



THE FUTURE OF HOSPITAL SERVICES IN WEST HERTFORDSHIRE

STRATEGIC OUTLINE CASE

July 2019



West Hertfordshire
Hospitals
NHS Trust

DOCUMENT CONTROL

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Executive Summary

This is a summary of the Strategic Outline Case for the redevelopment of the hospital estate operated by West Hertfordshire Hospitals NHS Trust (WHHT).

It describes WHHT's plans to address the significant challenges the Trust faces in trying to deliver 21st century healthcare, with constrained finances and from buildings that are no longer fit for purpose.

The Trust has a long-awaited opportunity to redevelop hospital services, a track record that demonstrates capability to deliver and a clear proposal which provides the basis for delivering safe, sustainable services.

Case for change

West Hertfordshire Hospitals NHS Trust (WHHT) provides a comprehensive range of acute hospital services, operating across three sites - Watford General Hospital (WGH), St Albans City Hospital (SACH) and Hemel Hempstead General Hospital (HHGH). WHHT has made significant improvements since 2016 – moving out of special measures and improving its financial baseline.

However, WHHT faces some significant challenges - the age, dated design and poor condition of its buildings is having a detrimental impact on the delivery of safe, effective, responsive and efficient care. It is also limiting the Trust's ability to implement new care models and digital technology aimed at transforming the service patients receive and improving WHHT's operational performance and financial position.

WHHT buildings are old and no longer 'fit for purpose'

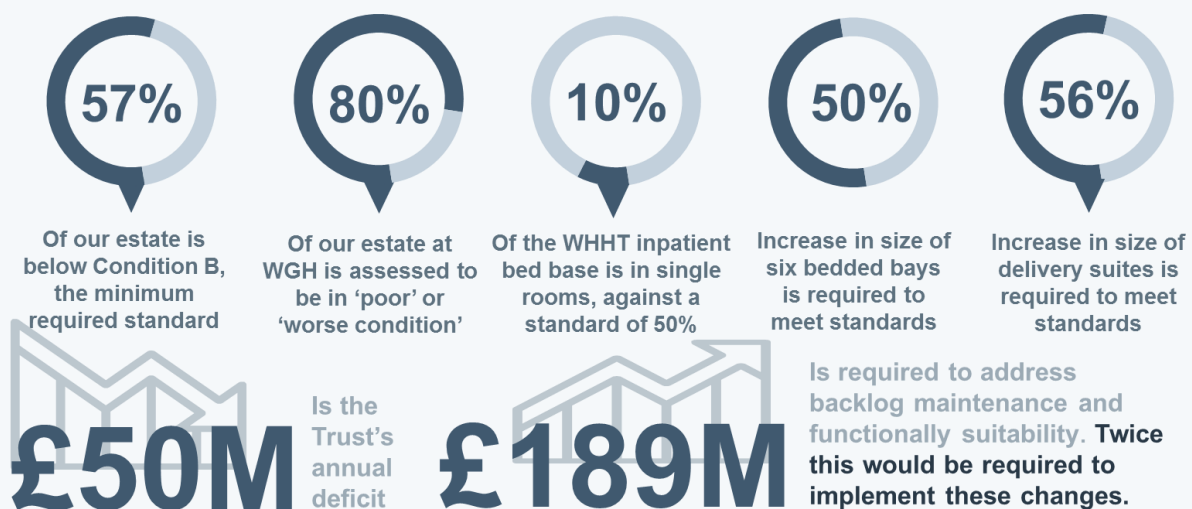
The age, layout and condition of WHHT's current estate does not enable clinicians to deliver healthcare to the standards they want and that patients expect and deserve.

The latest comprehensive estate survey report (called a Six Facet Survey) from September 2018, confirms what WHHT and patients have been experiencing for years now. This is summarised in Figure 1 below.

It confirms that 57% of the Trust estate – and 80% of the WGH estate - is below Condition B, which is considered to be the minimum acceptable condition. £189m would be needed in construction costs alone to eliminate backlog maintenance and improve the functional suitability of WHHT's existing buildings – with most of this needing to be invested at WGH. Almost double this would be needed overall once fees, VAT, business continuity and risk are included.

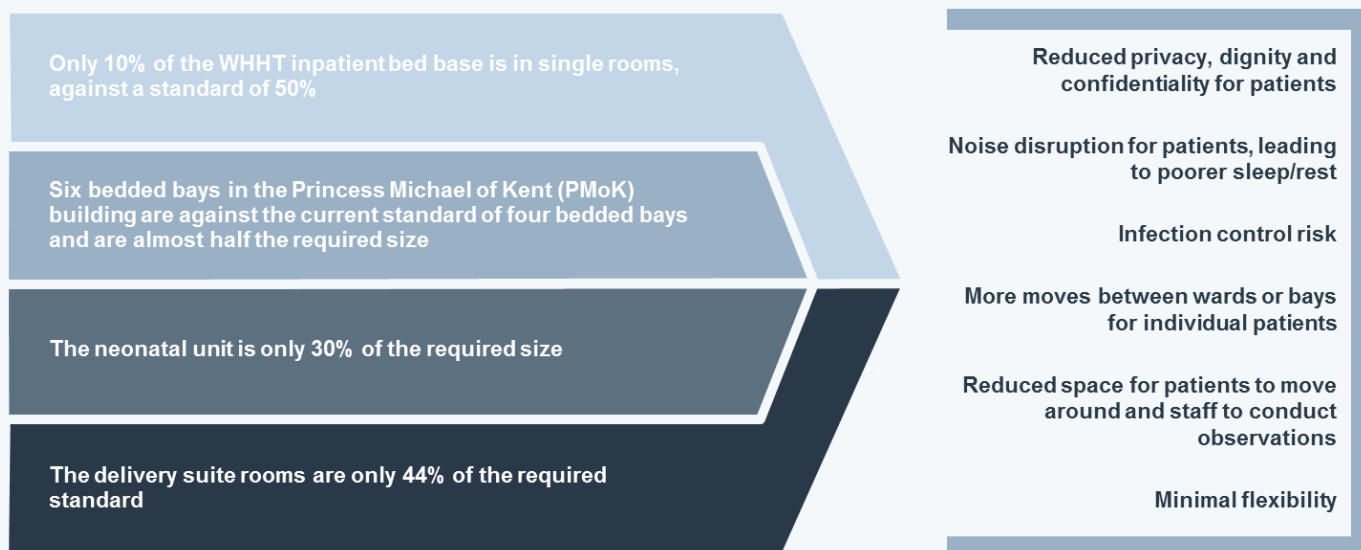
Without significant capital investment there is a very high risk of failure of critical estate infrastructure and consequent impact on service delivery.

Figure 1: Summary of WHHT's estates challenges



The design of the buildings means infection control management is more challenging and beds are too close together to support good care and promote privacy and dignity. Poor design of clinical areas also drives inefficient practice. Difficulty co-locating services together when required, means that patients often have to be transferred long distances, sometimes outside, from one department to another. Figure 2 below summarises examples of poor functional suitability and its impact.

Figure 2: Summary of functional suitability issues at WHHT and their impact



The poor condition of the estate has resulted in a significant risk to business continuity. In one month alone, the Trust experienced several incidents as summarised in Figure 3 below.

Figure 3: Summary of incidents at WHHT due to issues with the estates and infrastructure



By investing in new and heavily refurbished buildings, this would significantly reduce backlog maintenance requirements and avoid the need to spend huge amounts of money on fixing buildings that are no longer fit for purpose.

“WE ARE CURRENTLY SPENDING MONEY TO ENSURE STATUTORY COMPLIANCE AND TO MITIGATE AREAS OF HIGHEST RISK. BACKLOG MAINTENANCE LIABILITY HAS CONTINUED TO GROW.

THE VERY REAL ISSUES OF REDUCING THIS BACKLOG AND THE FUNCTIONAL SUITABILITY OF OUR BUILDINGS ARE NOT BEING ADDRESSED. IF NOTHING IS DONE, THE COST OF MAINTAINING THE ESTATE WILL CONTINUE TO GROW AT AN INCREASING RATE WITHOUT ANY REAL IMPROVEMENT IN CONDITION.”

Patrick Hennessey, Director of Environment, WHHT

WHHT clinical services and teams are fragmented and patient pathways disjointed

The way that WHHT’s hospital services are organised across multiple sites means that some services are not able to achieve the required performance standards; clinical teams are fragmented, and staff spread too thinly; patients are being transferred unnecessarily to get the care they need; and operationally, additional costs of duplication are being incurred.

West Hertfordshire has a large enough population to support a full range of acute general hospital services but splitting and duplicating these services over three sites in their current configuration is increasingly difficult to maintain without compromising the quality, efficiency and safety of services.

“FASTER TREATMENT TARGETS FOR CANCER PATIENTS MEAN WE NEED TO SIMPLIFY PATHWAYS FOR PATIENTS AND THE CLINICAL TEAMS LOOKING AFTER THEM.”

Freddie Banks, Consultant Urologist and Associate Medical Director for Strategy

WHHT financial overspend is growing every year

The Trust is currently spending c.£50m more annually than it receives in funding; this is almost £1m each week. This position has been progressively deteriorating since 2014, with the annual deficit worsening from £11m to £50m in 2018. Underlying factors for this include:

- Increasing investments in the clinical workforce
- The cost of maintaining the estate
- Reduced opportunities for efficiencies within existing operating and clinical models
- Infrastructure limitations and degradations
- Additional costs to accommodate high numbers of patients delayed in their transfer of care who are medically fit to leave hospital but require beds while arrangements are put in place

WHHT’s estate must be redeveloped to enable maintenance costs to be reduced, operational efficiencies to be achieved and ensure the required capacity is in place to meet the demand.

“WE SPEND SIGNIFICANTLY MORE MONEY ON KEEPING OUR BUILDINGS SAFE COMPARED TO A MODERN FACILITY. THIS IS MONEY WHICH WE WANT TO SPEND ON PATIENT CARE.”

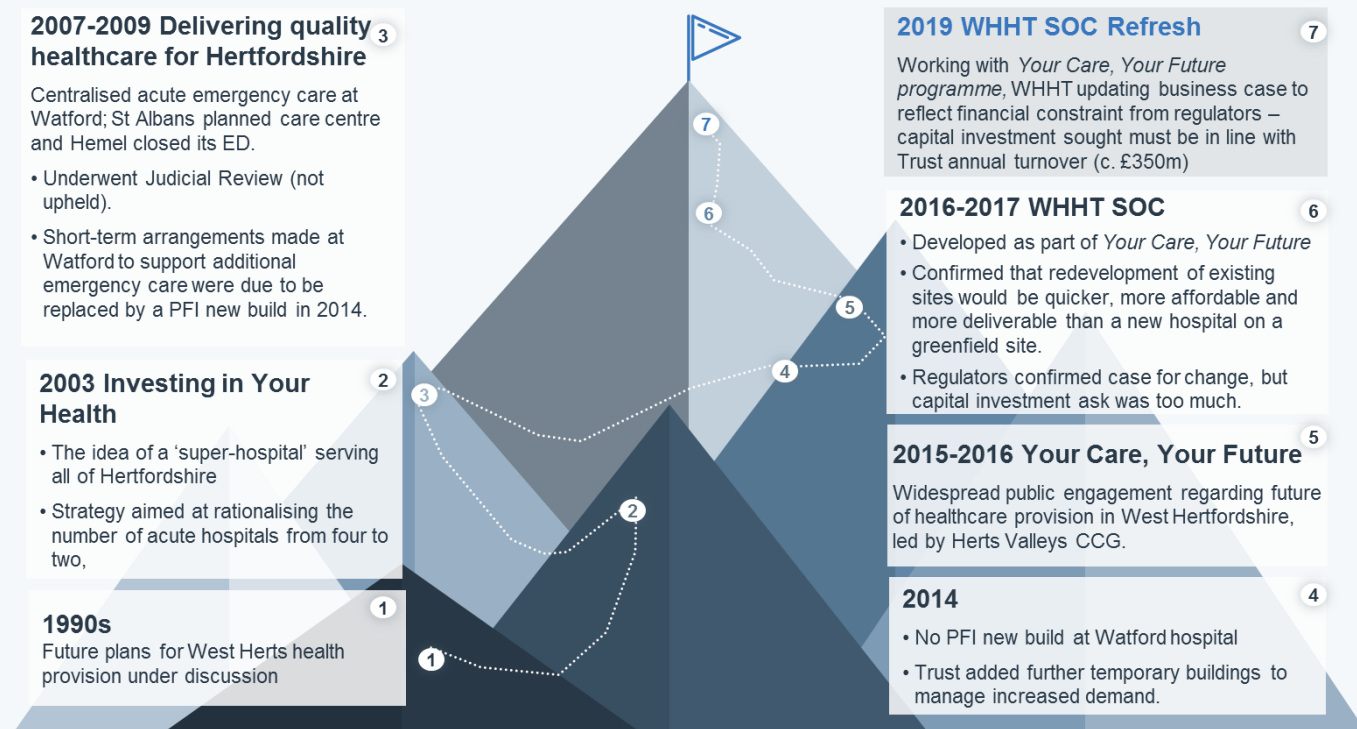
Don Richards, Chief Financial Officer

WHHT’s journey so far

The need to improve the hospital estate in west Hertfordshire is longstanding and has been acknowledged for many years, as illustrated in Figure 4.

It has taken over a decade to get to this point, longer than anticipated; during this time the condition of the Trust’s buildings has further deteriorated, and services have also become more fragile as WHHT’s ability to deliver new models of care has been constrained. Without significant capital investment there is a very high risk of failure of critical estate infrastructure leading to an impact on services for patients.

Figure 4: Summary of journey for WHHT hospital redevelopment



Objectives

To address these challenges, a set of objectives have been agreed by the Trust Board:



This Strategic Outline Case (SOC) explores options for redeveloping WHHT’s hospital estate to meet these objectives. However, the funding constraint set by regulators – that any request for capital investment is no greater than the WHHT’s annual turnover (c£350m) – means that affordability is the main criterion for evaluating the longlist of options for the future of WHHT’s hospitals.

Within this funding constraint, it is simply not possible to explore full new build options that meet all of the Trust’s objectives and fully transform hospital services in west Hertfordshire. This document explores solutions that address the most pressing issues with WHHT’s estate and configuration of services, deliver significant benefits for patients and NHS staff in west Hertfordshire and provide flexibility to enable system wide transformation.

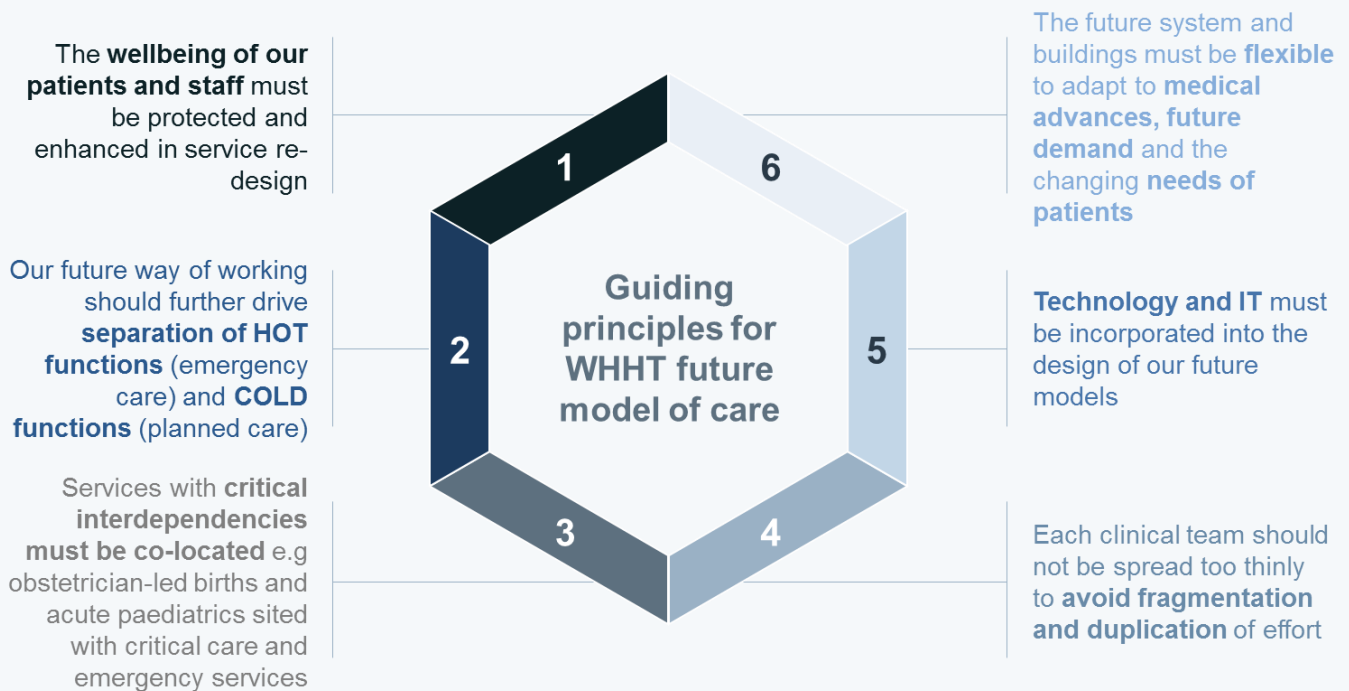
Clinical model

The proposed future model of hospital services will support and enable delivery of the vision and ambitions described in the NHS Long Term Plan that was published in January 2019, as well as plans set out by the Hertfordshire and West Essex STP, *A Healthier Future* and Herts Valleys CCG, *Your Care, Your Future* programme which aim to deliver as much care as possible closer to home to meet the needs of the local population, deliver commissioners' requirements and improve the quality of care provided.

WHHT clinicians developed a set of guiding principles for the design of future hospital services in west Hertfordshire. These are summarised in

Figure 5. Digital technology will have a central role in transforming services supporting more people to have care at, or closer to, home. This will be complemented by a hospital model that is provided from modern buildings that provide essential clinical adjacencies and overall layout of space required to ensure quality and deliver revenue savings.

Figure 5: Guiding principles for future design of hospital services in west Hertfordshire



Options considered

An options framework approach has been used to identify the longlist of potential options for the future of hospital services in west Hertfordshire. This considered available options within two main categories of choice: site configuration (i.e. number of hospital sites) and the potential locations of those sites.

Analysis of the longlist made clear that emergency care for west Hertfordshire must be located at WGH. Any movement of emergency services (with or without planned care) to a greenfield site would require an investment that is unaffordable due to the amount of new build that would be required and significant transition costs.

The evaluation of the shortlist of options therefore focused on:

For emergency care ('HOT' services):

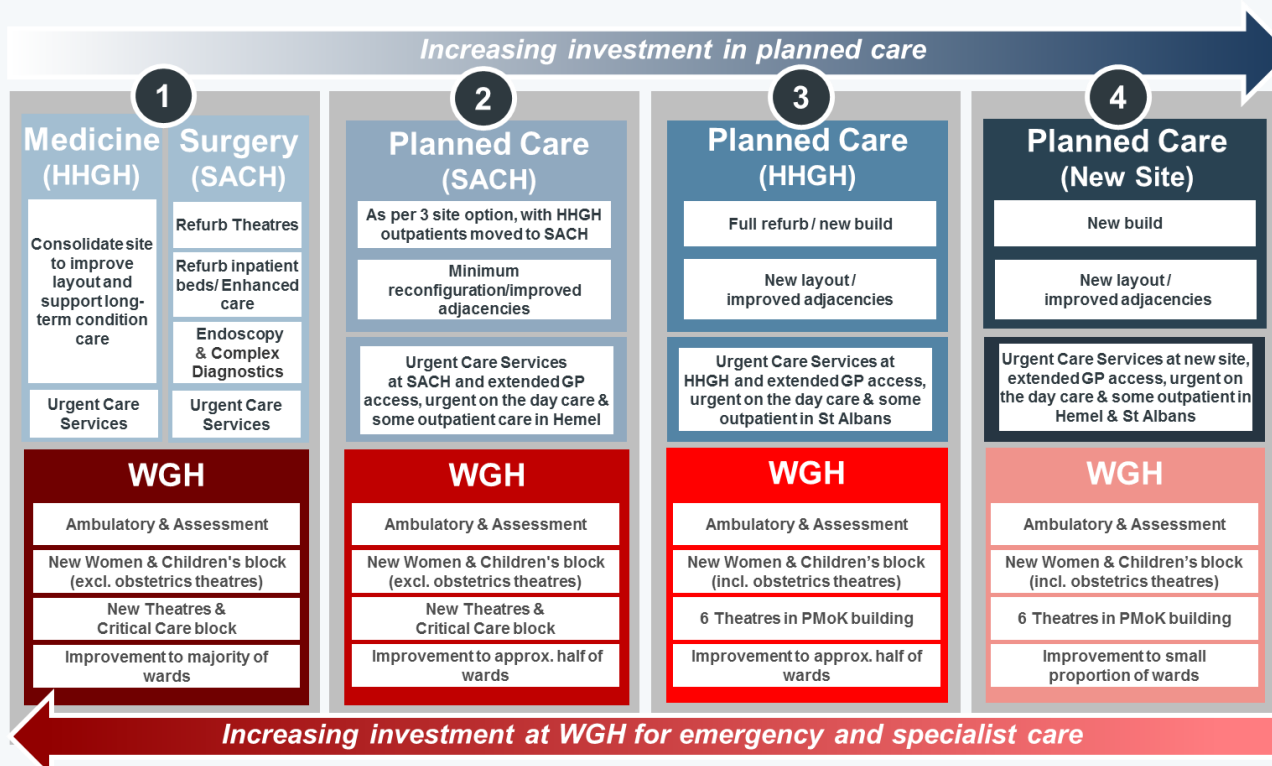
- The amount of investment to be used to improve facilities at WGH

For planned care ('COLD' services):

- The location/s from which services are provided *and* amount of investment possible
- The location/s may include SACH *and/or* HHGH or a brand new planned care centre at a new location

The resulting shortlist of options is shown in Figure 6. These options highlight a trade-off between investment in emergency and specialist care versus investment in planned care. However, they also consider trade-offs between the extent of consolidation of services across all sites versus consolidation of hospitals onto fewer sites and the extent of new building versus refurbishment of existing buildings that can be achieved within the affordable funding envelope.

Figure 6: Summary of shortlist of options



The qualitative and quantitative appraisal of the shortlist aimed to capture the overall impact of each option in terms of its ability to deliver the non-financial and financial benefits, with an emphasis on the impact new/refurbished buildings have for ways of working, clinical outcomes, patient experience and operational performance. The capital costs associated with each option and the revenue impact are also identified.

Option 1 - prioritising investment at WGH – performed best in the qualitative benefits appraisal, whereas Option 4 – prioritising investment in a new planned care centre – performed best in the quantitative economic appraisal, but the results are relatively close, demonstrating benefits both in improving emergency care and from consolidating planned care.

Stakeholder engagement

This SOC builds on significant public, stakeholder and clinical engagement as part of the *Your Care, Your Future* programme and the original SOC in 2015/16. In developing this SOC, WHHT have engaged with the public; primary and secondary care clinicians; system and regional leads for NHSI, NHSE and the STP; Health & Wellbeing Boards; Joint Health Scrutiny and Local Authorities.

While discussions to this point have evolved, the emphasis on the need to maximise investment in emergency care services at WGH remains. There are views from the public and stakeholders that differ. For example, there are groups who continue to campaign for a new build emergency and planned care hospital on a new site, despite this being ruled out at longlist stage due to exceeding the affordability threshold. There are some who express concerns about the suitability of WGH for redevelopment, given the poor state of repair. WHHT staff and clinicians share the concerns about the current state of the hospital buildings at WGH – it is one of the key drivers for change. However, throughout a long period of engagement with clinicians and staff in the development of the clinical model and design of the options, there is now a real sense that a failure or further delay in securing major investment, will seriously compromise the Trust's ability to provide the quality of care that patients deserve, from buildings that are fit for the delivery of modern healthcare. A very good solution can be delivered on the current WGH site, with planned care improvements also made at both SACH and HHGH. Ultimately patient safety will be put at risk if investment is not secured to the fastest possible timeline. There is now a real sense of optimism amongst staff to progress plans to develop the current hospital sites as set out in Option 1.

The scores from the stakeholder panel qualitative benefits appraisal reflect this view from staff and clinicians at the Trust. They scored Option 1 - prioritising investment at WGH - as having the greatest beneficial impact overall. While the differential between scores for options was not large, latest engagement with staff and clinicians from the Trust and HVCCG suggests support for Option 1 has grown as more detail has been developed about how WGH could look and feel like a new hospital.

WHHT's preferred way forward

In determining the preferred way forward, the Trust considered the outputs from the shortlist appraisal, the case for change, the objectives, the clinical model and feedback from stakeholders and the public.

Recognising the funding constraints, WHHT recommends that investment be prioritised for the areas of greatest need. WGH is the priority for investment as this is where the:

- greatest volume of patients from across the whole of west Hertfordshire with the most complex and urgent needs are treated
- most critical estates work is required to improve the overall working environment and delivery and quality of care for patients, through increased ward sizes, a better layout and improved clinical adjacencies.

These priorities are summarised in terms of their alignment to WHHT's objectives in the Table 1 below.

Table 1 : Alignment between WHHT objectives and priorities for this redevelopment programme

Objective	Priority for the redevelopment
<p>Providing healthcare from fit for purpose buildings</p> <p>We need to invest to ensure care is delivered from buildings that are fit for purpose in a way that supports our wider aims for the future of healthcare and meets expected future demand</p>	<ul style="list-style-type: none"> • Maximising new buildings and refurbishment where there are the greatest issues with functional suitability and backlog maintenance and where there is the greatest opportunity to improve the overall delivery and quality of care, through increased ward sizes, a better layout, improved clinical adjacencies and new theatres.
<p>Improving clinical sustainability</p> <p>We need to change the way acute hospital services are delivered to meet the standards we expect, by enhancing separation of emergency and planned care services and consolidating services across locations where possible</p>	<ul style="list-style-type: none"> • Focusing on improving care for the greatest volume and the sickest and most at risk patients. • Ensuring suitable adjacencies and access to diagnostics • Reducing fragmentation, with the aim of specialist clinical teams working across a maximum of two sites to improve team working, generate efficiencies and streamline patients' pathways.
<p>Achieving long-term financial stability</p> <p>We need to develop services in a way that is affordable to commissioners, to funders and to the Trust on both a capital and revenue basis, as quickly as possible</p>	<ul style="list-style-type: none"> • Focusing spend on new buildings and modern facilities for the future, as opposed to continuing to invest short term in managing estate that is ultimately substandard. • Targeting investment to support operational efficiency as well as estates improvement

Building a new ambulatory and assessment area, theatre and critical care block and women and children's unit, and completely refurbishing the majority of wards will significantly reduce current issues relating to the quality of the estate and ensure that it is purpose-built in line with NHS standards. The risk of critical infrastructure failure adversely impacting upon service capacity and continuity will lessen and costly emergency backlog maintenance for the re-provided areas should dramatically decrease. Most importantly, clinical pathways will be improved by ensuring that clinical adjacencies are appropriate, clinical oversight is increased and there is a safe, attractive environment conducive to clinical excellence and enhanced patient and carer experience.

Figure 7 below provides an architect's impression of what WGH could look like.

Figure 7: Architecture images for what WGH could look like following redevelopment



While maximising investment at WGH reduces the amount of investment in planned care at HHGH and SACH, the Trust can still address issues with fragmentation by aiming to ensure specialist clinical teams work across a maximum of two sites to improve team working, generate efficiencies and wherever possible, streamline patients' pathways. However, full consolidation of planned care onto one site (as set out in Options 3 and 4) cannot be prioritised above critical estate works.

The Trust therefore recommends that Option 1, which involves prioritising investment at WGH, while also investing in planned care services across all three hospital sites, should be the preferred way forward and developed to the next stage: Outline Business Case (OBC), to the fastest possible timeline.

“WHERE CURRENTLY NURSES ARE WORKING IN CRAMPED WARDS AND CRUMBLING FACILITIES, THEY WILL GET THE OPPORTUNITY TO COME TO WORK EVERY DAY IN MODERN, BRIGHT AND SPACIOUS SURROUNDINGS.

THIS WILL IMPROVE STAFF PERFORMANCE; ENHANCE PATIENTS' SAFETY, PRIVACY AND RATE OF RECOVERY; AND MINIMISE THE RISK OF CROSS-INFECTION”

Tracey Carter, Chief Nurse

“NEW THEATRES WILL HAVE SURGICAL FACILITIES THAT ARE NOT ONLY FUNCTIONAL BUT HAVE SUFFICIENT FLEXIBILITY TO ADAPT TO THE CHANGES AND RAPID DEVELOPMENTS IN SURGICAL TECHNOLOGY THAT WILL, WITHOUT DOUBT, CONTINUE APACE.

THE WORKING ENVIRONMENT FOR STAFF WILL DRASTICALLY IMPROVE, TREATMENT FOR PATIENTS WILL BE FASTER, CANCELLATIONS REDUCED, AND IT WILL HELP ATTRACT MORE HIGH-QUALITY STAFF TO COME AND WORK HERE”

Jeremy Livingstone, Divisional Director for Surgery, Anaesthetics and Cancer

“FANTASTIC NEW WOMEN’S AND CHILDREN’S BUILDING WILL SEE MOTHERS GIVING BIRTH IN A WONDERFUL, WARM AND CARING ENVIRONMENT. IT WILL ALSO BE A GREAT PLACE FOR STAFF TO WORK AND FOR WOMEN AND THEIR PARTNERS TO COME AND SHARE THE JOY OF BIRTHING.”

Colette Mannion, Director of Midwifery and Gynaecology

“PATIENTS REFERRED FOR CANCER DIAGNOSTIC SERVICES AT SACH WILL HAVE IMMEDIATE ACCESS TO ALL INVESTIGATIONS ON A SINGLE SITE.

SEVERAL OF OUR CLINICS WILL BE ONE-STOP, MEANING ALL INVESTIGATIONS CAN BE CONDUCTED DURING JUST ONE VISIT. THIS WILL RESULT IN MUCH EASIER AND FASTER PATHWAYS- BETTER FOR PATIENTS AND BETTER FOR STAFF.”

Freddie Banks, Consultant Urologist and Associate Medical Director for Strategy

“WE WANT TO IMPROVE THE EXPERIENCE FOR PATIENTS AT HEMEL HEMPSTEAD. WITH THE INVESTMENT PLANNED WE WILL BE ABLE TO SIGNIFICANTLY IMPROVE THE LAYOUT OF THE HOSPITAL TO SUPPORT A MUCH MORE CONVENIENT FLOW FOR PATIENTS. AS A RESULT, WE EXPECT TO SAVE MONEY ON BUILDING MAINTENANCE AND FREE UP LAND TO SUPPORT LOCAL COUNCIL DEVELOPMENT AMBITIONS.”

Don Richards, Chief Financial Officer

The capital costs for this option are within the capital expenditure limit set for the Trust. At the SOC stage this preferred way forward demonstrates value for money by significantly improving the net annual revenue savings for WHHT, such that the Trust can expect to materially break even within the period of its next Medium Financial Sustainability Plan (MTFSP) i.e. by 2028/29. As the Trust continues to work through detail to support the OBC we expect to further document the efficiencies that underpin this assertion in more detail.

The overall cost of the scheme is £350m and it is currently assumed that the bulk of the capital investment necessary for the preferred way forward will be funded through Public Dividend Capital (PDC). This will be supplemented by income from land sale receipts and other funding sources may be available for specific aspects of the project e.g. Energy Efficiency Financing to fund a new, more efficient, energy centre, Section 106 funding from local authorities and a Managed Equipment Service (MES).

Following the approval of this SOC, WHHT will commit the necessary time and resources for a project of this size and scale. WHHT believes a solution has been identified that addresses its most significant estates challenges, maintains and improves patient care and is affordable, demonstrating a return on investment and delivering annual savings that contribute to the Trust achieving financial breakeven. WHHT will work closely with stakeholders and the public to develop more detailed plans as part of the next stage of business case development (OBC).

At OBC stage, the Trust will review the preferred way forward, taking account of any changes to the strategic context and develop detailed plans and costs to deliver the agreed improvements. A high level timeline is set out in the Management Case, subject to approval of this SOC and ‘funding in principle’ being agreed by regulators, building work could commence in 2023.

Contents

Executive Summary	3
Case for change	3
WHHT's journey so far	5
Objectives	6
Clinical model	7
Options considered	7
Stakeholder engagement	8
WHHT's preferred way forward	9
1 Introduction	14
1.1 Background	14
1.2 Purpose of this document	15
1.3 Structure and content of this document	15
2 Strategic Case	16
2.1 Strategic context	16
2.2 Investment objectives	34
2.3 Scope	35
2.4 Clinical service model	35
2.5 Main benefits	40
2.6 Strategic risks, constraints and dependencies	42
2.7 Conclusion	44
3 Economic Case	45
3.1 Options appraisal approach	45
3.2 Evaluation criteria	46
3.3 Long list of options	47
3.4 Shortlisted options	51
3.5 Quantitative economic appraisal	55
3.6 Qualitative benefits appraisal	58
3.7 Preferred way forward	62

4	Commercial Case	65
4.1	Required services	65
4.2	Commercial delivery models	65
4.3	Procurement routes for design and build services	66
4.4	Maintenance services	67
4.5	Actions required at OBC stage to determine the appropriate commercial approach	67
5	Financial Case	68
5.1	Financial background	68
5.2	Financial appraisal	69
5.3	Funding sources	70
5.4	Affordability	70
5.5	Conclusion	72
6	Management Case	73
6.1	Project management arrangements	73
6.2	Governance	75
6.3	Project plan and milestones	76
6.4	Outline risk management approach	78
6.5	Outline stakeholder management approach	79
6.6	Conclusion	80

1 Introduction

This is the Strategic Outline Case for a significant investment in West Hertfordshire Hospitals NHS Trust's estate. It recommends a preferred way forward and seeks approval to move to the next stage: Outline Business Case (OBC). At this next stage WHHT will review the preferred way forward and set out more detailed plans to implement the identified improvements.

1.1 Background

In 2015, a system-wide review of healthcare services in west Hertfordshire, *Your Care, Your Future*, forecast that demand for acute services locally would rise at a significantly faster rate than the national average. Specific pressures were identified arising from a rapidly increasing young population and a high proportion of the current population being over 65. The review concluded that service redesign would be required to support reduced reliance on hospital care whilst recognising the need for high quality sustainable acute services delivered from fit for purpose estates. The challenges identified by *Your Care, Your Future* reflected the national picture described by the NHS Five Year Forward View and echoed in the most recent NHS Long Term Plan (January 2019).

In response to these challenges, and in line with the wider Sustainability and Transformation Partnership (STP) for Hertfordshire and West Essex, West Hertfordshire Hospitals NHS Trust (WHHT) developed a Strategic Outline Case (SOC) for the acute transformation elements of the *Your Care, Your Future* programme in 2016. Complementary plans for Hemel Hempstead General Hospital (HHGH) were also progressed by Herts Valleys Clinical Commissioning Group (HVCCG), and both were informed by extensive engagement with local people.

The preferred way forward proposed by the acute transformation SOC set out a vision in which:

- Watford General Hospital (WGH) would remain the location for emergency and specialised care for the population of west Hertfordshire
- St Albans City Hospital (SACH) would continue to be the location of planned care
- On both sites, new build would be balanced with redevelopment and refurbishment of existing buildings, aiming to achieve "as close to" new build as possible to ensure the best possible patient experience, with early benefits realisation.

In response to the submission of the original SOC in 2017, the regulators - NHS Improvement (NHSI) and NHS England (NHSE) - confirmed their recognition of the need for change, but highlighted severe limitations in, and competition for, capital funds. Consequently, regulators have requested a revised case is developed to ensure that any capital investment sought reflects funding constraints and is affordable. The Trust's annual turnover was set as the threshold for capital funding i.e. no greater than c.£350m.

Additionally, WHHT and HVCCG have taken the opportunity to update the original SOC to consider:

- How this affordability constraint impacts upon the options for redevelopment, and any new options that should be considered as a result
- Latest projections for health service demand
- Work done separately to consider the future of HHGH, incorporating this into a single SOC.

1.2 Purpose of this document

This SOC makes the case for a significant investment in the WHHT estate and the need to deliver efficiencies from new care models to meet the changing needs of the local population, in line with the Trust's clinical strategy and the broader model of care established and agreed by *Your Care, Your Future* and the Hertfordshire and West Essex STP. It appraises the options available, taking into account the affordability constraint set out by regulators, and outlines a preferred way forward for further analysis.

Specifically, this SOC seeks approval to conduct a more detailed analysis in order to confirm the preferred option and move to the next stage of the business case development process for both emergency and planned care.

1.3 Structure and content of this document

This SOC has been prepared using the agreed standards and format for business cases set out in Her Majesty's Treasury (HMT) Green Book and guidance developed by NHSI. It is formatted using the Five Case Model, comprising:

- the **Strategic Case**: setting out the strategic context and the case for change, together with the supporting investment objectives for the scheme
- the **Economic Case**: setting out the available options and establishing the preferred way forward
- the **Commercial Case**: outlining the commercial strategy for the project
- the **Financial Case**: confirming the funding arrangements and affordability
- the **Management Case**: demonstrating that the scheme is achievable and can be delivered successfully to cost, time and quality

The following sections provide the evidence for each of these five cases in turn.

2 Strategic Case

This Strategic Case sets out the context for the proposed estate redevelopment. It outlines a compelling case for change, the resulting investment objectives for the project and the main benefits, risks, constraints and dependencies.

2.1 Strategic context

2.1.1 WHHT is the main provider of hospital services in west Hertfordshire

WHHT provides acute healthcare services to a core catchment population of approximately half a million people living in west Hertfordshire and the surrounding area. The Trust also provides a range of more specialist services to a wider population, serving residents of North London, Bedfordshire, Buckinghamshire and East Hertfordshire.

Figure 8: Location of WHHT hospital sites



WHHT owns and runs services from three hospital sites, located within 10 miles of each other:

- **WGH** provides emergency care, with accident and emergency, inpatient services, an acute admissions unit and women's and children's services, as well as the full range of outpatients and clinical support services.
- **SACH** provides elective surgery, with a minor injuries unit, an outpatients department, cancer and diagnostic services.

- **HGH** provides a number of services including urgent care, endoscopy, diagnostics and outpatient clinics. A small number of intermediate care beds are provided by Hertfordshire Community NHS Trust

HVCCG is the main commissioner for NHS services in west Hertfordshire, across four major planning areas:

- Dacorum
- Watford and Three Rivers
- St Albans
- Hertsmere

Figure 9: Herts Valleys planning areas



It jointly commissions some services, such as mental health, NHS 111 and the GP out-of-hours service, in partnership with Hertfordshire County Council (HCC) and East and North Hertfordshire CCG.

NHS England commissions specialised services for west Hertfordshire, including:

- Specialised vascular
- Specialised cancer
- Neonatal critical care
- Screening services, i.e. cytology and bowel screening
- Dental/oral surgery

2.1.2 WHHT’s vision is to provide the very best care for every patient, every day

WHHT has developed a clinical strategy which underpins its vision to provide the very best care for every patient, every day. This describes three priorities:

- Deliver more care locally
- Strengthen core services
- Provide specialist care as appropriate

It outlines activities that will help WHHT to address these priorities and achieve its mission of working in partnership to deliver integrated care throughout life, as shown in Figure 10.

