difficulty of breaking through to the existing department
- Option 3 – this option ranks 2nd as it provides the appropriate departmental adjacencies and flows, it also provides the opportunity to reconfigure the waiting area and discharge lounge to improve flows and patient privacy
- Option 4 – this option ranks 1st and is the preferred option as it provides two replacement laminar flow theatres in a location to create a six theatre main theatre suite at UHL to provide maximum flexibility and efficiency of service

3.6.5 Non-Financial Sensitivity Analysis

Sensitivity analysis was undertaken by changing the ranking of the benefit criteria to evaluate the impact on the overall score for each option. The analysis included applying reverse, high, low and no weightings to the criteria. The results indicated that even if the weighting of the benefit criteria were to be changed there is no scenario in which option 4 is

not the preferred option although there are changes amongst the rankings of the other options. The results of the scoring and sensitivity analysis are attached in Appendix 3.

3.7 Economic Appraisal

3.7.1 Introduction

The economic appraisal has been conducted in accordance with the following guidance:

- The Green Book – Appraisal and Evaluation in Central Government plus supplementary guidance published by HM Treasury
- 5 Case Model guidance for SOCs, OBCs, FBCs and BJCs (WG) and WG/IPAG FBC Template

The principles and assumptions used in this OBC are:

- An appraisal period of 60 years has been adopted
- Cash flows exclude VAT and have been discounted by 3.5% per annum for years 0 to 30 and by 3% thereafter
- Price base is 2019/20
- Direct service revenue costs are assumed the same across all options
- FM costs are assumed the same for Option 2 – 4

Cost elements incorporated are:

- Capital costs excluding VAT at PUBSEC index 291
- Lifecycle costs using standard NHS asset life profiles

3.7.2 Capital Costs

These are summarised below:

Capital Costs at PUBSEC 250	Option 0 £000	Option 1 £000	Option 2 £000	Option 3 £000	Option 4 £000
Works Costs	1196	2,646	16,713	16,134	20,433
Fees	199	441	2.916	2,814	3,682
Non-Works	215	302	1,315	1,066	2,036
Equipment Costs	698	800	2,200	2,460	2,200
Planning Contingency	231	419	2,314	2,247	3,620
Optimism Bias	0	0	3,847	4,259	6269
Subtotal excluding VAT	**2,539**	**4608**	**29,306**	**33,930**	**38,240**
VAT @ 20% less reclaimable	444	781	5,082	4,949	6,676
OBC Total Capital Cost	**2,983**	**5389**	**34,388**	**33,930**	**44,916**

Table 15: Capital Costing Summary at Approvals PUBSEC Index 291 – (£'000)

Capital cost forms are attached within Appendix 4. Optimism bias has not been included in the OB forms.

3.7.3 Economic Appraisal Outputs

Details of the economic appraisal are attached at Appendix 5 and summarised in the table below:

Economic Cost	Option 0 £000	Option 1 £000	Option 2 £000	Option 3 £000	Option 4 £000
Net Present Cost (NPC)	242,835	253,017	287,237	290,048	297,083
Equivalent Annual Cost (EAC)	9,168	9,340	10,541	10,647	10,861
Ranking of Development Options		**1**	**2**	**3**	**4**
EAC Margin Development Options		0.0%	(12.9%)	(14.0%)	(16.3%)
NPC Switch Value			(34,220)	(37,031)	(44,044)

Table 16: Summary of Economic Appraisal Outputs

On the basis of the economic appraisal undertaken:

- Option 0 (business as usual) is included for illustrative purposes only since it is not capable of delivering the required outputs
- Since at this stage the appraisal only incorporates capital and lifecycle costs with little impact on revenue costs, the economic impact is largely a reflection of those cost inputs and Option 1 is the clearly preferred development option
- Options 2, 3 and 4 which reflect the capital investment are ranked in order therefore of capital investment largely based on the initial capital outlay

3.8 Combined Economic and Non-Financial Appraisal Scores

3.8.1 Methodology and Assumptions

The outputs of the Non-Financial and Economic Appraisals have been combined to assess which option offers the highest benefit/cost ratio by combining the non-financial score with the EAC to generate comparable benefits points per EAC.

Option 4 has the highest non-financial score and when combined with the EAC is ranked first out of the development options. It has a margin of 1.7% over option 3. There is a much clearer margin over options 1 (31.1%) and Option 2 (9.2%).

Combined Appraisal	Option 0	Option 1	Option 2	Option 3	Option 4
Weighted Non-Financial Scores	229	543	808	864	917
EAC Impact (£000s)	-	9,340	10,541	10,647	10,861
Benefit Points per EAC £000		0.058	0.077	0.083	0.084
Ranking of Development Options		**4**	**3**	**2**	1
Margin %		(31.1%)	(9.2%)	(1.7%)	0.0%

Table 17: Summary of Combined Appraisal Outputs

Sensitivity testing confirms that the Non-Financial score for Option 3 would have to rise to 899 (an increase of 1.7%) before it became preferred overall.