Figure 10: Main elements of WHHT’s clinical strategy

Our Mission:	the very best care for every patient, every day			
Our Vision:	work in partnership to deliver integrated care throughout life			
Our Priorities:	Comprehensive clinical support services Maximise 7 day provision of care to our patients			
	Maternity and Newborn	Children and Young People	Adults	Older People and End of Life care
<ul style="list-style-type: none"> • Deliver more care LOCALLY • Strengthen CORE services • Provide appropriate SPECIALIST care 	<ul style="list-style-type: none"> • redesign antenatal and postnatal care • promote choice, continuity of care, normal childbirth and midwifery led care • 24/7 obstetrician led care for more complex and higher risk births • enhance level 2 neonatal care and transitional care • enhance perinatal mental health support 	<ul style="list-style-type: none"> • paediatric care in community hubs • paediatric surgery in line with national standards • strengthen child and adolescent mental health liaison • continue to develop our extended and specialist care, including: oncology, rheumatology, diabetes and endocrinology, gastroenterology, respiratory and allergy • improve transitional support for young people moving across to adult services 	<ul style="list-style-type: none"> • local services / pathway redesign in line with Your care, Your Future vision (diabetes, gynaecology, dermatology, ENT, ophthalmology, MSK & pain) • planned surgery pathway redesign & one stop models and maximise use of St. Albans Hospital • 24/7 emergency care pathway redesign • develop Inpatient specialist diabetes service • develop local high intensity inpatient chemotherapy • strengthen renal care (networked) • continue to develop specialist and 24/7 clinical support services • strengthen 24/7 interventional radiology • develop hyper acute stroke services and integrated care pathway for stroke • develop specialist hub/spoke vascular services • develop partnerships with ‘supercentres’ for specialist cancer care 	<ul style="list-style-type: none"> • develop community geriatrics • continue to develop our new frailty service • strengthen mental health and surgical liaison • improve choice of care setting and work with partners to develop more alternatives to acute inpatient care • individualised and advanced care plans for end of life care

To help ensure it can achieve this vision, WHHT has:

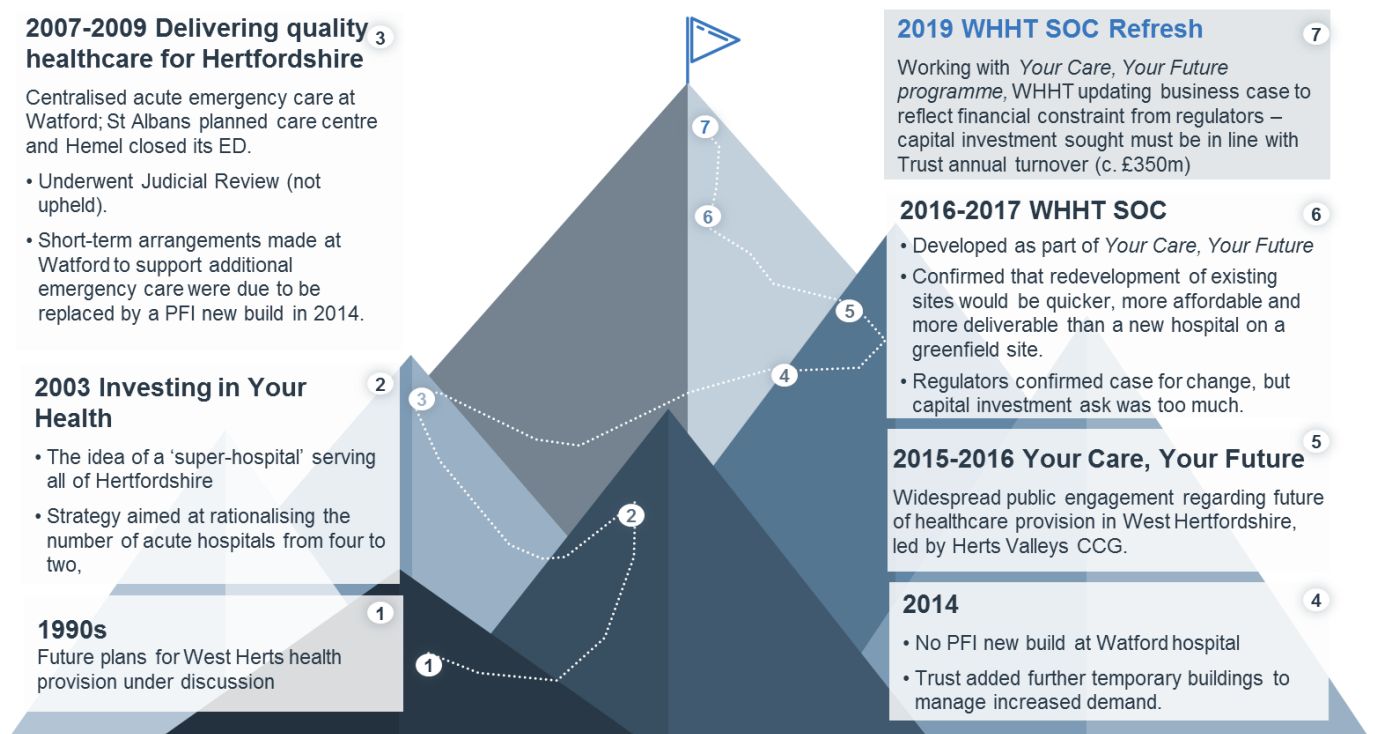
- implemented an interim estates strategy to address urgent estate development challenges and lay the foundations for more significant redevelopment
- established a partnership with Royal Free NHS London Foundation Trust to improve patient care by implementing best practice clinical pathways
- continued its involvement in the Watford Riverwell regeneration project, which is transforming 70 acres of former industrial land to the south of WGH and provides the opportunity for WHHT to work in partnership with Watford Borough Council (WBC) and Kier Property to develop the WGH site.

Significant investment in WHHT's estate will be necessary to fully deliver the Trust's clinical strategy and to support the introduction of new care models. This is explored further in Section 2.2

WHHT's journey so far

This SOC builds on significant work and stakeholder engagement that has been undertaken over the last decade. A summary of the journey the Trust has taken to get to the development of this SOC is provided below.

Figure 11: Summary of WHHT's journey in planning for redevelopment of acute services



2.1.3 WHHT's plans are aligned with national and regional strategies

The NHS Long Term Plan

The NHS Long Term Plan (January 2019) addresses the need to redesign patient care to future-proof the NHS for the decade ahead. It aims to do this by:

- **Moving to a new service model in which patients get more options, better support, and properly joined-up care at the right time in the optimal care setting.** This involves: increasing online GP consultations; expanding community health teams; increasing social prescribing and personal health budgets; designating Urgent Treatment Centres (UTCs); increasing same day emergency care; introducing new clinical standards to ensure patients with the most serious emergencies get the best possible care; and cutting delayed hospital discharges to free up pressure on hospital beds.
- **Setting out new, funded, action the NHS will take to strengthen its contribution to prevention and health inequalities.** This includes programmes to: cut smoking; to reduce obesity, partly by doubling enrolment in the successful Type 2 diabetes prevention programme; to limit alcohol-related A&E admissions; and to lower air pollution.
- **Identifying key priorities for care quality and outcomes improvement for the decade ahead.** These include: children and young people; cancer; cardiovascular disease; stroke; diabetes; respiratory disease and mental health.

To enable these changes to the service model, to prevention, and to major clinical improvements, the Long Term Plan sets out how they will be backed by action on workforce, technology, innovation and efficiency, as well as the NHS overall system architecture.

The proposed future model of hospital services in west Hertfordshire described in this SOC will support and enable delivery of the vision and ambitions described in the NHS Long Term Plan. In particular, the NHS Long Term Plan confirms the Trust's key clinical principle regarding the benefits of separation of emergency care ('Hot') services and planned care ('Cold') services.

“SEPARATING URGENT FROM PLANNED SERVICES CAN MAKE IT EASIER FOR NHS HOSPITALS TO RUN EFFICIENT SURGICAL SERVICES. PLANNED SERVICES ARE PROVIDED FROM A ‘COLD’ SITE WHERE CAPACITY CAN BE PROTECTED TO REDUCE THE RISK OF OPERATIONS BEING POSTPONED AT THE LAST MINUTE IF MORE URGENT CASES COME IN. MANAGING COMPLEX, URGENT CARE ON A SEPARATE ‘HOT’ SITE ALLOWS TRUSTS TO PROVIDE IMPROVED TRAUMA ASSESSMENT AND BETTER ACCESS TO SPECIALIST CARE, SO THAT PATIENTS HAVE BETTER ACCESS TO THE RIGHT EXPERTISE AT THE RIGHT TIME. SO WE WILL CONTINUE TO BACK HOSPITALS THAT WISH TO PURSUE THIS MODEL.”

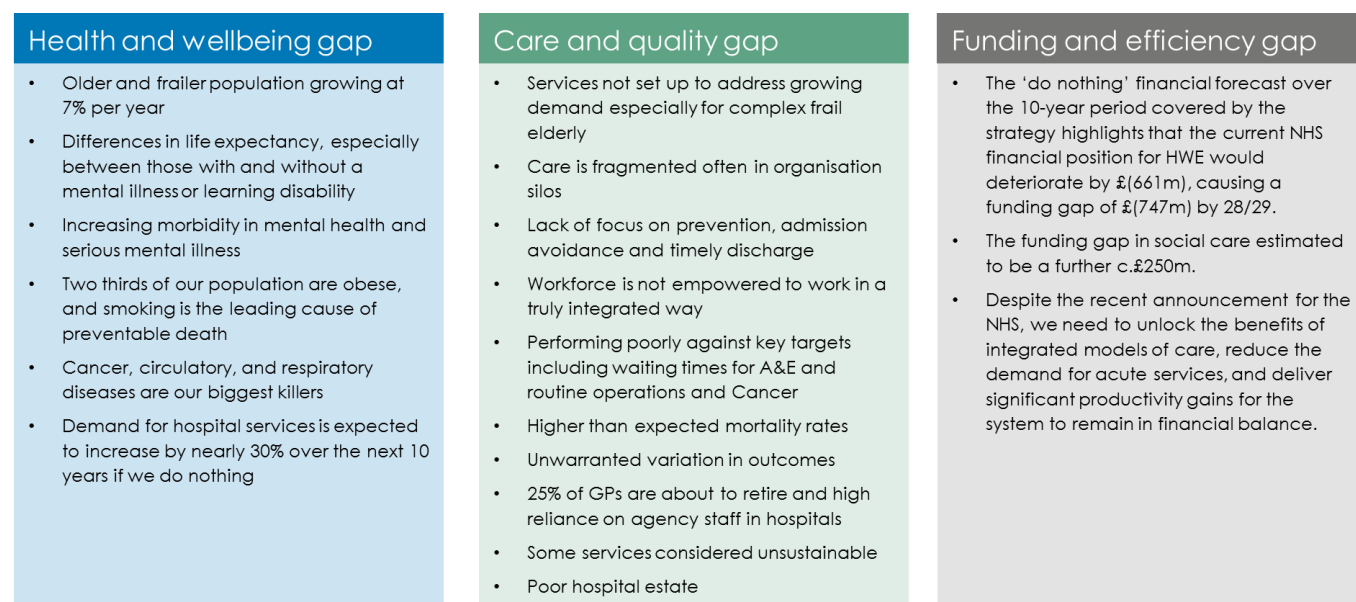
NHS Long Term Plan, January 2019

Hertfordshire and West Essex STP

In Hertfordshire and West Essex, the NHS Long Term Plan is being implemented through the STP health and care strategy, ‘A Healthier Future’. This brings together the challenges and opportunities faced by organisations in Hertfordshire and West Essex as they work together to improve health and wellbeing within the funds available.

A *Healthier Future* sets out their case for change in Figure 12 below.

Figure 12: A Healthier Future case for change



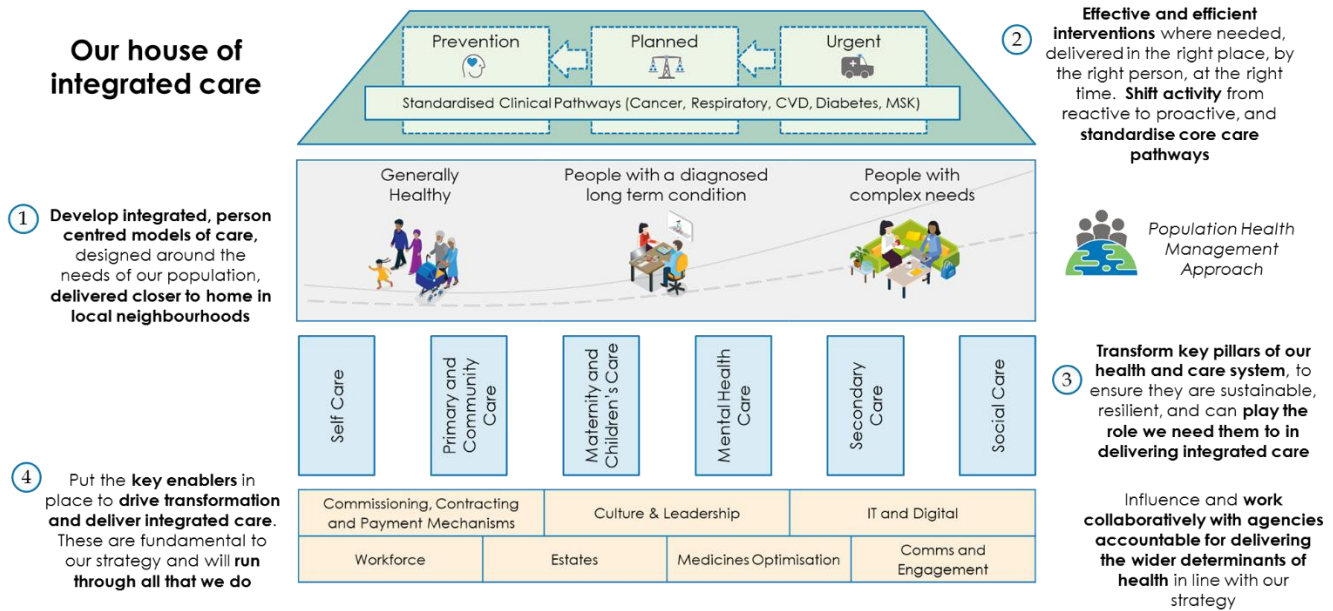
The key issues facing Hertfordshire and West Essex, as described in their latest strategy, include:

- The health and care system is unsustainable in its current form
- More people are living in to their old age, in ill health, and with poor outcomes, increasing the pressure on hospital services
- The current services are fragmented and are not set up to meet the level of demand
- Poor performance against several key targets
- Not currently making the best use of technology as a system
- Contracting and payment mechanisms not always supporting the delivery of transformational change

- A projected funding gap of c.£750m for local NHS organisations alone, with a further gap of c.£250m in social care, unless something fundamentally different is done.

The STP highlights that these challenges can only be resolved by working together; as a single system, at greater scale, and in a more integrated way. This involves integration of ambition, leadership, care delivery, and the enablers of care.

Figure 13: A Healthier Future Strategy Overview



As summarised in Figure 13, *A Healthier Future* sets out the four main ways in which NHS health and care organisations in Hertfordshire and West Essex plan to improve health and care in the area:

- Develop integrated, person-centred models of care, designed around the needs of our population, delivered closer to home in local neighbourhoods
- Effective and efficient interventions where needed, delivered in the right place, by the right person, at the right time. Shift activity from reactive to proactive, and standardise core care pathways
- Transform key pillars of the health and care system, to ensure they are sustainable, resilient, and can play the role needed to deliver integrated care
- Put the key enablers in place to drive transformation and deliver integrated care.

The STP recognises that the provision of acute services must be sustainable, and this will be achieved by adopting a patient-centred, quality driven approach to optimising patient outcomes whilst reducing hospital-based activity, optimising use of all resources and removing avoidable cost. These aims and objectives are also reflected in HVCCG's *Your Care, Your Future* programme.

The expertise of hospital consultants will be exploited throughout patient pathways, such that face-to-face consultations will only be required for those with the most complex needs. This will ultimately change the hospital estate required. Investment is required now to ensure this estate is fit for purpose and configured to deliver the future service model in an efficient and sustainable manner.

Digital Technology

The proposed future model of hospital services in west Hertfordshire will enable delivery of the vision and ambitions described in the STP's *A Healthier Future* Strategy and the NHS Long Term Plan. Digital technology will have a central role in transforming services to support more people to have care at, or closer to, home. The NHS Long Term Plan underpins the importance of technology by setting out the critical priorities that will support digital transformation and provide a step change in the way the NHS cares for citizens. With investment in the new NHS App as a digital 'front door', better access to digital tools and patient records for staff, and improvements to the planning and delivery of services based on the analysis of patient and population data, patients will have more convenient access to services and health information.

At a local system level, digital priorities outlined by the STP include:

- System interoperability - the ability of different information technology systems and software applications to communicate, exchange data, and use the information that has been exchanged.
- Enabling a collaborative and integrated working environment

- Developing a joint Business Intelligence (BI) capability to inform evidence-based decision making
- Developing real time dashboards to support patient flow and system resilience

This will be complemented by a local hospital model, delivered from modern buildings that can harness new technologies as they come on stream, and maximise clinical adjacencies to improve patient flow, staff productivity and deliver revenue savings.

But right now, the Trust is not able to take full advantage of digital transformation opportunities that exist. Pursuing strategies for robotics or Artificial Intelligence (AI) or virtual reality without fixing the fundamentals will lead to minimal gain. One of the major barriers to progressing digital transformation at WHHT is the infrastructure and environment in which technology (including telecommunications) is housed – it is no longer fit for purpose.

At WGH, many of the original buildings were not designed to accommodate the extensive cabling required to support the Trust’s telephony and data networks. Consequently, communication centres are housed in kitchens and staff areas that lack sufficient ventilation. Often, IT and the systems that keep the Trust running fail, simply because utilities fail.

Redeveloping WHHT’s estate provides a real opportunity for the Trust to mobilise plans for digital transformation – starting with improvements to the core network and IT infrastructure that are designed for a ‘digital’ future i.e. paperless hospital. New and heavily refurbished buildings can accommodate modern cabling, telephony, security cameras and potentially allow for stronger wifi coverage so that the Trust can move away from wired infrastructure in the future. The ability to design and manage communications in a consistent way and in a stable environment, will generate significant efficiencies and cost savings.

In designing new clinical and non-clinical spaces, WHHT can seek to transform patient and staff experience through technology and drive major operational efficiencies. New buildings can be designed to change the way in which information is gathered about patients, and how they interact with hospital services. Information about a patient could be collected once, entered once, and be available throughout the whole of the hospital. Incorporating digital technology into the design of new buildings can also fundamentally transform the way clinical care is provided.

“CHANGING THE LAYOUT OF BEDS AND WARD SPACE CHANGES THE WAY NURSES WORK AND CAN ENABLE BETTER USE OF TECHNOLOGY. CENTRAL NURSING STATIONS CAN BE NOISY AND DISTURBING FOR PATIENTS. IN DESIGNING NEW LAYOUTS, NURSING STATIONS CAN BE PLACED AT INTERVALS TO KEEP THE LINE OF SIGHT OPEN. PATIENTS COULD BE MONITORED VIA A DASHBOARD TO ESTABLISH WHO NEEDS THE MOST URGENT TREATMENT.”

“THEATRES CURRENTLY HAVE HIGH END EQUIPMENT, BUT THEY DON’T FUNCTION EFFECTIVELY BECAUSE OF THE PHYSICAL ENVIRONMENT - SPEAKERS AND MICROPHONES ARE NOT POSITIONED APPROPRIATELY.

NEW THEATRES CAN BE DESIGNED WITH MODERN MEDICAL DEVICES, ARTIFICIAL INTELLIGENCE NETWORKS AND VIDEO CONFERENCING TO CREATE A BETTER TEACHING ENVIRONMENT AND USE AUGMENTED REALITY TO ASSIST WITH SURGERY”

Sean Gilchrist, Director of Digital Transformation

Digital technology is a key enabler that will amplify and transmit the benefits associated with redevelopment of WHHT’s estate as described in this SOC. Getting the basics fixed is not only likely to improve services now; it will also create a springboard for future innovation. By co-designing new/refurbished buildings with patients and staff, the environment, clinical service adjacencies and digital technology opportunities can be optimised.

2.1.4 Existing arrangements

As described in Section 2.1.1, WHHT currently operates three hospital sites:

- Watford General Hospital
- St Albans City Hospital
- Hemel Hempstead General Hospital

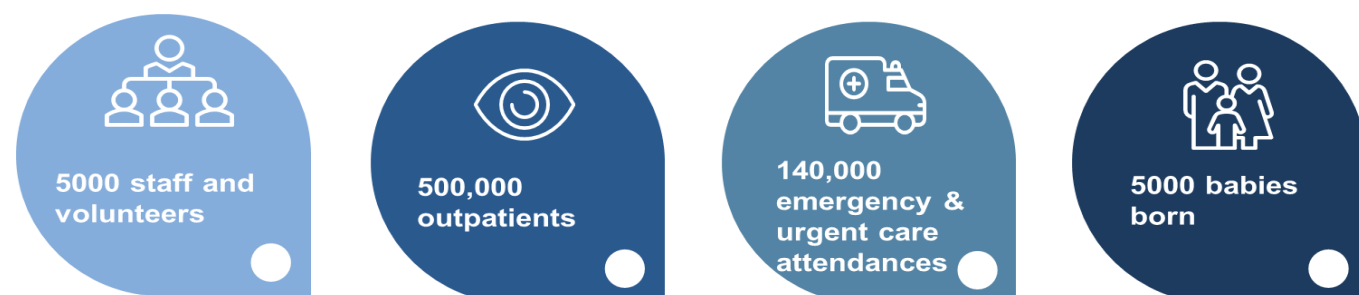
WHHT also provides outpatient services and community midwifery services from community and primary care premises, throughout west Hertfordshire.

WHHT has over 900 inpatient and day case beds across the three sites. Table 2 provides a summary of the split of beds across sites. Figure 14 provides a summary of the key facts for WHHT in 2017/18. Please see Appendix A (Activity Baseline) for more details.

Table 2 Summary of current beds across all three WHHT sites (2018)

Beds	WGH	SACH	HHGH	Total
Inpatient Beds ¹	641	44		685
Day Case Beds	64	24	11	99
Other Beds ²	95			95
Intermediate Care Beds			41	41
	800	68	52	920

Figure 14: Summary of key facts for WHHT in 2017/18



All three hospital sites have significant estates maintenance challenges and the Trust carries a very high risk in terms of the condition and reliability of its buildings, particularly at WGH. The age and condition of the estate means that some buildings are not clinically fit for purpose and without a significant capital injection there is a very high risk of failure of critical estate services and consequent impact on service delivery. A comprehensive survey of WHHT's estate (called a Six Facet Estate Survey) was published in September 2018. The report states that the majority (57%) of the total estate is below Condition B, which is considered to be the minimum acceptable condition. Over 80% of the WGH site is assessed to be in 'poor' or 'worse' condition. If the current estate was to be retained, investment of £189m would be required to address the backlog maintenance liability and provide functionally suitable buildings; of this total £20m is the minimum required investment to address the High and Significant risks identified in the report. The actual cost of delivering these works may be double these figures when on costs (fees, VAT, contingency, temporary transition arrangements and loss of service) are included.

While some services are delivered at one site only (e.g. accident and emergency services, stroke, trauma, obstetric led delivery services, acute inpatient medical services and intensive care for adults and children), all three hospitals currently deliver urgent care services, outpatient (including maternity) and daycase services and diagnostics. This creates clinical, operational and financial challenges associated with the triple site provision of some services.

The following sections describe the three sites and the services currently provided from them, with a more detailed breakdown of current services provided at Appendix B: WHHT Services.

¹ Includes Maternity Wards and Neonatal Cots

² ICU, HDU, Delivery Suites, Transition Beds, Ambulatory Care Bays, Observation Bays

Watford General Hospital

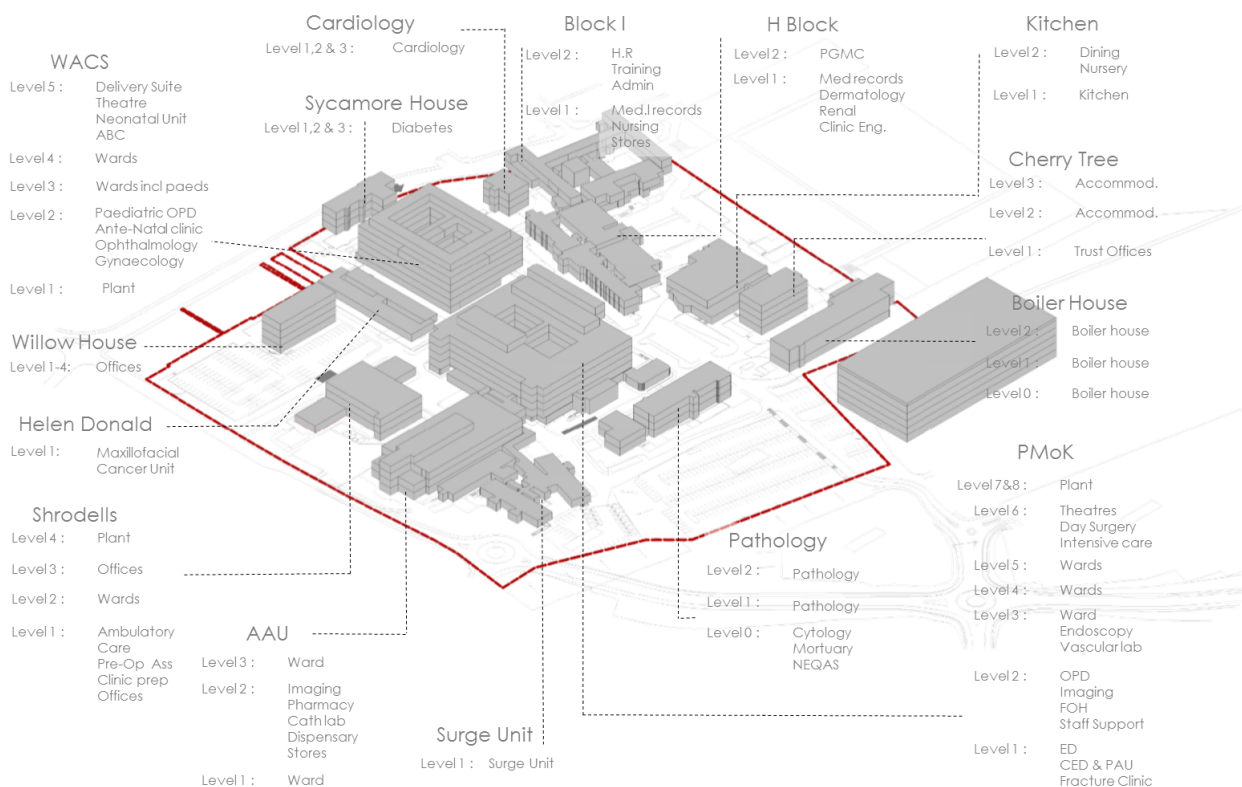
WGH is the biggest of WHHT's sites and cares for the greatest volume of patients. The hospital has 440 inpatient medical beds and 142 surgical beds available, excluding WACS. It has eight theatres. Current utilisation rates are around 97% for beds and 85% for theatres. The recommended planning assumption for bed utilisation is 85%, which demonstrates the pressures currently being faced at the site.

It is the main site for emergency and specialist care and provides the following clinical services:

- Women's and children's services, including a consultant-led delivery unit, midwife-led birthing unit, antenatal and postnatal clinics, neonatal critical care and paediatric day case and inpatient wards
- Emergency care, including A&E and an Acute Admissions Unit (AAU)
- Ambulatory care unit, acute wards, Intensive Care Unit (ICU) and emergency surgery
- Planned care, including outpatients and more complex surgery
- Medical care, including cardiology, endoscopy, care of the elderly, dermatology, endocrinology-diabetes, gastroenterology, haematology, neurology, respiratory, rheumatology and stroke
- Clinical support, including X-ray, CT, MRI, ultrasound, pathology, pharmacy, radiology (including interventional radiology), inpatients physiotherapy, occupational therapy, dietetic services and mortuary.

Over 80% of the site is assessed to be in 'poor' or worse condition³, with 40% of the buildings over 40 years old. Investment in backlog maintenance over the last five years has been targeted on statutory compliance (asbestos, legionella, ventilation systems and infection control) and on improving the resilience of critical infrastructure (power supply, steam and pressures systems, lifts and fire). With very limited funding to improve the condition, the estate has continued to deteriorate.

Figure 15: WGH site map



- Clinical services are concentrated in the Princess Michael of Kent (PMoK) building which was built in 1984 (based on a 1960s design) and houses the emergency department as well as the majority of inpatients wards, the main theatre complex, outpatients, ICU and radiology. The building fabric, utilities infrastructure, layout and space allocations are poor creating an unsatisfactory clinical environment and poor patient experience. Investment in the critical infrastructure is essential if the building is to be retained.
- The Women's and Children's Services (WACS) building was constructed in the early 1960s and is no longer fit for purpose as a clinical building. Investment over the last five years has focused on keeping services delivered

³ Six Facet survey, 2018

in the building 'safe'. The design, layout and condition mean that even with major refurbishment the building cannot be made suitable for clinical services.

- The Acute Admissions Unit (AAU) is a modular building. It was opened in 2009 to provide inpatient services and facilitate the co-location of emergency services at WGH. The building and major equipment will require mid-life investment if it is to form part of the long term estate plan for WGH.
- Since 2011, a series of temporary modular buildings have been added to the site to provide surge capacity and support the introduction of new care pathways. Most recently, WHHT acquired the Shrodells unit to provide the required flexibility on site to enable service reconfiguration and reduce pressure within PMoK. This only provides a short-term solution as the building suffers from similar problems to the WACS building.
- Support and non-clinical services on the site are delivered from a variety of buildings, some in very poor condition. The site originally housed the Watford Union Workhouse, built in 1837, and some of the original buildings (which are Grade II listed) are still in use, although not for the delivery of clinical care. None of the buildings are considered to have viable long-term future for the delivery of healthcare services.

WHHT currently owns less than 50% of its required car parking space, the remainder is provided on a short-term lease from WBC. A combination of topography and layout make movement around the site challenging, particularly for those with limited mobility. A separate project is underway to re-provide a car park on land adjacent to the hospital through the Watford Riverwell development.

Table 3 shows the internal area of the main elements of the WGH site and summarises the current condition and functional suitability.

Table 3: WGH estate

Building	Approximate size	Current condition	Functional suitability
Princess Michael of Kent (PMoK)	23,000 m ²	Currently operational but will need major investment or replacement <u>within next five years</u> to remain sound and operationally safe. (B/C)	Not satisfactory, major change needed (C)
Women's and Children's Services (WACS)	11,000 m ²	Operational, but needs major investment or replacement now to remain sound and operationally safe (C)	Rebuild required. Current building cannot be refurbished as clinical space (Cx)
Acute Admissions Unit (AAU)	6,000 m ²	Sound & operationally safe (B)	Satisfactory, minor changes needed (B)
Shrodells and surge capacity	6,000 m ²	Operational, but needs major investment or replacement now to remain sound and operationally safe (C)	Rebuild required. Current building cannot be refurbished as clinical space (Cx)
Non-clinical space	12,000 m ²	Operational, but needs major investment or replacement now to remain sound and operationally safe (C)	Unacceptable (D)
Other clinical space	4,000 m ²	Operational, but needs major investment or replacement now to remain sound and operationally safe (C)	Not satisfactory, major change needed (C)
Total internal area of WGH estate	62,000 m²		

St Albans City Hospital

SACH is WHHT's elective care centre. It provides the following clinical services:

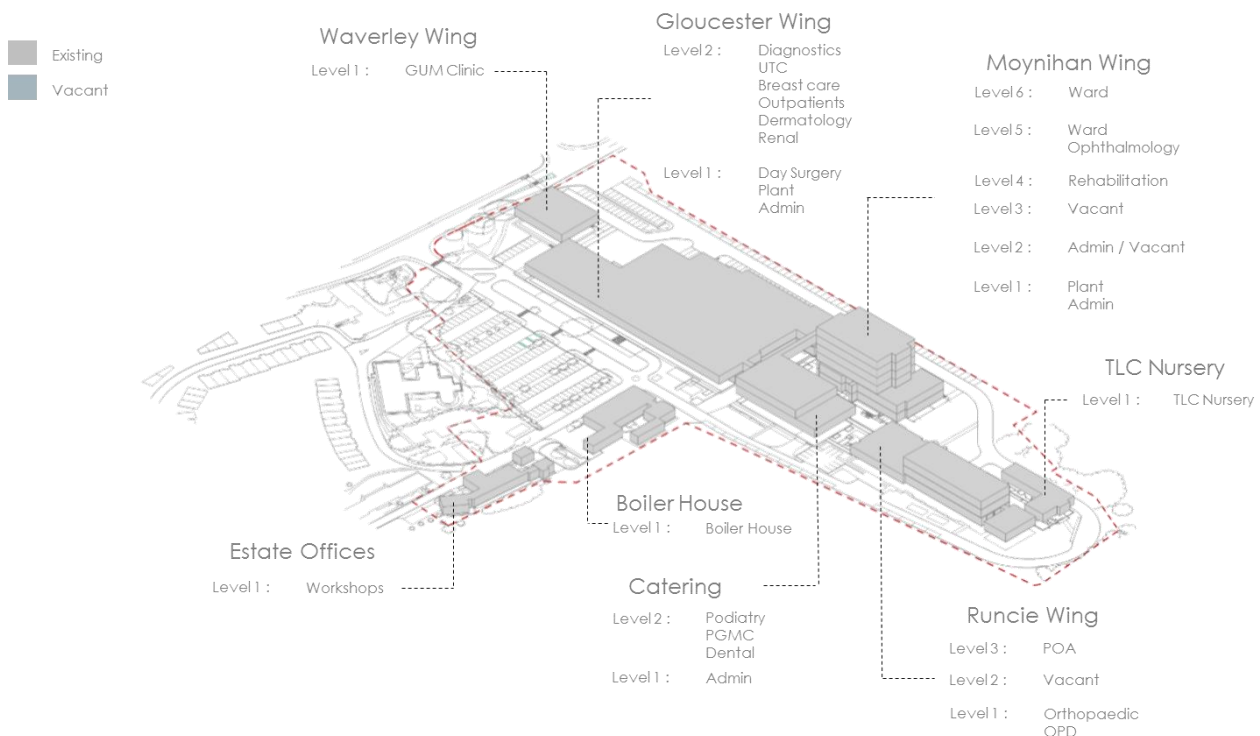
- Elective and day case surgery
- Antenatal and community midwifery
- Outpatients
- Minor Injuries Unit (MIU)
- Cancer Services
- Breast unit
- Renal services (not provided by the Trust)
- Clinical support, including X-ray, ultrasound, mammography and blood and specimen collection

The hospital was re-developed following a reduction in service provision around 20 years ago. Gloucester Wing, constructed in the late 1980s, provides the majority of clinical services including an MIU, outpatients, radiology, renal services, day surgery and the theatre complex. Although structurally sound, the utilities infrastructure and building fabric will need refurbishment to prolong its use for clinical services. The current building layout limits the ability to comply fully with NHS building standards, specifically within the day surgery, radiology and main theatres. Two of the six theatres will need to be re-provided within the next five years.

Moynihan Wing provides a combination of inpatient wards and outpatient services in a building that is over 50 years old. It will need replacement or major refurbishment within the next five years. Runcie Wing is currently being refurbished as part of the Trust's Interim Estates Strategy to enable the implementation of new models of care programmes. Waverley Wing is currently occupied by Central London Community Healthcare NHS Trust (CLCH), which will revert to WHHT as the current occupants are planning to vacate the site.

The linear nature of the site and its topography make travel between the buildings difficult. Car parking on site is also extremely restricted and alternative parking will be required to support any future redevelopment.

Figure 16: SACH site map



The site has 44 inpatient beds, 24 surgery beds and six theatres (including one procedure room for ophthalmology) and a Minor Injuries Unit (MIU), open every day of the week from 9am – 8pm (except Christmas day). Table 4 shows the internal area of the main elements of the SACH site, their current condition and functional suitability.

Table 4: SACH estate

Building	Approximate size	Current condition	Functional suitability
Gloucester	7,500 m ²	Currently operational but will need major investment or replacement <u>within next five years</u> to remain sound and operationally safe. (B/C)	Satisfactory, minor changes needed (B)
Moynihan	5,500 m ²	Operational, but needs major investment or replacement now to remain sound and operationally safe (C)	Not satisfactory, major change needed (C)
Runcie	2,500 m ²	Operational, but needs major investment or replacement now to remain sound and operationally safe (C)	Not satisfactory, major change needed (C)
Other	3,500 m ²	Operational, but needs major investment or replacement now to remain sound and operationally safe (C)	Rebuild required. Current building cannot be refurbished as clinical space (Cx)
Total internal area of SACH estate	19,000 m²		

Hemel Hempstead General Hospital

HHGH currently provides the following clinical services:

- Antenatal and community midwifery
- Outpatients
- Step-down beds
- UTC
- Fracture clinic
- Medical care, including endoscopy and cardiac lung function testing
- Diagnostic support, including X-ray, CT, MRI, ultrasound and non-urgent pathology
- Pharmacy
- Mortuary, including county wide autopsy services

The hospital was developed in its current configuration following a reduction in the services provided in 2009. Around 30% of the site is currently unoccupied including Tudor Wing (which previously housed the theatre and inpatient services) and Windsor Wing (which previously housed the day hospital and inpatient wards). Jubilee, Marnham and Verulam Wing provide fit for purpose clinical space but are spread across the site with poor space utilisation and clinical adjacencies. Radiology services (including MRI and CT) are delivered from a 1930s building that is no longer fit for purpose. The QE building houses administrative staff in a building that is over 60 years old and should not form part of a long-term plan.

Figure 17: HHGH site map

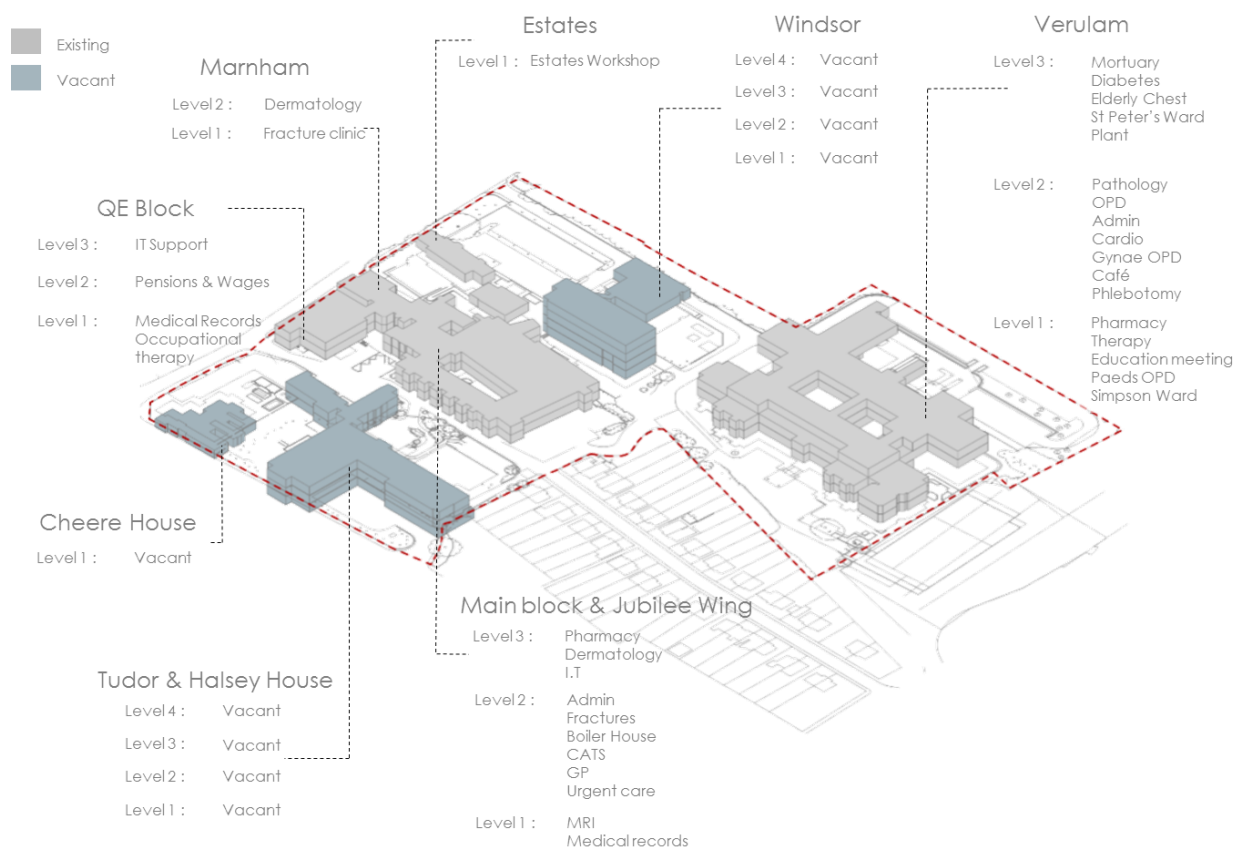


Table 5 shows the internal area of the main elements of the HHGH site, their current condition and functional suitability.

Table 5: HHGH estate

Building	Approximate size	Current condition	Functional suitability
Tudor (unoccupied)	8,000 m ²	Operationally unsound (D)	Unacceptable (D)
Jubilee / Marnham / Diagnostics	8,000 m ²	Currently operational but will need major investment or replacement <u>within next five years</u> to remain sound and operationally safe. (B/C)	Not satisfactory, major change needed (C)
Verulam	11,500 m ²	Currently operational but will need major investment or replacement <u>within next five years</u> to remain sound and operationally safe. (B/C)	Satisfactory, minor changes needed (B)
QE2	1,500 m ²	Operational, but needs major investment or replacement now to remain sound and operationally safe (C)	Rebuild required. Current building cannot be refurbished as clinical space (Cx)
Windsor(unoccupied)	5,500 m ²	Operationally unsound (D)	Unacceptable (D)
Estates	500 m ²	Operational, but needs major investment or replacement now to remain sound and operationally safe (C)	Rebuild required. Current building cannot be refurbished as clinical space (Cx)

Building	Approximate size	Current condition	Functional suitability
Other (unoccupied)	2,000 m ²	Operationally unsound (D)	Unacceptable (D)
Total internal area of HHGH estate	37,000 m²		

Services provided from locations other than hospital sites

As noted above, WHHT also provides outpatient services and community midwifery services from community and primary care premises throughout west Hertfordshire. As part of the *Your Care, Your Future* programme, more services in west Hertfordshire will deliver more services closer to people's homes in the future. The proposed acute transformation is, however, focused on the hospital sites and the services which will continue to be delivered from them.

2.1.5 Business needs

The way the Trust's services are currently organised, and the age and standard of its estate is a challenge to providing the best quality care. The Trust case for change has three main aspects:

Figure 18: Case for change



Many of the Trust's buildings are old and no longer 'fit for purpose'

Much of the current hospital infrastructure has reached the end of its life and is not configured to deliver new models of care. It is therefore having a detrimental impact on the delivery of safe, effective, responsive and efficient care. It is also limiting the Trust's ability to implement new care models being delivered as part of the Hertfordshire and West Essex STP.

Providing new facilities offers the opportunity to design service layout in a coherent and efficient way, making best use of WHHT's sites (both in terms of geography and access routes), infrastructure and clinical adjacencies. It also ensures that future investment has a longer-term benefit, as opposed to continuing to invest in managing estate that is ultimately substandard.

Investment is required to address three main issues, explored further in the following sections:

- Providing capacity to meet changing demand
- Ensuring the estate is configured and functionally suitable to deliver the future service models
- Mitigating risk to business continuity from critical infrastructure failure

Capacity to meet changing demand

As outlined above, the needs of the population of west Hertfordshire are changing. The Hertfordshire and West Essex STP is seeking to address these changes by delivering a future model of care in which more care will be delivered closer to home. The plan acknowledges, however, that emergency acute and more specialist planned care services must be centralised where necessary to ensure they can be delivered to high standards in an efficient manner. Successful implementation of the new model of care will decrease both the demand for some acute services and the length of stay of patients once they have been admitted.

The scale of population growth and changing needs mean, however, that some acute services in west Hertfordshire will need additional capacity over the next 20 years if they are to meet demand. The most recent Six

Facet Survey emphasised capacity issues already being experienced across the estate. Acute hospital services must therefore adapt to meet the new model of care, and the estate from which it is delivered must be developed to ensure it has the right capacity, in the right areas, to meet changing demand. This is explored in more detail in Section 2.5

“ALL DEPARTMENTS ARE OVERCROWDED AND OVERLOADED. ADDITIONAL FLOOR SPACE IS REQUIRED TO ACCOMMODATE INCREASING ATTENDANCES IN SERVICES PROVIDED.”

Six Facet Survey – comment on WGH maternity block and PMoK building

“ALL DEPARTMENTS ARE OVERCROWDED AND OVERLOADED”

Six Facet Survey – comment on SACH Gloucester Wing

“HAEMATOLOGY & PHLEBOTOMY, PATHOLOGY AND OUTPATIENTS BASE 2 ARE OVERCROWDED AND OVERLOADED.”

Six Facet Survey – comment on HHGH Verulam Wing

Functional suitability

The WHHT estate does not meet the current NHS building standards expected for acute hospitals, with much of WGH being built before 1984 without modern procedures and needs in mind. Table 6 below summarises key issues with functional suitability and the impact on patients.

Table 6: Summary of functional suitability issues and their impact

Functional suitability issue	Impact
Only 10% of the WHHT inpatient bed base is in single rooms, against a standard of 50%.	<ul style="list-style-type: none"> • Reduced privacy, dignity and confidentiality for patients • Noise disruption for patients, leading to poorer sleep/rest • Infection control risk • More moves between wards or bays for individual patients.
The inpatient ward areas across all WHHT sites are based on six bedded bays, against the current standard of four bedded bays.	<ul style="list-style-type: none"> • Reduced privacy, dignity and confidentiality for patients • Reduced space for patients to move around and staff to conduct observations • Infection control risk.
Six bedded bays in the main Princess Michael of Kent (PMoK) building at WGH are almost half the required size (circa 51m ² against a current space requirement of 96m ²).	<ul style="list-style-type: none"> • Reduced privacy, dignity and confidentiality for patients • Reduced space for patients to move around and staff to conduct observations.
The neonatal unit is only 30% of the required size (circa 622m ² against a Health Building Note standard of 2,048m ² for a Level 2 (local) neonatal unit).	<ul style="list-style-type: none"> • Clinical staff can't move around the cot, restricting workflow and ability to provide optimal care • Parents/carers unable to move around the cot

Functional suitability issue	Impact
The delivery suite rooms are only 44% of the required standard (circa 13.1m ² against a Health Building Note standard of 30m ² , including en suite). These rooms are also in exceptionally poor condition; some do not have a washbasin within the delivery suite and 'shared' toilet facilities are only available across an 'open' corridor.	<ul style="list-style-type: none"> • Reduced space for patients to move around during labour • Lack of space for washbasins, birthing pools and other birthing equipment • Infection control risk • Reduced privacy and dignity.
The Emergency Department cubicles are significantly below the required standards	<ul style="list-style-type: none"> • Reduced privacy, dignity and confidentiality for patients • Reduced space for patients to move around and staff to conduct observations.
Theatre suites require refurbishment to meet modern standards	<ul style="list-style-type: none"> • Impact on theatre efficiency and limited recovery space • Lack of procedure rooms to enable outpatient procedures as alternative to day case surgery.

Clinical adjacencies are poor across the Trust, particularly within the emergency department and for emergency assessment services at WGH, impacting significantly on clinical oversight, workforce efficiency and patient experience. Theatres are non-compliant for size, clinical layout, adult/child segregation and lack resilient ventilation systems that could potentially affect clinical safety.

Further specific examples demonstrating the poor functional suitability of the WHHT estate include:

- The only link between the main clinical buildings in WGH is via an underground service corridor and is dependent on a single lift:
 - Patients transiting between the Women's and Children's Services (WACS) building and the main operating theatres share the corridor with domestic and clinical waste, stores for deliveries and catering services.
 - When the lift is out of service for maintenance or repair these journeys require an ambulance transfer between buildings.
 - Inpatients requiring access to renal services have to move (in beds) through the main reception and across the main access road.
 - Poor serviceability of the main lifts due to heavy usage results in inpatients (in beds) transiting through the hospital's main entrance foyer en-route to x-ray or the main operating theatres.
- The very high occupancy rates for inpatient beds leaves no capacity to accommodate additional patients during periods of peak demand:
 - Areas being used for 'surge' that were not designed for inpatient use
 - To address the shortage of clinical space in ward areas, rooms designed for storage and support services (linen, clinical, domestic and confidential waste, medical equipment) have been re-assigned as clinical space. The resulting 'clutter' in ward and corridor areas leads to inefficiency, a poor patient experience and the increased risk of an infection control or health and safety incident
 - Rooms designed for staff use have also been re-assigned as clinical space. Clinical pressures make it increasingly difficult for staff to use the centralised canteen/welfare facilities, but they have no suitable rest rooms in or close to their working areas
 - Increased infection control risk arising from inability to isolate patients or conduct essential maintenance or deep cleans.

To meet operational pressures on the WGH site, WHHT has become increasingly dependent on the use of temporary buildings to deliver some aspects of clinical care. The location, accessibility and condition of these buildings impacts on the clinical and financial efficiency of the hospital, the patient experience and quality of care available. Several of these buildings are now unsuitable for clinical use and the services must be relocated.

Waiting areas in Radiology are in a corridor close to the main hospital reception, leaving patients in hospital gowns with very limited privacy or dignity.

Many of the windows within the main clinical buildings on the WGH site (PMoK and WACS) are old 'aluminium type':

- They are not double glazed and provide very poor insulation or protection from the sun
- The window surrounds leak, particularly on the sides exposed to prevailing winds
- As these buildings are not air conditioned, windows have to be opened to aid ventilation and control temperature, allowing pigeons to access the building with the resultant infection control risk

- Temperatures on wards and in clinical areas can exceed 30°C during summer
- The design and layout of the clinical areas limit the opportunity to replace these windows, except as part of a major refurbishment programme.

The estate is also limiting WHHT's ability to comply with the Equality Act. The age of the estate (40% is over 40 years old), the topography of the sites (two of the hospitals are built on steep hills), and the increasing number of people with impaired mobility using the facilities, all provide challenges. In 2016 WHHT had an independent access assessment and is currently implementing a prioritised action plan to address the issues identified. The focus remains the provision of the best practicable solution for all hospital users within the limitations of buildings, layout and available resources.

In the 2018 patient-led assessments of the care environment (PLACE) assessment results, WHHT underperformed substantially. For 'Dementia', 'Disability' and 'Privacy, dignity and wellbeing' all three sites have shown a decline and sit consistently below the national average. All of the failures are due to restrictions within the current estate and cannot be addressed without significant capital investment. Major improvements are required across WHHT's estate if it is to meet patient expectations, support delivery of safe, effective care, and provide flexibility to adapt to changing practices.

Risk to business continuity

The WHHT estate has suffered from historic underinvestment and so now over 57% of WHHT's total estate, and 80% of the WGH site, is assessed to be in 'poor' condition or worse. Backlog maintenance is estimated to be £77m in the latest Six Facet Survey, with a further £111m required to address issues relating to functional suitability and fitness for purpose if these buildings continue in use. The CQC report in November 2018 rated WHHT as 'Requires Improvement'. This is partly because "The environment in which services were provided were not always designed and managed to ensure the safety of patients using them".

The poor condition of the estate has resulted in a significant risk to business continuity, with a number of incidents occurring, mostly at WGH. In one month alone, the following incidents were experienced:

- An HDU ambulance had to be sourced eight times to provide inter-building transfer due to lift 9 failure – costing thousands of pounds and resulting in delays to patients receiving scans and theatre lists
- There were two waste water leaks in the A&E department - one in majors resulted in a loss of six cubicles for six hours, consequently patients had to be offloaded into the corridor for a short period of time
- As part of a planned generator test a failure in the system resulted in loss of ventilation to the operating theatres – surgical/trauma patients had to be diverted for three hours
- A burst mains water pipe resulted in a business continuity incident – for 12 hours day surgery had no toilet facilities and renal patients were diverted to alternative sites
- An emergency steam shut down to repair a steam leak led to the suspension birthing pool facilities and gradual loss of hot water.

To date, WHHT's reactive maintenance capability and mitigation plans have been successful in limiting the impact of the frequent environmental failures on patients' clinical outcomes, although their experience may have been unsatisfactory. There are currently over 1,000 reactive maintenance call-outs per month at the Watford site. This position is unsustainable as the number of significant infrastructure failures increases. If nothing is done, the cost of maintaining the estate will continue to grow at an increasing rate, without any real improvement in its condition, and patient safety will be put at risk. The estate must now be improved to minimise these risks and allow best value for money to be gained from future investment, maintaining the estate to the required standard rather than simply patching it up.

The current healthcare system is under pressure, fragmented and at risk of becoming clinically unsustainable

In addition to an estate that is no longer 'fit for purpose' and an increase in demand on acute services, the Trust's inherited pattern of hospital services across multiple sites means that some services are struggling to achieve the required clinical standards; clinical services are fragmented, even within individual hospital sites, staff are spread too thinly: patients are being transferred unnecessarily to get the care they need; and operationally, additional costs of duplication and additional pressures in funding are being incurred.

West Hertfordshire has a large enough population to support a full range of acute general hospital services but splitting these services over three sites in their current configuration is increasingly difficult to maintain without compromising the quality and efficiency of services.

Increased demand on emergency care & specialist services

The welcome improvement in the life expectancy of older people experienced across the UK in recent years is particularly pronounced in west Hertfordshire. The total population within HVCCG is expected to increase by

around 12% over the next 20 years⁴. The population over 65 has increased by 22% in just 10 years⁵ and this growth rate is forecast to continue over the next decade and beyond⁶. As a result, the pattern of demand for services has shifted, with greater need for the type of services that can support frail people, often with multiple long-term conditions, to continue to live with dignity and independence at home and in the community.

The increase in the elderly population and the number of people living with long-term conditions coupled with the reduction in funding in the voluntary sector and social services results in an increased pressure on emergency care services. Over the five years between 2013 and 2018, A&E attendances at WGH increased by 13%⁷ and emergency admissions increased by around 10%, placing increased pressure on acute services, particularly those at WGH, where most of our sickest patients are seen.

The additional need for emergency care has meant that WHHT has struggled to achieve the required clinical standards and maintain service quality and has introduced incremental changes to care pathways and supporting facilities, in the absence of approval of a longer-term plan for the scale of change that is ultimately required.

For example, the Trust was an early innovator in providing ambulatory care, to enable patients to receive emergency specialist care and treatment, without requiring overnight admission. However, this has given rise to the creation of several small and fragmented assessment units. There would be clinical benefits in developing a single combined assessment facility in which patients can be cared for by the most appropriate team of specialists, with relevant diagnostic services easily accessible. This would result in shorter transfer journeys and expediting pathways across the WGH site.

Inability to provide the multi-specialty assessment service that clinical teams are keen to establish, also then risks further exacerbating pressure on inpatient bed capacity, with patients potentially requiring overnight care whilst their assessment is completed and care plan is confirmed.

Staff working in facilities that are cramped and in an environment that is sub-standard also inevitably takes time away from their core aim of attending to patient care and can also lead to increased length of stay for patients. Inconsistent ward layouts mean that staff working across wards need to navigate their way to ancillary spaces such as waste disposal and linen storage in each individual ward or may need to await room availability to have a conversation with patients or relatives with appropriate privacy, given the limited bed-bay space currently available.

Similar issues are experienced in theatres and in maternity services, where existing clinical areas are small, storage space is limited and the circulation space too cramped to easily accommodate the movement of patients, staff, visitors and support services, given the number of patients now cared for on the emergency site. This has an inevitable impact on service efficiency, but most importantly risks a poorer patient, carer and staff experience.

Some planned operations have to take place on the emergency site, particularly if patients have more complex needs. Lack of bed space and theatre time can mean that these procedures are cancelled so that emergency patients can be treated. Patients that need planned operations such as hernia repairs, gall bladder surgery and hip replacements, should not have their care affected by the need to prioritise seriously ill or injured emergency patients. Improvements to the environment would support improved emergency care pathways, support greater efficiency and enable Trust staff to work in an environment that promotes high quality care.

Fragmentation of specialist planned care services across several locations

Many specialist teams provide planned care services across all three Trust sites; for some services that see a high volume of outpatients and do not require complex or frequent diagnostics, this can be beneficial and afford care closer to patient's homes. However, as there are different diagnostics available on each of the Trust sites, for some services, provision of care across several locations can result in a fragmented service and variable patient care pathways.

Figure 19 below illustrates the pathway for prostate cancer under the current configuration of services and the extent to which patients have to navigate several different hospital sites in order to receive the care that they need. This increases the risk that patients' care is not effectively co-ordinated and expedited; patients may also attend the wrong hospital for their appointment, or experience delays in locating the department on arrival, for sites they are not familiar with. Figure 20 illustrates how this pathway could be simplified by reconfiguring and consolidating services across sites in line with modern care pathway needs.

⁴ Office National Statistics 2016-based Population Projections for Herts Valley CCG (2018-2038)

⁵ Office National Statistics 2007 and 2017 Population Estimates for Herts Valley CCG (65+)

⁶ Office National Statistics 2016-based Population Projections for Herts Valley CCG (2018-2038, 65+)

⁷ Demand and activity modelling was undertaken in Q3 2018/19 using six full financial years of data (2012/13 to 2017/18). Data from 2018/19 will be included in refreshed modelling for any Outline Business Case.

Figure 19: Example of current pathway for prostate cancer

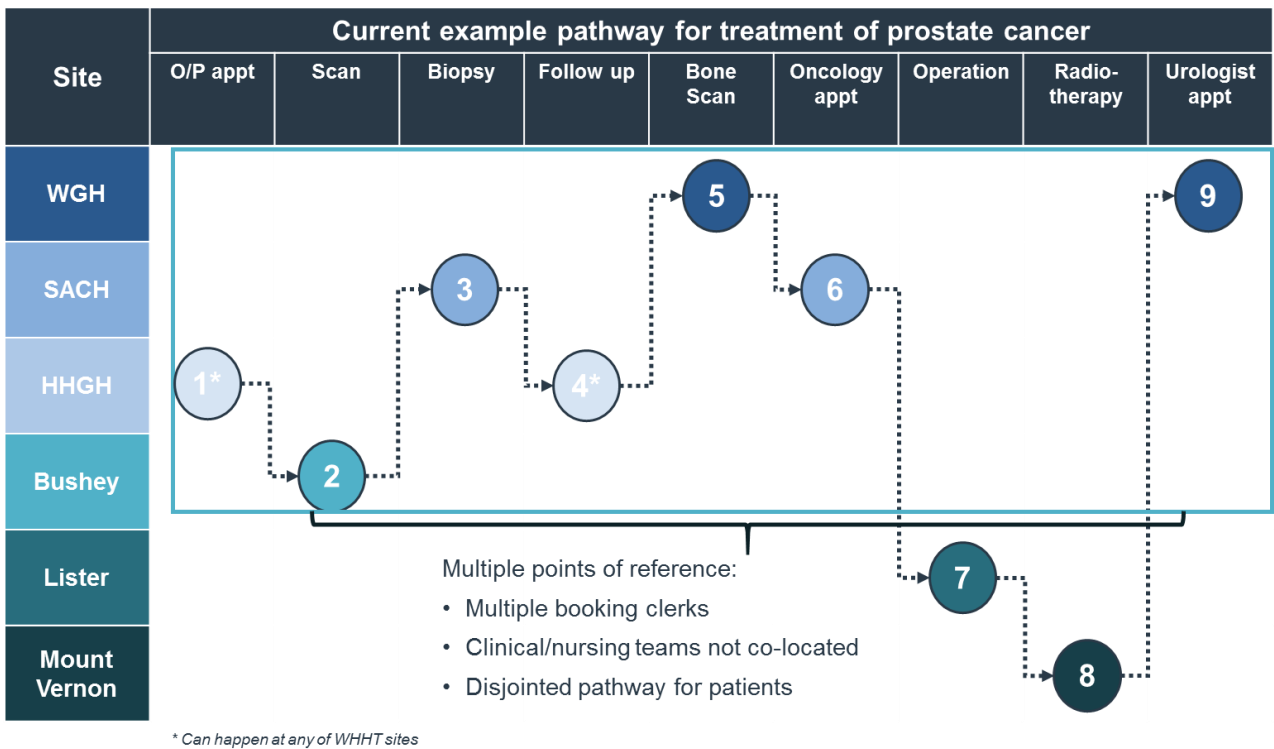
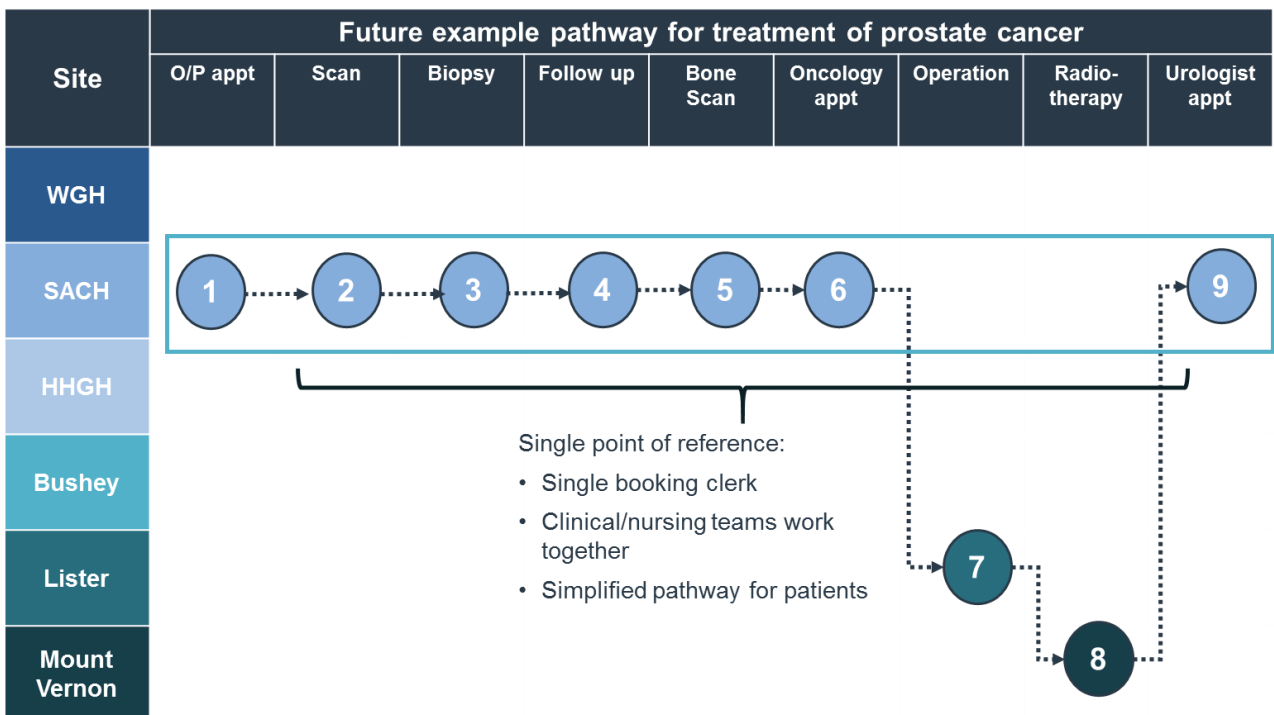


Figure 20: Example of future pathway for prostate cancer



Whilst the existing service configuration can adversely impact upon patient experience, it can also result in a poor working experience for staff by reducing training opportunities for junior staff, creating issues in providing cover for colleagues whilst they are on annual leave and reducing the opportunity to consult with colleagues and work effectively as a team.

With the medical workforce, the current service configuration and the requirement for consultants and other specialist staff to cover multiple sites can at times limit their ability to provide senior patient reviews. This compromises the Trust’s ability to achieve Royal College guidance standards in some areas.

For non-medical workforce the challenges are similar, senior expertise is split across three sites and the learning environment and provision of workforce development is challenging. Furthermore, because some teams are spread out, the services are vulnerable to unexpected absences and the non-availability of staff.

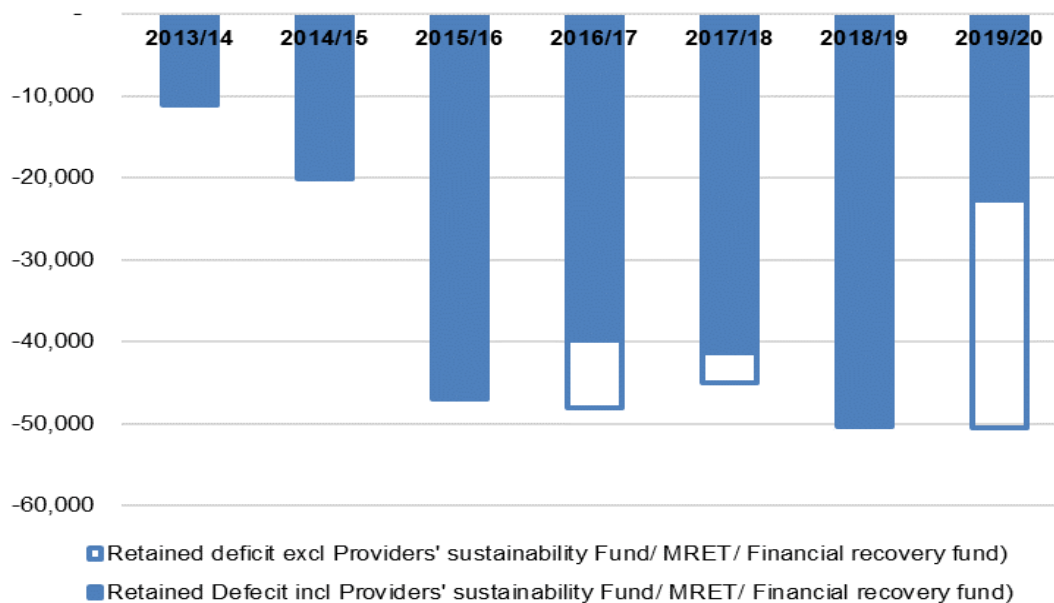
This compounds an already challenging recruitment environment and can lead to difficulty in recruiting and retaining the right substantive workforce to provide high quality safe care.

Achieving long-term financial stability

Current financial position

The Trust is currently spending c.£50m more annually than it receives in funding, excluding the provider sustainability fund (PSF), financial recovery fund (FRF) and marginal rate emergency tariff (MRET) funding. This position has been progressively deteriorating over time since 2014, as shown in Figure 21.

Figure 21: Summary of WHHT's historical performance



Contributory factors to WHHT's financial challenge include:

- Increasing investments in the Trust's clinical workforce
- The cost of maintaining its estate
- Reduced opportunities for efficiencies to be made within existing operating and clinical models and infrastructure limitations and degradations
- Additional costs to accommodate increasing number of patients delayed in their transfer of care

Future financial challenges

WHHT, supported by wider changes in the local health economy, must become more efficient if it is to achieve long term sustainability. WHHT has cost improvement programmes (CIPs) in place which are forecast to generate recurring annual savings of 4% per year over the next three years, but this is not sufficient to eliminate the Trust's deficit. Further efficiencies can only be enabled through investment in WHHT's estate. This will be necessary to improve patient flows, workforce productivity and efficiencies, flexibility to respond to NHS reform, and also to create an attractive workplace for staff to support recruitment and retention.

2.2 Investment objectives

To address the case for change, WHHT's Board has agreed the following investment objectives:



1. Providing healthcare from fit for purpose buildings

We need to invest to ensure care is delivered from **buildings that are fit for purpose** in a way that supports our wider aims for the **future of healthcare** and meets expected **future demand**



2. Improving clinical sustainability

We need to change the way acute hospital services are delivered to meet the standards we expect, by **enhancing separation of emergency and planned care services and consolidating services across locations where possible**



3. Achieving long-term financial stability

We need to develop services in a way that is **affordable to commissioners, to funders and to the Trust** on both a capital and revenue basis, as quickly as possible

2.3 Scope

The scope of this SOC is focused on the estate configuration necessary to provide the required acute hospital services described in WHHT's clinical strategy, underpinned by the future model of care established by the Hertfordshire and West Essex STP.

In the original version of the SOC that was approved by the WHHT Board in 2017, HHGH was out of scope. At that time the *Your Care, Your Future* programme had identified a requirement for a local health facility in Hemel Hempstead and therefore HHGH was excluded from the scope of the 2017 SOC. However, as work progressed on both the HHGH SOC and the WHHT acute redevelopment SOC, it became clear that all acute provision needed to be looked at together to establish the optimum service model for all services and sites.

The sites in scope for this SOC are therefore the three existing WHHT sites at WGH, SACH and HHGH along with any additional sites from which acute hospital services may be delivered in the future.

While this SOC outlines the estates and infrastructure investment and includes some of the costs for wiring etc., it does not include investment for hardware, software or other digital enablers. The case for investment in digital transformation is being developed as part of a separate business case, recognising that changes can be delivered whilst improvements to the estate come to fruition.

2.4 Clinical service model

As demonstrated by the case for change described above, WHHT cannot continue to provide services in its current configuration. This would result in the Trust becoming increasingly unable to meet clinical standards, working from buildings that are unfit and financially unsustainable. Addressing these issues requires the Trust to consider how it can deliver care differently in the future and the different ways it can organise itself to do this.

Engagement with clinical staff undertaken as part of the previous SOC development confirmed a strong view from clinicians that all emergency inpatient care for medically unstable patients requiring 24/7 consultant-led care should be retained on a single, centralised emergency and specialised care site. This provides the safest, most effective care to be provided for patients and optimises access to the full range of specialist expertise and care 24 hours per day, 365 days per year. Patients who are medically stable and no longer require 24/7 consultant-led care should be supported to access care at home or in local community settings.

For planned care, it was agreed that whilst there were some benefits to having planned and emergency care on a single site, the preferred clinical model would be for day case and low to medium complexity inpatient surgery to be undertaken on a separate planned care site, subject to appropriate case selection and supporting workforce and infrastructure, given the greater benefits associated with reducing the risk of cancelling planned procedures to accommodate emergency patients and in line with the NHS 10-year plan.

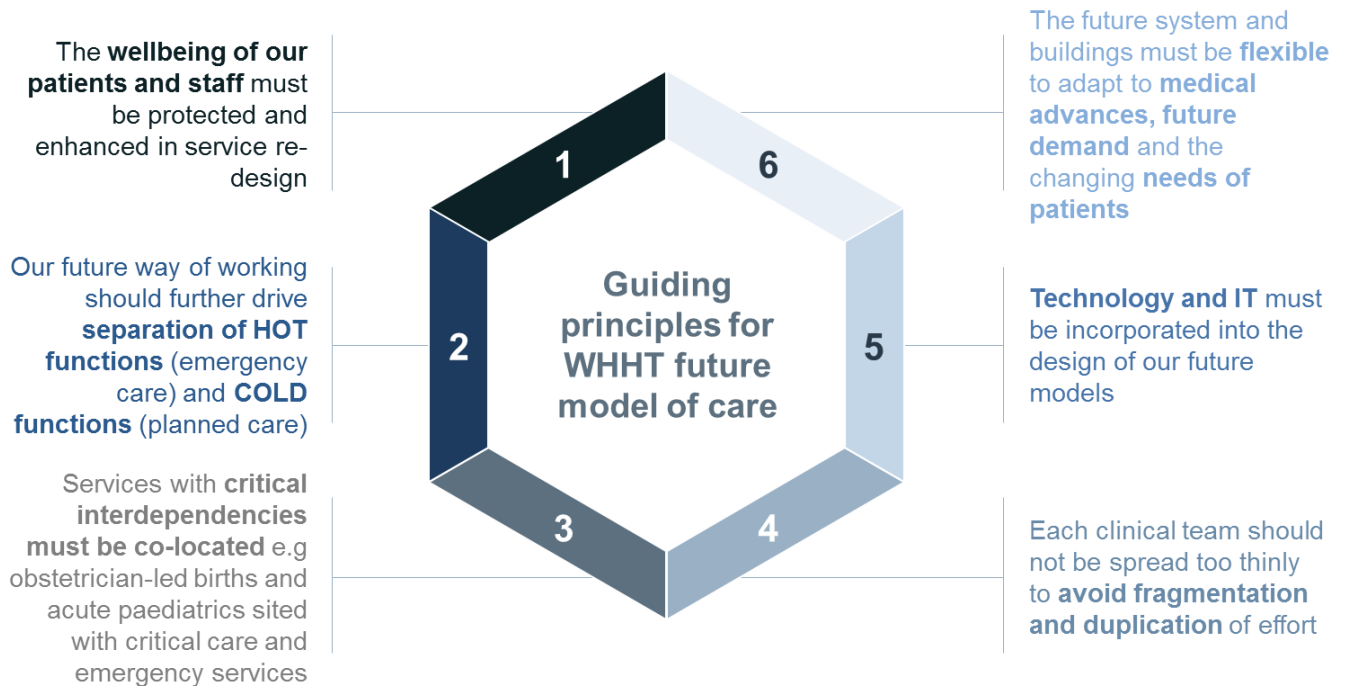
While the scope of this SOC has changed – the future of the HHGH site must also be considered – the key principle of separating emergency and specialised care from planned surgical care remains consistent and is endorsed in the recent NHS Long Term Plan.

2.4.1 Guiding principles

The proposed future model of hospital services in west Hertfordshire will support and enable delivery of the vision and ambitions described in the NHS Long Term Plan. Digital technology will have a central role in transforming services, supporting more people to have care at, or closer to home complemented by a hospital model that delivers care from modern buildings that maximises essential clinical adjacencies, ensures quality and delivers revenue savings.

Clinicians from across WHHT have developed a set of guiding principles for the clinical model that underpin all estates options considered within this SOC. These have been reviewed and agreed by the Trust’s Clinical Advisory Group (CAG) and are summarised in Figure 22.

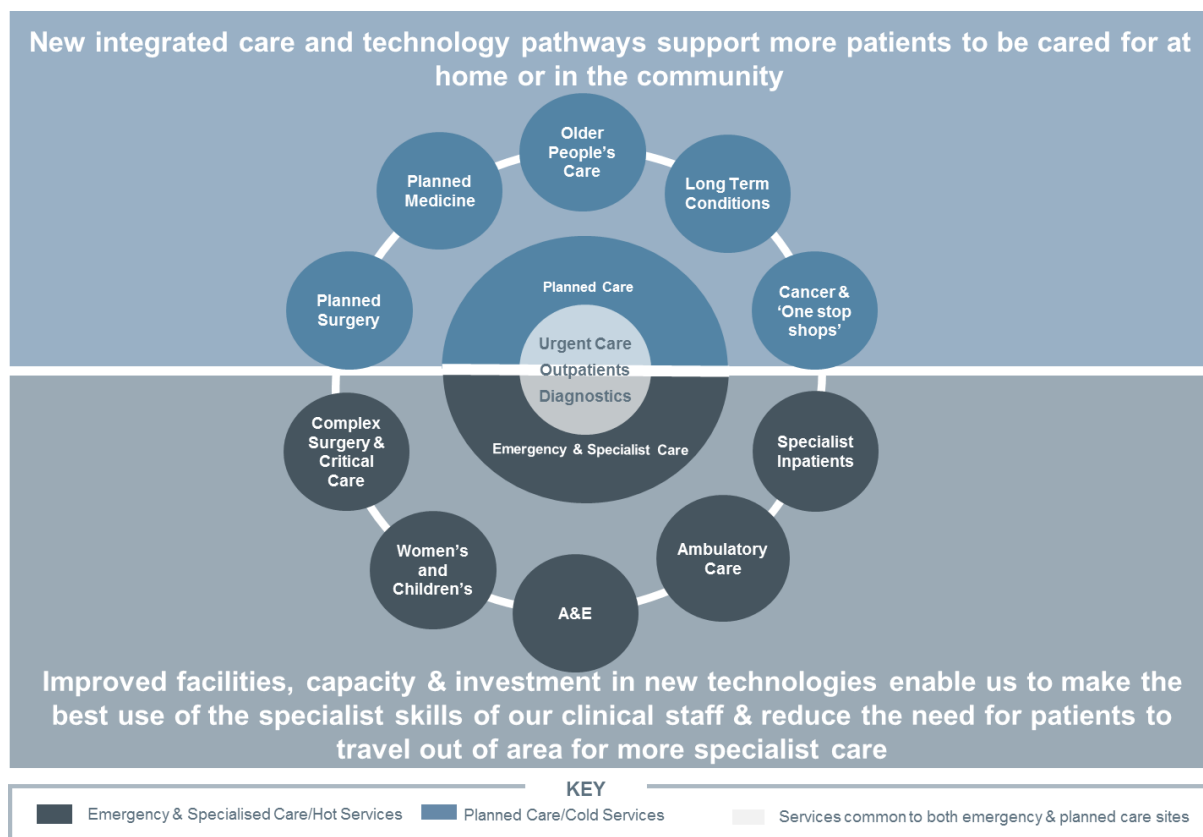
Figure 22: Guiding principles for future design of hospital services in west Hertfordshire



2.4.2 Key aspects of the clinical model

Figure 23, below, illustrates the key aspects of the clinical model for WHHT which has been designed using the principles described above.

Figure 23: Key aspects of the WHHT clinical model



In line with recommendations in the NHS Long Term Plan and views from clinicians across the Trust, the proposed model separates ‘hot’ functions that focus on emergency and specialised care and ‘cold’ functions that focus on planned care:

- **Emergency and specialist services or ‘Hot’ services** are defined as those services that are reliant on the presence of critical care and/or services that critical care is dependent on. These are services that only the highest risk and sickest patients require from a healthcare service.
- **Planned care services or ‘Cold’ services** are defined as services that do not require critical care and/or services that critical care is dependent on. They have close links with other health and care services, including community, mental health and primary care.

All sites will provide a range of outpatient and diagnostic services – although where possible services will be delivered in the community and closer to people’s homes. Digital health capability such as the electronic patient record and patient portals will enable ‘real-time’ review and advice on patients’ care to be provided by specialist staff where required.

Table 7 shows which services are defined as ‘hot’ and ‘cold’.

Table 7: Separating ‘hot’ and ‘cold’ services

Emergency care/ ‘hot’ services	Planned care/ ‘cold’ services
<ul style="list-style-type: none"> • Major acute/‘hot’ services include emergency department, acute medicine, emergency surgery, critical care, obstetrician-led births, emergency paediatrics and inpatient paediatrics. These major acute services can be organised in multiple ways. Within our clinical model, we have considered two clusters of services: • Major emergency department (adults): Emergency department, acute medicine, emergency surgery and critical care. • Women’s and children’s services: Obstetrician-led births, emergency paediatrics and inpatient paediatrics. 	<ul style="list-style-type: none"> • Local/‘cold’ services are hospital-based services that patients may require frequently, including, for example, urgent treatment centres, district hospital beds, outpatient clinics, daycase surgery and some inpatient care • Outpatients would continue to be developed with a desire to provide one-stop clinics (where all the necessary investigations and consultations can be completed in one location) and offering virtual/tele triage and follow-ups for all appropriate patients • Endoscopy would be provided on the planned care site and offered as close to home as possible

Emergency care/ 'hot' services

- The cluster of major emergency department (adults) services must be co-located to offer a viable major emergency department.
- Women's and children's major acute services (obstetrician-led births, emergency paediatrics and inpatient paediatrics) are typically closely linked; for example, clinical rotas are often shared. Obstetrician-led births and paediatrics must be co-located with critical care and emergency surgery. This means any service with obstetrician-led births and/or paediatrics requires a major emergency department.

Planned care/ 'cold' services

- The majority of planned surgery (i.e. daycase surgery) would be provided on the planned care site
- Complex elective inpatient surgery that requires co-location with a post-anaesthesia care unit (PACU) or high dependency unit (HDU) would take place on the major emergency and specialist acute site.

2.4.3 Benefits of the clinical model

The clinical model proposed aligns with the Trust's clinical strategy, which has the following aims:

- Deliver more care **LOCALLY**
- Strengthen **CORE** services
- Provide appropriate **SPECIALIST** care

The Trust is working closely with HVCCG and other partners to ensure that where clinically appropriate, care is delivered close to home and patients can access a wider range of services within their locality whilst making best use of technology to support this. When attendance at a hospital is required, the intention is that across both emergency and planned care services, care pathways are simplified, with an environment designed in a way that supports clinical need as opposed to being as a result of historical change.

Emergency & Specialist Care Pathways

HVCCG / STP partners are updating the system-wide urgent and emergency care strategy. It is expected that urgent treatment centres, in line with the new national commissioning specification, will operate in Hemel Hempstead and St Albans providing local access to urgent care and reducing the requirement for local residents to access emergency care services at WGH.

For those patients that do require emergency specialist care, new clinical models should improve capacity and patient flow. The Trust has well developed ambulatory pathways in place and will continue to further develop pathways to ensure that patients are only admitted for inpatient care when this is clinically necessary.

Improvements to emergency care will provide more physical space to assess and treat patients. The currently fragmented assessment units will be consolidated. Provided as a single function this will drive a culture throughout emergency care based on assessing patients as quickly as possible, so that they can be treated and supported home in a timely manner.

Having a greater proportion of core clinical spaces designed to ensure that clinical services are appropriately co-located, and that overall space is not cramped will also provide greater opportunity for emergency care services to function effectively, with greater consistency of ward layout and appropriate ancillary space.

Similarly, the development of theatres will address the capacity and backlog maintenance issues regularly experienced currently. As well as significantly reducing the downtime currently experienced (with subsequent impacts on planned care activity resulting in outsourcing costs or hire of temporary theatres), this will future-proof capacity for forecast increased demand.

Locating women's and children's services closer to general theatres, assessment facilities and the Emergency Department will not only reduce transfer time between departments, it will also provide a greater opportunity for clinical teams to work together to promote future innovation.

Planned Care Pathways

The further development of planned care services will provide a protected working environment to deliver safe, high quality and efficient diagnostic, outpatient and day case / inpatient surgery. The separation of planned and emergency care will ensure that cancelled procedures are minimised for patients requiring planned care and maximise theatre availability for emergency surgery at WGH.

Reviewing provision of specialist care across the Trust sites, with the aim that specialist teams are not fragmented and have access to the diagnostic facilities they need will streamline patient pathways and support the delivery of 'one-stop' models wherever possible. Convoluting pathways, such as those described previously for urology cancer patients (Figure 19) will be simplified to provide rapid diagnosis and an improved overall experience.

Involving frontline staff in the design of improvements to the planned care sites will also offer an opportunity to review how services are configured within sites and to consider new future ways of working, for example, adding

'virtual' consultation booths so that there are facilities for telephone or video dialogue between clinicians and patients.

Finally, ensuring that specialist care services and teams are not spread too thinly will ensure that surgical teams will have an increased presence on the Trust's inpatient care sites, with the development of bespoke facilities to support multi-disciplinary working for older people and those with longer-term conditions, so a greater proportion of these patients can be cared for in a community setting.

2.4.4 Forecast service demand and capacity requirements as a result of the agreed clinical model

A demand and capacity model has been built to:

- Forecast acute activity levels for the next 20 years
- Translate this activity into required capacity in terms of beds, theatres and other clinical rooms
- Convert this capacity requirement into a space requirement in m².

The model takes the baseline activity from 2017/18 and applies growth assumptions provided by the Hertfordshire and West Essex STP.

The change in activity anticipated over the next 20 years for each point of delivery (POD) is shown in Table 8.

Table 8: Growth assumptions between 2017/18 and 2037/38

Point of Delivery (POD)	Demographic Growth	Non-Demographic Growth	Demand Management	Overall Change ⁸
Accident & Emergency (A&E)	15%	27%	-31%	1%
Non-Elective (NEL)	20%	26%	-37%	-4%
Elective (EL)	20%	27%	-24%	16%
Day Case (DC)	21%	34%	-24%	23%
Outpatients (OP)	19%	35%	-36%	3%

More detail about these assumptions, including an annual breakdown, is provided at Appendix A.

Table 9 shows the capacity required across west Hertfordshire acute hospital services by 2037/38, calculated by combining the activity growth assumptions with WHHT capacity and utilisation assumptions (detailed at Appendix A). This is the point in time for which the future hospital services have been sized in order to provide sufficient capacity for the future.

Table 9: Capacity required by 2037/38

Resource	Current 2018	Future 2038
Beds ⁹	880	950
Theatres ¹⁰	13.5	15
Consulting Rooms ¹¹	c.100	80

Table 10 shows the capacity requirement in 2037/38 if demand management assumptions as per the Hertfordshire and West Essex STP MTFP are not fully achieved. This has been modelled with only 75% or 50% of plan being achieved.

⁸ Note that growth rates are compounded, rather than added, so for A&E $1.15 \times 1.27 \times 0.69 = 1.01$

⁹ Includes Delivery Suites, Day Care beds, ICU beds/cots, HDU beds. Excludes some Assessment/Observation areas and Intermediate care beds at Hemel Hospital which are provided by the CCG.

¹⁰ Current theatres assumes 4.5 (General Watford) 3 (Obstetrics & Gynaecology Watford), 6 (General SACH)

¹¹ Includes Consulting and Examination rooms. Excludes Treatment and Interview rooms

Table 10: Additional capacity required if demand management assumptions not achieved

Resource	Current 2018	Future 2038 (100% DM)	Scenario 1 (75% DM)	Scenario 2 (50% DM)
Beds ⁹	880	950	1,040	1,130
Theatres ¹⁰	13.5	15	16	17
Consulting Rooms ¹¹	c.100	80	90	100

Table 11 shows the capacity requirement in 2037/38 if efficiency assumptions around length of stay, Utilisation or opening hours are not achieved (See Appendix A). This has been modelled with only 75% or 50% of plan being achieved. The impact of the anticipated STP interventions in demand on planning for acute care provision in West Hertfordshire is also considered further below, as part of the assessment of risks relating to this SOC.

Table 11: Additional capacity required if operational efficiencies not achieved

Resource	Current 2018	Future 2038 (100% efficiencies)	Scenario 1 (75% efficiencies)	Scenario 2 (50% efficiencies)
Beds ⁹	880	950	980	1,010
Theatres ¹⁰	13.5	15	15.5	16
Consulting Rooms ¹¹	c.100	80	90	100

The success of both demand management interventions and operational efficiencies being achieved clearly has a significant impact on the capacity and therefore size of acute hospital required, with up to 240 more beds and three more theatres required if only 50% of both plans are achieved. These assumptions will therefore continue to be refined and validated throughout the development of the OBC and FBC.