The option appraisal therefore confirms that Option 4 is marginally preferred over Option 3 but is clearly preferred to Option 2 and 1.

3.9 Risk Appraisal – Unquantifiable

3.9.1 Methodology

A risk appraisal has been undertaken using the method included in the WG template for business cases, it includes the following distinct elements:

- Identifying the risk categories and definitions for assessing options (these were based on information in the Treasury's Green Book)
- Assessing the impact and likelihood for each option against these categories
- Calculating a risk score

The range of scales used to quantify risk were as follows:

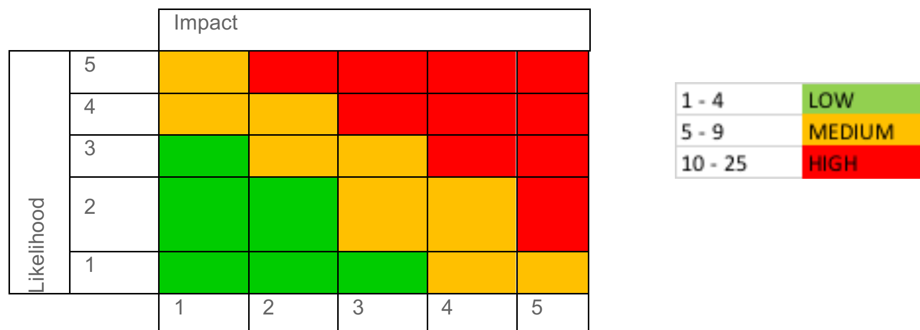

Figure 10: Risk Scoring Matrix

3.9.2 Risk Category and Definition

Risk Category	Definition
Demand and Revenue	Failure to sufficiently assess the service demand and unforeseen implications on revenue costs
Service and Performance	Failure to meet performance or quality standards during the works
Capital, Design and Construction	Implications upon the Health Board during construction. Failure to achieve planning permission and /or meet relevant statutory obligations
Project Resources	Health Board's ability to deliver the project
Technology and Obsolescence	Impact of changes in technology

Table 18: Risk Category and Definition

3.9.3 Risk Scores

Risk Category	Option 0 Score	Option 1 Score	Option 2 Score	Option 3 Score	Option 4 Score
Demand and Revenue	26	40	36	36	32
Service and Performance	4	10	14	10	8
Capital, Design and Construction	97	126	114	114	111
Project Resources	7	7	7	7	7
Technology and Obsolescence	8	8	6	6	6
Total	**142**	**191**	**177**	**173**	**164**
Ranking	**1**	**5**	**4**	**3**	**2**

Table 19: Risk Scoring

3.9.4 Analysis of Key Results

The above table shows a summary of the risk appraisal for each option. The complete risk appraisal matrix is attached as Appendix 6. Key considerations that influenced the high-risk scores (identified in red on the risk appraisal matrix) achieved by the various options were as follows:

- Option 0 – business as usual. This option ranks first as there are no works in the business as usual option there is little risk with regard to delivering the project. It should be noted, however, that there would remain significant risk to the Health Board in terms of ongoing service delivery
- Option 1 – replace the theatre plant and ducts and refurbish the existing theatres without altering the layout. This option ranks last as it involves works to the existing theatres which are within the main department and there is therefore likely to be significant disruption to services
- Option 2 – supply and install twin modular laminar flow theatres adjacent to CAVOC with direct access utilising existing recovery and trolley bay area. This option ranks fourth, it is very similar to option 3, however there are some concerns with breaking through to the existing department
- Option 3 – provide modular building to provide waiting area and discharge lounge and provide 2 additional theatres within the existing footprint. This option ranks third. There will be some disruption to services during the works but less than with option 2 as the internal reconfiguration allows the project to be delivered in a phased way that allows the service to continue with minimal disruption
- Option 4 – provide two new laminar flow theatres adjacent to the existing main theatres at UHL. This options ranks second. There will be minimal disruption to services and only minor refurbishment to existing support areas

3.10 The Preferred Option

The preferred way forward is confirmed as Option 4, due to its capability of meeting the spending objectives and critical success factors of the project.

The works included within the preferred option are:

- Demolition of existing medical records and theatres 5 and 6 buildings to make way for a new 3 storey building housing at first floor level; two orthopaedic operating theatres with supporting accommodation, staff support & patient reception
- The building will connect to the existing day & orthopaedic theatres block, with first floor level refurbished as part of Phase 2 works, with two main theatres suites upgraded to provide compliant laminar flow functionality, the existing recovery ward capacity extended along with decant of the staff accommodation to make way for centralised storage space
- Enclosed plant space will be accommodated at second floor level
- The building will be constructed with open space at ground floor level for future fit out

The delivery of the preferred option will ensure the creation of modern, fit for purpose theatre environments that will improve infection prevention measures and provide the appropriate spatial standards for surgical services.