2.5 Main benefits

The proposed investment in WHHT's estate is anticipated to deliver the following benefits, as defined by the acute transformation working group:

Table 12: Main benefits

1	Safety and better clinical outcomes for patients	As a result of a developing a functionally suitable estate, designed to meet the aims and objectives of the Trust's clinical strategy and clinical principles, such as separating 'hot' and 'cold' services, co-locating interdependent services and improving clinical adjacencies, patient safety will be improved, and better clinical outcomes will be achieved.
2	Patient and carer experience	By ensuring the quality of the hospital environment meets the needs of patients (e.g. privacy and dignity and improving services for those with disabilities / dementia) and ensuring patients have sufficient access to healthcare in west Hertfordshire, overall patient and carer experience will improve.
3	Workforce satisfaction	By adapting working practices such as reducing fragmentation of teams across sites and making the Trust a more attractive place to work through the physical design of spaces, overall workforce satisfaction will improve.
4	Flexibility to enable future changes in service models	As a result of there being sufficient space to add additional capacity and flexibility to change the use of buildings, the Trust will be able to take advantage of future medical and digital advances and adapt its service model to meet the changing needs of patients and workforce.
5	Improved operational performance and lower risk to business continuity	As a result of a fit for purpose estate with sufficient capacity to meet demand, designed for modern clinical and operational practices and able to optimise efficiencies.

6. Reduced operational costs for WHHT

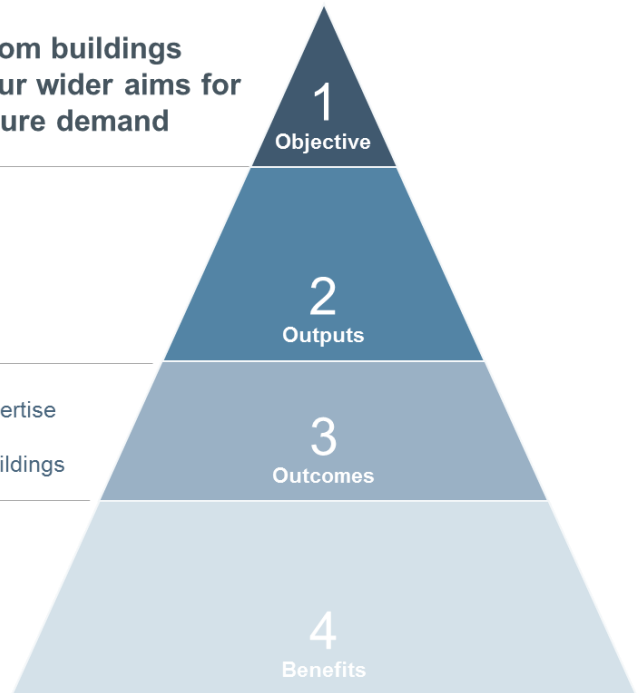
As a result of efficiency improvements, a reduced reliance on agency staff and reduced spend on emergency estate works.

The following diagrams illustrate the alignment of anticipated benefits with desired outcomes, outputs and overall investment objectives. The extent to which the available options can deliver these investment objectives and realise the anticipated benefits has been assessed in the Economic Case.

Investment objective 1: providing healthcare from fit for purpose buildings

We need to invest to ensure care is delivered from buildings that are fit for purpose in a way that supports our wider aims for the future of healthcare and meets expected future demand

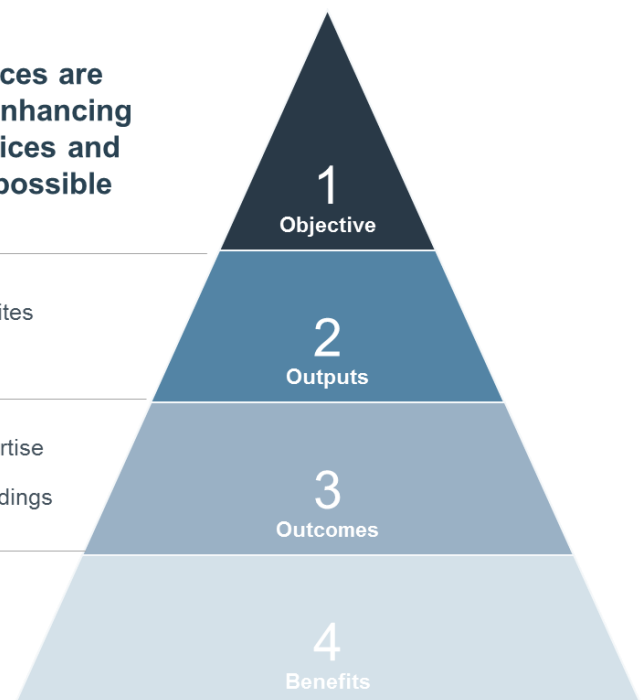
- Increased size of wards
 - Improved layout of services
 - Combined assessment areas
 - Better clinical adjacencies
 - Reduced walking distances
 - More new buildings built to modern standards
 - Improve statutory compliance of buildings
-
- Improved patient care as services are co-located, maximising expertise
 - Improved staff productivity
 - Improved work flow as less fragmentation of services between buildings
-
- B1: Improved safety and better clinical outcomes for patients
 - B2: Improved patient and carer experience
 - B3: A more attractive workplace for employees
 - B4: Flexibility to enable future changes in service models
 - B5: Reduced operational costs for WHHT
 - B6: Improved operational performance



Investment objective 2: Improving clinical sustainability

We need to change the way acute hospital services are delivered to meet the standards we expect, by enhancing separation of emergency and planned care services and consolidating services across locations where possible

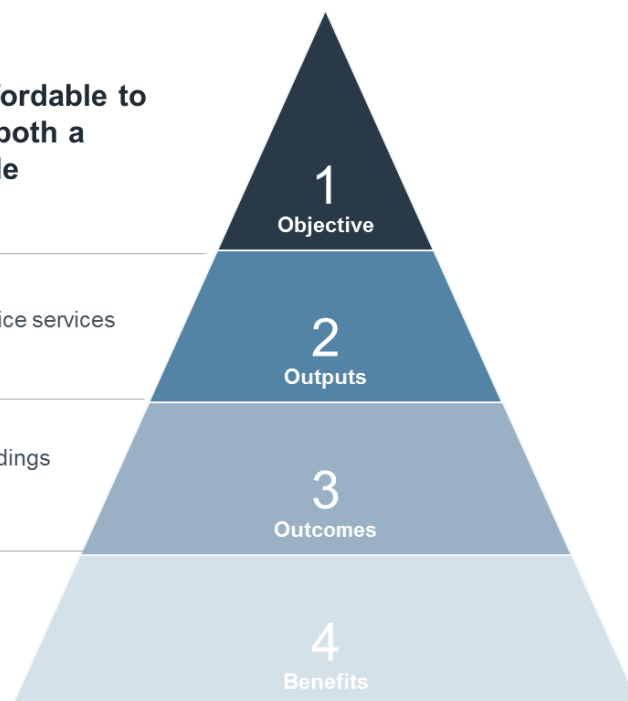
- Separation of planned care and emergency and specialist care
 - Co-location of specialist teams - working across a maximum of 2 sites
 - Better clinical adjacencies
-
- Patients treated in most appropriate care setting
 - Improved patient care as services are co-located, maximising expertise
 - Improved staff productivity
 - Improved work flow as less fragmentation of services between buildings
 - Improved training and supervision of staff
-
- B1: Improved safety and better clinical outcomes for patients
 - B2: Improved patient and carer experience
 - B3: A more attractive workplace for employees
 - B6: Improved operational performance



Investment objective 3: achieving long-term financial stability

We need to develop services in a way that is affordable to commissioners, to funders and to the Trust on both a capital and revenue basis, as quickly as possible

- Reduced fragmentation and duplication of services
 - New IT and digital technologies e.g. Robotics to automate back office services
 - New commercial partnerships
-
- Improved staff productivity
 - Improved work flow as less fragmentation of services between buildings
 - Improved patient flow and staff efficiencies from enabling Digital Transformation
-
- B3: A more attractive workplace for employees
 - B5: Reduced operational costs for WHHT
 - B6: Improved operational performance



2.6 Strategic risks, constraints and dependencies

2.6.1 Strategic risks

The major strategic risks relevant to the proposed estate redevelopment are detailed in Table 13. Further detail on the approach to risk management is included in the Management Case.

Table 13: Strategic risks

Risk	Proposed mitigation
There is a risk that the STP demand assumptions forecasting demand reduction for acute services do not materialise. This would result in the acute hospital being incorrectly sized and/or increased capital investment to provide required capacity; an additional 81 beds would be required if only 75% of the forecast reduction in non-elective admissions and LOS are delivered.	The forecast demand reductions have been based on the STP for Hertfordshire and West Essex. Sensitivity analysis has been performed to establish the potential impact of the assumptions being incorrect and all assumptions will be reviewed at OBC stage. The future hospital will be designed to offer flexibility, such that additional capacity can be added to meet demand if required.
There is a risk that population growth is greater than forecast using ONS.	The forecast population growth is based on ONS data. This will continue to be monitored against housing growth data to identify differences. Sensitivity analysis has been performed to establish the potential impact of the assumptions being incorrect and all assumptions will be reviewed at OBC stage. The future hospital will be designed to offer flexibility, such that additional capacity can be added to meet higher than forecast population growth if required.
There is a risk that the longer term STP strategy will require more radical transformational change across the system that may not align with the proposal set out in the SOC.	Continue engagement with STP throughout SOC and future business case stages to ensure close alignment between longer term system strategic aims and aims for WHHT and HVCCG.

Risk	Proposed mitigation
<p>There is a risk that stakeholder groups may not support the preferred option. This could lead to delays to implementation if additional work is required to provide further evidence in support of the preferred option before approval can be given or in the event of Judicial Review.</p>	<p>Stakeholder groups have been involved in the <i>Your Care, Your Future</i> programme since its inception and have continued to be involved during the options appraisal process – both as part of the original SOC and as part of this revised SOC. Queries and concerns raised by stakeholders have been addressed during the process and the choice of preferred way forward has received support from many stakeholder groups. Some concerns do still exist, however, and the project will continue to work with stakeholders to address these. Stakeholder engagement remains a priority for WHHT and will continue throughout the development of the OBC and FBC.</p>
<p>There is a risk that the required investment may not be available or that the affordability constraint set by regulators is tightened (or loosened). This may lead to the scope of implementation being further limited to meet a stricter affordability envelope than previously understood, reducing the benefits able to be achieved.</p>	<p>All shortlisted options considered as part of the economic appraisal are within the affordability envelope set to us by the regulators as part of the refresh of the SOC. A range of potential commercial delivery models, along with their financial implications, have been considered. These will be assessed in more detail at OBC stage to ensure the optimum balance of affordability versus value for money can be achieved.</p>
<p>There is a risk that WHHT's estate deteriorates further before implementation can begin, impacting upon the starting position for redevelopment, and therefore increasing the cost, and potentially increasing quality and safety risks.</p>	<p>WHHT has an ongoing programme of improvement to address the most significant infrastructure risks and has developed an interim estate strategy which is aimed at ensuring WHHT is able to continue to meet demand in advance of the acute transformation.</p>
<p>There is a risk, due to operational pressures, that WHHT may not have access to the necessary resources, in terms of both capacity and capability, to manage the acute transformation. This could lead to delays to implementation.</p>	<p>The Management Case sets out the project management resource required for the next stage of the acute transformation, the development of the OBC. WHHT will supplement internal resource with specialist external technical advice where required to ensure it has the skills and experience necessary to move to the next stage.</p>

2.6.2 Constraints

Constraints have been identified that have influenced the planning of future hospital services in west Hertfordshire. The primary constraints are as follows:

- The *Your Care, Your Future* programme has established the future model of care for west Hertfordshire. This sets out the services to be provided from acute hospital sites in the future, and those which should be delivered closer to home
- NHS regulators provided guidance around an affordability constraint. The Trust was advised not to seek capital investment that exceeds the annual turnover of the Trust and that capital investment would be limited to Public Dividend Capital (PDC) only
- The *Your Care, Your Future* programme has established the future model of care for west Hertfordshire. This sets out the services to be provided from acute hospital sites in the future, and those which should be delivered closer to home
- One group of buildings on the WGH site are Grade II listed. Any proposed redevelopment of the site will therefore need to ensure that these buildings are suitably protected
- Planning permission will need to be granted for a development of a new site, or any substantial redevelopment of an existing site:
 - The Watford Health Campus (now renamed Watford Riverwell) master plan was approved by the planning authority in 2013 and this allows for the development of WGH to meet the future healthcare needs of the population. Although indicative building blocks were included within the plan, these were not developed in detail. The indicative footprint would allow the development of a hospital of 90,000m²-110,000m². Formal planning consent will be required (a 6-8 month process), but is supported by WBC and the development team

- Any new build or major development at the SACH site will require planning consent. Provided the plan remains with the current footprint and height restrictions, does not increase the volume of traffic accessing the site or create disruptive out of hours activity, it is likely that planning consent will be provided
- Any new build or redevelopment at the HHGH site will require planning consent. There is a high likelihood that planning consent will be provided although the Local Plan does identify the 'mothballed' areas of the site as potentially available for housing development and the site is included in the HHS Surplus Land return
- Any development on a greenfield site will be on the green belt and is not included within any of the currently published Local Plans, or those under development. A site review undertaken in support of this business case has identified potential locations, but these would be subject to the full planning process and land purchase.

2.6.3 Dependencies

- Progression of the project is dependent on the Trust maintaining the strategic support of the Hertfordshire and West Essex STP and support from HVCCG.
- Realising the optimal benefits from this project will be dependent on the use of digital technology to enable interoperability across primary, social care and secondary care systems
- The project is dependent on effective on-going public and stakeholder involvement and engagement.

Successful implementation of the proposed changes will be dependent upon a number of other schemes:

- As described in Section 2.1.3, the *Your Care, Your Future* programme, as part of the wider Hertfordshire and West Essex STP (A Healthier Future), is delivering a range of interventions across primary, community, mental health and social care aimed at reducing the demand for acute services in west Hertfordshire. These interventions will need to be delivered as planned for the acute transformation to be implemented as planned. Additional capacity will need to be provided on the acute hospital sites if this is not the case.
- If WGH is chosen as the location of the emergency and specialised care site, the Watford Riverwell development will provide the opportunity to make land available to WHHT, in line with current master plan for the area in order to provide maximum flexibility for redevelopment. The 2013 Campus Agreement provides an overarching masterplan for the site that includes agreement in principle from the planning authority for development of healthcare facilities within the scheme. A number of conditional clauses within the Agreement provide both opportunities and constraints for development of the site.

2.7 Conclusion

This Strategic Case has set out the strategic context for the proposed investment in WHHT's estate. The *Your Care, Your Future* programme confirmed that acute hospital services must be rationalised in order for them to be delivered to high standards and this is echoed by national strategies.

There is a compelling case for change specific to WHHT's estates, to afford clinical and financial sustainability. The way our current estate functions and our clinical services and teams are configured across sites does not allow for clinical adjacencies to be optimised, provide the required capacity for changing demand and does not address significant issues with its functional suitability which are all impacting on patient experience. Over 57% of WHHT's total estate, and 80% of the WGH site, is assessed to be in 'poor' condition or worse and if nothing is done, WHHT's backlog maintenance liability will continue to grow, along with the potential risk to business continuity and patient safety.

These challenges and their potential solutions have been debated for over a decade in west Hertfordshire. During this time the condition of our buildings has further deteriorated, and services have also become more fragile as our ability to deliver new models of care has been constrained and demand for hospital services has outstripped capacity. While day-to-day operational plans are in place to ensure the care and safety of patients, a sustainable solution is urgently needed. Investment is now required to provide a fit for purpose estate with flexibility for the future. This will improve patient safety and employee satisfaction and will ultimately enable WHHT to deliver sustainable acute hospital services into the future.

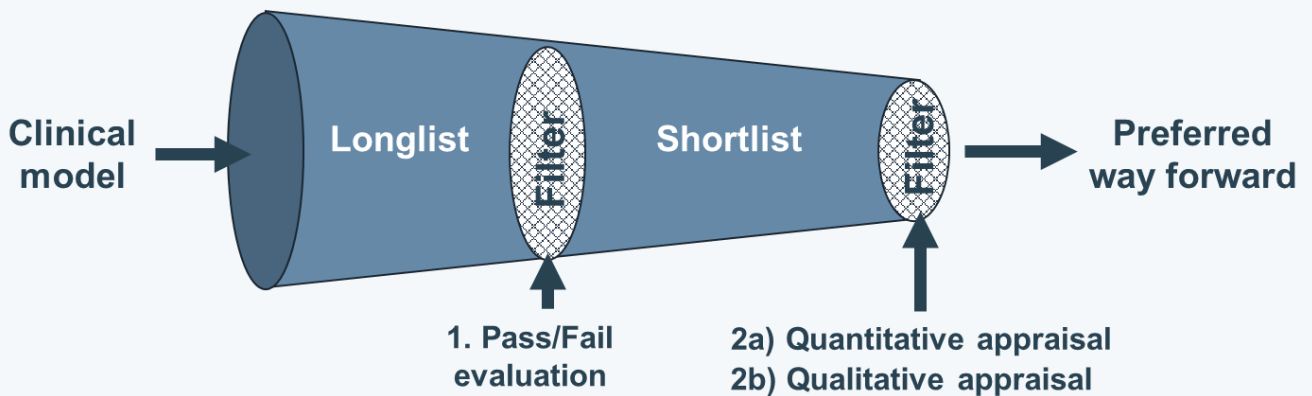
3 Economic Case

The Economic Case assesses a long list of options for the future of hospital services in west Hertfordshire against a range of evaluation criteria and then appraises the costs and benefits of a shortlist of options to confirm a preferred way forward. The economic appraisal has been undertaken in accordance with HM Treasury Green Book guidance.

3.1 Options appraisal approach

Figure 24 summarises the overall approach for the options appraisal undertaken to inform this SOC.

Figure 24: Options appraisal approach



The future clinical model for WHHT, described in Section 2.4, is an input to the options appraisal process and underpins all options considered. This defines which of WHHT's services must be co-located and which should be separated. It was developed by the project team working closely with Trust clinicians.

The options appraisal process itself has been undertaken in two stages. Firstly, a longlist of all the potential options for the future of hospital services in west Hertfordshire has been defined, considering both the number of hospital sites to be operated by WHHT and the potential locations of those sites. These options were evaluated against a range of evaluation criteria, using a minimum threshold for each to rule out any option which cannot be considered further.

The second stage involved a detailed appraisal of the resulting shortlist of options. This consisted of two parts:

- A quantitative appraisal of the costs and financial benefits associated with each option
- A qualitative appraisal of the non-financial benefits associated with each option

The outputs from both parts of the detailed appraisal have been used to help identify a preferred way forward.

Stakeholders have been involved throughout this process, including:

- Running a series of public engagement events to keep people informed and updated on the project and provide an opportunity to ask questions and give feedback (see Table 14 below)
- Responding to considerable correspondence with members of the public in west Hertfordshire; and inviting people to submit comments/make representations to Trust and CCG board meetings
- Forming a stakeholder panel, made up of clinicians and managers from the Trust, CCG and partner organisations as well as patient and public representatives (including Hertfordshire Healthwatch) from across west Hertfordshire to: consider and confirm the shortlist; score the shortlisted options in terms of their ability to achieve the desired (non-financial) benefits and feedback their views on the emerging 'Preferred Way Forward' to the Trust and CCG Boards prior to final decision making. See section 3.6 for more details on the stakeholder panel
- Running a series of clinical engagement events (regular agenda item at weekly Clinical Advisory Group and quarterly WHHT clinical engagement event) and wider staff briefings across the Trust and CCG (regular update at Divisional Management meetings, team briefings and weekly staff drop in sessions) to develop and communicate the clinical model and provide an opportunity to ask questions and give feedback on the options and the wider SOC process. See section 2.5 for more details on the clinical model.

In parallel with this, the Trust and the CCG have engaged extensively with local MPs, local authorities, scrutiny committees, Healthwatch and local community partner organisations.

Table 14: Summary of public engagement events

Date	Purpose
October-November 2018	Public informed of the need to refresh the original Strategic Outline Case (SOC) and communicate high level process and next steps.
January 2019	Public informed of the options appraisal approach – emphasised the affordability constraint for evaluating options and likely impact of this constraint on the longlisting process.
March 2019	Public informed of the confirmed shortlist. Public views sought on the shortlist and fed back to the stakeholder panel scoring session and Trust and CCG Board discussions.
June 2019	Public informed of the outputs of the Economic Appraisal and the 'Emerging preferred way forward'. Public views sought on the 'Emerging Preferred Way Forward' and fed back to the Trust and CCG Boards to inform a decision on the confirmed 'Preferred Way Forward' and final SOC.

The following sections provide a detailed description of the key aspects of each stage in the options appraisal undertaken.

3.2 Evaluation criteria

The same seven evaluation criteria have been used for the options appraisal within this SOC as previously used in the original acute transformation SOC, which were themselves developed from work originally done by the *Your Care, Your Future* programme, taking into account stakeholder feedback.

To ensure only feasible options are considered within the shortlist, and in light of a clear affordability constraint from NHS regulators, a minimum threshold has been defined for each criterion. Any option that fails to meet the minimum threshold across all criteria was therefore ruled out at longlist stage. Table 15 shows the evaluation criteria and the minimum threshold agreed for each.

Table 15: Evaluation criteria

Criteria	Threshold
Affordability	The required capital investment must be within the Trust's annual turnover (c. £350m)
Quality	The option must at least maintain patient safety at current levels
Patient experience	The option must support an improvement in patient experience from current levels

Criteria	Threshold
Access	Services must be located to serve the Herts Valleys population
Deliverability	The site locations must have sufficient space to accommodate the requirements of the preferred model of care for the relevant site configuration option
Value for money	The option must support an improvement in the Trust's financial position in the long term
Strategic alignment	The option must deliver the objectives and provide flexibility for the future

3.3 Long list of options

An options framework approach has been used to identify the long list of potential options for the future of hospital service in west Hertfordshire. This considered available options within two main categories of choice: site configuration (i.e. number of hospital sites to be operated by WHHT) and the potential locations of those sites.

Three different site configuration options were identified, which varied in the number of hospital sites that would be operated by WHHT in the future. Figure 25 below summarises how the clinical model would vary across these options.

Figure 25: Site configuration options

Three sites			Two sites			One site		
Emergency care	Planned medicine	Planned surgery	Emergency care	Planned medicine	Planned surgery	Emergency care	Planned medicine	Planned surgery
<ul style="list-style-type: none"> Emergency care, planned surgery and planned medicine will each be consolidated as far as possible on a separate site All sites will be supported by diagnostics and clinical support services appropriate to the clinical need of the site 			<ul style="list-style-type: none"> Emergency care will be consolidated on one site, with urgent treatment available at both sites Planned care (including both planned surgery and planned medicine) will be consolidated as far as possible on a separate site Both sites will be supported by diagnostics and clinical support services appropriate to the clinical need of the site 			<ul style="list-style-type: none"> All acute hospital services will be provided from a single site, but with a clear physical separation between emergency and planned care Further urgent care will be provided separately (either co-located with other local services or standalone) 		

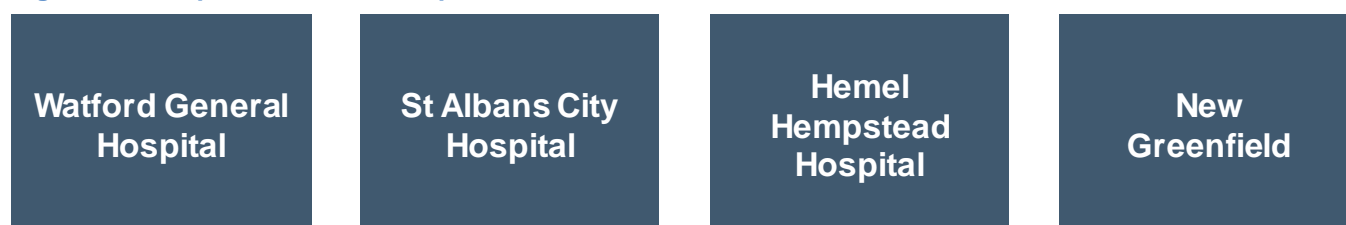
Four potential hospital site locations were identified, which could be used for any of the individual hospitals within the site configuration options described above. As shown in Figure 26, these include all three existing WHHT sites plus a “Greenfield” site which would be optimally located for the site configuration in question.

An independent site search was commissioned and provided assurance that a site could be found within the chosen area suitable for the construction of any of the options under consideration. Selection of a preferred site would be dependent on successful negotiations with the local planning authorities and land owners¹².

¹² Please go to summary of site survey

<https://www.westhertshospitals.nhs.uk/about/20190305%20Site%20Option%20Review%20Summary%20Pack.pdf>

Figure 26: Hospital site location options



Combining all the potential permutations of site configuration options with site location options would lead to an overall long list of 40 options (4 ‘one site’ options, 12 ‘two site’ options and 24 ‘three site’ options). Evidence was therefore collated against each of the evaluation criteria to enable this to be quickly narrowed down to a short list of feasible options for more detailed appraisal.

The table below describes the analysis undertaken to support the appraisal of the options against the evaluation criteria.

Table 16: Analysis undertaken to identify which longlisted options should be ruled out

Criteria	Analysis undertaken	Able to rule out longlisted options?
Affordability	Outline capital investment estimates based on forecast future demand for services and therefore capacity required.	Yes – some longlisted options will require capital investment greater than WHHT’s annual turnover.
Quality	None at this stage.	No – All options can be designed to ensure patient safety; therefore, all options meet minimum threshold
Patient experience	None at this stage.	No – All options can be designed to improve patient experience; therefore, all options meet minimum threshold
Access	Travel and catchment analysis, to determine travel times to different sites and potential impact on catchment area as a result of any service reconfiguration ¹³ .	No – Analysis shows that all options provide services located to serve the population of the Herts Valleys and provide reasonable access, therefore all options meet minimum threshold.
Deliverability	Site footprint requirements for schedules of accommodation, based on forecast future demand for services and therefore capacity required.	Yes – Existing sites have some limitations due to space constraints, ruling out some options.
Value for money	None at this stage	No – All options have the potential to improve the Trust’s financial position, therefore all options meet minimum threshold
Strategic alignment	None at this stage	No – All options can be designed to meet the objectives to varying degrees, therefore all options meet minimum threshold

This shows that the only criteria for ruling out options on the long list are Affordability and Deliverability.

3.3.1 Deliverability

To determine which potential longlisted options can be ruled out on the basis of deliverability, the different types of hospital site within each site configuration option were sized and compared against the maximum size of hospital possible at each of the existing site locations. A summary of this analysis is provided in the table below. Specific greenfield sites have not been identified and are therefore not included within this analysis. However, a specific site would only be considered if it has sufficient space to accommodate the site type in question.

¹³ https://www.westhertshospitals.nhs.uk/about/StakeholderInfoPack_CatchmentTravelAnalysis_v0-9.pdf

Table 17: Outputs from deliverability analysis

Site configuration	Site type	Minimum space required	Potential space available m ²		
			WGH (100,000m ²)	SACH (25,000m ²)	HHGH (45,000m ²)
One site	Emergency and planned care	c.91,000m ²	✓	✗	✗
Two sites	Emergency care	c.74,000m ²	✓	✗	✗
	Planned care	c.22,000m ²	✓	✓	✓
Three sites	Emergency care	c.74,000m ²	✓	✗	✗
	Planned surgery	c.17,000m ²	✓	✓	✓
	Planned medicine	c.6,000m ²	✓	✓	✓

This analysis shows that:

- The WGH site has sufficient space to accommodate any of the hospital site types under consideration
- Both the SACH and HHGH sites are too small to accommodate emergency care under any site configuration model and therefore could only be used for planned care.

As a result of this analysis, it is clear that emergency care for west Hertfordshire must be located on either the WGH site or a new greenfield site. This halves the potential long list of options from 40 to 20 (2 'one site' options, 6 'two site' options and 12 'three site' options).

3.3.2 Affordability

Regulators have been clear with WHHT that any request for capital investment is no greater than the Trust's annual turnover (c.£350m). This has resulted in a clear affordability constraint for the Trust in evaluating options.

At long list stage, initial high level analysis was conducted to determine which of the available options would significantly breach this affordability constraint. The main cost driver of any scheme would be the works associated with the emergency care site, and so this was the focus of the analysis. Outline capital estimates for the cost of potential schemes were developed by external cost advisors using standard industry practice and following HM Treasury and Department of Health and Social Care (DHSC) guidance. These capital estimates include:

- Construction costs, including on-costs and location adjustments
- Equipment, fees and non-works costs
- Adjustments for planning contingency and optimism bias

The table below shows the outline capital investment required for the emergency care site under the different site configuration options, when located at either WGH or a greenfield site. More detail is provided at Appendix A.

Table 18: Outputs from affordability analysis – capital investment for emergency care site

Site configuration	Emergency care located at WGH	Emergency care located at Greenfield site
One site	£300m-£700m depending on amount of new build	Circa £700m
Two or three sites	£120m-£550m depending on amount of new build	Circa £550m

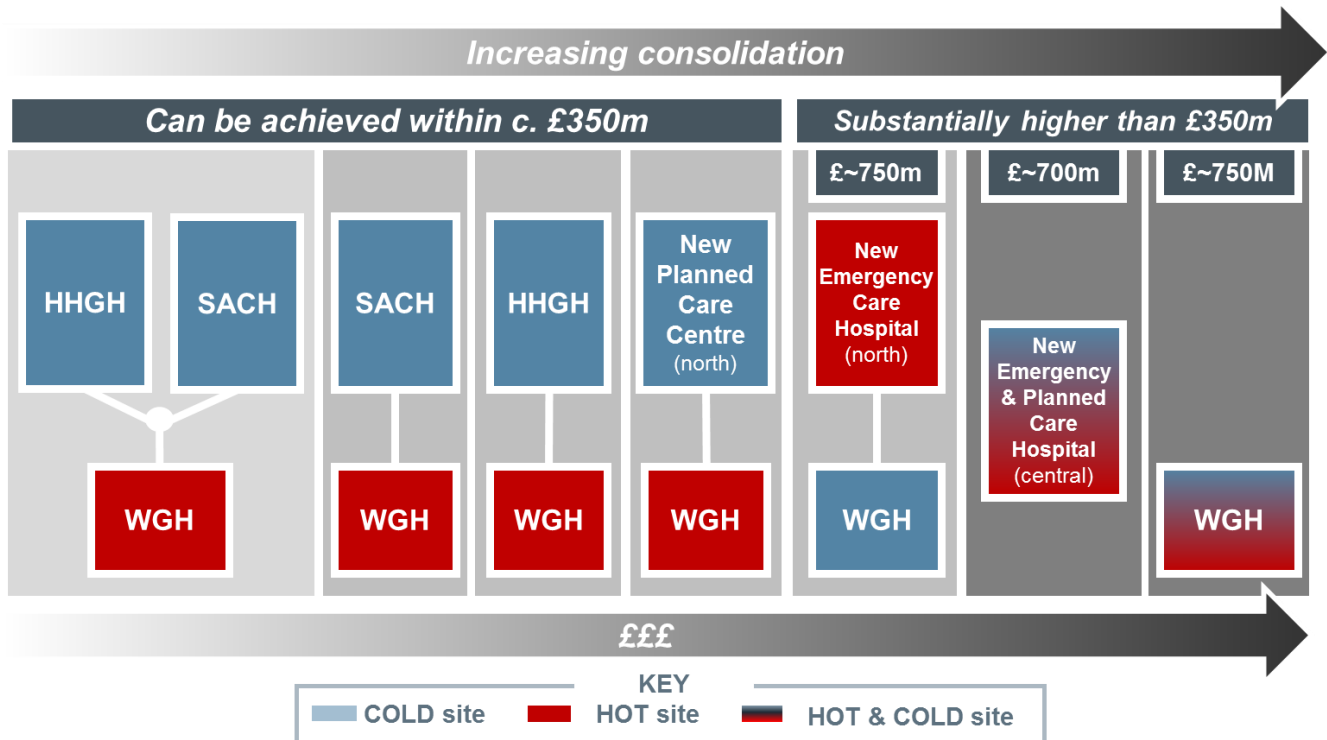
Building a new emergency care site, under any site configuration, on a greenfield site is significantly more expensive than redeveloping the WGH site because the hospital must be entirely new build, whereas a hospital on the WGH site could include some redevelopment of existing buildings.

This analysis therefore shows that:

- A one site model is unaffordable – moving to a single site located at either the WGH site or a new greenfield site far exceeds WHHT’s annual turnover and therefore does not meet the affordability threshold.
- Moving emergency care away from WGH is unaffordable – building a new emergency care hospital (under either the two or three site model) at a greenfield site exceeds WHHT’s annual turnover. This, combined with the further works that would be required for planned care, means that any option in which emergency care is not located at WGH would not meet the affordability threshold.

This is illustrated in Figure 27.

Figure 27: Affordability summary



As a result of this analysis it is clear that within the affordability constraint imposed, emergency care for west Hertfordshire must be located at WGH. Any movement of services to a greenfield site would require an investment that is unaffordable due to the amount of new build that would be required and significant transition costs. This further reduces the potential long list of options to 9 (3 ‘two site’ options and 6 ‘three site’ options).

The detailed economic appraisal must therefore focus on what can be achieved within the affordability constraint:

For emergency care (‘HOT’ services):

- The amount of investment to be used to improve facilities at WGH

For planned care (‘COLD’ services):

- The location/s from which services are provided *and* amount of investment possible
- Where location/s may include SACH, HHGH or a greenfield site

A key objective of the estate redevelopment is to improve clinical sustainability through the consolidation of services across locations where possible. Therefore, although in theory there are six potential three site options from the long list remaining once deliverability and affordability threshold criteria have been taken into account, changing the configuration of services to a different three site model from that currently adopted would involve significant investment without significant benefit. The current site configuration provides good coverage across west Hertfordshire. The only three site option that should be taken forward from the longlist is the one closest to the current configuration of services, i.e.:

- Emergency Care provided from WGH
- Planned Surgery provided from SACH
- Planned Medicine provided from HHGH

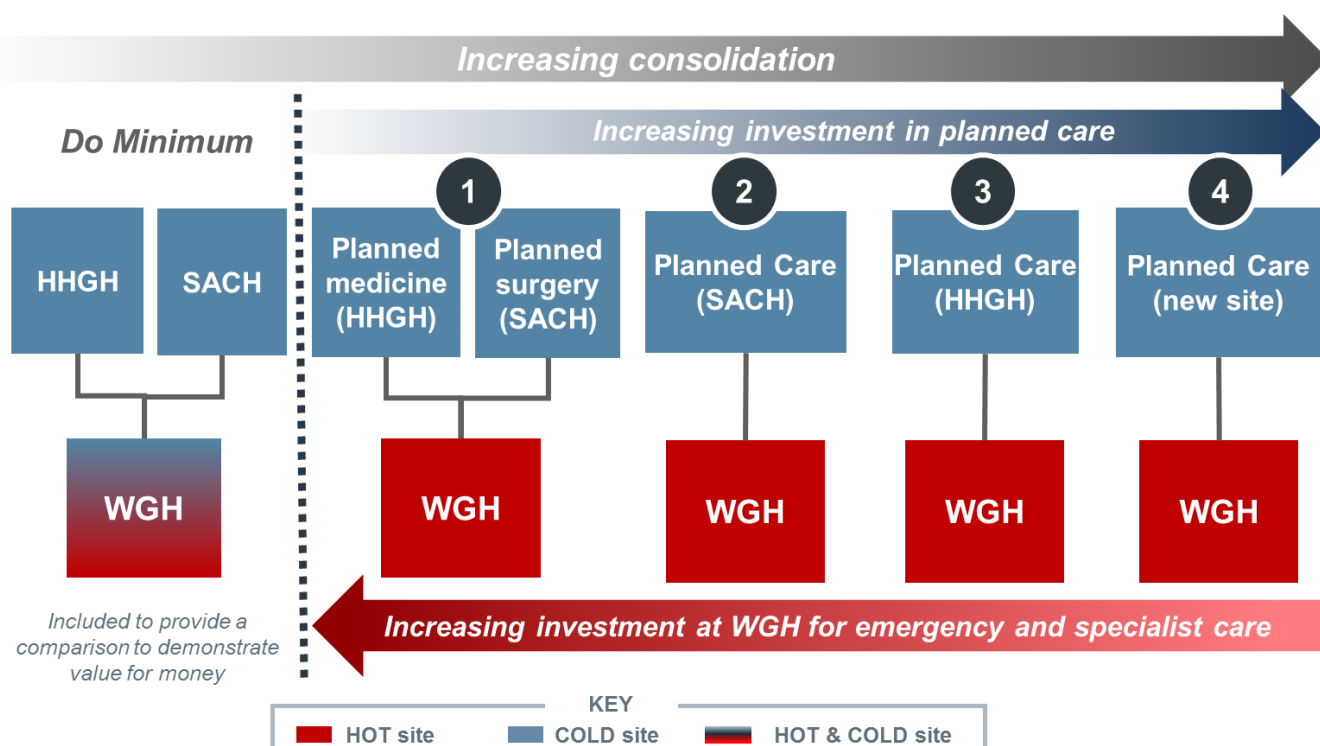
3.4 Shortlisted options

As a result of the longlist appraisal described in Section 3.3, four options, in addition to the ‘Do Minimum’, have been shortlisted for more detailed appraisal. As illustrated in Figure 28, these include the one remaining ‘three site’ option and the three remaining ‘two site’ options.

All of the shortlisted options have been designed to be achievable within the affordability constraint set by regulators. The Do Minimum option is defined as the least possible capital investment necessary to ensure the forecast demand can be met from safe hospital locations. The other shortlisted options represent points along a spectrum of two competing priorities: the proportion of investment in emergency and specialist care at WGH to address the most serious estate challenges versus investment in planned care to enable a consolidation of services:

- **Option 1:** Three site (emergency care at WGH, planned surgery at SACH and planned medicine at HHGH) – this option needs the least investment in the planned care because existing facilities can continue to be used. Planned medicine services can be consolidated at HHGH and planned surgery services can be consolidated at SACH but consolidation of planned care services onto one site will not be possible. Investment can therefore be maximised at WGH.
- **Option 2:** Two site (emergency care at WGH, planned care at SACH) – This would require more investment in planned care than required under Option 1 because new planned medicine facilities would have to be built at SACH to enable services to be consolidated onto one site. Slightly less investment would therefore be possible at WGH.
- **Option 3:** Two site (emergency care at WGH, planned care at HHGH) – This would require more investment in planned care than required under Options 1 or 2 because new planned surgery facilities, including costly theatres, would have to be built at HHGH to enable services to be consolidated onto one site. Less investment would therefore be possible at WGH.
- **Option 4:** Two site (emergency care at WGH, planned care at Greenfield site) – This would require the most investment in planned care of all options, because entirely new facilities would have to be built on a greenfield site to enable services to be consolidated. This would allow the least investment at WGH of all shortlisted options considered.

Figure 28: Shortlisted options



More detailed descriptions of each of the shortlisted options are provided in the following sections.

This proposed shortlist of options, and the evidence used to arrive at it, was considered by the stakeholder panel on 27th February 2019. All panel members, except one, agreed with the proposed shortlist. One panel member expressed the view that an option in which emergency and specialist care is provided from a greenfield site should additionally be included on the shortlist. WHHT and HVCCG boards reviewed the available information, including the suggestion raised by the panel member, and confirmed the shortlist as proposed at their public board meetings

on 2nd May 2019 and 30th May 2019 respectively. The boards agreed that the additional proposed option should not be included on the shortlist as it far exceeds the affordability threshold.

The shortlisted options are described in more detail in the following sections. All have been designed to be achievable within the affordability constraint based on the best information available at this time. The specific works involved will, however, continue to be further refined as plans continue to be developed.

Across each of the shortlisted options, capacity (in terms of beds/theatres/rooms) is consistent and is sufficient for 20 years growth under the STP Medium Term Financial Plan assumptions.

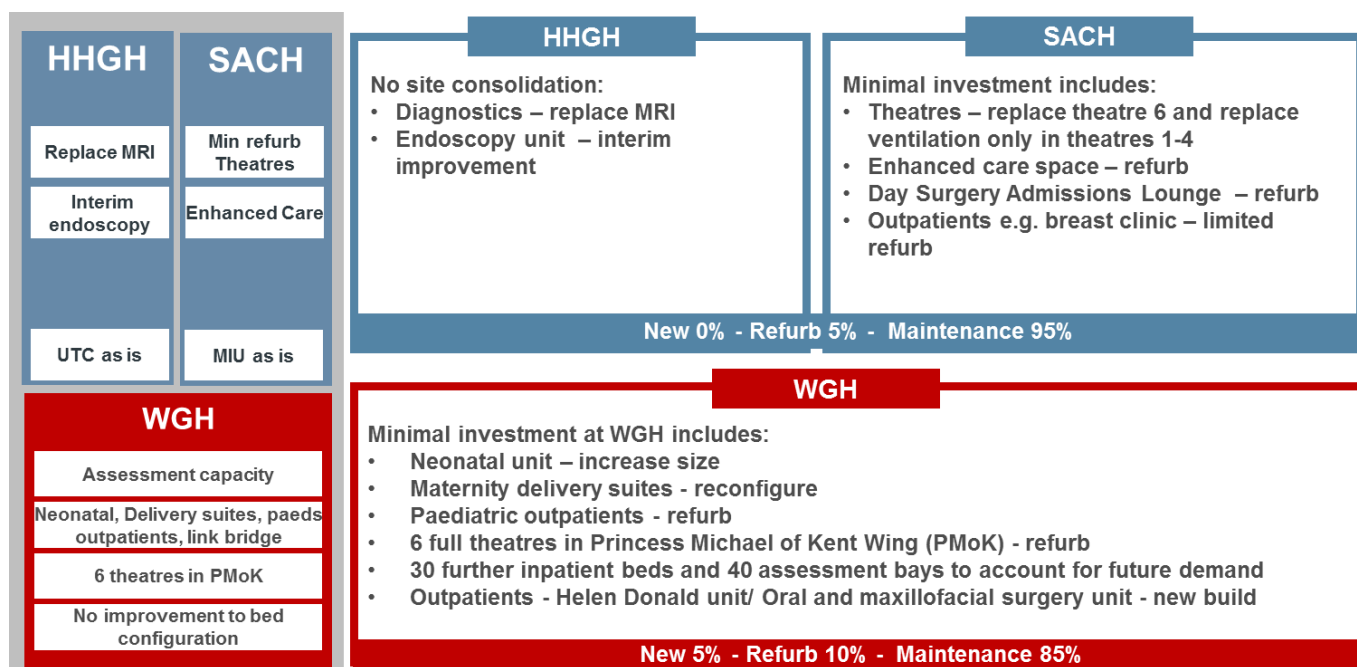
The following changes are planned to be made at the WGH site regardless of which option is pursued and are subject to separate business cases:

- a multi-storey car park will be built
- the majority of pathology services will be moved off site, with a pathology ‘hot lab’ retained at WGH
- the Emergency Department (ED) and Theatres will be refurbished to provide additional capacity and improve layout to address immediate needs

3.4.1 Do Minimum: Three site (Emergency care at WGH, Planned Care at SACH and HHGH)

This option is defined as the least possible capital investment necessary to ensure the forecast demand can be met from safe hospital locations. There is no reconfiguration of services under the ‘Do Minimum’ option. Figure 29 provides a summary of the investment in key services across the three sites.