The benefits that will be delivered include providing a safe and appropriate environment for patients and staff, thereby improving the patient experience, including maintaining appropriate privacy and dignity and enhancing staff morale and improving recruitment and retention.

Commercial Case

4.0 THE COMMERCIAL CASE

4.1 Introduction

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

The construction of these premises will be procured through the NHS Wales Shared Services Partnership – Specialist Estates Services (NWSSP-SES) established NHS 'Building for Wales' Framework. The Supply Chain Partner (SCP) Wilmott Dixon has been appointed under the framework to develop both the design and construction of the proposed facility.

4.2 Required Services

The required services are for the demolition of the existing theatres 5 and 6 block adjacent to main theatres at UHL, the delivery of two WHBN/WHTM compliant laminar flow theatres within the space along with additional recovery and support spaces.

4.3 Confirmation of Stakeholder Support

Partner collaboration and integration are key enablers for any scheme but for this project there are no direct stakeholders upon whose support this project relies. However, excellent communication links have been established and engagement with all project stakeholders has been extensive.

4.4 Procurement Strategy

The procurement strategy was in line with the procedures and practices as laid down in the NHS Building for Wales framework. The various construction elements of the proposed facilities were formally competitively tendered by the Supply Chain Partner as part of the production and agreement of the target price. An open book approach to prices will be adopted in line with the Framework and all costs will be closely scrutinised to ensure that the Health Board is getting the best value for money.

4.4.1 SCP Appointment Process

This section outlines the selection process for the Supply Chain Partner (SCP), together with their Design Team Consultants (DTC) via the NHS Building for Wales framework stated above.

Following the prescribed framework interview and selection process, which was monitored by the appointed Framework Implementation Manager/ NHS Wales Shared Services Partnership Representative, Willmott Dixon Construction Limited were appointed as SCP following evaluation of submissions from all four SCPs on the 'Building for Wales' Framework namely Willmott Dixon Construction, Kier Construction, Tilbury Douglas and BAM Construction.

4.4.1.1 Selection and Evaluation Process

The selection process comprised a combination of a review of submissions received, a presentation by each company with question and answer session led by the selection team.

The quality evaluation criteria was agreed as set out in the table below:

Criteria	Quality Weighting
Proposed personnel for the project	10%
Proposed supply chain members for the project	40%
Experience appropriate/relevant to the project	10%
Approach to the project	15%
Programme	15%
Delivering against community benefits targets	10%
Total	**100%**

Table 20: SCP Evaluation Criteria

Selection Team

The Health Board selection team comprised of the following:

- Geoff Walsh - Director Capital, Estates and Facilities
- Owen Rees - Head of Capital Planning
- Jonathan Aver - Senior Capital Construction Project Officer

An assessment matrix was scored by the selection team jointly, immediately after each interview and based on the SCP bid document, presentation material and the response given to the question and answer session.

Consideration was then given to the understanding of the project challenges, risks, issues, scope, experience and capability of team members, management structure and the cohesiveness of the teams at interview.

Post Interview Analysis

Willmott Dixon Construction's selection was subsequently agreed subject to approval by the Capital Management Group.

4.5 Potential for Risk Transfer

This section provides an assessment of how the associated risks might be apportioned between the Health Board and the Supply Chain Partner and in some instances shared between the nominated organisations. The general principle is to ensure that risks should be passed to 'the party best able to manage them', subject to value for money (VFM). The table below outlines the potential allocation of risk; this will be appraised and reviewed at subsequent stages to ensure there is an appropriate allocation of risk:

Risk Category		Potential Allocation		
		Public	Private	Shared
1	Design Risk			✓
2	Construction & Development Risk			✓
3	Transition & Implementation Risk			✓
4	Availability and Performance Risk			✓
5	Operating risk	✓		
6	Variability of Revenue Risks	✓		
7	Termination Risks	✓		
8	Technology & Obsolescence Risks			✓
9	Control Risks	✓		
10	Residual Value Risks	✓		
11	Financing Risks	✓		
12	Legislative Risks			✓
13	Other Project Risks			✓

Table 21: Potential Risk Transfer

The ongoing future management of risks during the life of the scheme, will generally follow the process described in the Management Case: Outline Arrangements for Risk Management.

4.6 Equipment Strategy

The finalised equipment requirements for the preferred option will be established during development of the Full Business Case. An assessment will be carried out of the required equipment within groups 2 & 3 based upon signed off Room Data Sheets (RDS). A further assessment will be made regarding the items of equipment which are suitable for transfer.