Figure 29: Summary of service changes for the ‘Do Minimum’ option

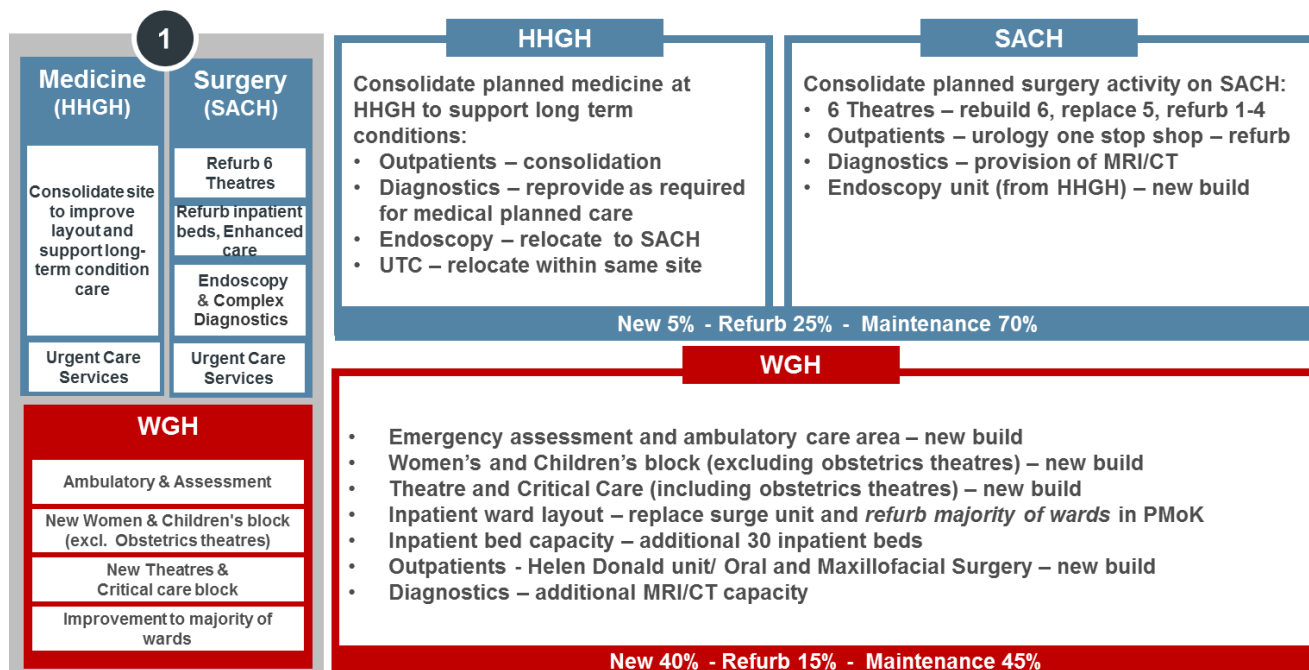


Limiting the capital investment across the Trust hospital sites would mean there was no consolidation of services and limited new build or refurbishment works. At WGH, minimal investment would be focused on improving neonatal facilities, improving the layout of maternity delivery suites, refurbishing paediatric outpatients and refurbishing theatres in the PMoK wing. There would be no consolidation of services at HHGH and investment limited to replacing the MRI and improving the endoscopy unit. At SACH, the ventilation in four of the Theatres would be replaced and the sixth Theatre would be replaced entirely. A Day Surgery Admissions Lounge would be developed and outpatients e.g. breast clinic refurbished.

3.4.2 Option 1: Three site – Emergency care at WGH, Planned Surgery at SACH and Planned Medicine at HHGH

This option maintains three hospital sites while consolidating planned medicine at HHGH and planned surgery at SACH and maximising investment in emergency and specialist care at WGH. Figure 30 provides a summary of the investment in key services across the three sites.

Figure 30: Summary of service changes for Option 1



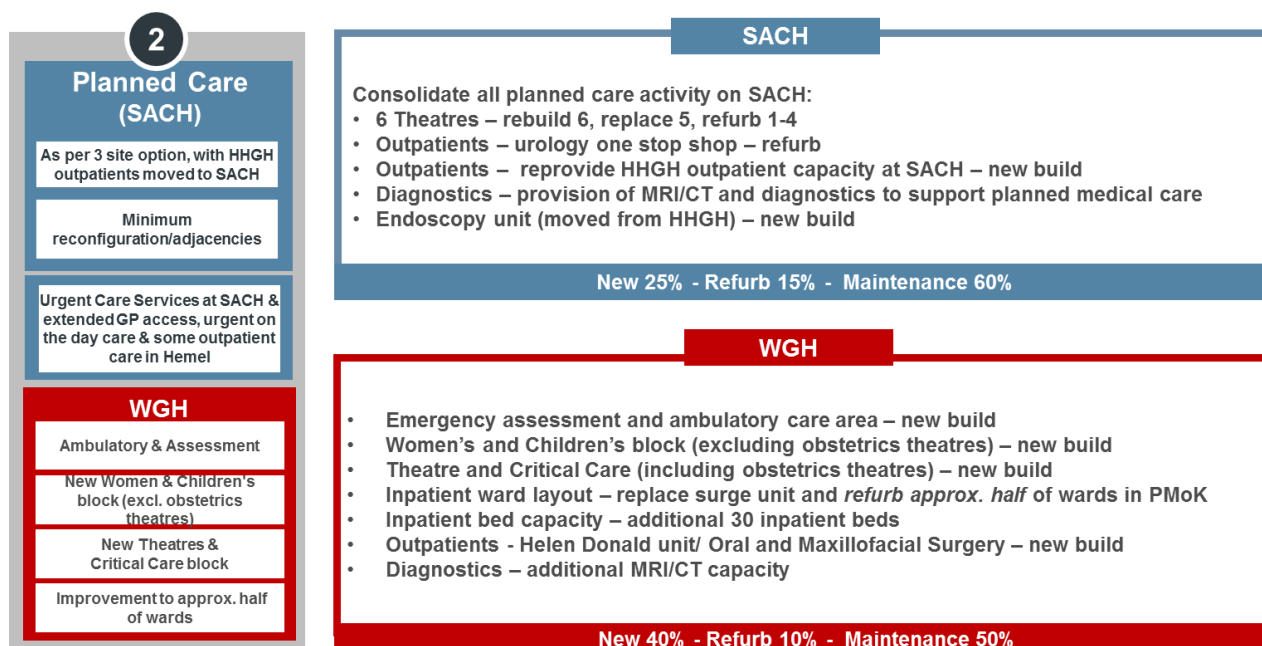
Maximising investment at WGH allows for a new emergency assessment and ambulatory care area, a new build Women and Children’s block, a new build Theatre and Critical Care block and a new Helen Donald unit/Oral and Maxillofacial unit. It also improves the layout of the majority of beds/wards in PMoK and provides additional MRI/CT capacity.

By maximising investment at WGH, there is reduced funding to invest in planned care at HHGH and SACH. At HHGH, investment would be used to improve the overall layout and support long term condition care. This would include: consolidating outpatient services; re-providing diagnostics for planned medicine; relocating the Urgent Treatment Centre (UTC) within the same site; and relocating Endoscopy services to SACH. At SACH, investment would be used to consolidate planned surgery activity, including: new build/ extensive refurbishment of the 6 Theatres; a new build endoscopy unit; refurbishment of the outpatients to support ‘one stop shops’/increased ‘virtual’ outpatient appointments; and provision of MRI/CT services.

3.4.3 Option 2: Two site – Emergency care at WGH, Planned Care at SACH

This option consolidates Trust activity onto two sites – emergency and specialist care at WGH and planned care at SACH. The Trust would seek to close and sell the HHGH site in this option. Figure 31 provides a summary of the investment in key services across SACH and WGH.

Figure 31: Summary of service changes for Option 2



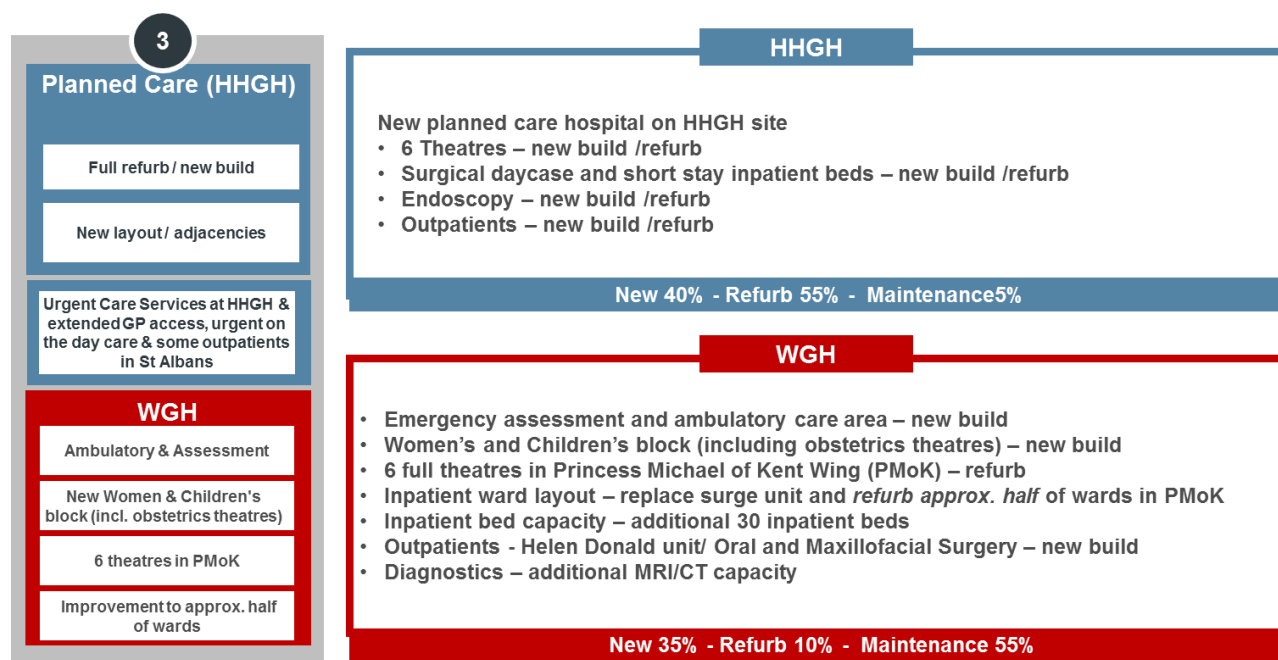
The closure of HHGH and consolidation of planned care activity at SACH would require investment at SACH to: rebuild and refurbish the six theatres; build a new outpatients facility to accommodate activity from HHGH and support 'one stop shops'/increased 'virtual' outpatient appointments; build a new endoscopy unit to accommodate activity from HHGH; and provide additional MRI/CT and diagnostics to support planned medicine.

The investment to consolidate planned care at SACH, would leave less funding to improve the layout or wards in PMoK at WGH. Less than half of beds/wards in PMoK will undergo improvement to their layout, compared an improvement to the majority of wards in Option 1. The remaining investment at WGH would be consistent with Option 1.

3.4.4 Option 3: Two site – Emergency care at WGH, Planned Care at HHGH

This option consolidates Trust activity onto two sites – emergency and specialist care at WGH and planned care at HHGH. The Trust would seek to close and sell the SACH site in this option. Figure 32 provides a summary of the investment in key services across HHGH and WGH.

Figure 32: Summary of service changes for Option 3



The closure of SACH and consolidation of planned care activity at HHGH would require investment at HHGH to completely refurbish and rebuild the hospital to become a planned care centre. This would include: a new Theatre unit with six theatres, new surgical day case short stay inpatient beds and a completely refurbished endoscopy unit and outpatients area.

The investment to consolidate planned care onto HHGH, would mean funding was not available to build a new Theatre and Critical Care block and improving the bed/ward layout in PMoK at WGH. Less than half of beds in PMoK will undergo improvement to their layout, compared to a majority of beds in Option 1. The new build Women and Children's block would include new Obstetrics and Gynaecology Theatres. Investment in the new emergency assessment and ambulatory care area, a new Helen Donald unit/Oral and Maxillofacial unit, additional MRI/CT capacity and interim works would be consistent with plans for Options 1, 2 and 4.

3.4.5 Option 4: Two site – Emergency care at WGH, Planned Care at Greenfield site

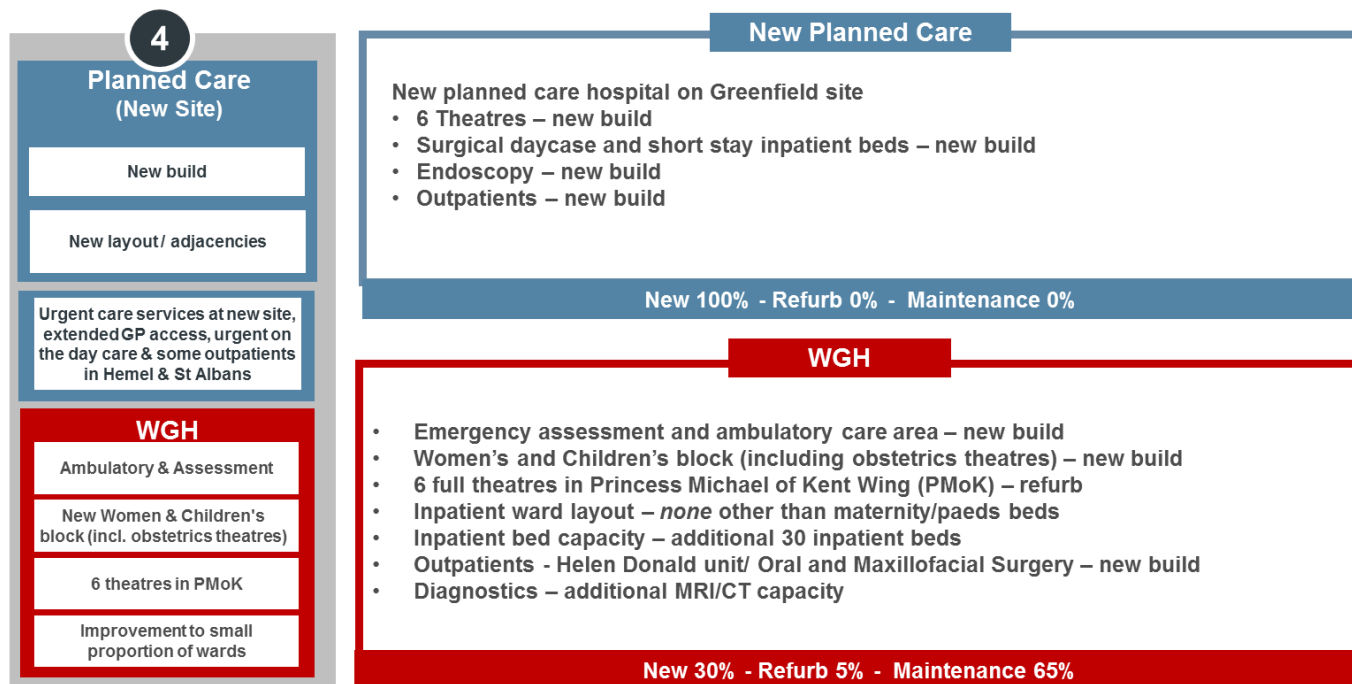
This option consolidates Trust activity onto two sites – emergency and specialist care at WGH and planned care at a new planned care centre in a new location. The Trust would seek to close and sell both the HHGH and SACH sites in this option. Figure 33 provides a summary of the investment in key services in the new planned care centre and at WGH

The closure of SACH and HHGH and consolidation of planned care activity onto a new planned care centre at a new location, would require the greatest proportion of investment in planned care of all the shortlisted options. This would include: a new Theatre unit with six theatres and potential to expand to eight theatres if required; new surgical day case short stay inpatient bed; a new endoscopy unit and a new outpatients unit.

The investment to consolidate planned care onto a new planned care centre at a new location, would mean funding was not available to build a new Theatre and Critical Care block and improve the bed/ward layout in PMoK at WGH. Only approximately 10% of beds/wards in PMoK will undergo improvement to their layout, compared to an improvement to the majority of wards in Option 1 and half of wards in Options 2 and 3. The new build Women and children's block would include new Obstetrics and Gynaecology Theatres. Investment in the new emergency

assessment and ambulatory care area, a new Helen Donald unit/Oral and Maxillofacial unit, additional MRI/CT capacity and interim works would be consistent with plans for Options 1, 2 and 3.

Figure 33: Summary of service changes for Option 4



3.5 Quantitative economic appraisal

The quantitative economic appraisal of the shortlisted options has been conducted in line with HM Treasury Green Book and NHSI guidance to assess the value for money offered by each option. This quantifies in monetary terms as many of the costs and benefits as possible to generate a future profile of costs and benefits for each option over the lifetime of the investment. These are then 'discounted' to convert them into 'present values' so that they can be compared. The discounted costs and benefits are then netted off against each other and summed to produce the net present value (NPV).

The present value of the costs and benefits of each shortlisted option have been calculated in comparison to a baseline 'business as usual' position in which there is no capital investment in the estate. In this baseline position it is assumed:

- Service costs for WHHT change in line with growth assumptions less any planned efficiency savings not dependent on capital investment (i.e. WHHT's current five-year financial plan)
- Estates running costs are at a level that WHHT should be investing in its estate to continue operations and remove backlog (determined by national benchmarking).

This approach ensures that only the costs and benefits that are affected by the decision at hand are included, in line with HM Treasury Green Book guidance.

As the different options will result in creating estate assets with different lifetimes, the NPV has been divided by the 'present value of annuity factor' to calculate the Equivalent Annual Value (EAV), which shows the net benefit per year of owning and operating the new asset in comparison to the baseline position.

3.5.1 Costs

The following categories of costs are included in the economic appraisal:

- Construction costs – these are a standard build-up of the costs of construction and include departmental costs and on-costs, as well as fees, non-works costs, equipment, planning contingency and optimism bias.
- Net land receipts – these are any expected land receipts, net of expected land purchases.
- Residual values for buildings – these are the expected book-values of any new estate at the end of the appraisal period (the value of retained buildings will be written off by the end of the appraisal period).
- Estates running costs – these include facilities management (hard and soft FM), utilities, ground maintenance estate lifecycle, and addressing backlog
- Equipment Lifecycle costs – these are the costs of replacing equipment which has a shorter life than estates.

- Administration estate costs – this is the revenue cost of hiring additional office space when administrative space is taken off site.

Table 19 shows the value of each of the most significant contributions to the EAV for each of the shortlisted options, in comparison to the baseline 'business as usual' position. These are all stated at current prices and including VAT for ease of comparison¹⁴. The sources and underlying assumptions used to develop these cost estimates are provided at Appendix A.

Table 19: Quantitative economic appraisal: costs

£m (including VAT)	Do Min	Option 1	Option 2	Option 3	Option 4
Construction Costs (total)	91.9	349.8	349.6	368.4	362.5
Net Land Receipts (total)		(15.0)	(20.0)	(23.0)	(18.0)
Residual Values (after 30 years)	(20.0)	(129.1)	(146.0)	(132.3)	(182.0)
Running Costs ¹⁵ (p.a.)	22.6	17.7	17.0	15.4	14.7
Equipment Lifecycle (p.a.)	0.6	3.5	3.5	3.8	3.4
Administration estate costs (p.a.)		1.2	1.2	1.2	1.2

All of the shortlisted 'Do Something' options have been designed to be achievable within the affordability constraint set by regulators, and so they all have similar upfront costs. The ongoing running costs vary as a result of the total size of estate in each option, as well as the variation of backlog maintenance across existing buildings.

3.5.2 Benefits

Section 2.5 in the Strategic Case set out the main benefits anticipated as a result of the making the proposed investment in WHHT's estate. Of these, two are financial benefits that have been quantified and included within the economic appraisal:

- Improved operational performance and lower risk to business continuity (service benefits)
- Reduced operational costs for WHHT (reduced estates running costs)

Table 20 shows the value of these benefits for each of the shortlisted options, in comparison to the baseline 'business as usual' position. The sources and underlying assumptions used to develop these estimates are provided at Appendix A. Note that the reduced estates running costs are the same as the running costs in Table 19 net of BAU running costs¹⁶

Table 20: Quantitative economic appraisal: benefits

£m	Do Min	Option 1	Option 2	Option 3	Option 4
Service benefits – CIPs (p.a.)	3.8	19.0	18.9	19.0	17.5
Service benefits – contribution for growth (p.a.)	7.1	7.1	7.1	7.1	7.1
Reduced estates running costs (p.a.)	(0.8)	4.0	4.8	6.3	7.1

The service benefits have been shown as both additional CIPs and the additional contribution for future activity growth. Future CIPs are similar across all options except for Do Min, future contribution is the same across all options as all increase capacity. The estates running cost benefit increases as the site footprint across options becomes smaller.

¹⁴ Note that VAT is removed from these costs when EAV is calculated.

¹⁵ Including future Lifecycle costs and Backlog reduction costs

¹⁶ These are only entered into the EAV calculation once – as a net benefit from the BAU scenario.

3.5.3 Equivalent annual value calculation

Table 21 shows the resulting EAV for each shortlisted option, in comparison to the baseline 'business as usual' position, based on the different appraisal periods.

Table 21: Quantitative economic appraisal outputs

£m p.a.	Do Min (28 years)	Option 1 (38 years)	Option 2 (38 years)	Option 3 (38 years)	Option 4 (38 years)
Constructions costs	(3.6)	(11.6)	(11.6)	(12.2)	(11.7)
Net land receipts	-	0.4	0.5	0.6	0.3
Buildings residual value	0.4	1.4	1.6	1.5	2.0
Equip. lifecycle & off-site admin.	(0.3)	(3.0)	(3.0)	(3.1)	(2.9)
Estate running cost benefits	(0.5)	2.9	3.4	4.5	5.0
Service benefits	5.3	16.3	16.3	16.3	15.3
Total	1.2	6.5	7.2	7.4	8.1

The EAVs for each of the 'Do Something' shortlisted options are relatively close, with the EAV for the Do Minimum option much lower. This is because the Do Minimum option will address immediate capacity requirements but does not seek to achieve efficiencies across the WHHT estate; it seeks to make the WHHT estate sound and operationally safe rather than functional suitability to deliver service benefits.

3.5.4 Switching and scenario analysis

A switching sensitivity analysis was conducted to see how much the identified costs and benefits would need to differ in order to switch the order of the options with respect to their EAV.

Given that Option 2 and 3 had very similar EAVs, the switching analysis looked at the change in cost or benefit required to bring Option 1 up to £7.3m p.a. or Option 4 down to £7.3m p.a., where £7.3m p.a. was the average EAV for Options 2 and 3.

Table 22: Switching Analysis

	Movement to bring Option 1 EAV up to £7.3m p.a.		Movement to bring Option 4 EAV down to £7.3m p.a.	
	(£m)	%	(£m)	%
Constructions costs	(26.6)	-8%	22.5	6%
Net land receipts	(36.9)	246%	31.3	-136%
Buildings residual value	(79.3)	61%	67.2	-51%
Equip. lifecycle & off-site admin.	(1.4)	-29%	1.2	23%
Estate running cost benefits	1.2	31%	(1.0)	-17%
Service benefits	1.0	5%	(0.9)	-5%

This switching analysis shows that the EAV outputs are most sensitive to the construction costs and the service benefits. The construction costs would need to decrease by 8% for Option 1 or increase by 6% for Option 4 for either to come in line with Options 2 and 3. The service benefits would need to increase by 5% for Option 1 or decrease by 5% for Option 4 for either to come in line with Options 2 and 3.

Given that the service benefits were the most sensitive of the costs/benefits considered, an analysis was conducted around how benefits were assumed to be delivered. In the main EAV analysis all benefits were assumed to occur on completion of the Emergency Care build in 2025. In this scenario benefits were allocated to the Emergency Care build and the Planned Care build separately, and assumed to occur when each respective build was completed.

Table 23: Scenario Analysis

	Do Minimum	Option 1	Option 2	Option 3	Option 4
EAVs (benefits tied to EC completion)	1.2	6.5	7.2	7.4	8.1
EAVs (benefits separately tied to EC/PC completion)	1.3	6.8	7.5	7.7	7.6

It can be seen from this analysis that if benefits are assigned separately to the Emergency Care and Planned Care elements of each scheme then the EAVs are brought closer together. This shows that the timings of the schemes and therefore when benefits can be realised significantly impacts the EAVs, and therefore scale of value for money achieved.

3.6 Qualitative benefits appraisal

A qualitative benefits appraisal has been undertaken to assess the extent to which each shortlisted option is likely to achieve the desired non-financial benefits. This was informed by scoring undertaken by a stakeholder panel.

3.6.1 Approach

On 13th March 2019 a stakeholder panel met to score the shortlisted options. The panel was comprised of key stakeholders from across the local healthcare system, with representatives from the following groups:

- Clinical (WHHT and HVCCG)
- Trust other (includes any non-clinical staff who work for WHHT)
- CCG other (includes any non-clinical staff who work for HVCCG)
- Patient representatives
- Other organisations – STP, Hertfordshire County Council, Healthwatch, Carers in Hertfordshire, Hertfordshire Partnership Foundation Trust, East of England Ambulance Service etc.

For details of the stakeholder panel members, please see Appendix C: Stakeholder Panel Summary.

The panel was asked to score the four shortlisted options, plus the 'Do Minimum', against the four non-financial benefits:

- Safety and clinical outcomes for patients
- Patient and carer experience
- Workforce satisfaction
- Flexibility to enable future changes in service models

Attendees used a scoring framework, shown in Table 24, to show the scale of impact they thought was likely for each option. They were given an opportunity to score three times – independently, following group discussion and a final opportunity to change their score in the days following the panel session. Their final score was used to determine the overall score for each shortlisted option.

Table 24: Qualitative appraisal scoring framework

Impact	Score	Description
Large beneficial impact	+3	Positive impacts significantly outweigh any negative impacts , e.g. The entire stakeholder population in question is significantly impacted in a positive way.
Moderate beneficial impact	+2	Positive impacts moderately outweigh any negative impacts , e.g. The entire stakeholder population in question is moderately impacted in a positive way <i>or</i> The majority of the stakeholder population is meaningfully impacted in a positive way.
Slight beneficial impact	+1	Positive impacts marginally outweigh any negative impacts , e.g. The entire stakeholder population in question is marginally impacted in a positive way <i>or</i> A minority of the stakeholder population is meaningfully impacted in a positive way.

Impact	Score	Description
Neutral	0	No change from today, or any positive impacts are almost exactly balanced by other negative impacts.
Slight adverse impact	-1	Negative impacts marginally outweigh any positive impacts , e.g. The entire stakeholder population in question is marginally impacted in a negative way <i>or</i> A minority of the stakeholder population is meaningfully impacted in a negative way.
Moderate adverse impact	-2	Negative impacts moderately outweigh any positive impacts , e.g. The entire stakeholder population in question is moderately impacted in a negative way <i>or</i> The majority of the stakeholder population is meaningfully impacted in a negative way.
Large adverse impact	-3	Negative impacts significantly outweigh any positive impacts , e.g. The entire stakeholder population in question is significantly impacted in a negative way.

For more details on the qualitative appraisal stakeholder panel approach, scoring panel members and scores, broken down by stakeholder group, please see Appendix C: Stakeholder Panel Summary.

3.6.2 Outputs

Table 25 provides a summary of the findings against the non-financial benefits for each of the shortlisted options. These points were discussed by members of the stakeholder panel as they scored the options.

Table 25: Summary of qualitative benefits findings for shortlisted options

Benefit	Option 1	Option 2	Option 3	Option 4	Do Minimum
Safety and outcomes	<ul style="list-style-type: none"> • Significant improvement to clinical adjacencies, particularly at WGH • Investment targeted in buildings with greatest clinical risk and functional suitability issues • Promotes effective infection control with significant increase in single rooms for isolation of patients as part of refurbishment to the majority of wards in PMoK 	<ul style="list-style-type: none"> • Significant improvement to clinical adjacencies, particularly at WGH • Limited space at SACH limits improvement to clinical adjacencies for planned care • Effective infection control more challenging due to reduced investment in refurbishing wards in PMoK 	<ul style="list-style-type: none"> • Improvement to clinical adjacencies at WGH • Improvement to clinical adjacencies for planned care services • New planned care theatres that meet NHS standards • Limited investment in theatres at WGH means they continue to be non-compliant for size, layout etc, • Effective infection control more challenging due to reduced investment in refurbishing wards in PMoK 	<ul style="list-style-type: none"> • Limited improvement to clinical adjacencies at WGH • New planned care building that complies with modern NHS standards and optimised clinical adjacencies improves safety and outcomes for planned care • Limited investment in PMoK and in theatres at WGH, means these spaces continue to be non-compliant and increase risk to safety and outcomes for large proportion of patients 	<ul style="list-style-type: none"> • Limited new building and improvement to clinical adjacencies limit any improvement to patient safety and outcomes
Patient experience	<ul style="list-style-type: none"> • Improvement to majority of wards at WGH, leads to increase in privacy & dignity and more space 	<ul style="list-style-type: none"> • Improvement to the layout/size of less than half of wards at WGH limits improvement to 	<ul style="list-style-type: none"> • Improvement to the layout/size of less than half of wards at WGH limits improvement to 	<ul style="list-style-type: none"> • Improvement to the layout/size of a small proportion of wards at WGH significantly limits 	<ul style="list-style-type: none"> • No investment in new buildings and improvement to layout/size inpatient wards limits

Benefit	Option 1	Option 2	Option 3	Option 4	Do Minimum
	<ul style="list-style-type: none"> for majority of inpatients Less overall impact on patient travel/access 	<ul style="list-style-type: none"> patients' privacy and dignity Impact on patient travel/access for Hemel residents 	<ul style="list-style-type: none"> patients' privacy and dignity Improved experience for planned care patients Impact on patient travel/access for St Albans residents 	<ul style="list-style-type: none"> improvement to patients' privacy and dignity Improved experience for planned care patients Impact on patient travel/access for St Albans and Hemel residents 	<ul style="list-style-type: none"> improvement to patient experience No impact on access/travel
Workforce satisfaction	<ul style="list-style-type: none"> New environment for assessment, WACs, theatres and majority of PMoK leads to improvement in workforce satisfaction for large proportion of staff (majority of whom work in WGH) Aim of specialist teams working across a max of two sites improves staff workflow Improved training and supervision of staff 	<ul style="list-style-type: none"> New environment for assessment, WACs, theatres and some of PMoK leads to improvement in workforce satisfaction for large proportion of staff Consolidation of services onto two sites improves staff workflow Improved training and supervision of staff 	<ul style="list-style-type: none"> New environment for assessment, WACs and some of PMoK leads to improvement in workforce satisfaction for a proportion of staff New environment for majority of planned care services leads to improvement in workforce satisfaction for proportion of staff Consolidation of services onto two sites improves staff workflow Improved training and supervision of staff 	<ul style="list-style-type: none"> New environment for assessment, WACs and a limited proportion of PMoK limits improvement in workforce satisfaction for large proportion of staff New environment for all of planned care leads to improvement in workforce satisfaction for staff in this area Consolidation of services onto two sites improves staff workflow Improved training and supervision of staff 	<ul style="list-style-type: none"> No investment in new buildings and environment lead to poor workforce satisfaction Minimal changes to location of clinical teams limits staff productivity gains
Future flexibility	<ul style="list-style-type: none"> More new buildings at WGH built to modern standards with flexibility to change use of space or add additional capacity Greater investment in improving ward space and layout, allows for greater flexibility 	<ul style="list-style-type: none"> Space limitations at SACH limit flexibility to change use/add capacity in future 	<ul style="list-style-type: none"> More new buildings at HHGH allow greater flexibility to change use of buildings or add additional space (planned care) 	<ul style="list-style-type: none"> A brand new building for planned care maximises future flexibility but limits flexibility for emergency services at WGH 	<ul style="list-style-type: none"> No new building limits future flexibility

This demonstrates that each option offers a different range of benefits as a result of the varying level of investment in emergency care versus planned care. Figure 34 shows the average scores received from stakeholder panel members for each option against the non-financial benefits following discussion about their relative merits.

Figure 34: Summary of scores according to impact on achieving desired non-financial benefits

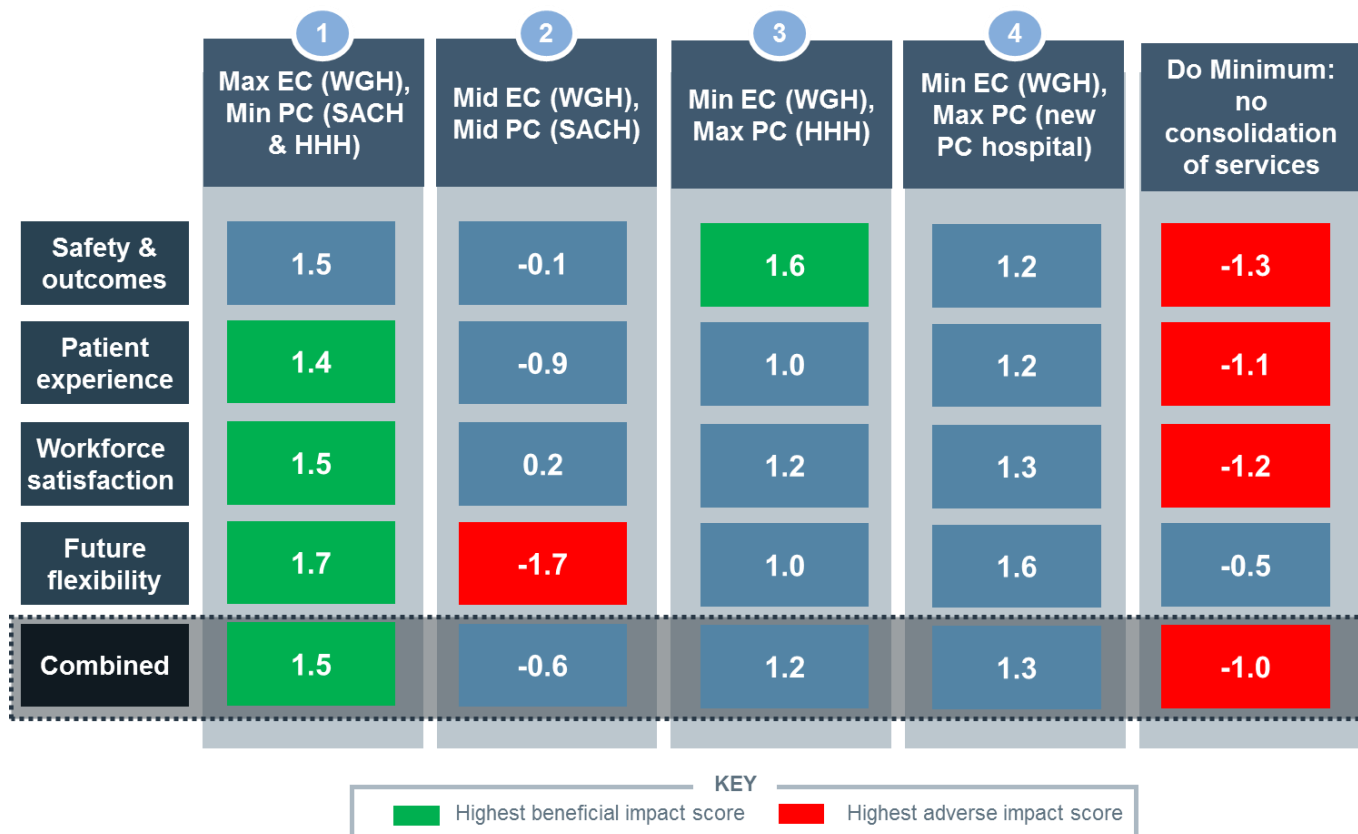
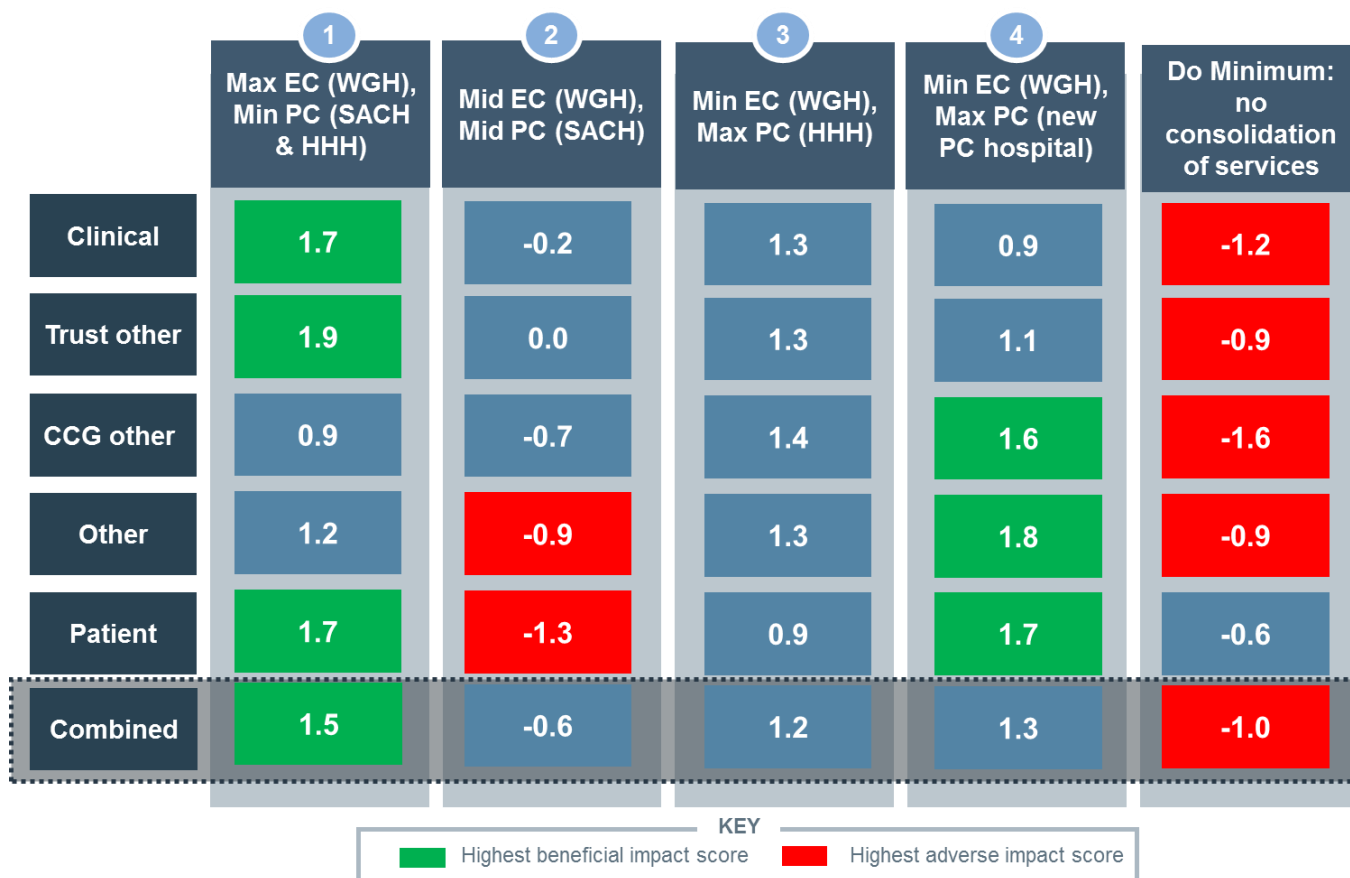


Figure 35 below shows the average overall score for each option from each stakeholder group.

Figure 35: Summary of combined scores according to stakeholder group



The final stakeholder panel scores show:

- **No option** scored as having a **large beneficial or large adverse** impact
- **Option 1 scored the highest, with an average score 1.5.** This equates to a slight to moderate beneficial impact in comparison with today.
- **This was followed by Options 4 and 3** (scoring 1.3 and 1.2 respectively), again equating to a slight to moderate beneficial impact.
- **Option 2 and the ‘Do Minimum’ option both scored negatively** (-0.6 and -1.0 respectively), equating to a slight adverse impact in comparison with today.
- **Clinicians** (Trust and CCG) and **other Trust staff** scored **Option 1** as having the greatest beneficial impact (average scores of 1.7 and 1.9 respectively)
- **Non-clinical stakeholders from outside of the Trust** (CCG staff, other organisations and the public) scored **Option 4** as having the greatest beneficial impact (average scores of 1.6, 1.8 and 1.7 respectively)

The results of the scoring undertaken by the stakeholder panel demonstrate that no option scored as having a large beneficial impact, this is linked to the affordability constraint, as no option delivers all of the potential benefits identified. Options 1, 3 and 4 were, on average, perceived to provide a similar overall beneficial impact, although Option 1 scored the highest overall. However, different stakeholder groups had different views. Clinicians (Trust and CCG) and other Trust staff consistently scored Option 1 the highest against four benefit areas. Option 2 and the ‘Do Minimum’ option consistently scored negatively by all stakeholder groups.

These scores reflect findings from wider stakeholder engagement about the future of hospital services in west Hertfordshire. Many clinicians and other Trust staff who work across WHHT’s sites would like to see investment prioritised towards WGH to address issues with the current estate and improve the environment for both patients and staff. Other stakeholders who are less familiar with the WGH site and patients from areas other than Watford often state a preference for investment in new facilities, rather than redevelopment of existing buildings at WGH.

3.7 Preferred way forward

The outputs from the shortlist appraisal are not conclusive:

- The quantitative economic appraisal shows that Option 4 has the highest EAV of the shortlisted options
- The qualitative benefits appraisal shows that Option 1 received the highest average score from the stakeholder panel, with different stakeholder groups having different views

Judgement therefore needs to be exercised to determine the preferred way forward. Recognising that the shortlisted options have been constrained by the affordability threshold and taking into account the overall case for change, the Trust’s objectives, the clinical model and the range of view expressed by WHHT clinicians and staff, external stakeholders and the public throughout this process, WHHT recommends that WGH is the priority for investment. WGH is where the greatest volume of patients from across the whole of west Hertfordshire with the most complex and urgent needs are treated. It is also where the most critical estates work is required to ensure services are sustainable.

These priorities are summarised in terms of their alignment to Trust objectives in the table below.

Table 26: Priorities for each objective

Objective	Priority for the redevelopment
<p>Providing healthcare from fit for purpose buildings</p> <p>We need to invest to ensure care is delivered from buildings that are fit for purpose in a way that supports our wider aims for the future of healthcare and meets expected future demand</p>	<ul style="list-style-type: none"> • Maximising new buildings and refurbishment where there are the greatest issues with functional suitability and backlog maintenance and where there is the greatest opportunity to improve the overall delivery and quality of care, through increased ward sizes, a better layout, improved clinical adjacencies and new theatres.
<p>Improving clinical sustainability</p> <p>We need to change the way acute hospital services are delivered to meet the standards we expect, by enhancing separation of emergency and planned care services and consolidating services across locations where possible</p>	<ul style="list-style-type: none"> • Focusing on improving care for the greatest volume and the sickest and most at risk patients. • Ensuring suitable adjacencies and access to diagnostics • Reducing fragmentation, with the aim of specialist clinical teams working across a maximum of two sites to improve team working, generate efficiencies and streamline patients’ pathways.

Objective	Priority for the redevelopment
<p>Achieving long-term financial stability</p> <p>We need to develop services in a way that is affordable to commissioners, to funders and to the Trust on both a capital and revenue basis, as quickly as possible</p>	<ul style="list-style-type: none"> • Focusing spend on new buildings and modern facilities for the future, as opposed to continuing to invest short term in managing estate that is ultimately substandard. • Targeting investment to support operational efficiency as well as estates improvement

Consolidation of planned care services is important and will be addressed by reducing fragmentation, with the aim of specialist clinical teams working across a maximum of two sites to improve team working, generate efficiencies and streamline patients' pathways. Full consolidation of planned care onto one site as set out in Options 3 and 4 cannot be prioritised above critical estate works at WGH.

The Trust therefore recommends that Option 1, which involves prioritising investment at WGH, while also investing in planned care services across all three hospital sites, should be the preferred way forward and developed to the next stage: Outline Business Case (OBC), to the fastest possible timeline.

This option is affordable and provides value for money, demonstrating a return on investment and delivering annual savings that contribute to the Trust achieving financial breakeven within the Medium Financial Sustainability Plan (MTFSP). More work will be carried out to test the high level efficiencies assumed in this SOC document which is very conservative.

The table below summarises some examples of the impact investment across WHHTs sites could have.

Table 27: Summary of investment in improving hospital services across the three Trust sites and its impact

Site	Area of investment	Impact
WGH	New ambulatory and assessment area	<ul style="list-style-type: none"> • More physical space to assess and treat patients. • Provided as a single function this will drive a culture based on assessing patients as quickly as possible, so that they can be treated and supported home in a timely manner.
	New Women's and Children's building	<ul style="list-style-type: none"> • New spaces designed to meet the needs of the patients leading to improved patient experience and privacy and dignity e.g. larger delivery rooms with modern facilities and en suite toilets, paediatric services provided in a paediatric setting • Women's and Children's services close to assessment facilities and the Emergency Department will reduce transfer time between departments and allow greater opportunity for clinical teams to work together to promote future innovation. • New building will be designed to modern standards, providing appropriate clinical adjacencies, east transit (lift, circulation space and signage), the appropriate environment (ventilation, lighting, noise) and robust and reliable infrastructure (water supply, heating, medical gases)
	New Theatres and Critical Care building	<ul style="list-style-type: none"> • New theatres designed to modern standards will address the capacity and backlog maintenance issues regularly experienced and help create an environment conducive to a positive patient and carer experience • Will significantly reduce the downtime currently experienced (with subsequent impacts on planned care activity) and allow greater flexibility to meet any forecast increase in demand. • New building will be designed to modern standards, providing appropriate clinical adjacencies, east transit (lift, circulation space and signage), the appropriate environment (ventilation, lighting, noise) and robust and reliable infrastructure (water supply, heating, medical gases) • Combining all theatres within a single complex will improve efficiency, maximise flexibility and enable the implementation of best practice and new technologies
	Improved layout of inpatient wards	<ul style="list-style-type: none"> • More physical space for patients to move around and for staff to treat patients • Patient have more privacy, dignity and confidentiality • Promotes effective infection control with increased single rooms for isolation of patients

Site	Area of investment	Impact
SACH	Surgical and cancer care	<ul style="list-style-type: none"> • One-stop outpatient clinics: access to relevant diagnostics and specialist teams in a single place, to support quick diagnosis, particularly for suspected cancer and reduce the need for unnecessary follow ups. • Senior clinician presence to support enhanced model of surgical care on the elective care site, supporting same-day pre-operative assessment, inpatient care and review and enhancing clinical teamwork.
HHGH	Long term conditions	<ul style="list-style-type: none"> • Supports cross-team working for patients with a range of conditions, to provide better co-ordinated care with patients for conditions requiring more frequent hospital care. • Further focus on care pathways for older people and children, working closely with other care providers. • Provides care from a smaller 'footprint' so that services are more closely located and patients do not have to journey such long distances across the site to access different departments such as diagnostics or pharmacy. • Reduces spend on maintain buildings that are no longer in use • Frees up land in the town centre that can be sold for housing development

4 Commercial Case

This Commercial Case sets out the services required to implement the preferred way forward identified within the Economic Case and then describes the potential commercial options available to source these. It goes on to make recommendations on how the commercial approach should be explored and assessed in more detail at OBC stage.

4.1 Required services

A range of services will be required to successfully implement the proposed redevelopment of WHHT's hospital estate. These will differ during the different stages of the project's lifecycle:

- **Specialist advice** – such as financial, legal, technical and project management, to support WHHT during the business case development and procurement process.
- **Design** – to design the redeveloped estate in support of the preferred way forward.
- **Build** – to undertake the proposed construction works.
- **Maintain** – to maintain the estate once redeveloped, including both hard and soft facilities management services.

WHHT has in-house capability for estates, finance and service planning, but specialist expertise and additional capacity will be required throughout the implementation stages. WHHT will, therefore, need to source these as well as design, build and maintain services from external providers.

4.2 Commercial delivery models

The available commercial delivery options for the required services are inextricably linked with the chosen financing route, with certain commercial/contractual models being better suited to alternate/private finance arrangements. The contractual approach under each model will vary with respect to the nature, term, payment approach, risk transfer and level of innovation expected.

As discussed in more detail in the Financial Case, it is currently assumed that the bulk of the capital investment necessary for the preferred way forward will be funded through PDC, supplemented by income from land sale. This is because the Government announced in Autumn 2018 that it will no longer use the Private Finance 2 (PF2) contract, which was the latest model of Private Finance Initiative (PFI). There are, however, a range of other public private partnership (PPP) arrangements which, subject to best public value for money, might be considered. Additional alternate/private financing may also be available for specific aspects of the project. For example:

- A Managed Equipment Service (MES) may be used to source new medical equipment. In this model a private sector company purchases, installs, trains users, manages and maintains a portfolio of medical equipment on a long-term basis.
- Energy Efficiency Performance Contracting (EPCs) can be used for new or upgraded energy assets to improve energy efficiency. EPCs allow for risk transfer to, and innovation from, private partners and can be combined with specific alternate/private financing. The interest rates on EPC alternate/private financing range from 0%, through 1.5-2% and up, and so may offer better value for money than the 3.5% annual cost of PDC.

- Local Authority (LA) alternate financing may be available where the proposed estate redevelopment aligns with local development plans, especially if this supports better integration between health and social care services. LAs can typically access funds at circa 2%, and so again this may be attractive. There is a pre-existing Local Asset Backed Vehicle (LABV) in place between WBC and Kier for the Watford Riverwell Regeneration which could potentially be exploited.
- LAs also have access to a range of other funding/charging mechanisms. These include Section 106 (S106) agreements, Community Infrastructure Levy (CIL) and Tax Incremental Finance (TIF). There may be opportunities for LAs to recycle funding for the benefit of the WHHT redevelopment(s) from developers, including those involved in the wider Watford Riverwell Regeneration. Likewise, WBC (and other LAs) will benefit from increased business taxes following the wider regeneration. TIF allows LAs to leverage this future income stream to benefit current developments/redevelopments. S106, CIL and TIF are unlikely to fund/finance a significant proportion of the WHHT estate redevelopment, but they could make an important contribution in any mixed asset/mixed financing model and will be explored in more detail at the OBC stage.
- NHS Local Investment Finance Trust (LIFT) provides a framework of contractors/investors able to deliver long term design, build, finance and maintain arrangements across the primary and community care estate. In geographies with an incumbent LIFT Company, that company has the first right of refusal for these primary and community developments.

There is an increasing number of health and wider public service estates redevelopments which are adopting a mixed financing approach. The best approach for the WHHT estate redevelopment will be confirmed once the preferred option has been confirmed during the OBC stage. This will be chosen based on an assessment of which approach offers the best value for money.

4.3 Procurement routes for design and build services

As set out above, PDC is currently assumed to be the main source of funding. This section explores the available procurement routes for the design and build services necessary to implement the proposed estate redevelopment works under this funding model.

Given the early stage of the business case development we have focused on the two main elements of capital works required to implement the preferred way forward:

- Reconfiguration and refurbishment of the existing Trust sites: infrastructure works required to the existing WGH, HHGH and SACH buildings
- New build works: to build a new Women and Children's block, a new Theatre's and Critical Care block and a new Ambulatory and Assessment Area at WGH and to new build diagnostics and endoscopy at SACH.

There are two main procurement routes available to source these services: an open procurement through the Official Journal of the European Union (OJEU) and the ProCure22 framework.

4.3.1 OJEU procurement using standard building contracts

A normal competitive tendering process with standard form of building contracts (such as the New Engineering Contract (NEC) or Joint Contracts Tribunal (JCT) forms) may be adopted. Under this arrangement, WHHT would be able to appoint a design team before tendering the fully developed scheme to a number of contractors. This means that WHHT would retain the design risk in the scheme but is able to include time and cost overrun protection in the contracts.

4.3.2 ProCure22

ProCure22 (P22) is the third iteration of a Department of Health & Social Care procurement framework providing design and construction services for use by the NHS and social care organisations for a range of works and services.

P22 is a framework agreement with six Principal Supply Chain Partners (PSCPs), selected via an OJEU tender process. The PSCPs have dedicated supply chains of over 1,200 small-to-medium-size enterprises (SMEs) that can be mobilised very quickly to offer expert advice, design and construction services. An NHS organisation or joint-venture may select a PSCP for a project they wish to undertake without having to go through an OJEU procurement themselves.

P22 is a suitable procurement route for the following types of work:

- Service planning or reconfiguration reviews
- Major Works Schemes (or refurbishments)
- Minor Works programmes, in which each task value does not exceed £1m
- Refurbishments

- Infrastructure upgrades (roads, plant, etc.) and non-health buildings (car parks, etc.)
- Feasibility studies.

One of the advantages of the P22 method of procurement is that design risk can be transferred if desired, as the PSCP is contracted to provide a suitable design and build solution at an agreed Guaranteed Maximum Price (GMP). At OBC stage it will be possible to determine which components of the project could be delivered through P22 within the scheme's thresholds.

4.4 Maintenance services

Hard facilities management (FM) services for WHHT's estate are currently managed by an in-house team supported by 30+ contracts for specialist services let on 1-3 year basis. This SOC assumes the current arrangements will continue once the capital works have been completed, however other options will be considered at the business case develops.

In April 2018 WHHT re-let the contract in place for soft FM services (cleaning, catering, portering etc.) for five years until March 2023 with an option for the Trust to extend by two years.

4.5 Actions required at OBC stage to determine the appropriate commercial approach

As stated above, at this stage it is not possible to definitively confirm the most appropriate commercial approach to source the required services as there is still some uncertainty around the exact detail of the financing approach. While PDC is likely to be the primary source of funding, alternate/private finance opportunities will be explored at OBC stage to ensure value for money is maximised. This will take into account:

- The cost to WHHT of servicing the debt
- Whether any newly developed assets can be considered 'off balance sheet' and therefore treated as resource rather than capital expenditure
- Amount of risk transfer achievable
- Level of innovation possible
- Scale of benefits which may come from integrated services and sub-contracting services to other providers.

A mix of funding solutions may be appropriate, with different sources used for different elements of the estate redevelopment, aligned with different risk profiles.

The commercial approach and procurement route for suppliers will be confirmed once the financing source is established for each aspect of the preferred way forward.

5 Financial Case

This Financial Case sets out the current financial position of WHHT, and then details the full financial costs of the preferred way forward. It is assumed that the required capital investment will be funded through PDC. Costs within the Financial Case are based on the same underlying models as the Economic Case but with non-recoverable VAT and inflation included, in line with HM Treasury guidance.

The capital costs for the preferred way forward are within the capital expenditure limit set for the Trust. At the SOC stage this demonstrates value for money by significantly improving the net annual revenue savings for WHHT, such that the Trust can expect to materially break even within the period of its next Medium Financial Sustainability Plan (MTFSP) i.e. by 2028/29. As the Trust continues to work through detail to support the OBC expect to further document the efficiencies that underpin this assertion in more detail.

5.1 Financial background

Over recent years WHHT has operated in deficit. The size of the deficit has increased following:

- A series of risk assessments undertaken by the Board and publication of the Francis report resulting in investment in quality, increased staffing and infrastructure.
- Corrective actions undertaken following CQC inspection in 2015.
- Additional clinical capacity to accommodate increasing numbers of patients delayed in their transfer of care.
- Capacity issues driven by seasonal demand for non-elective services leading to suspension of elective operations.
- Infrastructure limitations and degradations resulting in high level of reactive maintenance costs and non-availability of some services temporarily or high outsourcing costs

The Trust is currently developing a financial recovery plan which includes this investment at its core to move the Trust to recover its finances and ultimately to generate year on year surpluses.

Key aims of the financial recovery plan are:

- Stabilise the Trust finances by achieving (or improving upon) our planned in-year net revenue income and expenditure position
- Improve Trust finances by reducing the underlying deficit going into future years.
- Return to sustainability by developing a long term plan to generate year on year surpluses. It is recognised that significant investment in estate is needed to affordably sustain acute services.

In supporting this plan, the Trust is having a more detailed independent assessment of the drivers of the Trust deficit. Previous reviews carried out suggest the following drivers:

- Around 20% of the deficit is driven by high fixed costs and inefficiencies due to structural issues, predominantly relating to the estate.
- Around 30% are issues relating to the local health economy and system wide activity. This will be delivered through the acute transformation programme and the review of the tariff.
- Around 50% relates to operational issues. This is partly being addressed by the delivery of 4% CIP (2.9% above 1.1% required nationally) until 2022/23. The service benefits generated through this scheme (details as per section 5.2.2) will largely contribute to the remaining recovery.

5.2 Financial appraisal

5.2.1 Capital investment

Total upfront capital investment to implement the preferred way forward is estimated to be £349.8m in today's prices. This assumes transition costs will be capitalised and includes VAT but excludes land receipts which are estimated at £15m. The cost breakdown is shown in Table 28, with more detail provided at Appendix A.

Table 28: Capital costs

£m		WGH	SACH	HHGH	Total
Departmental Costs		124.6	11.9	6.1	142.5
On-Costs		52.8	7.8	6.0	66.6
Works Cost Total		177.4	19.7	12.1	209.2
Project Fees	(14% of works cost)	20.8	2.3	1.4	24.5
Non-Works Costs	(3% of works cost)	5.3	0.6	0.4	6.3
Equipment Costs	(20% of depart. cost)	24.9	2.4	1.2	28.5
Planning Contingency	(6% of works cost)	10.6	1.2	0.7	12.5
Sub-total		239.0	26.1	15.8	281.0
Optimism Bias adjustment	(24% uplift)	58.6	6.4	3.9	68.8
Total (2019 prices)		297.6	32.5	19.7	349.8
Inflation Adjustment	(16% uplift)	50.4	5.1	3.1	58.5
Total (2024 prices)		348.0	37.6	22.7	408.3

The capital investment will be phased over seven years, as summarised in Table 29. This is aligned with the outline implementation plan developed by WHHT's Estates team, as described in Section 6.3.

Table 29: Capital cost profile

£m	19/20	20/21	21/22	22/23	23/24	24/25	25/26	Total
Capital (incl. inflation)	3.6	5.1	9.0	98.0	164.3	123.1	5.3	408.3

5.2.2 Revenue implications

Estates running costs

As a result of the reduced estate size and improvement in building design, WHHT's annual estate running costs will decrease from £21.8m to £17.7m, as shown in Table 30. These savings are assumed to be realised from when the redevelopment works are complete in FY 2024/25.

Table 30: Change in estate running costs

Annual costs (£m)	Business as usual baseline	Preferred Way Forward
Hard facilities management	4.4	3.9

Annual costs (£m)	Business as usual baseline	Preferred Way Forward
Soft facilities management	7.2	6.6
Utilities	3.0	2.7
Grounds maintenance	0.1	0.1
Lifecycle replacement over 30 years	4.5	3.4
Residual backlog maintenance over 30 years	2.5	1.1
	21.8	17.7

Cost Improvement Programmes

WHHT has an ongoing CIPs as part of its longer term financial planning described in the Trust's Long Term Financial Model (LTFM). The investment in the estate will allow WHHT to significantly increase the savings it is able to make through CIPs. These benefits are expected to become fully realised over a period of three years following completion of the Emergency Care element of the scheme, except those relating to the Clinical Negligence Scheme for Trusts (CNST), which are expected to be realised over six years following the completion of the Emergency Care element of the scheme. The forecast additional savings in each area are shown in Table 31. The CIP savings which have been identified and then risk adjusted to £19m per annum which is around 6% of the WHHT cost base. The build-up of these CIPs is detailed in Appendix A.

Table 31: CIP savings

CIP Category	Annual Saving (£m)	Time to realise
Service Productivity	3.9	3 years
Pay	5.3	3 years
Non-Pay	0.5	3 years
Pay & Non-Pay	7.5	3 years
CNST	1.8	6 years
Total	19.0	

Contribution from future activity growth

In the baseline the Cost Improvement Programme (CIP) runs at 1.1% after 2022/23 based on the limitations of the estate. The Trust has assumed that after the investment in the hospital, it will be able to explore new opportunities and increase the efficiency to c1.25%. This additional 0.15% was arrived at by assuming that as the capacity is increased to meet the required demand, the additional activity can be delivered at c70% of the costs estimated.

5.3 Funding sources

It is currently assumed that the capital investment necessary to implement the preferred way forward will be funded through PDC, supplemented by income from land sale. As set out in Section 4, the Commercial Case, additional potential sources of finance will continue to be explored for specific areas of investment, such as a Managed Equipment Service (MES).

5.4 Affordability

5.4.1 Affordability of capital investment

As described in Section 3, the Economic Case, regulators have made clear that the required capital investment for the preferred way forward must be within WHHT's annual turnover.

In 2018/19 WHHT's income was £333m and its expenditure was £372m. The 2019/20 plan for WHHT's income is £364.4m (including adjustments for Provider Sustainability Fund (PSF) of £8.3m, Marginal Rate Emergency Tariff (MRET) of £4.6m, but excluding Financial Recovery Fund (FRF) of £14.8m). The FRF is assumed to be non-recurrent.

As set out in Section 5.2.1, the preferred way forward requires a capital investment of £349.8m in today's prices. This is within WHHT's planned income for 2019/20 and, when estimated land receipts of £15m are taken into account, this is aligned with WHHT's income from 2018/19. The capital investment is, therefore, deemed affordable, and in line with the threshold set by regulators.

5.4.2 Impact on WHHT's annual net surplus / deficit position

Table 32 shows WHHT's forecast annual net surplus/deficit position for the preferred way forward in comparison with the baseline 'business as usual' position, with more detail provided at Appendix D: Financial Outputs. In this assessment it is assumed that the capital investment is financed through PDC, and therefore capital charges of 3.5% are incurred.

Table 32: Annual net surplus/deficit position

£m	19/20	20/21	21/22	22/23	23/24	28/29	33/34	38/39	43/44	48/49
BAU Baseline	(38.3)	(29.3)	(19.4)	(8.7)	(10.0)	(17.1)	(21.2)	(25.8)	(29.1)	(32.7)
Preferred Way Forward	(38.5)	(29.5)	(19.9)	(11.0)	(16.9)	(6.1)	(2.0)	1.3	3.6	6.5
Net I/E position	0.0	(0.2)	(0.4)	(2.3)	(6.9)	11.0	19.2	27.1	32.7	39.2

Based on current assumptions, it can be seen that pursuing the preferred way forward will result in WHHT almost eliminating its deficit by 28/29 and achieving a surplus position in 36/37, whereas in the business as usual baseline, a surplus position is never reached as it shows a deficit of £17.1m by 28/29, increasing to £24.4m in 36/37. The preferred way forward is, therefore, affordable in terms of WHHT's long term financial sustainability.

The assumptions underpinning these forecasts are in line with WHHT's LTFM, as shown in Table 33 with more detail included at Appendix A

Table 33: Long term financial planning assumptions

	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28+
Tariff inflation	0.9%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%
Cost inflation	2.9%	2.9%	2.9%	2.9%	2.9%	2.9%	2.9%	2.9%	2.9%
CIP	-4.0%	-4.0%	-4.0%	-4.0%	-1.1%	-1.1%	-1.1%	-1.1%	-1.1%
Net I&E impact	2.0%	2.9%	2.9%	2.9%	0.0%	0.0%	0.0%	0.0%	0.0%

5.4.3 Sensitivity analysis

To understand the sensitivity around the forecast Trust surplus/deficit position – and therefore the affordability of the scheme – a set of sensitivity cases were considered:

- An increase/decrease in the level of CIPs achieved due to the scheme (+25%/-25%)
- An increase/decrease in the level of estates costs (Opex) savings achieved due to the scheme (+25%/-25%)
- A decrease in the level of Demand Management achieved (-25%, -50%)
- A decrease in the level of Operating Efficiencies (LOS/Utilisation etc) (-25%, -50%)

Each of these eight scenarios was run to see the resulting surplus/deficit position and this was then netted off against the surplus/deficit for the preferred way forward (Option 1) to see the net impact (or delta).

Table 34: Sensitivity analysis for Surplus/Deficit position

	Surplus/(Deficit)						Surplus/Deficit vs Preferred Way Forward					
	23/24	28/29	33/34	38/39	43/44	48/49	23/24	28/29	33/34	38/39	43/44	48/49
BAU	(10.0)	(17.1)	(21.2)	(25.8)	(29.1)	(32.7)	6.9	(11.0)	(19.2)	(27.1)	(32.7)	(39.2)
Preferred Option	(16.9)	(6.1)	(2.0)	1.3	3.6	6.5	0.0	0.0	0.0	0.0	0.0	0.0
CIPs 125%	(16.9)	(0.1)	5.0	9.4	12.9	17.1	0.0	6.0	7.1	8.1	9.2	10.6
CIPs 75%	(16.9)	(12.0)	(9.1)	(6.8)	(5.6)	(4.0)	0.0	(6.0)	(7.1)	(8.1)	(9.2)	(10.6)
Opex at 125%	(16.9)	(5.5)	(1.5)	2.0	4.4	7.4	0.0	0.5	0.6	0.7	0.8	0.9

Opex at 75%	(16.9)	(6.6)	(2.6)	0.6	2.8	5.6	0.0	(0.5)	(0.6)	(0.7)	(0.8)	(0.9)
ADM at 75%	(17.8)	(9.4)	(5.6)	(2.4)	(0.3)	2.4	(0.9)	(3.3)	(3.5)	(3.7)	(3.9)	(4.2)
ADM at 50%	(18.8)	(12.7)	(9.1)	(6.1)	(4.2)	(1.8)	(1.8)	(6.7)	(7.0)	(7.4)	(7.8)	(8.3)
Efficiencies 75%	(17.3)	(7.4)	(3.4)	(0.2)	2.1	4.9	(0.4)	(1.3)	(1.4)	(1.5)	(1.6)	(1.7)
Efficiencies 50%	(17.6)	(8.7)	(4.8)	(1.6)	0.5	3.2	(0.7)	(2.7)	(2.8)	(2.9)	(3.1)	(3.3)

This sensitivity analysis shows that biggest impact on the surplus/deficit position for the Trust is the level of CIPs (operational savings) achieved following the completion of the scheme. If an increase of 25% in the value of CIPs achieved could be realised (equivalent to £4.8m per annum or around 1.5% of cost base) then the Trust could reach a surplus position by 28/29.

5.5 Conclusion

The Financial Case has set out the full forecast financial costs of the proposed investment in WHHT's estate. A significant amount of capital investment is required, but this in line with WHHT's annual turnover and will be phased over a number of years.

The investment will result in operational cost savings for WHHT; estate running costs will be reduced and additional CIP efficiencies will be unlocked. This means that the preferred way forward will improve WHHT's long term financial sustainability and support it in returning to a surplus position. This will not be possible if nothing is done.

6 Management Case

This Management Case sets out how the estate redevelopment project is being managed and how the proposed changes will be delivered.

6.1 Project management arrangements

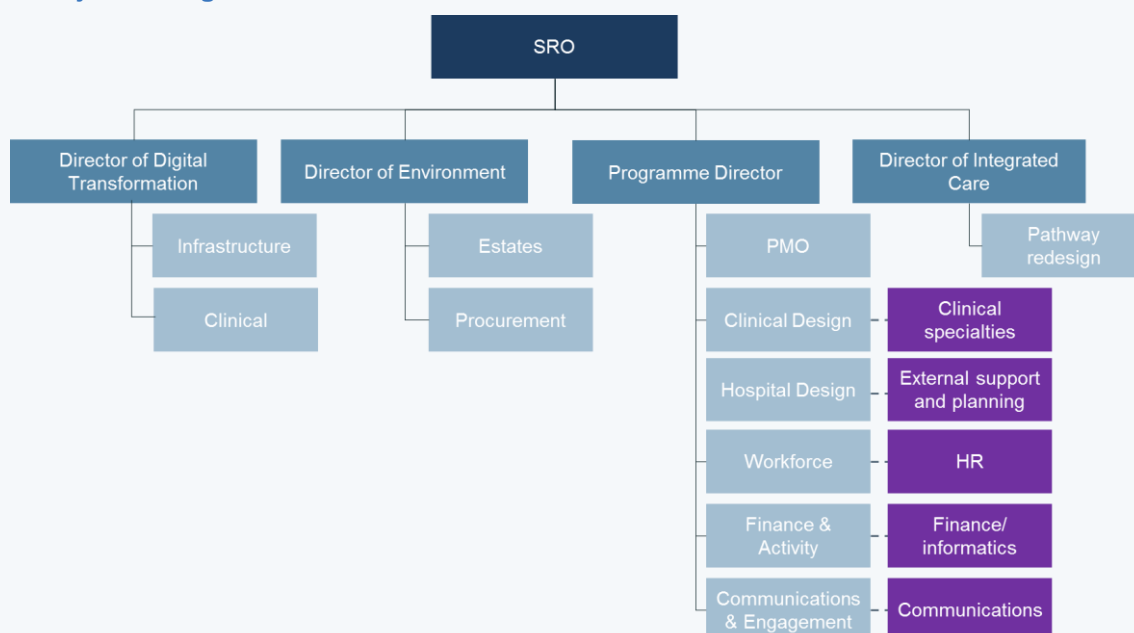
6.1.1 Project management structure

Following the approval of this SOC WHHT will mobilise a project team, committing the necessary time and resources for a project of this size and scale. Figure 36 shows the proposed project management structure for the OBC stage of the hospital redevelopment.

The overarching programme management will focus on the delivery of the key financial and non-financial benefits and outcomes associated with the redevelopment of WHHT's hospital estate.

Several key members of the proposed project team were involved with the relocation of Emergency services and Women's and Children's services from HHGH to WGH in 2008/9. This included the building of a new 120 bed Acute Admissions Unit on the existing site at WGH. Restricted availability of capital funding has limited the ability to undertake major projects in recent years. Yet over recent years, the Trust has managed the implementation of new CT and MRI and completely refurbished and expanded Endoscopy and Cardiology units at WGH. Last winter, the Trust created additional major cubicle space in the Emergency Department, created an emergency paediatric assessment unit, reconfigured the surgical admissions area and created a new ambulatory assessment area - all without disruption to patient care.

Figure 36: Project management structure



Helen Brown, WHHT Deputy Chief Executive and Director of Strategy, will be the Senior Responsible Owner (SRO) and will lead the programme implementation, supported by:

- Esther Moors, Programme Director – responsible for day to day decision making on behalf of the SRO and for the detailed design for clinical services
- Tim Duggleby, Associate Programme Director – responsible for detailed design and planning of the hospital estate redevelopment
- Patrick Hennessy, Director of Environment – responsible for technical aspects of the estate design, procurement activities and management of the construction phase, including any enabling works
- Fran Gertler, Director of Integrated Care – responsible for developing new models of care as part of the *Your Care, Your Future* programme
- Sean Gilchrist, Director Digital Transformation – responsible for digital technology aspects of the design and ensuring any new infrastructure and clinical models incorporate digital technology.

While the sponsors outlined above will remain accountable for the workstream, it is expected that they will delegate responsibility for the day-to-day management of, and delivery against, the work stream plan and critical path, to a work stream lead.

The workstream lead will support and monitor progress of the work streams against agreed milestones and report this to the Acute Redevelopment Delivery Executive and the Acute Redevelopment Programme Board. Figure 34 above shows an example of the range of work streams that may be required, overseen by these directors. This will vary at different stages of the Programme but essentially will include:

- **Clinical Design** – responsible for working with clinical specialties to design the optimum clinical service model for WHHT, to be implemented through the acute transformation
- **Whole system pathway redesign** – responsible for working with HVCCG and the wider *Your Care, Your Future* programme and STP to redesign the new models of care.
- **Estates** – responsible for developing the detailed design of the preferred option, securing planning approval and delivery of the enabling works
- **Procurement** – responsible for designing the procurement process and contract documentation
- **Finance & Activity** – responsible for working with WHHT Finance and Informatics teams to model the future demand and required capacity for acute services, as well as the financial implications of the proposed acute transformation
- **Workforce** – responsible for working with HR to model the workforce implications of the proposed clinical service model and preparing for any HR implications
- **Communications & Engagement** – responsible for working with WHHT and HVCCG communications teams to support stakeholder engagement and communication
- **Digital Transformation** – responsible for working with estates and hospital design teams and clinicians in further refining the clinical and hospital model, to understand how to best integrate technology into the infrastructure and design of the new/refurbished buildings and to enable delivery of new model of care. Digital working will be a key enabler across all workstreams

The dedicated Project Management Office (PMO) will ensure that the project is managed in accordance with best practice, using a robust project management methodology, and provide project coordination and planning capability to support the Programme Director. The PMO will include a core team with the necessary skills for:

- Developing, maintaining and implementing project plans
- Co-ordinating working groups as required
- Monitoring progress and reporting to the Delivery Executive and Programme Board
- Managing issues as they arise and escalating to the Delivery Executive and Programme Board as necessary
- Managing change control
- Managing project advisors, ensuring that their contribution is well understood and that the Trust obtains best advice and value
- Managing risks in line with programme risk management strategy
- Ensuring effective development and delivery of the Stakeholder Engagement and Communications Plan.

6.1.2 Use of technical advisors

Specialist technical advisors have been used in a timely and cost-effective way to support internal resources in the development of this SOC:

- PA Consulting: Demand and capacity modelling, cost modelling and business case development
- Arcadis: Estate cost estimates and expertise

Implementation of the preferred way forward will require a complex programme of work and the Trust will secure the necessary external specialist expertise and advice that is required.

As part of WHHT’s partnership with the Royal Free London Group, Royal Free Property Services Ltd will support the Trust’s project team, providing expert advice and support, drawing on learning from the successful delivery of Chase Farm Hospital.

During the OBC stage, further technical support is expected to be required in the following areas:

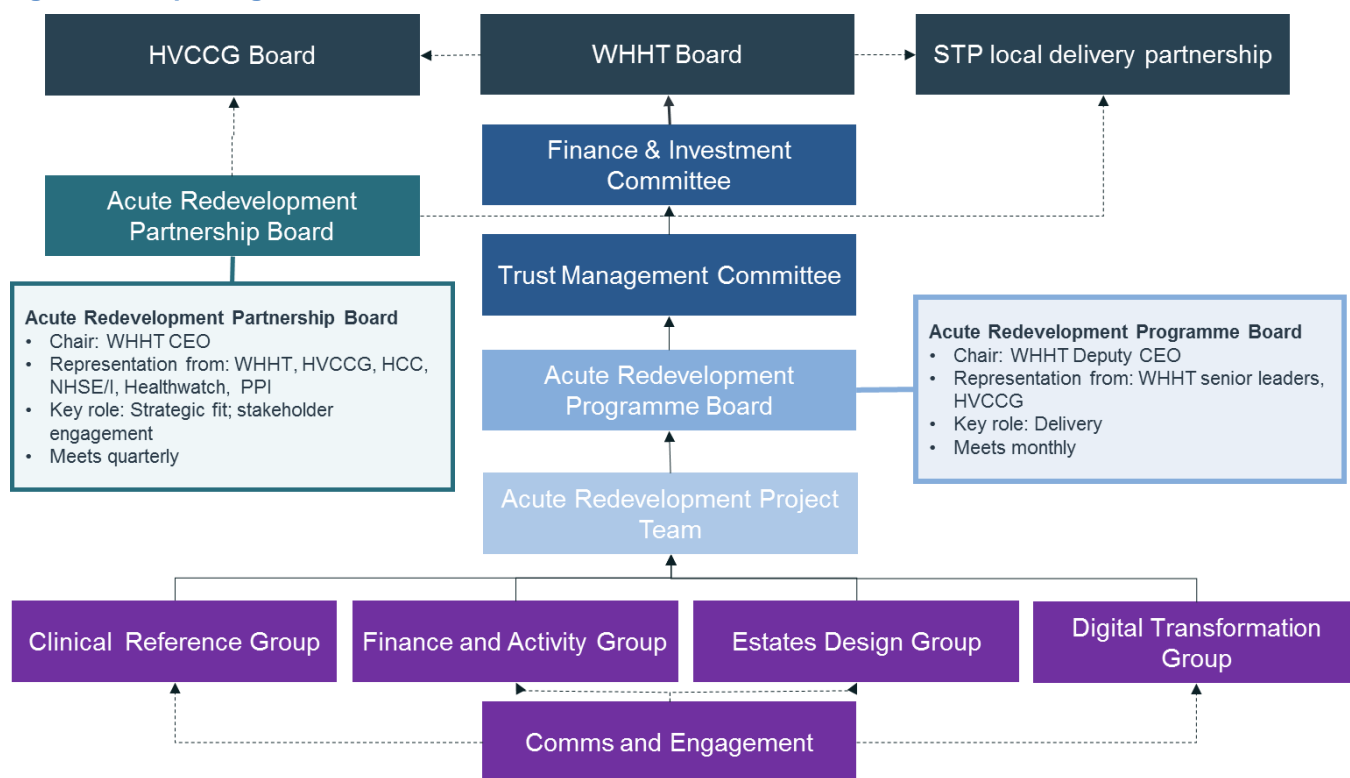
- Financial
- Estates
- Procurement and legal

The external advisors will provide advice to the SRO, the Programme Director, the Acute Redevelopment Delivery Executive, the Acute Redevelopment Programme Board and ultimately the Trust Board as required.

6.2 Governance

Figure 37 provides an overview of the proposed governance and reporting structure for the programme.

Figure 37: Reporting structure



An Acute Redevelopment project team will meet weekly to proactively drive delivery of the programme plan and critical path. It will discuss progress, manage interdependencies, review risks and issues and make tactical decisions. This will be chaired by the SRO and include the workstream leads, the head of the PMO and the Programme Director. The Acute Redevelopment project team will be accountable to the Acute Redevelopment Programme Board.

The Acute Redevelopment project team will provide programme management support to the work streams and will be responsible for the management of all programme management processes, including preparing and managing papers for governance arrangements, proactive risk and issue management and progress reporting.

WHHTs Clinical Advisory Group (CAG) is a clinical leadership committee comprising the Divisional Directors of the Clinical Divisions. For this programme, a Clinical Reference Group (CRG) will be set up with membership from senior WHHT clinicians and nurses to provide guidance to the Programme Director and ensure that Trust clinical resources will be available to support the programme. The group will:

- Ensure that clinical objectives inform and drive effective delivery of the programme
- Provide advice to the Programme Director, the Programme team, the Programme Board, the Partnership Board and Trust Board, raising any concerns and providing expert opinion to support decision making
- Support resolution of issues at clinical divisional level when required

An Acute Redevelopment Programme Board will meet bimonthly and then monthly as required. It will be accountable for successful delivery of the acute redevelopment within budget and for the realisation of the anticipated benefits. It will be chaired by the clinical sponsor and the Chief Executive, The Deputy Chief Executive of WHHT will be the SRO and will lead the programme implementation.

The full representation of the Programme Board will likely be attended by:

- Deputy Chief Executive
- Director of Environment
- Programme Director
- Director of Integrated Care
- Director of Communications
- Director of Digital Transformation
- Chief Financial Officer
- Divisional Directors
- Head of PMO
- HVCCG

The Acute Redevelopment Programme Board will approve and manage the programme plan at each stage including:

- Review of all the key deliverables and the activities required to deliver them
- Patient and staff communications and engagement
- The competitive dialogue process and procurement
- Maintenance of a detailed risk and issue register and mitigation of risk factors affecting the successful delivery of the programme
- Maintenance of a benefits realisation register and monitoring of delivery
- Considering and recommending to the Trust Board any changes to the project scope, budget or timescale if required

The Acute Redevelopment Programme Board will be accountable to WHHT's Trust Management Committee (TMC) and the Finance and Investment Committee (FIC) which are both accountable to the WHHT Board. It will receive clinical guidance from the CRG.

The WHHT Board will have overall decision-making responsibility and accountability for the programme ensuring that the project has a viable and affordable business case that will deliver value for money and best quality healthcare through effective management of the procurement process and implementation of the proposed way forward. The Board will seek assurance from the SRO and Acute Redevelopment Programme Board on any aspect of the programme that may pose a risk to successfully achieving the investment objectives and realisation of the expected benefits.

The acute redevelopment is part of the *Your Care, Your Future* programme at HVCCG and *A Healthier Future* STP. The Acute Redevelopment Programme Board will therefore also report progress to the Acute Redevelopment Partnership Board which, which is accountable to the boards of all partner organisations.

WHHT will keep NHS England and NHS Improvement updated with progress as part of its business as usual communications. Other partner organisations will be engaged throughout and often in relation to specific workstreams e.g. ambulance Trusts, Social Care etc.

6.3 Project plan and milestones

The main milestones for the hospital redevelopment, along with the dates by which they are anticipated to be achieved, are outlined in Table 35. It should be noted, however, that these dates may vary depending on the choice of preferred option confirmed in the OBC.

Table 35: Summary of key milestones

Milestone	Anticipated date
SOC approved	July 2020
Outline planning permission for WGH obtained	December 2020
OBC submitted	June 2021
Output specification developed and tender documentation complete	September 2021
OBC approved	December 2021
FBC submitted	Spring 2022
FBC approved	January 2023
Core construction begins	January 2023
Core construction ends	Autumn 2025
Final refurbishment starts	Autumn 2025
Final refurbishment ends	Winter 2026
Land disposals at WGH	2027

Once the preferred option has been defined, it is likely the proposed acute redevelopment will be split into separate projects with separate business cases. Given the majority of investment required as part of the preferred way forward is for WGH, the OBC for this as part of the WGH redevelopment will be prioritised. A separate business case detailing options for planned care at SACH and HHGH will be developed in parallel.

This SOC, and any OBC's and FBC's will need to be approved by WHHT Trust Board prior to submission to NHS Improvement and letters of support from HVCCG and Hertfordshire and West Essex STP will also be required at each stage of approval of the business cases.

As outlined in section 3.4, some enabling works will be required on the WGH site under all options within the preferred way forward. These will need to be implemented in advance of the redevelopment of hospitals and are subject to their own business case approvals processes. These are:

- **Car park** – In order to allow maximum flexibility for redevelopment of the WGH site, WHHT has planning permission to build a multi-storey car park due for completion in 2020. It will provide around 1,400 spaces for staff, patients and visitors and its creation enables future redevelopment of land which is currently used for parking. Considering alternative solutions for the provision of car parking spaces, including a multi-storey solution.
- **Pathology** - This SOC assumes that there will be a requirement for some on-site pathology provision (a "hot lab") but that the majority of the pathology services can be provided from an off-site location. The current facilities and equipment at WGH are not fit for purpose and require substantial investment to modernise. This is subject to a separate business case process – the OBC for which has been approved. There is now an STP wide programme to procure an outsourced service and the aim is for it to be in place by 2021 across all of Hertfordshire and West Essex. As such the capital costs associated with modernising pathology are not included within this SOC. Moving pathology services from their current location on the WGH site, retaining core 'hot lab' functions on-site, will allow this area to be redeveloped as part of the acute redevelopment.