This survey of existing equipment will use the following criteria:

- Associated downtime during the transfer period is acceptable
- Costs associated with all transfers are tested for value for money against the purchase of a new replacement
- Consumables, durables, spare parts and service will be available for the remaining life expectancy of the item
- Item applies with infection control requirements where necessary
- Item complies with current regulations and is considered safe
- Compatibility with other equipment
- Item can be physically accommodated within the new facility

The financial implications of the assessments will be included within the costs of the FBC.

4.7 Proposed Charging Mechanisms

The Health Board intends to make payments in respect of the proposed products and services as follows:

- Charging will be completed under the 'Building for Wales' Framework terms and conditions
- The contract will be managed by Cardiff and Vale University Health Board under the NEC3 Option C Target Cost Contract

4.8 Proposed Contract Lengths

Other than the main works construction contract and associated works and related design team contracts, no other external contracts are being considered within the OBC submission.

It is anticipated that the main building contract will run for approximately 48 months although the start date for this is dependent on the approvals process and securing support for the investments. The likely timescales are indicated in the Estate's Annex that accompany this document.

4.9 Proposed Key Contractual Clauses

Except for the main construction contract, no other external contracts are being considered within this business case submission.

Contractual Arrangements will be entered with all parties for the FBC stage, using the NEC contract as prescribed under the Framework.

Payments to the externally appointed team will be as prescribed in the individual NEC contracts and in line with the framework practices and procedures. There are no key contractual clauses over and above the standard framework clauses.

4.10 Personnel Implications (including TUPE)

TUPE (Transfer of Undertaking and protection of Employee) will not apply to this investment.

4.11 Community Benefits and Procurement

The Welsh Government actively seeks to derive benefits for the local community from procurement activity through the application of the Community Benefits policy approach.

This approach ensures delivery of social, economic and environmental benefits through effective application of the policy and is integral to any consideration in procurement.

The Health Board are therefore working with the Supply Chain Partner as part of the Considerate Construction Strategy to measure the identified benefits extended from this scheme. More information can be found within the Estates Annex which accompanies this document.

4.12 Accountancy Treatment

It is assumed that public funding will be allocated for the project and therefore assets will be included on the balance sheet of the Health Board. Full details are included in the Financial Case.

Financial Case

5.0 THE FINANCIAL CASE

5.1 Introduction

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

5.2 Capital Costs

A summary of the capital costs and depreciation for the preferred option is as follows:

Capital Costs	£000
Building/Engineering	34,912
Equipment Costs	2,640
OBC Total Capital Cost	**37,552**

Table 22: Capital Costs

	£'000
Impairment	24,159
Depreciation - Building/Engineering	225
Depreciation – Equipment	528
Accelerated Depreciation	1,951
Total Capital Charges/Depreciation	**26,863**

Table 23: Summary of Capital Charges and Depreciation

Impairment is calculated based on advice from the District Valuer. The asset value post impairment has been depreciated over the estimated useful economic life provided by the District Valuer.

The following is a summary of the total impact of impairment and depreciation by year until the planned opening of the facilities:

	2028/29 £'000	2029/30 £'000
DEL Impairment	0	0
AME Impairment	24,159	0
Total Impairment	**24,159**	**0**
Depreciation – Build	169	225
Depreciation - Equipment	396	528
Total Depreciation	**565**	**753**

Table 24: Summary of Total Impact of Impairment / Depreciation Year on Year

This OBC assumes all capital charges and depreciation will be funded by Welsh Government in each of the years provided in the table above.

5.3 Revenue Costs

5.3.1 Depreciation and Impairment

In line with other centrally funded capital schemes, the Health Board would anticipate that the non-cash implications of the scheme would be funded. That is, Welsh Government would provide funding to cover any additional depreciation costs or impairments arising from the scheme.

5.3.2 Service Delivery

The preferred option will not provide any additional activity and therefore, there will not be any additional direct service related revenue costs.

5.3.3 Other Revenue Costs

There is an additional annual cost of £264,000 for equipment serving/maintenance, this is an estimate based upon 10% of the planned new equipment spend, which is typical of such cost. There is a net additional revenue costs of £108,000 relating to Facilities Management:

Facilities Cost	Additional Annual £000s	Total Annual £000s
Business Rates	6	14
Energy	73	163
Estates Maintenance	8	18
Domestic Service	18	41
Security	1	1
Waste	2	2
Total Facilities Costs	**108**	**239**

Table 25: Facilities Management Revenue Cost

The total additional revenue impact of commissioning these theatres will, therefore, be £392,000.

The cost of meeting the additional direct revenue costs can be met in a number of ways:

- The Health Board can include this cost within its planned care plan for increasing its surgical capacity in line with the ministerial requirement to reduce our local backlog
- The Health Board can include this cost within wider regional plans to increase the planned surgical capacity to meet the regional demand for additional capacity to reduce the regional backlog

Work is continuing to ensure that fully costed and affordable revenue plans will underpin the operationalisation of this capacity.