The Trust has an endorsed Interim Estates Strategy that bridges the period to the redevelopment project, to address service development concerns that cannot wait for the wider transformation to be achieved.

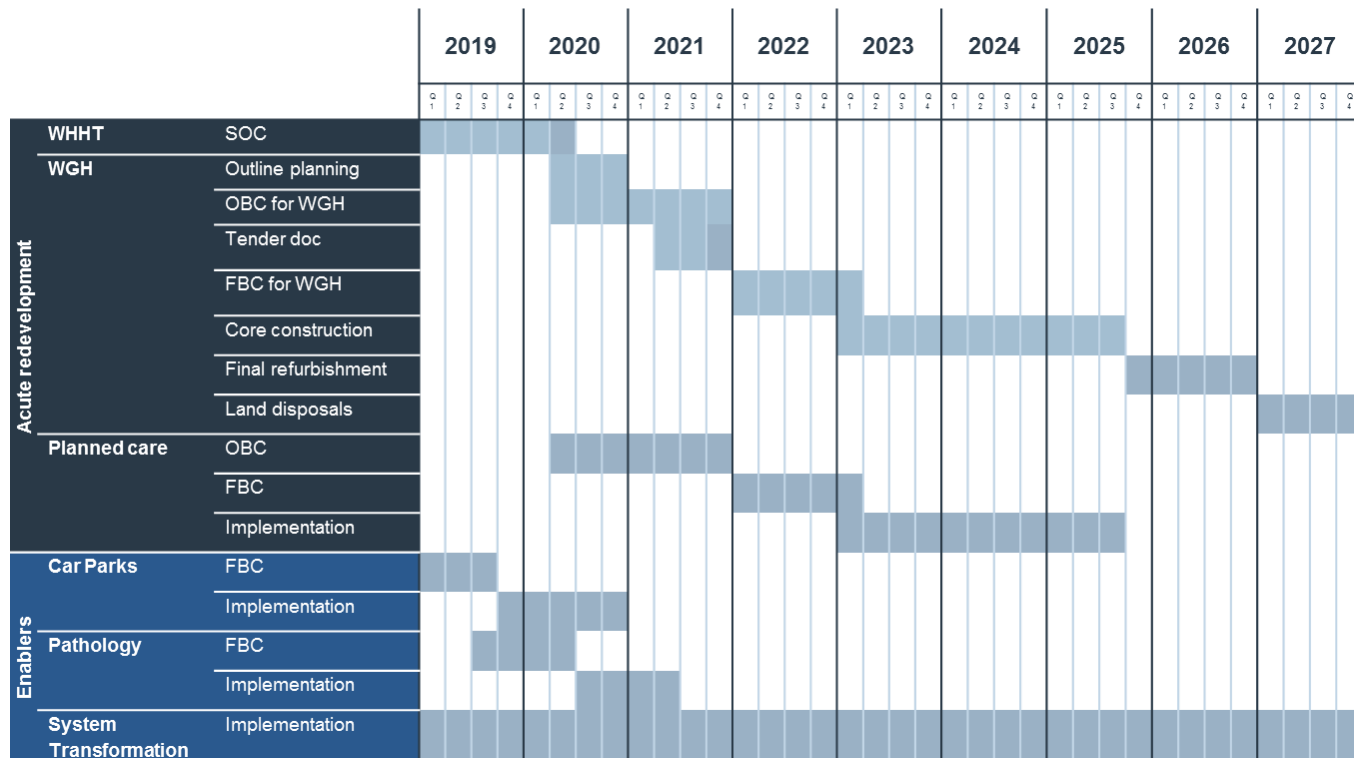
The redevelopment of WHHT hospitals will also be dependent on the wider transformation of out of hospital care being driven by HVCCG and the STP. The demand and capacity assumptions built into the modelling work for this SOC will need to be continuously reviewed and updated to reflect any changes in system wide strategies and plans or changes to population growth.

A high level indicative timeline covering the main acute transformation activities over the next nine years is shown in Figure 38. This includes the two enabling projects mentioned above and reference to implementation of wider STP/CCH transformation plans. Full optimisation of the financial and quality benefits associated with the redevelopment of the hospital estate will continue well beyond year 9. The Trust will continue to programme manage and monitor the realisation of benefits beyond FY2027.

This timeline will require management of the existing estate and clinical service risks and is therefore reliant upon an assumption that these risks don't escalate at a faster rate. If there are any opportunities to accelerate the timeline, these will be explored as necessary in order to begin optimising the benefits sooner.

Once the proposed project management structure has been established, a detailed plan for OBC stage will be developed, outlining all the activities necessary to identify the preferred option and prepare for procurement.

Figure 38: High level timeline for delivery of acute redevelopment



6.4 Outline risk management approach

The programme has a high level risk register, provided at Appendix E.

Once the proposed project management structure has been established a full risk management plan will be developed and implemented. Responsibility for risk and issue management will reside with the PMO.

The programme will further develop the risk register, identifying risk owners and recording mitigating actions. Risks will be escalated from the Acute Redevelopment Delivery Executive to the Acute Redevelopment Board, to TMC, to FIC, to WHHT's Board and other governance groups as appropriate.

The programme will use a number of approaches to identify and manage risks. This will include structured risk review meetings involving the programme board, the delivery executive and CAG to encourage ownership of the risks, risk audit interviews and risk workshops – including all members of the project team and wider staff and stakeholder partners.

The Acute Redevelopment Programme Board will review the risk register on a monthly basis. All programme risks with an overall medium or high risk score will be escalated to the Trust Board. The role of the Trust Board will be to assure itself that all risks are accurately identified and mitigated adequately.

Progress of the proposed redevelopment of hospital services is currently included on the Trust Board risk register as a high level risk. The risk is related to not being able to progress plans for hospital redevelopment and as a result, that there are delays in addressing important quality, safety and sustainability issues. The Trust Board will continue to regularly review these risks and the interim necessary actions that are required to mitigate them.

6.5 Outline stakeholder management approach

6.5.1 Stakeholder engagement approach

The Trust will continue to fully engage and involve local people, key stakeholders and the local Scrutiny Committees and Councils in the next steps to deliver the proposed redevelopment of WHHT's hospital estate. There is a statutory requirement to involve patients and other service users in any service change, and this will be vital to ensure that future acute hospital services are designed in a way that works for them.

The revised preferred way forward set out in this SOC is an evolution of the proposals informed by previous engagement and the extensive public engagement undertaken in 2016 as part of the *Your Care, Your Future* programme.

During the SOC development, WHHT has worked closely with HVCCG and the *Your Care, Your Future* programme to involve stakeholders throughout the options appraisal process and to provide regular communication about progress. Once the proposed project management structure has been established, a full stakeholder management plan will be developed and implemented, specifically focused on the acute redevelopment activities. This will identify and categorise stakeholders, both internal and external, and outline a proposed engagement and communications approach for each. Responsibility for stakeholder management will reside with the Communications & Engagement workstream.

The programme will continue actively engaging with stakeholders through the next stage in the business case process and during implementation. This will include for example:

- Health and Wellbeing Boards across west Hertfordshire – ensuring that implementation of the proposed changes is aligned with Health and Wellbeing Board's plans of how best to meet the needs of their local population and tackle local inequalities in health.
- Health Scrutiny Committees across west Hertfordshire – ensuring continued public scrutiny through the period of implementation.
- Patients, Public and local Healthwatch – ensuring that patients are well informed about what changes are proposed, have a say in how they are to be delivered and, ultimately, are fully aware of which services will be delivered from which locations in the future
- Herts Valleys CCG – ensuring that clinical commissioners are fully involved and informed of the implementation plans and progress and implementation of the proposed changes fit with the CCG strategy for *Your care, Your Future*.
- Local Authorities – work with local council leaders and planners to develop more detailed plans, to identify opportunities for land disposals and to co-design and begin to deliver the transformation to Out of Hospital services which is critical to the success of the hospital redevelopment programme.
- Hertfordshire and West Essex STP – work to ensure the implementation of the proposed changes fit with Hertfordshire and West Essex overall strategy for *A Healthier Future* and STP estates strategy
- Other Providers – communication and involvement of other providers that are impacted by the changes and/or are critical to implementation (e.g. voluntary sector organisations, ambulance services, mental health, primary care, and neighbouring acute hospitals).
- WHHT staff – actively engaging with staff to ensure they are fully aware of the implementation plans and able to contribute to the plans promoting their central role in making these changes happen.
- WHHT clinicians – will be actively involved in the planning and implementation to ensure patient safety is not compromised as changes are made.

The approach to engagement will continue to be inclusive and will include a range of opportunities for the public and stakeholder groups to provide their input and insight. There will be an opportunity for stakeholders to get involved in:

- The design and development of buildings and estates with specific focus on:
 - The continued development of WGH estate as emergency and specialist care site (including co-design of the new buildings and environment)
 - The refurbishment of SACH and HHGH as planned care centres
- Travel, transport and parking at all hospital sites
- Use of digital technology
- Care at or closer to home

Key principles for engagement so far and continued engagement going forward include:

- Being inclusive in engagement activity and considering the needs of the local population (including equality and the impact on diverse groups)
- Ensuring transparency with the public - promoting open and honest discussions about plans and what the public can and cannot influence and why
- Providing a platform for people to influence planning and challenge decisions, where appropriate
- Ensuring that any engagement activity is proportionate to the issue and demonstrating that people's views have been listened to

6.5.2 Public consultation

Although the proposed estate redevelopment does not constitute service reconfiguration as set out in NHS England guidance, it is acknowledged that the wider *Your Care Your Future* programme will involve changes to services in order to deliver more care closer to home, and so the four tests of service reconfiguration that were used for *Your Care Your Future* have been followed as far as possible:

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

It is not anticipated that a formal public consultation will be required for the proposed estate redevelopment at WGH. This is because a public consultation was held in 2003, following which the then Primary Care Trusts (PCTs) in Hertfordshire decided to locate inpatient acute and emergency care services at Watford. In 2007, the PCTs affirmed this decision and, following a further public consultation, decided to locate a planned care centre at St Albans. A further extensive public engagement exercise was held as part of *Your Care, Your Future* in 2015/16. These decisions align with the preferred way forward set out in this SOC and so, given the level of stakeholder involvement in the development of this SOC, a formal period of public consultation for work at WGH is not required.

As there are relatively limited changes to service configuration at HHGH and SACH, it is not anticipated that a formal consultation will be required for this work. The public and stakeholders will however be fully engaged to help define the detailed future service model.

Hertfordshire County Council Scrutiny Committee have been continually informed and updated throughout the development of the original SOC and this updated SOC. WHHT will continue to work closely with them to seek advice and keep them updated on progress.

6.5.3 Equalities impact assessment

As public bodies, both HVCCG and WHHT have a statutory and legal responsibility to ensure fair and equitable treatment of all people. They are therefore required to work to promote equality (as required by the Equality Act 2010), and to address health inequalities (as required by the Health and Social Care Act 2012). To ensure this responsibility has been addressed with respect to the proposed acute redevelopment, an Equalities Impact Assessment has been undertaken. This analyses the potential impact of the proposed changes from an equalities perspective generally, and for people with protected characteristics specifically, and makes recommendations to address any potential adverse impacts identified.

These recommendations will be taken into account as the detailed design for the preferred option is developed at OBC stage. It is anticipated that further assessment of the equalities impacts of the redevelopment at WGH, HHGH and SACH will be required at each stage of the business case process going forward.

6.6 Conclusion

This Management Case has set out the project management and governance arrangements which will be established for the next stage of the business case development process for the proposed acute transformation. With these structures in place, this will ensure the project is managed in line with best practice and successful implementation can be secured.

APPENDICES

Appendix A: Assumptions Log	82
<hr/>	
Demand Assumptions	82
Capacity Assumptions	91
Estates Assumptions	95
Financial Assumptions	117
Appendix B: WHHT Services	119
<hr/>	
Summary of services across WHHT's three hospital services	119
Appendix C: Stakeholder Panel Summary	121
<hr/>	
Summary of outputs from qualitative appraisal stakeholder panel	121
Appendix D: Financial Outputs	125
<hr/>	
Appendix E: Summary Risk Register	137
<hr/>	
Appendix F: Supporting Letters	139
<hr/>	
Appendix G: Final amendments to the SOC	

Appendix A: Assumptions Log

This Appendix contains all the assumptions used in economic and financial analysis contained within this Strategic Outline Case.

Demand Assumptions

This section sets out the assumptions used to forecast the future demand for acute hospital services provided by West Hertfordshire Hospitals Trust (WHHT).

Demand and Capacity Model

A Demand and Capacity Model was built to forecast future levels of demand for hospital services and therefore the capacity required. The table below shows the dimensions across which the modelling was undertaken.

Table 36: Dimensions captured within the Demand and Capacity Model

Activity Type	Specialty Group	Site	Age
A&E Attendance - Major	Medical	Watford Hospital	0-15
A&E Attendance - Minor / UEC	Surgical	St Albans City Hospital	16-39
Non-Elective Admissions	Paediatrics	Hemel Hempstead Hospital	40-64
Elective Admissions	Maternity		65-84
Day Case Admissions	Gynaecology		85+
Non-Elective Operations	Psychiatry		
Elective Operations	Radiology		
Day Case Operations	Therapies		
Outpatients	Pathology		
	Other		

The model was used to forecast how demand would change over the next 20 years, in line with regional Sustainability and Transformation Partnership (STP) plans. It was calibrated to ensure it could recreate the current hospital capacity from current levels of demand and sensitivity analysis was conducted to understand the impact of different growth assumptions.

Specialty Mapping

Growth assumptions were applied to individual specialties by mapping them to Specialty Groups using treatment function (TF) codes, as shown in the table below. The base mapping was taken from NHS data dictionary¹⁷ and then adjustments made by working with the WHHT data team and clinicians.

All activity for Patients aged 0-15 was grouped to Paediatrics, except for Neonatology (422) which was grouped to Maternity, and Well Babies (424) which was grouped to Maternity initially but then excluded from the activity count to avoid double counting the need for Maternity beds.

Table 37: Specialty mapping

TF code	TF name	TF group	Spec. Group
100	GENERAL SURGERY	Surgical	Surgical
101	UROLOGY	Surgical	Surgical

¹⁷ https://www.datadictionary.nhs.uk/web_site_content/supporting_information/main_specialty_and_treatment_function_codes_table.asp

TF code	TF name	TF group	Spec. Group
103	BREAST SURGERY	Surgical	Surgical
104	COLORECTAL SURGERY	Surgical	Surgical
106	UPPER GASTROINTESTINAL SURGERY	Surgical	Surgical
107	VASCULAR SURGERY	Surgical	Surgical
108	SPINAL SURGERY SERVICE	Surgical	Surgical
110	TRAUMA & ORTHOPAEDICS	Surgical	Surgical
120	ENT	Surgical	Surgical
130	OPHTHALMOLOGY	Surgical	Surgical
140	ORAL SURGERY	Surgical	Surgical
143	ORTHODONTICS	Surgical	Surgical
172	CARDIAC SURGERY	Surgical	Surgical
180	ACCIDENT & EMERGENCY	Surgical	Surgical
191	PAIN MANAGEMENT	Surgical	Surgical
211	PAEDIATRIC UROLOGY	Children's SS	Paediatrics
216	PAEDIATRIC OPHTHALMOLOGY	Children's SS	Paediatrics
217	PAEDIATRIC MAXILLO-FACIAL SURGERY	Children's SS	Paediatrics
223	PAEDIATRIC EPILEPSY	Children's SS	Paediatrics
251	PAEDIATRIC GASTROENTEROLOGY	Children's SS	Paediatrics
252	PAEDIATRIC ENDOCRINOLOGY	Children's SS	Paediatrics
253	PAEDIATRIC CLINICAL HAEMATOLOGY	Children's SS	Paediatrics
257	PAEDIATRIC DERMATOLOGY	Children's SS	Paediatrics
263	PAEDIATRIC DIABETIC MEDICINE	Children's SS	Paediatrics
264	PAEDIATRIC CYSTIC FIBROSIS	Children's SS	Paediatrics
190	ANAESTHETICS	Medical	Surgical
192	CRITICAL CARE MEDICINE	Medical	Surgical
300	GENERAL MEDICINE	Medical	Medical
301	GASTROENTEROLOGY	Medical	Medical
302	ENDOCRINOLOGY	Medical	Medical
303	CLINICAL HAEMATOLOGY	Medical	Medical
304	CLINICAL PHYSIOLOGY	Medical	Medical
306	HEPATOLOGY	Medical	Medical

TF code	TF name	TF group	Spec. Group
307	DIABETIC MEDICINE	Medical	Medical
314	REHABILITATION SERVICE	Medical	Medical
316	CLINICAL IMMUNOLOGY	Medical	Medical
320	CARDIOLOGY	Medical	Medical
321	PAEDIATRIC CARDIOLOGY	Medical	Paediatrics
328	STROKE MEDICINE	Medical	Medical
329	TRANSIENT ISCHAEMIC ATTACK	Medical	Medical
330	DERMATOLOGY	Medical	Medical
340	RESPIRATORY MEDICINE	Medical	Medical
341	RESPIRATORY PHYSIOLOGY	Medical	Medical
361	NEPHROLOGY	Medical	Medical
370	MEDICAL ONCOLOGY	Medical	Medical
400	NEUROLOGY	Medical	Medical
401	CLINICAL NEUROPHYSIOLOGY	Medical	Medical
410	RHEUMATOLOGY	Medical	Medical
420	PAEDIATRICS	Medical	Paediatrics
422	NEONATOLOGY	Medical	Maternity
424	WELL BABIES	Medical	Maternity ¹⁸
430	GERIATRIC MEDICINE	Medical	Medical
501	OBSTETRICS	Medical	Maternity
502	GYNAECOLOGY	Medical	Gynaecology
503	GYNAECOLOGICAL ONCOLOGY	Medical	Gynaecology
560	MIDWIFERY SERVICE	Medical	Maternity
650	PHYSIOTHERAPY	Therapies	Therapies
655	ORTHOPTICS	Therapies	Therapies
656	CLINICAL PSYCHOLOGY	Therapies	Therapies
658	ORTHOTICS	Therapies	Therapies
800	CLINICAL ONCOLOGY	Radiology	Radiology

¹⁸ Excluded from activity count to avoid double counting mother and babies.

Activity Baseline

The baseline activity for the demand modelling was taken as the average of the last three full years of activity, adjusted for historic growth rate (2.3% p.a.) and also for activity not undertaken in 17/18 as a result in the change in waiting list (WL) length. The table below shows a summary extract of the adjusted 17/18 activity baseline.

Table 38: Activity baseline

Activity Type	Specialty Group	15/16	16/17	17/18	17/18 WL	17/18 ADJ
A&E Attendances	Majors	47,402	45,565	49,405	0	48,542
A&E Attendances	Minors / UTC	66,050	69,777	64,497	0	68,334
A&E Attendances	Paediatrics	22,806	22,987	23,095	0	23,493
Elective Admissions	Medical	507	492	375	0	470
Elective Admissions	Surgical	5,259	5,450	4,618	287	5,328
Elective Admissions	Paediatrics	719	722	708	0	733
Elective Admissions	Maternity	2	0	150	0	51
Elective Admissions	Gynaecology	1,095	1,219	984	0	1,126
Non-Elective Admissions	Medical	24,552	25,356	26,011	0	25,882
Non-Elective Admissions	Surgical	9,562	9,681	9,423	0	9,778
Non-Elective Admissions	Paediatrics	4,705	5,347	4,757	0	9,722
Non-Elective Admissions	Maternity	9,835	8,927	8,989	0	9,471
Non-Elective Admissions	Gynaecology	947	1,017	1,168	0	1,066
Day Case Admissions	Medical	16,548	17,624	20,889	52	18,763
Day Case Admissions	Surgical	16,896	17,998	17,077	638	17,936
Day Case Admissions	Paediatrics	2,429	2,158	2,428	0	2,393
Day Case Admissions	Maternity	2	56	2	2	21
Day Case Admissions	Gynaecology	1,463	1,211	1,119	0	1,296
Day Case Admissions	Radiology	13	18	12	0	15
Elective Operation	Surgical	4,972	5,084	4,178	288	4,957
Elective Operation	Maternity	14	0	144	0	53
Elective Operation	Gynaecology	1,002	1,155	939	0	1,056
Non-Elective Operation	Surgical	3,571	3,762	3,741	0	3,776
Non-Elective Operation	Maternity	0	0	44	0	15
Non-Elective Operation	Gynaecology	49	61	115	0	76
Day Case Operation	Surgical	10,682	10,990	9,387	638	10,816
Day Case Operation	Maternity	37	5	0	0	15
Day Case Operation	Gynaecology	1,230	1,091	1,046	0	1,150

Activity Type	Specialty Group	15/16	16/17	17/18	17/18 WL	17/18 ADJ
Outpatient	Medical	144,397	146,746	152,745	0	151,327
Outpatient	Surgical	165,095	170,341	166,786	0	171,274
Outpatient	Paediatrics	37,136	39,312	43,158	0	40,746
Outpatient	Maternity	82,319	78,559	83,274	0	83,263
Outpatient	Gynaecology	17,279	17,972	18,258	0	18,242
Outpatient	Radiology	2,751	2,854	2,959	0	2,919
Outpatient	Therapies	5,577	5,307	5,586	0	5,617

Growth Assumptions

Demand growth is forecast for the next 20 years in the model. This allows a future-proofing for the size of the hospital looking 10 years beyond the completion of the build. The growth in demand includes both demographic and non-demographic growth, as explained in the following sections.

Demographic Growth

Demographic growth assumptions account for the changes in activity that can be attributed to population growth. The assumptions used in the Demand and Capacity Model are based upon Office National Statistics (ONS) 2016-based CCG population projections¹⁹ for the five age cohorts in the activity model (See Table 43). It is noted that ONS 2016-based population projections are materially lower than 2014-based population projections due to a change in methodology at national level and this is the reason for slight differences with the growth assumption build up for the STP (see below)

Non-Demographic Growth

Non-demographic growth accounts for factors other than population growth, such as pressures arising from increased prevalence of medical conditions, medical advances, technological developments etc. Non-demographic growth assumptions have been defined for seven activity types based upon six years of historic WHHT activity data, as well as a comparison with national growth trends, as shown in the table below. Non-demographic growth is determined by looking at historic growth and the correcting for demographic growth. In order to not exaggerate any unrepresentative local growth trends over time the non-demographic growth is assumed to revert to a common steady increase in line with STP modelling over a 10-year period (except for maternity which is assumed to have a greater increase to correct for the recent loss of activity).

Table 39: Non-demographic growth

Activity Type	Historic Activity (000)						Historic NDG			Eng.	Model	
	12/13	13/14	14/15	15/16	16/17	17/18	12/18	13/18	12/17	09/17	18/19	28/29
A&E Type 1	83.5	83.4	86.7	88.7	93.0	94.4	1.8%	2.5%	2.1%	0.9%	2.0%	1.3%
A&E Type 3	41.9	43.7	46.7	47.6	45.3	42.7	-0.2%	-1.1%	1.4%	1.6%	-1.0%	1.3%
Elective	7.2	7.0	7.9	7.6	7.9	7.2	-0.6%	0.2%	1.7%	-3.2%	1.0%	1.3%
Day Case	33.8	34.5	35.6	37.4	39.1	42.3	3.8%	4.4%	2.9%	2.7%	2.0%	1.3%
NEL - Emergency	34.0	39.2	41.9	39.3	40.7	41.0	3.4%	0.6%	4.2%	1.0%	1.0%	1.3%

¹⁹<https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationprojections/datasets/clinicalcommissioninggroupsinenglandtable3>

Activity Type	Historic Activity (000)						Historic NDG			Eng.	Model	
NEL - Maternity	9.5	10.3	9.4	9.2	8.3	8.3	-3.1%	-5.9%	-3.8%	1.0%	-2.0%	2.0%
OP - ALL	404.8	426.3	433.3	454.8	461.1	472.8	2.5%	2.0%	2.7%	2.0%	2.0%	1.3%
										1.3%	1.3%	

Sense-check against STP

The approach of using ONS-2016 based population projections and WHHT actual non-demographic growth (as opposed to using STP stated demographic and non-demographic growth) allows more detailed modelling by age cohort and activity type or “Point of Delivery” (POD) using WHHT’s actual activity data.

This detailed modelling is compared with the STP medium term financial plan (MTFP) to ensure alignment. This exercise shows that the two sets of growth assumptions are aligned for overall growth, with a slight difference in categorisation of demographic and non-demographic growth due to the fact that the STP work is based upon ONS-2014 population projections which are 0.3% higher than ONS-2016 on average.

Table 40: STP growth comparison

POD (activity type)	ONS-2016 DG	WHHT NDG	STP DG	STP NDG
Accident & Emergency (A&E)	0.7%	1.0%	1.3%	1.0%
Non-Elective (NEL)	0.9%	0.9%	1.3%	1.0%
Elective (EL)	1.1%	1.0%	1.3%	1.0%
Day Case (DC)	1.1%	2.0%	1.3%	1.0%
Outpatients (OP)	0.9%	2.0%	1.3%	1.0%
Total	1.0%	1.3%	1.3%	1.0%

Demand Management

Herts Valleys Clinical Commissioning Group (HVCCG) is implementing a number of interventions as part of the wider *Your Care, Your Future* programme and STP plans. These are anticipated to reduce the demand for hospital services. Demand management assumptions are applied at POD level, in line with the STP assumptions in the October 18 MTFP. It should be noted that the STP assumptions assume demand management for CCGs within the STP but no demand management for CCGs outside the STP. Around 10% of West Herts activity comes from the north west London STP footprint.

Table 41: Overall growth assumptions

POD (Activity Type)	HWE CCGs	WHHT	HWE CCGs	WHHT
	10yr	10yr	1yr	1yr
Accident & Emergency (A&E)	-19.0%	-16.7%	-2.1%	-1.8%
Non-Elective (NEL)	-23.0%	-20.4%	-2.6%	-2.3%
Elective (EL)	-15.0%	-12.8%	-1.6%	-1.4%
Day Case (DC)	-15.0%	-12.8%	-1.6%	-1.4%
Outpatients (OP)	-22.0%	-20.0%	-2.4%	-2.2%

Overall growth assumptions

Combining these demographic, non-demographic and demand management assumptions gives the following overall growth assumptions for the 20-year period 2017/18 to 2037/38.

Table 42: Overall growth assumptions

Point of Delivery (POD) (Activity Type)	Demographic Growth	Non-Dem. Growth	Demand Management	Overall Change
Accident & Emergency (A&E)	15%	27%	-31%	1%
Non-Elective (NEL)	20%	26%	-37%	-4%
Elective (EL)	20%	27%	-24%	16%
Day Case (DC)	21%	34%	-24%	23%
Outpatients (OP)	19%	35%	-36%	3%

The annual profiles of these growth assumptions are shown in the table on the next page.

Annual growth assumptions

Table 43: 20-year demographic growth

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
0 - 15	1.5%	1.2%	1.1%	0.8%	0.5%	0.0%	0.2%	-0.2%	-0.4%	-0.4%	-0.2%	-0.2%	-0.2%	-0.4%	-0.2%	-0.2%	-0.3%	-0.3%	-0.2%	0.0%
16 - 39	-0.2%	-0.1%	-0.3%	0.0%	-0.1%	0.3%	0.2%	0.2%	0.2%	0.2%	-0.3%	0.0%	-0.1%	-0.2%	0.0%	0.3%	0.1%	0.3%	0.3%	0.3%
40 - 64	0.9%	1.0%	1.2%	1.0%	1.1%	0.7%	0.6%	0.7%	0.5%	0.4%	0.6%	0.3%	0.3%	0.3%	0.2%	0.1%	0.2%	0.2%	0.0%	0.0%
65 - 84	1.4%	1.6%	1.6%	1.5%	1.7%	1.9%	2.0%	2.0%	2.7%	2.2%	2.2%	1.8%	2.0%	1.9%	0.9%	1.3%	1.4%	1.3%	1.6%	1.6%
85+	2.6%	1.9%	1.9%	2.5%	3.0%	2.3%	2.3%	2.2%	0.0%	2.2%	3.7%	4.6%	3.9%	4.2%	7.7%	5.0%	3.6%	3.1%	2.6%	2.2%

Table 44: 20-year non-demographic growth

	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33	33/34	34/35	35/36	36/37	37/38
AE (T1)	1.0%	1.0%	1.1%	1.1%	1.1%	1.2%	1.2%	1.2%	1.2%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%
EL	1.0%	1.0%	1.1%	1.1%	1.1%	1.2%	1.2%	1.2%	1.2%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%
NEL	1.0%	1.0%	1.1%	1.1%	1.1%	1.2%	1.2%	1.2%	1.2%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%
DC	2.0%	1.9%	1.9%	1.8%	1.7%	1.7%	1.6%	1.5%	1.4%	1.4%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%
OP	2.0%	1.9%	1.9%	1.8%	1.7%	1.7%	1.6%	1.5%	1.4%	1.4%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%
MAT	-2.0%	-1.6%	-1.2%	-0.8%	-0.4%	0.0%	0.4%	0.8%	1.2%	1.6%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
AE (T3)	1.0%	1.0%	1.1%	1.1%	1.1%	1.2%	1.2%	1.2%	1.2%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%

Table 45: 20-year demand management

	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33	33/34	34/35	35/36	36/37	37/38
AE (T1)	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%
EL	-1.4%	-1.4%	-1.4%	-1.4%	-1.4%	-1.4%	-1.4%	-1.4%	-1.4%	-1.4%	-1.4%	-1.4%	-1.4%	-1.4%	-1.4%	-1.4%	-1.4%	-1.4%	-1.4%	-1.4%
NEL	-2.3%	-2.3%	-2.3%	-2.3%	-2.3%	-2.3%	-2.3%	-2.3%	-2.3%	-2.3%	-2.3%	-2.3%	-2.3%	-2.3%	-2.3%	-2.3%	-2.3%	-2.3%	-2.3%	-2.3%
DC	-1.4%	-1.4%	-1.4%	-1.4%	-1.4%	-1.4%	-1.4%	-1.4%	-1.4%	-1.4%	-1.4%	-1.4%	-1.4%	-1.4%	-1.4%	-1.4%	-1.4%	-1.4%	-1.4%	-1.4%
OP	-2.2%	-2.2%	-2.2%	-2.2%	-2.2%	-2.2%	-2.2%	-2.2%	-2.2%	-2.2%	-2.2%	-2.2%	-2.2%	-2.2%	-2.2%	-2.2%	-2.2%	-2.2%	-2.2%	-2.2%
MAT	-2.3%	-2.3%	-2.3%	-2.3%	-2.3%	-2.3%	-2.3%	-2.3%	-2.3%	-2.3%	-2.3%	-2.3%	-2.3%	-2.3%	-2.3%	-2.3%	-2.3%	-2.3%	-2.3%	-2.3%
AE (T3)	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%

Activity Movements

The tables below show the proportion of each type of activity that is assumed to take place at each hospital site for the different site configuration options. These assumptions have been developed based on advice from WHHT's Clinical Advisory Group (CAG).

Table 46: Tables of Activity split across sites

Current Activity Split

WGH

	AE	EL	NEL	DC	OP
T1	100%				
T3	32%				
MED		96%	100%	74%	52%
SURG		46%	100%	21%	48%
PAED		100%	99%	99%	67%
MAT		97%	99%	61%	53%
GYN		82%	100%	21%	57%

SACH

	AE	EL	NEL	DC	OP
T1	0%				
T3	22%				
MED		0%	0%	0%	16%
SURG		53%	0%	64%	34%
PAED		0%	0%	1%	5%
MAT		3%	0%	39%	18%
GYN		18%	0%	79%	38%

HHGH

	AE	EL	NEL	DC	OP
T1	0%				
T3	46%				
MED		4%	0%	26%	32%
SURG		0%	0%	15%	18%
PAED		0%	0%	0%	27%
MAT		0%	1%	0%	29%
GYN		0%	0%	0%	6%

GFS

	AE	EL	NEL	DC	OP
T1	0%				
T3	0%				
MED		0%	0%	0%	0%
SURG		0%	0%	0%	0%
PAED		0%	0%	0%	0%
MAT		0%	0%	0%	0%
GYN		0%	0%	0%	0%

Future Activity Split (3-site)

WGH

	AE	EL	NEL	DC	OP
T1	100%				
T3	32%				
MED		100%	100%	60%	40%
SURG		40%	100%	20%	40%
PAED		100%	100%	100%	20%
MAT		100%	100%	100%	40%
GYN		100%	100%	20%	40%

SACH

	AE	EL	NEL	DC	OP
T1	0%				
T3	22%				
MED		0%	0%	0%	10%
SURG		60%	0%	80%	50%
PAED		0%	0%	0%	1%
MAT		0%	0%	0%	30%
GYN		0%	0%	80%	50%

HHGH

	AE	EL	NEL	DC	OP
T1	0%				
T3	46%				
MED		0%	0%	40%	50%
SURG		0%	0%	0%	10%
PAED		0%	0%	0%	79%
MAT		0%	0%	0%	30%
GYN		0%	0%	0%	10%

GFS

	AE	EL	NEL	DC	OP
T1	0%				
T3	0%				
MED		0%	0%	0%	0%
SURG		0%	0%	0%	0%
PAED		0%	0%	0%	0%
MAT		0%	0%	0%	0%
GYN		0%	0%	0%	0%

Future Activity Split (2-site)

WGH

	AE	EL	NEL	DC	OP
T1	100%				
T3	34%				
MED		100%	100%	50%	40%
SURG		40%	100%	20%	40%
PAED		100%	100%	100%	20%
MAT		100%	100%	100%	40%
GYN		80%	100%	20%	40%

SACH

	AE	EL	NEL	DC	OP
T1	0%				
T3	0%				
MED		0%	0%	0%	0%
SURG		0%	0%	0%	0%
PAED		0%	0%	0%	0%
MAT		0%	0%	0%	0%
GYN		0%	0%	0%	0%

HHGH

	AE	EL	NEL	DC	OP
T1	0%				
T3	0%				
MED		0%	0%	0%	0%
SURG		0%	0%	0%	0%
PAED		0%	0%	0%	0%
MAT		0%	0%	0%	0%
GYN		0%	0%	0%	0%

GFS

	AE	EL	NEL	DC	OP
T1	0%				
T3	66%				
MED		0%	0%	50%	60%
SURG		60%	0%	80%	60%
PAED		0%	0%	0%	80%
MAT		0%	0%	0%	60%
GYN		20%	0%	80%	60%

Future Activity Split (1-site)

WGH

	AE	EL	NEL	DC	OP
T1	0%				
T3	0%				
MED		0%	0%	0%	0%
SURG		0%	0%	0%	0%
PAED		0%	0%	0%	0%
MAT		0%	0%	0%	0%
GYN		0%	0%	0%	0%

SACH

	AE	EL	NEL	DC	OP
T1	0%				
T3	0%				
MED		0%	0%	0%	0%
SURG		0%	0%	0%	0%
PAED		0%	0%	0%	0%
MAT		0%	0%	0%	0%
GYN		0%	0%	0%	0%

HHGH

	AE	EL	NEL	DC	OP
T1	0%				
T3	0%				
MED		0%	0%	0%	0%
SURG		0%	0%	0%	0%
PAED		0%	0%	0%	0%
MAT		0%	0%	0%	0%
GYN		0%	0%	0%	0%

GFS

	AE	EL	NEL	DC	OP
T1	100%				
T3	34%				
MED		100%	100%	100%	100%
SURG		100%	100%	100%	100%
PAED		100%	100%	100%	100%
MAT		100%	100%	100%	100%
GYN		100%	100%	100%	100%

Note that in a single site option the majority of T3 activity (UTC/MIU) is expected to take place at locality based primary care hubs.

Capacity Assumptions

Current Bed Capacity and Utilisation

The assumed current bed capacity is based upon one year of bed utilisation reports broken down by individual ward (Oct 17 to Sep 18) provided by WHHT's information team. Wards are grouped into categories as per summary report below.

Table 47: Current bed capacity and utilisation

	Total	7-day	5-day
Med/Surg	660	581	79
Mat	95	95	0
Gynae	38	35	3
Paeds	52	40	12
Other	34	29	5
Int Care	41	41	0
TOTAL	920	821	99

	Total	7-day	5-day
Med/Surg	84.6%	91.9%	30.5%
Mat	75.6%	75.6%	0.0%
Gynae	79.1%	84.0%	21.8%
Paeds	39.2%	44.8%	20.5%
Other	80.7%	89.3%	31.2%
Int Care	94.4%	94.4%	0.0%
TOTAL	81.2%	87.4%	29.1%

		7-day	5-day
Med/Surg	Medical	401	38
Med/Surg	Surgical	117	6
Med/Surg	ICU	19	0
Med/Surg	Medical HHGH	0	11
Med/Surg	Surgical SACH	44	24

		7-day	5-day
Med/Surg	Medical	96.4%	24.3%
Med/Surg	Surgical	95.6%	54.2%
Med/Surg	ICU	72.7%	0.0%
Med/Surg	Medical HHGH	0.0%	30.0%
Med/Surg	Surgical SACH	49.6%	34.7%

		7-day	5-day
Mat	Birthing Centre	7	0
Mat	Delivery Suite	15	0
Mat	Ward	47	0
Mat	Observation	2	0
Mat	Neonatal	24	0

		7-day	5-day
Mat	Birthing Centre	58.5%	0.0%
Mat	Delivery Suite	71.7%	0.0%
Mat	Ward	92.7%	0.0%
Mat	Observation	25.9%	0.0%
Mat	Neonatal	53.7%	0.0%

		7-day	5-day
Gynae	Ward	32	0
Gynae	Ambulatory Care	3	0
Gynae	Day Unit	0	3

		7-day	5-day
Gynae	Ward	90.4%	0.0%
Gynae	Ambulatory Care	16.2%	0.0%
Gynae	Day Unit	0.0%	21.8%

		7-day	5-day
Paeds	Paediatric Ward	20	0
Paeds	Paediatric HDU	2	0
Paeds	Paediatric Day Case	0	12
Paeds	Paediatric Obsv.	6	0
Paeds	Transitional Care	12	0

		7-day	5-day
Paeds	Paediatric Ward	57.8%	0.0%
Paeds	Paediatric HDU	54.7%	0.0%
Paeds	Paediatric Day Case	0.0%	20.5%
Paeds	Paediatric Obsv.	28.1%	0.0%
Paeds	Transitional Care	29.9%	0.0%

		7-day	5-day
Other	Day Unit (M)	0	2
Other	Day Unit (S)	0	3
Other	CDU	8	0
Other	Ambulatory Care Surgical	9	0
Other	Assessment	6	0
Other	Frailty Unit	6	0

		7-day	5-day
Other	Day Unit (M)	0.0%	5.4%
Other	Day Unit (S)	0.0%	48.4%
Other	CDU	93.7%	0.0%
Other	Ambulatory Care Surgical	98.6%	0.0%
Other	Assessment	59.1%	0.0%
Other	Frailty Unit	99.5%	0.0%

		7-day	5-day
Int Care	Intermediate care	41	0

		7-day	5-day
Int Care	Intermediate care	94.4%	0.0%

(Beds in 'other' category where further mapped to Medical, Surgical or A&E).

Current Theatre Capacity and Utilisation

Current theatre capacity and utilisation data were provided by WHHT's information team, based on one year of theatre utilisation data (Oct 17 to Sep 18). Theatre capacity was determined from interviews with theatre managers and a review of theatre utilisation data. Capacity assumptions were then sense checked against actual theatre data to ensure they were robust. The tables below list WHHT's current theatres, their capacity by type and their utilisation.

Table 48: WHHT Theatres

WGH - PMoK	WGH - WACS	SACH
Theatre 1	OBS - NEL	Theatre 1
Theatre 2	OBS	Theatre 2
Theatre 3	GYNE	Theatre 3
Theatre 4		Theatre 4
Theatre 5 (PROC)		Theatre 5 (TEMP)
		Theatre 6 (PROC)
Effectively 4.5 theatres	3 theatres	Effectively 6 theatres

Table 49: Current theatre capacity

Resource		Hours/ day	Days/ week	Weeks/ year	Hours/ year
Elective Theatre	Theatre hours	10.5	5	50	2,625
Non-Elective Theatre	Theatre hours	12	7	52	4,368
Day Case Theatre	Theatre hours	10.5	5	50	2,625

Table 50: WGH theatre utilisation

WGH Gynae	WGH Obs	WGH 1	WGH 2	WGH 3	WGH 4
68%	66%	69%	64%	67%	73%

Table 51: SACH theatre utilisation

SACH1	SACH2	SACH3	SACH4	SACH5	SACH6
65%	61%	67%	67%	71%	62%

Future Length of Stay

Length of stay (LOS) improvement is one of the benefits anticipated as a result of the proposed estate redevelopment. It is assumed that WHHT will be able to improve to the national median performance within each specialty group. Where the Trust is already performing above the national median it is assumed to move to the upper quartile. The potential for length of stay improvement, shown in the tables below, has been determined using one year of length of stay data (Sept '17 to Aug '18).

Table 52: Non-elective length of stay

Specialty Group	Activity (WHHT)	LOS (WHHT)	LOS 25% (national)	LOS 50% (national)	LOS 75% (national)	Reduction (to next Q)	Reduction (modelled)
MED	24,463	6.3	5.7	7.4	9.9	9.6%	10%
SUR	10,255	3.8	3.0	3.6	4.4	4.2%	5%
PAE	3,704	1.0	1.0	1.2	1.7	3.3%	5%
MAT	12,260	2.0	1.3	1.8	2.3	14.4%	15%
GYN	1,200	1.7	1.0	1.4	1.6	18.6%	15%

Table 53: Elective length of stay

Specialty Group	Activity (WHHT)	LOS (WHHT)	LOS 25% (national)	LOS 50% (national)	LOS 75% (national)	Reduction (to next Q)	Reduction (modelled)
MED	358	5.4	3.1	4.9	7.7	9.2%	10%
SUR	4,274	2.8	2.2	2.6	3.1	7.8%	10%
PAE	617	0.4	1.5	2.2	3.3	0.0%	10% 20
MAT	310	2.0	1.5	1.9	2.3	5.5%	5%
GYN	940	2.4	1.6	2.0	2.5	17.1%	15%

Future Utilisation

The table below shows the assumed improved in utilisation for beds, theatres and outpatient rooms. These assumptions were initially developed with WHHT's performance lead along with division directors and were then reviewed and approved by CAG.