5.4 Impact on the Organisation's Income and Expenditure Account and Balance Sheet

The anticipated capital spend, capital charges and depreciation profile for the extent of the project is as follows:

	2021/22 £000s	2022/23 £000s	2023/24 £000s	2024/25 £000s	2025/26 £000s	2026/27 £000s	2027/28 £000s	2028/29 £000s	2029/30 £000s	Total £000s
Capital (excluding VAT)	168	446	1,379	3,905	4,391	16,218	5,463			31,970
Capital (including VAT)	198	522	1,615	4,476	5,119	19,136	6,486			37,552
Depreciation								565	753	

Table 26: Capital Spend, Capital Charges and Depreciation Profile

All assets will be shown on the Health Board's balance sheet. The asset will be valued on completion and recorded on the balance sheet at that value. Subsequently it will be treated as per the Health Board's capital accounting policy.

5.5 Overall Affordability

As highlighted above, it is assumed the impairment and recurrent charges for depreciation will be funded by Welsh Government. There is no net additional revenue costs as the proposals set out in this OBC relate to the re-provision of existing surgical capacity, with no additional service revenue required.

As detailed above, the resulting facilities cost pressure will be managed by the Health Board through the IMTP process in the period leading up to the opening of the new facilities.

5.5.1 Assumptions That Underpin Affordability

- Funding is anticipated from WG for additional recurrent capital charges and non-recurrent impairment based on actuals
- It is assumed that there will not be any transition or decant costs

5.6 Project Bank Account

The Health Board is familiar with 'WPPN 03/21: Project bank accounts policy' and can confirm that a Project Bank Account will be prepared at the appropriate stage. This is an 'appropriate contract' with thresholds exceeding the Welsh Government's criteria in respect of sub -contracting, duration and value for the mandatory use of Project Bank Accounts.

Management Case

6.0 THE MANAGEMENT CASE

6.1 Introduction

This section of the OBC addresses the "achievability" of the scheme and identifies how the project will be managed from its initiation to completion. Its purpose is to describe the arrangements that will be required to effectively govern and successfully manage the project and deliver it in accordance with best practice.

This section has been drafted based upon the lessons learnt from previous projects, incorporating proven arrangements, structures and processes to ensure the successful delivery of the project.

6.2 Project Management Arrangements

Robust project management arrangements are vital to ensure the implementation of the overall project and that effective control is maintained over the capital scheme.

For the Health Board to successfully deliver this project, it is vital that the following overall approach is taken for the organisation and management of the project:

- The Health Board will adopt the general principles of PRINCE 2 methodology in managing the activities and outputs of the project and will meet the requirements of the WHC (2018): 012; Infrastructure Investment Guidance; and subsequent guidance which may be issued during the projects' lifespan
- The project will use NHS Wales standard documentation and products where these are available, and will seek to benefit from experience and best practice from other NHS Wales projects
- Specialist professional and technical advisers will be employed for those activities where the necessary skills and experience are not otherwise available to the project team. The transfer of skills and knowledge from specialist advisers to the project team will be achieved wherever possible and appropriate

In managing the project, the Health Board aims to:

- Deliver the project on time and to budget
- Ensure effective and proactive lines of accountability and responsibility for the project deliverables, and
- Establish user involvement at all stages of the project

6.2.1 Project Reporting Structure

The reporting organisation and the reporting structure for the whole of the project is shown as follows:

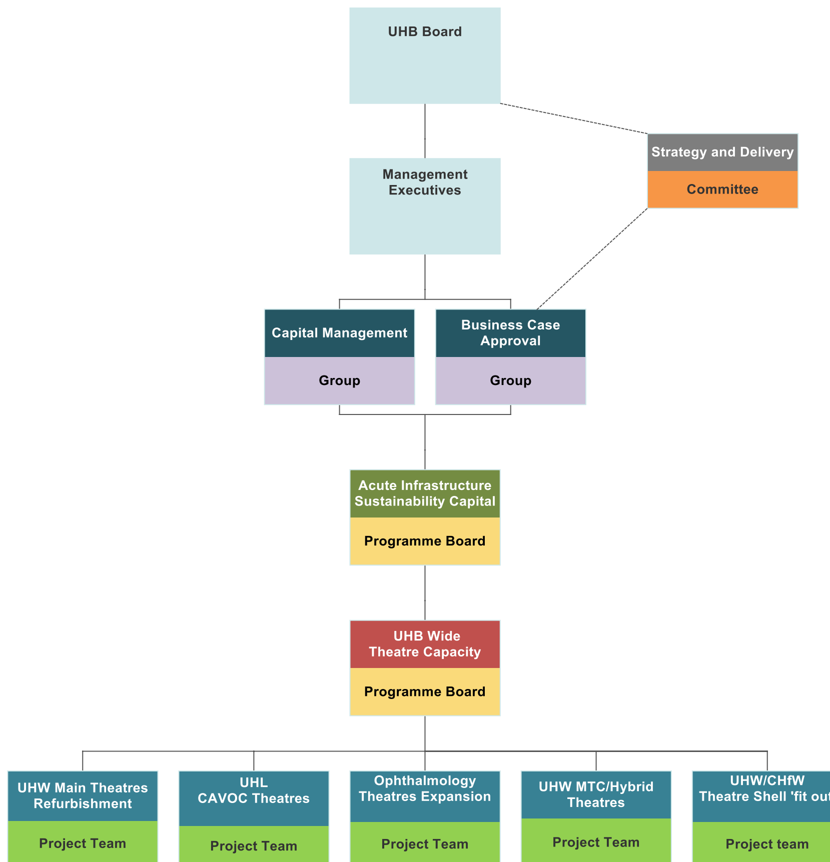

Figure 11: Project Reporting Structure

6.2.2 Project Roles and Responsibilities

The project roles and responsibilities are as follows:

6.2.2.1 Investment Decision Maker

In line with the NHS Wales Infrastructure Investment Guidance, it is recognised that there must be clarity on decision making authority and management arrangements.

The Investment Decision Maker is the Cardiff and Vale UHB Board. Their role is to:

- Ensure a viable and affordable business case exists and remains valid during the planning process
- Ensures that the appropriate level of business case is developed for submission to Welsh Government
- Maintain commitment to the project
- Authorise allocation of funds to the project
- Oversee project performance
- Ensure resolution of issues

6.2.2.2 Senior Responsible Owner

The Senior Responsible Owner (SRO) of this project is the Executive Director of Strategy and Planning, Abigail Harris. The SRO will monitor the development and progress of the programme and project at Executive Board level and will exercise executive responsibility for the capital aspects of the scheme including compliance with Financial Instructions and Standing Orders; will be responsible for responding to internal and external audit scrutiny and ensuring the appropriate interim reports are made to the Capital and Estates Division of Welsh Government in line with existing directives.

6.2.2.3 Project Director

The Director of Capital, Estates and Facilities, Geoff Walsh, will fulfil the role of Project Director for the project. The Project Director will have ultimate responsibility for the project and will ensure the project is focused, throughout its lifecycle on achieving the objectives and delivering the projected benefits. The Project Director will ensure that the project provides value for money and will act as the point of contact in all dealings with contractors, consultants and outside organisations involved in the construction process.

6.2.2.4 Project Board

The Acute Infrastructure and Sustainability Programme Board will act as the Project Board, the Terms of Reference are included within Appendix 7.

The Project Board will support the delivery of the project through:

- Ensuring that the project scope remains consistent with the strategic programme
- Providing formal approval at key stages to the project both in terms of business case development and formal submission to Welsh Government
- Providing the formal authority for committing resources to the project
- Ensuring that the scheme delivers appropriate value for money
- To provide regular reports on Programme Performance to Capital Management Group

The table below shows the membership of the Project Board:

Name	Position	Role
Abigail Harris	Director of Strategy & Planning	Chair
Geoff Walsh	Director of Capital Estates and Facilities	Vice Chair
Marie Davies	Deputy Director of Planning, Strategic and Service Planning	Member
Mike Bond	Director of Operations, Surgery Clinical Board	Member
Matthew Tenby	Director of Operations, CD&T	Member
Iain Hardcastle	Interim Director of Operations, Medicine Clinical Board	Member
Sarah Lloyd	Interim Director of Operations, Specialist Clinical Board	Member
Jason Roberts	Deputy Director of Nursing	Member
Sandeep Hemmadi	Clinical Board Director, CD&T	Member
Guy Blackshaw	Clinical Board Director, Specialist Clinical Board	Member
Adam Wright	Head of Service Planning	Member
Steve Hill	Head of Finance, Surgery Clinical Board	Member
Hywel Pullen	Deputy Director of Finance	Member
David Thomas	Director of Digital & Health Intelligence	Member

Table 27: Project Board Membership

6.2.2.5 Project Team

The Terms of Reference for the Project Team are included within Appendix 8.

The Project Team will support the delivery of the project through:

- Taking actions to ensure all stages of the project are achieved within the identified timescales, reviewing progress on a regular basis
- Ensuring plans being developed fit within both the Capital Programme of the Health Board and the wider strategic service planning framework
- Developing and regularly reviewing the Project Risks Register and ensuring appropriate mitigation plans are developed
- Developing, agreeing and monitoring budgeting arrangements for project delivery
- Identifying and developing appropriate capital and revenue financing arrangements for the project ensuring both affordability and sustainability
- Every team member will have equal responsibility for identifying, at the earliest opportunity any major factors, risks or variances arising during the course of the project that may impact upon project delivery

The table below shows the membership of the Project Team:

Name	Position	Role
Geoff Walsh	Director of Capital Estates and Facilities	Chair
Owen Rees	Head of Capital Planning	Member
Abigail Richards	Capital Planning Officer	Member
Claire Landells	Interim Theatre Manager	Member
Kris Prosser	Finance Representative	Member
Sivagnanam Karthikeyan	Deputy CD Perioperative Care UHL	Member
Abraham Theron	Lead Anaesthetist UHL	Member
Helen Luton	Lead Nurse for T&O	Member
Alun John	Consultant Orthopaedic Surgeon	Member
Ceri Chinn	Interim General Manager Peri-Op Care (Service Lead)	Member
Jane McMahon	Healthcare Planner, Adcuris	Member

Table 28: Project Team Membership

6.2.2.6 Other Roles

The development of this project will be supported by a range of corporate departments from within the Health Board including:

- Capital Planning
- Finance
- Strategic Clinical Engagement
- Workforce
- IM&T

6.2.3 Project Plan

The dates detailed below highlight the proposed key milestones of the project:

Milestone Activity	Date
FBC submission to WG	May 2024
Commence construction	June 2024
Construction completion	April 2028
Facility operational	May 2028

Table 29: Project Plan

6.3 Use of Specialist Advisors

Specialist advisors have been used in a timely and cost-effective manner in accordance with the Treasury Guidance: Use of Special Advisors:

Specialist Area	Adviser
Project Manager	Gleeds
Architects	AHR
Business Case Development	Adcuris
Cost Consultancy	Gleeds

Table 30: Specialist Advisors

6.4 Outline Arrangements for Change and Contract Management

The replacement of theatres 5 and 6 will be implemented in a systematic way that causes the least disruption to services. This project centres around a direct replacement of the two theatres which are no longer fit for purpose and as such there are no planned changes to the operational procedures and it has been agreed, therefore, that there is no requirement for specific change management procedures to be in place for this project.

6.5 Communication and Engagement Plan

Effective communications, consultation and engagement is central and critical to the successful delivery of the project. The Health Board has a duty to involve people in the planning and delivery of health services and significant service developments.

The Health Board's philosophy around communication is simplicity, quality and consistency. All messages should be clear and easy to understand – tailored for their specific audiences; compliant with corporate guidelines; and in keeping with the Health Board's strategic aims.

The objectives of the Health Board's communication strategy are:

- Effectively communicate the rationale for the redevelopment through a range of tested channels to inform internal and external stakeholders, keep them up to date with progress and gain their views
- Foster ongoing good relationships with the local communities around the hospital and with the media, promoting positive media coverage
- Manage all publicity regarding the redevelopment project and ensure that accurate information is consistently available
- Engage staff positively in the changes so that new ways of working are endorsed and staff understand and support the redevelopment
- Evaluate the effectiveness of internal and external communications and engagement to ensure messages are understood and acted upon and engagement is positive

The Project Team is to be used as the mechanism to communicate project progress to stakeholders, including patients and other stakeholders and interested parties.

- Project records will be maintained at the Health Board's central project office, in accordance with a defined records management system
- Project records will be maintained in line with good audit practice and the filing structure determined and communicated via the Project Team
- Notes will be taken at all meetings, to ensure the task focus of the project, prior to closure of meetings an action list will be agreed and then circulated

6.5.1 Internal

- All members of the project groups will have individual responsibilities for cascading project information through their respective service functions
- The Project Director will be responsible for producing ad hoc reports to the UHB Board

6.5.2 External

Due to the nature of this project external stakeholder engagement and communication is not required.

6.6 Outline Arrangements for Benefits Realisation

Benefits are anticipated when a change is conceived and there are measurable improvements that result from the outcome which is perceived as an advantage by the organisation and/or stakeholders. Benefit management and realisation therefore aims to identify, define, track, realise and optimise benefits within and beyond the programme. A benefits realisation plan has been established during the development of this OBC that provides a framework for this aim and is overseen by the Project Board.

The plan outlines the key objectives, benefits and measures, which will be used to evaluate the project, it also shows who has the accountability for its realisation. This is in order that a meaningful assessment can be made of the benefits yielded by the project and to benchmark the assessment criteria themselves so that lessons learned can be fed back into future projects. It ensures that the project is designed and managed in the right way to deliver quality and value benefits to patients, staff and local communities. Timescales for the achievement of these benefits have been identified and included in the plan.

A copy of the Project Benefits Realisation Plan is attached at Appendix 9.

6.7 Outline Arrangements for Risk Management

6.7.1 Risk Register

A structured risk management process will be adopted. It has four main stages:

- Identification - to determine what could go wrong in order to identify the risks
- Classification - to determine the likelihood of occurrence of the risk and impact on the project

- Assessment - to understand and possibly quantify the impact on the project
- Action - to identify countermeasures for dealing with unacceptable risk levels and institute monitoring and control mechanisms, identifying means of avoiding, containing, reducing and transferring risk

The risk management strategy has been integrated into the project management procedures, with responsibility for implementation of the strategy resting with the Project Director. The key risks of the preferred option have been assessed and strategies for managing them outlined. An initial risk register has been developed for the preferred option which includes all risks identified to date. The methodology used is in accordance with the Health Board's governance structure for managing risk, and it details who is responsible for the management of risks and the required counter measures, as required. This risk register will be constantly updated during the life of the project, and counter measures identified and applied as required.

The current risk register for the preferred option is attached at Appendix 10.

A separate capital / construction risk register has also been prepared and is included in the Estates Annex.

6.8 Equality and Health Impact Assessment

In line with the Health Board's ethos and philosophy, an Equality and Health Impact Assessment (EHIA) of the business case has been completed which will inform key stages in the programme development to ensure that the proposals promote equality and positive health outcomes for all. A copy of the equality and health impact assessment is attached at Appendix 11.

6.9 Outline Arrangements for Post Project Evaluation

The Health Board is committed to ensuring that a thorough and robust post-project evaluation (PPE) is undertaken at key stages in the process to ensure that positive lessons can be learnt from the project. The lessons learnt will be of benefit to:

- Cardiff and Vale University Health Board – in using this knowledge for future projects including capital schemes
- Other key local stakeholders – to inform their approaches to future major projects
- The NHS more widely – to test whether the policies and procedures which have been used in this procurement are effective

Post Project Evaluation (PPE) is a part of the total quality process and the Health Board acknowledges its contribution towards a successful outcome in terms of:

- Greater assurance of total performance in terms of cost, time and quality
- Clearer definitions of responsibilities
- Reduced exposure to risk, and
- Improved value for money

The Health Board has identified a robust plan for undertaking PPE in line with current guidance, which is fully embedded in the project management arrangements of the project. All processes will be managed by the project team and endorsed by the appropriate boards.

The outline arrangements for post implementation review and project evaluation review have been established in accordance with best practice and are as follows:

6.9.1 Post Implementation Review (PIR)

An evaluation covering a wider range of project evaluation criteria and benefits will be undertaken after a suitable bedding - in period after the construction phase has been completed. It is anticipated that this will take place circa 6 to 12 months following completion of construction works.

6.9.2 Project Evaluation Reviews (PERs)

Further post project evaluations will take place at a later stage, to assess the longer-term outcomes of the project, when the full effects have arisen.

6.10 Gateway Review Arrangements

Gateway Reviews undertaken across the health service have identified a range of common deficiencies within projects. These key areas have been reviewed under this project to ensure they were being managed as follows:

- Risk – A clearly structured risk management process has been put in place with regular review of the project risk register
- Roles and Responsibilities – A clear project structure exists for the management of this project with the Senior Responsible Officer and Project Director identified
- Skills and Resource – The Health Board is experienced and well-resourced and is supported by legal, financial and technical specialists
- Business Case - The need for a robust Business Case was identified at an early stage and has in part driven the project development
- Planning – A programme was developed early in the scheme development and has been a strong management tool in moving the project forward
- Stakeholder Issues – Stakeholder management has been a key focus in the projects development as it integrates various organisations
- Benefits – A clear benefits realisation plan has been developed and is embedded in the project processes
- Financial Issues – Finances have been robustly managed as the project has developed to ensure the project is affordable and value for money

The impact of the project has been scored against the risk potential assessment (RPA) model. A copy of the RPA stage 1 form is attached as Appendix 12.

6.11 Audit and Assurance

Infrastructure Investment Guidance (2018) requires that all business cases include an Integrated Assurance and Approval Plan. This plan includes clarity on the role of the Audit &

Assurance Team in this project / programme. A copy of the audit and assurance plans is attached as Appendix 13.

6.12 Contingency Plans

Due to the poor condition of the existing theatre plant and ducts and the ongoing issues described within the strategic case section of this OBC the Health Board has no contingency plans other than to discontinue surgical services at UHL and the consequential loss of income and disruption to patients that this would inevitably cause. It is therefore recommended that WG approve this OBC and provide funding to enable the Health Board to develop the FBC for this project.

7.0 RECOMMENDATION

This scheme represents an excellent opportunity to provide integrated theatre infrastructure which is functionally compliant, fit for purpose to deliver local and - if required - regional orthopaedics surgical services. It will enable the full range of appropriate orthopaedic surgery to be provided on a safe and sustainable basis and will bring the UHB's elective orthopaedics infrastructure capacity back to previous levels providing the opportunity to restore the balance in local demand and capacity. Without this scheme, the waiting list back log will continue to grow.

It is recommended that subject to Welsh Government approval, the Cardiff and Vale University Health Board approve this Outline Business Case to enable full contracts with the Supply Chain Partner to be entered and further development of this project to progress to Full Business Case stage.