Table 54: Utilisation improvement

Resource	Site/Specialty	Current	Planned	Description
EL-Bed	WGH	92%	85%	Reduce to 85% for main bed base
EL-Bed	SACH	50%	75%	Improve up to 75% on planned care site
EL-Bed	HHGH	50%	75%	Improve up to 75% on planned care site
EL-Bed	GFS	50%	75%	Improve up to 75% on planned care site
EL-Bed	OTH	50%	75%	Improve up to 75% on planned care site
NEL-Bed	MED	92%	85%	Reduce to 85% for main bed base
NEL-Bed	SUR	92%	85%	Reduce to 85% for main bed base
NEL-Bed	PAE	60%	60%	
NEL-Bed	MAT	75%	75%	
NEL-Bed	GYN	92%	85%	Reduce to 85% for main bed base
DC-Bed	MED	25%	35%	Assume 10%-point improvement

²⁰ For Elective Paediatrics a 10% improvement is assumed – as underlying coding combines Elective and Day Case and couldn't be separated.

Resource	Site/Specialty	Current	Planned	Description
DC-Bed	SUR	35%	45%	Assume 10%-point improvement
DC-Bed	PAE	20%	30%	Assume 10%-point improvement
DC-Bed	MAT	20%	30%	Assume 10%-point improvement
DC-Bed	GYN	20%	30%	Assume 10%-point improvement
EL-Th	MED	65%	75%	Assume improvement possible up to 75%
EL-Th	SUR	70%	75%	Assume improvement possible up to 75%
EL-Th	PAE	65%	75%	Assume improvement possible up to 75%
EL-Th	MAT	65%	75%	Assume improvement possible up to 75%
EL-Th	GYN	65%	75%	Assume improvement possible up to 75%
NEL-Th		65%	65%	
DC-Th		65%	75%	Assume improvement possible up to 75%
OP-Rm		80%	85%	Plus 2 eve sessions/ week and 5-day week

Calibrating the Demand and Capacity model

The Demand and Capacity Model has been tested to ensure that by combining current activity, LOS and utilisation assumptions it recreates the current number of beds in the hospital. The outputs from this testing is shown below. This gives further confidence to the activity and capacity forecasts.

Table 55: Calibration outputs

ACTUAL BEDS 2018					MODELLED BEDS 2018					DIFFERENCE	
	WGH	SACH	HHGH	Total		WGH	SACH	HHGH	Total		
IP MED	440			440	IP MED	442		0	442		2
IP SUR	142	44		186	IP SUR	137	48	0	185		-1
IP PAE	28			28	IP PAE	24	0	0	24		-4
IP MAT	73			73	IP MAT	76	0	0	77		4
IP GYN	19			19	IP GYN	13	3		16		-3
DC MED	40		11	51	DC MED	30		10	41		-10
DC SUR	9	24	0	33	DC SUR	9	20	9	38		5
DC PAE	12			12	DC PAE	11	0		11		-1
DC MAT				0	DC MAT	0			0		0
DC GYN	3			3	DC GYN	2	6		8		5
	766	68	11	845	IP/DC	744	78	20	842	IP/DC	-3
other				746	IP				745	IP	-1
Transition	12			99	DC	12			97	DC	-2
Delivery S	22	-----	----->	75	other	22	-----	----->	75	other	0
Int. Care	41			920	All	41			917	All	-3

Future Capacity

The Demand and Capacity model has been used to forecast future capacity requirements for all resource types, as shown in the table below. This indicates the need for:

- Around 30 additional inpatient beds
- An additional theatre (up to 15)
- Around 20 fewer outpatient rooms
- An increase to A&E/UTC capacity (10% for majors).

In addition, it is estimated that an additional 40 assessment beds²¹ would be needed to implement a new single assessment area controlling access into the inpatient beds and therefore reducing unnecessary admissions.

The apportionment of short stay surgical beds, and planned care theatres across sites will vary depending on the level of High Dependency Unit (HDU) support at the planned care site in any given option.

²¹ Although modelled as 40 new assessments beds, this will be a mixture of new capacity and replacement of existing capacity as not all existing assessment beds are picked up in the activity model.

Table 56: Capacity Forecast

STP (DM STP)	2 site					
Beds	17/18			37/38		
	WGH	SACH	HHGH		WGH	GF
IP-MED	442	0	0	IP-MED	511	0
IP-SUR	137	48	0	IP-SUR	155	41
IP-PAE	24	0	0	IP-PAE	19	0
IP-MAT	76	0	0	IP-MAT	50	0
IP-GYN	13	3	0	IP-GYN	13	2
DC-MED	30	0	10	DC-MED	18	18
DC-SUR	9	20	9	DC-SUR	7	29
DC-PAE	11	0	0	DC-PAE	8	0
DC-MAT	0	0	0	DC-MAT	0	0
DC-GYN	2	6	0	DC-GYN	1	5
Beds	744	78	20	Beds	783	95
DS/TB	34			DS/TB	34	
			876	+40 assessment	40	952

Theatres	17/18			37/38		
	WGH	SACH	HHGH		WGH	GF
MAT	1.0	0.2	0.0	MAT	0.9	0.2
NEL	2.2	0.0	0.0	NEL	2.3	0.0
EL	2.6	3.2	0.0	EL	2.5	3.8
DC	1.1	3.8	0.0	DC	1.0	4.1
Theatres	6.9	7.2	0.0	Theatres	6.8	8.1
			14			15
OP	17/18			37/38		
	WGH	SACH	HHGH		WGH	GFS
OP	56	25	27	OP	32	51
			108			83
A&E demand	17/18			37/38		
	WGH	SACH	HHGH		WGH	GFS
MAJ	48,541	0	0	MAJ	54,734	0
MIN	22,064	15,029	31,241	MIN	22,639	43,946
PAED	23,492	0	0	PAED	21,129	0
A&E demand	94,097	15,029	31,241	A&E demand	98,502	43,946
			140,367			142,448

Estates Assumptions

Current WHHT Estate

The following tables provide information about WHHT's current estate. This is based upon the recent six-facet survey undertaken in September 2018.

Table 57: Current Estate – Watford General Hospital

Building (WGH)	Construction Date	Building Age (Years)	Residual Life (Years)	GIA (m ²)	Backlog (£000's)
PMoK	1984	35	25	22,803	15,898
WACS incl. HD & OMF	1968	51	9	10,734	10,072
AAU	2009	10	15	6,042	1,128
Shrodells	1972	47	13	3,297	1,644
Surge Units	2011-2017	5 (av)	5 (av)	2,493	448
Cardiac Centre	1991	28	32	556	505
Sycamore House	1926	93	0	1,001	424
Admin Block incl. 62 V	1850	169	0	2,873	1,792
H Block	1910	109	0	2,550	1,351
Pathology incl. NEQUAS	1969	50	10	2,372	2,408
Willow House	1966	53	7	1,423	728
Estates & Boiler House	1980	39	21	1,522	1,248
Kitchen	1983	36	24	2,650	1,462
Cherry Tree House	1960	59	1	993	663
Site-wide Infrastructure	n/a	0	0	348	1,450
WGH Total		46 (av)	16 (av)	61,657	41,221

Table 58: Current Estate – Hemel Hempstead General Hospital

Building (HHGH)	Construction Date	Building Age (Years)	Residual Life (Years)	GIA (m ²)	Backlog (£000's)
Veralum	1992	27	33	11,320	7,910
Jubilee	1998	21	39	3,833	2,183
Main Building	1910	109	0	2,600	1,154
Marham	2005	14	46	483	136
Diagnostics	1936	83	0	900	820
Estates & Boiler House	1890 - 1998	21 (BH)	39 (BH)	344	424
QE Building	1952	67	0	1,659	2,012
Site-wide Infrastructure	n/a	0	0	560	1,362
Tudor	1982	37	23	8,056	no data
Windsor Wards	1988	31	29	4,046	no data
Windsor Day Hospital	1988	31	29	1,313	no data
Other mothballed estate	1866-1952	110 (av)	0	2,189	no data
HHGH Total		42 (av)	24 (av)	37,303	16,001

Table 59: Current Estate – St Albans City Hospital

Building (SACH)	Construction Date	Building Age (Years)	Residual Life (Years)	GIA (m ²)	Backlog (£000's)
Gloucester	1986	33	27	7,393	4,058
Moynihan	1967	52	8	5,291	4,350
Runcie	1980	39	21	2,606	3,199
Waverley	1988	31	29	398	848
Estates & Boiler House	1950-1983	36 (BH)	24 (BH)	1,140	1,362
Kitchen	1980	39	21	1,914	2,317
Site-wide Infrastructure	n/a	0	0	103	473
SACH Total		40 (av)	20 (av)	18,845	16,607

Future WHHT Estate

Schedules of accommodation

Full schedules of accommodation have been produced for one-site and two-site configurations²² to determine the area (in m²) requirement for each department and the overall m² requirement for each site. These were produced by health space planners based upon Health Building Notes and Health Technical Memorandum. Summaries are shown below²³:

Table 60: Schedule of Accommodation summary – Two site

Functional Content	Beds*	Theatres	OP Rooms	Net Departmental Area (NDA)	Gross Departmental Area (GDA)	Gross Total Area (GTA)
Emergency Care Site						
Emergency Department and Assessment	105			6,123	8,449	10,984
Critical Care (including HDU, Coronary Care, HASU)	75			3,225	4,450	5,785
Inpatient Wards (Medical & Surgical)	422			13,447	18,556	24,123
Outpatients			24	1,061	1,463	1,903
Diagnostics	16			1,754	2,421	3,147
Theatres Suite (including Obs/Gynae)		9		2,618	3,613	4,697
Women's & Children's (excluding Theatres)	165		16	6,244	8,617	11,202
Sub Acute (Frailty and Therapies)	40			1,360	1,840	2,392
Support Services				2,908	3,981	5,176
Administration				2,716	3,748	4,872
Emergency Care Site	823	9	40	41,454	57,139	74,280
Planned Care Site						
Day Case & Short Stay Surgery	104			3,298	4,552	5,917
Theatres (Planned Care)		6		1,500	2,069	2,690
Outpatients			48	2,446	3,375	4,388
Diagnostics	22			1,477	2,038	2,649
Support Services				1,151	1,588	2,064
Administration				1,011	1,394	1,813
Urgent Care Hub				1,167	1,610	2,094
Planned Care Site	126	6	48	12,048	16,626	21,614
Total m2 for OB forms	949	15	88	53,503	73,765	95,894

Table 61: Schedule of Accommodation summary – One site

Functional Content	Beds	Theatres	OP Rooms	Net Departmental Area (NDA)	Gross Departmental Area (GDA)	Gross Total Area (GTA)
Emergency & Planned Care Site						
Emergency Department and Assessment	105			6,123	8,449	10,984
Critical Care (including HDU, Coronary Care, HASU)	75			3,225	4,450	5,785
Inpatient Wards (Medical & Surgical)	452			14,394	19,863	25,822
Day Case & Short Stay Surgery	74			2,370	3,270	4,251
Outpatients			64	3,246	4,479	5,823
Diagnostics	25			2,103	2,902	3,773
Theatres Suite (including Obs/Gynae)		15		3,971	5,479	7,123
Women's & Children's (excluding Theatres)	165		15	6,244	8,617	11,202
Sub Acute (Frailty and Therapies)	40			1,360	1,876	2,439
Support Services				3,006	4,155	5,401
Administration				3,675	5,071	6,592
Urgent Care Hub				1,167	1,610	2,094
Emergency & Planned Care Site	936	15	79	50,881	70,222	91,289
Total m2 for OB forms	936	15	79	50,881	70,222	91,289

- Beds in diagnostic department are endoscopy recovery beds
- Efficiencies are assumed for endoscopy beds and OP rooms for the one-site configuration.
- Women's and Children's beds include delivery suites (x19)
- Outpatient rooms are consulting and examination rooms only and do not count treatment or interview rooms.
- Gross Departmental Area (GDA) includes allowance for: Circulation (30%), Planning (5%), Engineering (3%)
- Gross Total Area includes allowance for: Circulation (15%), Plant (15%)

²² Note the three-site option would be a variation of the two site SOA – as the Emergency Care site would be the same

²³ These schedules of accommodation were the final versions used for the Short List options - produced in May following modelling QA process and advice from PAU. Previous versions were used for the original costing of the Long List options which had minor differences in Paediatric bed and Endoscopy bed numbers and applied a 15% derogation to the final GIA.

Long List Options

Various site configurations were considered at long list stage. Three of these were ruled out as being too expensive as they had a capital cost of around £700m or higher.

- Two site configuration with emergency care (EC) at a greenfield site and planned care (PC) at WGH
- One site configuration at Watford (all new build)
- One site configuration at Greenfield (all new build)

Full sets of OB forms (OB1-OB4) were worked up for each of these options, the summary OB1 form for each is shown below (inclusive of VAT).

Table 62: Long List rejected options – OB summary

Summary			LL Two-site (EC Greenfield)	LL One-site (Watford)	LL One-site (Greenfield)
1	Departmental Costs (from Form SOC2)		282.1	278.4	278.4
2	On-Costs (from Form SOC3)		121.7	94.1	130.2
3	Works Cost Total (1+2)		403.8	372.6	408.7
4	Provisional Location Adjustment (BCIS location factor 110)	<i>included above</i>	-	-	
5	Sub-total (3+4)		403.8	372.6	408.7
6	Project Fees	15%	50.8	46.9	51.4
7	Non-Works Costs (from Form SOC4)	<i>excludes land</i>	12.1	11.2	10.2
8	Equipment Costs (from Form SOC2)	24%	68.0	68.0	67.1
9	Planning Contingency	5%	20.2	18.6	20.4
10	Sub-total (5+6+7+8+9)		554.9	517.3	557.9
11	Optimism Bias	<i>varies</i>	165.3 29%	153.6 29%	135.8 24%
12	Sub-total (10+11)		720.2	670.8	693.7
13	Inflation Adjustment to projected Tender Dates	<i>Current Prices</i>	-	-	
14	Forecast Outline Business Case Total excluding infrastructure		720.2	670.8	693.7
15	Central plant, energy centre and all services infrastructure improvements (cost includes fees, optimism bias, risk and at current day)		25.0	25.0	-
16	Forecast Outline Business Case Total including Infrastructure		745.2	695.8	693.7

Note:

- On-costs supported by a full breakdown of costs
- Price Location Adjustment of 110 is applied
- Non-works costs are transition costs (including decant of activity)
- Land Costs excluded from above
- NB Equipment costs are worked out as a % of line 1 (not line 5)
- Optimism Bias supported by full OB assessment and mitigation
- VAT included in above costs (assumed recoverable for professional fees)

During the detailed appraisal of the shortlisted options there was a constant review and refinement of assumptions by internal and external experts, as well as numerous quality assurance cycles on the supporting modelling work. The cost estimates of the rejected long list options were therefore refreshed in line with final assumptions to confirm that the conclusion remained valid. These re-costed long list options are shown below.

Table 63: Long List rejected options – with revised capital build up – OB summary

Summary		LL Two-site (EC Greenfield)	LL One-site (Watford)	LL One-site (Greenfield)
1	Departmental Costs (from Form SOC2)	317.6	321.5	321.5
2	On-Costs (from Form SOC3)	116.3	122.0	114.7
3	Works Cost Total (1+2)	433.9	443.6	436.3
4	Provisional Location Adjustment (BCIS location factor 110) <i>included above</i>	-	-	-
5	Sub-total (3+4)	433.9	443.6	436.3
6	Project Fees <i>14%</i>	50.9	52.1	51.2
7	Non-Works Costs (from Form SOC4) <i>excludes land</i>	13.0	13.3	13.1
8	Equipment Costs (from Form SOC2) <i>20%</i>	63.8	64.6	64.6
9	Planning Contingency <i>varies</i>	<i>8%</i> 34.7	<i>6%</i> 26.6	<i>8%</i> 34.9
10	Sub-total (5+6+7+8+9)	596.4	600.2	600.1
11	Optimism Bias <i>varies</i>	<i>23.8%</i> 144.1	<i>22.6%</i> 138.2	<i>21.8%</i> 132.8
12	Sub-total (10+11)	740.5	738.4	732.9
13	Inflation Adjustment to projected Tender Dates <i>Current Prices</i>			
14	Forecast Outline Business Case Total	740.5	738.4	732.9

Note:

- On-costs supported by a full breakdown of costs
- Price Location Adjustment of 110 is applied
- Non-works costs are transition costs (including decant of activity)
- Land Costs excluded from above
- NB Equipment costs are worked out as a % of line 1 (not line 5)
- Optimism Bias supported by full OB assessment and mitigation
- VAT included in above costs (assumed recoverable for professional fees)

Key updates to capital cost build up

The main differences between the initial cost estimates (Table 62) and the revised cost estimates (Table 63) are as follows:

- 15% derogation against GIA removed
- Car park costs removed as assumed to be able to attract a different funding source
- Minor revision to project fees
- Greater re-use of equipment assumed
- Planning allowances increased and varied across options to align with specific requirements
- Adjustment for optimism bias reduced (mainly due to the removal of derogation, and increase in planning allowances)
- Infrastructure improvements applied within On-Costs rather than separate adjustment

Short List Options

The table below shows the works included within each of the shortlisted options alongside interim works which are assumed will be undertaken in advance to the main reconfiguration work, and will be funded from internally generated capital or emergency PDC.

Table 64: Short list options - detail

Site	Area	Option Description 2	Light (m2)	Medium (m2)	Heavy (m2)	New (m2)	Extra Cost (£m)	Interim Works	Do Min	Option 1	Option 2	Option 3	Option 4
WGH	ED & Assessment Areas	Reconfig ED (Wave 4 - £11m)		500									
WGH	ED & Assessment Areas	New Build Assessment Bays (40)				1,734							
WGH	ED & Assessment Areas	New Build Ambulatory Care Area				1,254							
WGH	Theatres & Critical Care	Refurb Theatre 5 PMOK			1,828								
WGH	Theatres & Critical Care	Additional Theatre 6 PMOK			859								
WGH	Theatres & Critical Care	New Build Theatre and Critical Care Block				8,417							
WGH	Women's and Children's	Increase size of Neonatal block		558									
WGH	Women's and Children's	Delivery Suites, Paeds OP, Link Bridge	393	1,412									
WGH	Women's and Children's	New Build WACS block [excluding theatres]				11,202							
WGH	Women's and Children's	New Build WACS block [including theatres]				12,686							
WGH	Inpatient Beds - Capacity	Additional 30 bed ward (capacity)				1,700							
WGH	Inpatient Beds - Capacity	Additional 15 bed ward (capacity) - 15 in PC build				850							
WGH	Inpatient Beds - Quality	Reprovide 60 bed surge unit				3,400							
WGH	Inpatient Beds - Quality	Refurb L3 PMOK & reprovide 45 beds (New)		1,800		2,168							
WGH	Inpatient Beds - Quality	Refurb L3 PMOK & reprovide 45 beds (L6 PMOK)	2,000	1,800									
WGH	Inpatient Beds - Quality	Refurb L4 PMOK & reprovide 45 beds (L6 PMOK)	500	1,800	1,500								
WGH	Diagnostics	Pathology Hot lab				600							
WGH	Diagnostics	Mortuary				270							
WGH	Diagnostics	Interventional Radiology Suite					2.0						
WGH	Diagnostics	Additional MRI/CT				200							
WGH	Outpatients	New Build Helen Donaldson unit / OMFS				1,370							
WGH	Other	WGH Critical Infrastructure					25.0						
WGH	Other	Clear North & East of site				1,150	-5.0						
SACH	Planned Surgery Theatres	Rebuild Theatre 6				250							
SACH	Planned Surgery Theatres	Replace Theatre 5				250							
SACH	Planned Surgery Theatres	Refurb Theatres 1-4 (layout only)		600									
SACH	Planned Surgery Theatres	Refurb Theatres 1-4 (ventilation only)		600									
SACH	Day Surgery Unit	Provide Day Surgery Admissions Lounge	560										
SACH	PC Inpatient Beds - Quality	Provide HDU space		100									
SACH	PC Inpatient Beds - Quality	Inpatient bed refurb		450									
SACH	PC Diagnostics	MRI/CT support to one-stop shops				275							
SACH	PC Diagnostics	Move small diagnostics from HHH				500							
SACH	PC Outpatients	Refurb some OP (breast clinic)	500										
SACH	PC Outpatients	Urology One Stop Shop	600										
SACH	PC Outpatients	Further minor OP Refurb	500										
SACH	PC Outpatients	Build additional OP capacity at SACH				3,700							
SACH	PC Endoscopy	New Build Endoscopy Unit				1,175							
SACH	PC Other	SACH Critical Infrastructure (min)					5.0						
SACH	PC Other	SACH Land Sale					-18.0						
HHGH	HHH UTC	Relocate UTC on same site		1,200									
HHGH	HHH Outpatients	Refurb to allow consolidation		1,000									
HHGH	Planned Medical Service	Minor Ward Refurb	700										
HHGH	HHH Endoscopy	Interim Endoscopy capacity		400									
HHGH	HHH Endoscopy	Move Endoscopy to SACH											
HHGH	HHH Diagnostics	Reprovide Diagnostics for Medical Planned Care			500								
HHGH	HHH Diagnostics	Replace MRI only				110							
HHGH	HHH Other	HHH Critical Infrastructure (min)					5.0						
HHGH	HHH Other	HHH Critical Infrastructure (max)					10.0						
HHGH	HHH Other	Land Sale from HHH site consolidation					-10.0						
HHGH	HHH Other	Land Sale from vacating HHH site					-15.0						
GFS	Single Site	New Build Planned Care at HHH			11,320	9,160							
GFS	Single Site	New Build Planned Care at New Site				19,914							

Short List Options – Detailed Estate Works Plans

The following tables provide detailed estates plans for each of the shortlisted options based upon the current WHHT estate and the key building blocks for each short-listed option. These detailed estates plans were used as the basis for:

- Capital costing
- Operational costs
- Backlog and Lifecycle costs
- Profiles of benefits

Table 65: Summary or works for Do Minimum Option (includes interim works)

	Building	GIA	Work	Demolis h/OOC	Light Refurb	Med Refurb	Heavy Refurb	Untouch ed	New Build	Output	BM (C&S) cleared	BM (C&S) residual	Interim	Works total	Notes
ID		m2	m2	m2	m2	m2	m2	m2	m2	m2	£k	£k	m2	m2	x
	PMoK	22,803				500	2,687	19,616		22,803	2,671	13,227		3,187	ID 13 & 14
	WACS incl HD & OMF	10,734			393	1,970		8,371		10,734	1,511	8,561		2,363	ID 17 & 18
	AAU	6,042						6,042		6,042	-	1,128		-	
	Shrodells	3,297						3,297		3,297	-	1,644		-	
	Surge Units	2,493						2,493		2,493	-	448		-	
	Cardiac Centre	556						556		556	-	505		-	
	Sycamore House	1,001						1,001		1,001	-	424		-	
	Admin Block incl 62 Vicarage	2,873						2,873		2,873	-	1,792		-	
	H Block	2,550						2,550		2,550	-	1,351		-	
	Pathology incl NEQUAS	2,372						2,372		2,372	-	2,408		-	
	Willow House	1,423						1,423		1,423	-	728		-	
	Estates & Boiler House	1,522						1,522		1,522	-	1,248		-	
	Kitchen	2,650						2,650		2,650	-	1,462		-	
	Cherry Tree House	993						993		993	-	663		-	
	Site-wide Infrastructure	348						348		348	-	1,450		-	
8	Reconfig ED (Wave 4 - £11m)		500												see PMOK
9	New Build Assessment Bays (40)		1,734						1,734	1,734				1,734	
13	Refurb Theatre 5 PMOK		1,828												see PMOK
14	Additional Theatre 6 PMOK		859												see PMOK
17	Increase size of Neonatal block		558												see WACS
18	Delivery Suites, Paeds OP, Link Bridge		1,805												see WACS
29	Additional 30 bed ward (capacity)		1,700						1,700	1,700				1,700	
32	Pathology Hot lab		600						600	600				600	
32a	Mortuary		270						270	270				270	
38	New Build Helen Donaldson unit / OMFS		1,370						1,370	1,370				1,370	
42	WGH Critical Infrastructure		0												Cost allowance
	WGH Total	61,657	11,224	-	393	2,470	2,687	56,107	5,674	67,331	4,182	37,039	-	11,224	
	Veralum	11,320				400		10,920		11,320	-	7,910		400	ID 98
	Jubilee	3,833						3,833		3,833	-	2,183			Includes UTC
	Main Building	2,600						2,600		2,600	-	1,154			
	Marham	483						483		483	-	136			
	Diagnostics	900						900		900	-	820			
	Estates & Boiler House	344						344		344	-	424			
	QE Building	1,659						1,659		1,659	-	2,012			20% OOC
	Site-wide Infrastructure incl bridge	560						560		560	-	1,362			
	Tudor	8,056						8,056		8,056	-	-			OOC
	Windsor Wards	4,046						4,046		4,046	-	-			OOC
	Windsor Day Hospital	1,313						1,313		1,313	-	-			OOC
	Other mothballed estate	2,189						2,189		2,189	-	-			OOC
98	Interim Endoscopy capacity		400												see Verulum
104	Replace MRI only		110						110	110				110	
108a	HHH Critical Infrastructure (min)		0												Cost allowance
	HHH Total	37,303	510	-	-	400	-	36,903	110	37,413	-	16,001	-	510	
	Gloucester	7,393			560	600		6,233		7,393	243	3,815		1,160	ID 52 & 54
	Moynihan	5,291				100		5,191		5,291	52	4,298		100	ID 57
	Runcie	2,606						2,606		2,606	-	3,199		-	
	Waverley	398			500			(102)		398	-	848		500	ID 68
	Estates & Boiler House	1,140						1,140		1,140	-	1,362		-	
	Kitchen	1,914						1,914		1,914	-	2,317		-	
	Site-wide Infrastructure	103						103		103	237	236		-	
50	Rebuild Theatre 6		250						250	250				250	
52a	Refurb Theatres 1-4 (ventilation only)		600												see Gloucester
54	Provide Day Surgery Admissions Lounge		560												see Gloucester
57	Provide HDU space		100												see Moynihan
64	MRI/CT support to one-stop shops		275						275	275				275	
68	Refurb some OP (breast clinic)		500												see Waverley
85	SACH Critical Infrastructure (min)		0												Cost allowance
	SACH Total	18,845	2,285	-	1,060	700	-	17,085	525	19,370	532	16,075	-	2,285	
	All sites	117,805		-	1,453	3,570	2,687	110,095	6,309	124,114	4,714	69,115		14,019	

Table 66: Summary of works for Option 1 (includes interim works)

	Building	GIA	Work	Demolis h/OOC	Light Refurb	Med Refurb	Heavy Refurb	Untouch ed	New Build	Output	BM (C&S) cleared	BM (C&S) residual	Interim	Works total	Notes
ID		m2	m2	m2	m2	m2	m2	m2	m2	m2	£k	£k	m2	m2	x
WGH	PMoK	22,803			2,500	4,100	1,828	14,375		22,803	8,884	7,014	1,500	9,928	ID 13, 30a, 30b
	WACS incl HD & OMF	10,734		(10,734)				-	11,202	11,202	10,072	-	558	11,760	ID 17 & 20
	AAU	6,042						6,042		6,042	-	1,128			
	Shrodells	3,297						3,297		3,297	-	1,644			
	Surge Units	2,493		(2,493)				-	3,400	3,400	448	-		3,400	ID 23
	Cardiac Centre	556						556		556	-	505			
	Sycamore House	1,001						1,001		1,001	-	424			
	Admin Block incl 62 Vicarage	2,873		(2,873)				-	-	-	1,434	358			ID 45
	H Block	2,550		(2,550)				-	-	-	1,351	-			ID 45
	Pathology incl NEQUAS	2,372						2,372		2,372	2,408	-			
	Willow House	1,423		(1,423)				-	-	-	728	-			ID 45
	Estates & Boiler House	1,522						1,522		1,522	1,248	-			
	Kitchen	2,650						2,650		2,650	-	1,462			
	Cherry Tree House	993						993		993	-	663			
	Site-wide Infrastructure	348						348		348	725	725			
8	Reconfig ED (Wave 4 - £11m)		500												see PMOK
9	New Build Assessment Bays (40)		1,734						1,734	1,734				1,734	
10	New Build Ambulatory Care Area		1,254						1,254	1,254				1,254	
13	Refurb Theatre 5 PMOK		1,828												see PMOK
16	New Build Theatre and Critical Care Block		8,417						8,417	8,417				8,417	
17	Increase size of Neonatal block		558												see WACS
20	New Build WACS block [excluding theatres]		11,202												see WACS
23	Reprovide 60 bed surge unit		3,400												see Surge Units
29	Additional 30 bed ward (capacity)		1,700						1,700	1,700				1,700	
30a	Refurb L3 of PMOK & reprove 45 beds (L6)		3,800												see PMOK
30b	Refurb L4 of PMOK & reprove 45 beds (L6)		3,800												see PMOK
32	Pathology Hot lab		600						600	600				600	
32a	Mortuary		270						270	270				270	
33	Interventional Radiology Suite		0												Cost allowance
34	Additional MRI/CT		200						200	200				200	
38	New Build Helen Donaldson unit / OMFS		1,370						1,370	1,370				1,370	
42	WGH Critical Infrastructure		0												Cost allowance
45	Clear North & East of site		1,150						1,150	1,150				1,150	some replacement
	WGH Total	61,657	41,783	(20,073)	2,500	4,100	3,328	31,656	31,297	72,881	25,428	15,793	558	41,783	
HHH	Veralum	11,320		(3,320)	700	2,600	500	4,200		8,000	2,769	5,141		3,800	ID 89, 93, 96, 98, 102
	Jubilee	3,833		(3,833)				-		-	2,183	-		-	OOO after Veralum refurb
	Main Building	2,600		(2,600)				-		-	1,154	-		-	OOO after Veralum refurb
	Marham	483		(483)				-		-	136	-		-	OOO after Veralum refurb
	Diagnostics	900		(900)				-		-	820	-		-	OOO after Veralum refurb
	Estates & Boiler House	344		(344)				-		-	212	212			Retain
	QE Building	1,659		(1,659)				-		-	2,012	-		-	OOO after Veralum refurb
	Site-wide Infrastructure incl bridge	560		(560)				-		-	681	681			Retain
	Tudor	8,056		(8,056)				-		-	-	-			OOO
	Windsor Wards	4,046		(4,046)				-		-	-	-			OOO
	Windsor Day Hospital	1,313		(1,313)				-		-	-	-			OOO
	Other mothballed estate	2,189		(2,189)				-		-	-	-			OOO
89	Relocate UTC on same site		1,200												see Veralum above
93	Refurb to allow consolidation		1,000												see Veralum above
96	Minor Ward Refurb		700												see Veralum above
98	Interim Endoscopy capacity		400												see Veralum above
100	Move Endoscopy to SACH		0												
102	Diagnostics for Medical Planned Care		500												see Veralum above
108a	HHH Critical Infrastructure (min)		0												Cost allowance
109	Land Sale from HHH site consolidation		0												Land sale
	HHH Total	37,303	3,800	(29,303)	700	2,600	500	4,200	-	8,000	9,967	6,034	-	3,800	
SACH	Gloucester	7,393			1,060	1,650		4,683		7,393	122	3,936		2,710	ID 52, 52a, 54, 59, 70
	Moynihan	5,291				100		5,191		5,291	52	4,298		100	ID 57
	Runcie	2,606			600			2,006		2,606	-	3,199		600	ID 69
	Waverley	398			500			(102)		398	-	848		500	ID 68
	Estates & Boiler House	1,140						1,140		1,140	-	1,362		-	
	Kitchen	1,914						1,914		1,914	-	2,317		-	
	Site-wide Infrastructure	103						103		103	237	236		-	
	50	Rebuild Theatre 6		250						250	250				250
51	Replace Theatre 5		250						250	250				250	Added area
52	Refurb Theatres 1-4(layout only)		600												see Gloucester
52a	Refurb Theatres 1-4 (ventilation only)		600												see Gloucester
54	Provide Day Surgery Admissions Lounge		560												see Gloucester
57	Provide HDU space		100												see Moynihan
59	Inpatient bed refurb		450												see Gloucester
64	MRI/CT support to one-stop shops		275						275	275				275	Added area
68	Refurb some OP (breast clinic)		500												see Waverley
69	Urology One Stop Shop		600												see Runcie
70	Further minor OP Refurb		500												see Gloucester
75	New Build Endoscopy Unit		1,175						1,175	1,175				1,175	
85	SACH Critical Infrastructure (min)		0												Cost allowance
	SACH Total	18,845	5,860	-	2,160	1,750	-	14,935	1,950	20,795	411	16,196	-	5,860	
	All sites	117,805	51,443	(49,376)	5,360	8,450	3,828	50,791	33,247	101,676	35,806	38,023	558	51,443	

Table 67: Summary of works for Option 2 (includes interim works)

ID	Building	GIA	Work	Demolis h/OOC	Light Refurb	Med Refurb	Heavy Refurb	Untouched	New Build	Output	BM (C&S) cleared	BM (C&S) residual	Interim	Works total	Notes
		m2	m2	m2	m2	m2	m2	m2	m2	m2	£k	£k	m2	m2	x
	PMoK	22,803			2,000	2,300	1,828	16,675			3,990	11,908		6,128	ID 13, 30a
	WACS incl HD & OMF	10,734		(10,734)					11,202	11,202	10,072	-	558	11,760	ID 17 & 20
	AAU	6,042						6,042		6,042	-	1,128			
	Shrodells	3,297						3,297		3,297	-	1,644			
	Surge Units	2,493		(2,493)					3,400	3,400	448	-		3,400	ID 23
	Cardiac Centre	556						556		556	-	505			
	Sycamore House	1,001							1,001	1,001	-	424			
	Admin Block incl 62 Vicarage	2,873		(2,873)							1,434	358			ID 45
	H Block	2,550		(2,550)							1,351	-			ID 45
	Pathology incl NEQUAS	2,372						2,372		2,372	2,408	-			
	Willow House	1,423		(1,423)							728	-			ID 45
	Estates & Boiler House	1,522						1,522		1,522	1,248	-			
	Kitchen	2,650						2,650		2,650	-	1,462			
	Cherry Tree House	993						993		993	-	663			
	Site-wide Infrastructure	348						348		348	725	725			
8	Reconfig ED (Wave 4 - £11m)		500												see PMOK
9	New Build Assessment Bays (40)		1,734						1,734	1,734				1,734	
10	New Build Ambulatory Care Area		1,254						1,254	1,254				1,254	
13	Refurb Theatre 5 PMOK		1,828												see PMOK
16	New Build Theatre and Critical Care Block		8,417						8,417	8,417				8,417	
17	Increase size of Neonatal block		558												see WACS
20	New Build WACS block [excluding theatres]		11,202												see WACS
23	Reprovide 60 bed surge unit		3,400												see Surge Units
29	Additional 30 bed ward (capacity)		1,700						1,700	1,700				1,700	
30a	Refurb L3 of PMOK & reprove 45 beds (L6)		3,800												see PMOK
32	Pathology Hot lab		600						600	600				600	
32a	Mortuary		270						270	270				270	
33	Interventional Radiology Suite		0												Cost allowance
34	Additional MRI/CT		200						200	200				200	
38	New Build Helen Donaldson unit / OMFS		1,370						1,370	1,370				1,370	
42	WGH Critical Infrastructure		0												Cost allowance
45	Clear North & East of site		1,150						1,150	1,150				1,150	some replacement
	WGH Total	61,657	37,983	(20,073)	2,000	2,300	1,828	35,456	31,297	72,881	22,404	18,817	558	37,983	
	Veralum	11,320		(11,320)							7,910	-	400	400	ID 98 Interim
	Jubilee	3,833		(3,833)							2,183	-			
	Main Building	2,600		(2,600)							1,154	-			
	Marham	483		(483)							136	-			
	Diagnostics	900		(900)							820	-			
	Estates & Boiler House	344		(344)							424	-			
	QE Building	1,659		(1,659)							2,012	-			
	Site-wide Infrastructure incl bridge	560		(560)							1,362	-			
	Tudor	8,056		(8,056)							-	-			
	Windsor Wards	4,046		(4,046)							-	-			
	Windsor Day Hospital	1,313		(1,313)							-	-			
	Other mothballed estate	2,189		(2,189)							-	-			
98	Interim Endoscopy capacity		400												see Veralum
110	Land Sale from vacating HHH site		0												Land sale
	HHH Total	37,303	400	(37,303)	-	-	-	-	-	-	16,001	-	400	400	
	Gloucester	7,393			1,060	1,650		4,683		7,393	1,420	2,638		2,710	ID 52, 52a, 54, 59, 70
	Moynihan	5,291				100		5,191		5,291	1,305	3,045		100	ID 57
	Runcie	2,606			600			2,006		2,606	960	2,239		600	ID 69
	Waverley	398			500			(102)		398	848	-		500	ID 68
	Estates & Boiler House	1,140						1,140		1,140	1,090	272			
	Kitchen	1,914						1,914		1,914	-	2,317			
	Site-wide Infrastructure	103						103		103	237	236			
50	Rebuild Theatre 6		250						250	250				250	Added area
51	Replace Theatre 5		250						250	250				250	Added area
52	Refurb Theatres 1-4(layout only)		600												see Gloucester
52a	Refurb Theatres 1-4 (ventilation only)		600												see Gloucester
54	Provide Day Surgery Admissions Lounge		560												see Gloucester
57	Provide HDU space		100												see Moynihan
59	Inpatient bed refurb		450												see Gloucester
64	MRI/CT support to one-stop shops		275						275	275				275	Added area
66	Move small diagnostics from HHH		500						500	500				500	Added area
68	Refurb some OP (breast clinic)		500												see Waverley
69	Urology One Stop Shop		600												see Runcie
70	Further minor OP Refurb		500												see Gloucester
72	Build additional OP capacity at SACH		3,700						3,700	3,700				3,700	
75	New Build Endoscopy Unit		1,175						1,175	1,175				1,175	
79	Off site parking		0												
85	SACH Critical Infrastructure (min)		0												Cost allowance
	SACH Total	18,845	10,060	-	2,160	1,750	-	14,935	6,150	24,995	5,860	10,747	-	10,060	
	All sites	117,805	48,443	(57,376)	4,160	4,050	1,828	50,391	37,447	97,876	44,265	29,564	958	48,443	

Table 68: Summary or works for Option 3 (includes interim works)

ID	Building	GIA	Work	Demolish/OOC	Light Refurb	Med Refurb	Heavy Refurb	Untouched	New Build	Output	BM (C&S) cleared	BM (C&S) residual	Interim	Works total	Notes
		m2	m2	m2	m2	m2	m2	m2	m2	m2	£k	£k	m2	m2	x
WGH	PMoK	22,803						17,816	2,168	24,971	4,204	11,694		7,155	ID 13, 14 & 24
	WACS incl HD & OMF	10,734		(10,734)		2,300	2,687		12,686	12,686	10,072	-	558	13,244	ID 17 & 21
	AAU	6,042						6,042		6,042	-	-		1,128	-
	Shrodells	3,297						3,297		3,297	-	1,644		-	-
	Surge Units	2,493		(2,493)					3,400	3,400	448	-		3,400	ID 23
	Cardiac Centre	556						556			556	-		505	-
	Sycamore House	1,001						1,001		1,001	-	424		-	-
	Admin Block incl 62 Vicarage	2,873		(2,873)							-	1,434	358		ID 45
	H Block	2,550		(2,550)							-	1,351	-		ID 45
	Pathology incl NEQUAS	2,372						2,372		2,372	2,408	-		-	-
	Willow House	1,423		(1,423)							-	728	-		ID 45
	Estates & Boiler House	1,522						1,522		1,522	1,248	-		-	-
Kitchen	2,650						2,650		2,650	-	1,462	-	-	-	
Cherry Tree House	993						993		993	-	663	-	-	-	
Site-wide Infrastructure	348						348		348	725	725	-	-	-	
8	Reconfig ED (Wave 4 - £11m)		500					-		-				-	see PMOK
9	New Build Assessment Bays (40)		1,734					-	1,734	1,734				1,734	-
10	New Build Ambulatory Care Area		1,254					-	1,254	1,254				1,254	-
13	Refurb Theatre 5 PMOK		1,828					-		-				-	see PMOK
14	Additional Theatre 6 PMOK		859					-		-				-	see PMOK
17	Increase size of Neonatal block		558					-		-				-	see WACS
21	New Build WACS block (including theatres)		12,686					-		-				-	see WACS
23	Reprovide 60 bed surge unit		3,400					-		-				-	see Surge Units
24	Refurb level 3 of PMOK and reprovide 45 beds (New)		3,968					-		-				-	see PMOK
29	Additional 30 bed ward (capacity)		1,700					-	1,700	1,700				1,700	-
30	Additional 15 bed ward (capacity)		850					-	850	850				850	-
32	Pathology Hot lab		600					-	600	600				600	-
32a	Mortuary		270					-	270	270				270	-
33	Interventional Radiology Suite		0					-		-				-	Cost allowance
34	Additional MRI/CT		200					-	200	200				200	-
38	New Build Helen Donaldson unit / OMFS		1,370					-	1,370	1,370				1,370	-
42	WGH Critical Infrastructure		0					-		-				-	Cost allowance
45	Clear North & East of site		1,150					-	1,150	1,150				1,150	some replacement
	WGH Total	61,657	32,927	(20,073)		2,300	2,687	36,597	27,382	68,966	22,618	18,603	558	32,927	
HHH	Veralum	11,320						11,320	-	11,320	3,955	3,955	400	11,720	ID 98, retained building
	Jubilee	3,833		(3,833)				-	-	-	2,183	-	-	-	-
	Main Building	2,600		(2,600)				-	-	-	1,154	-	-	-	-
	Marham	483		(483)				-	-	-	136	-	-	-	-
	Diagnostics	900		(900)				-	-	-	820	-	-	-	-
	Estates & Boiler House	344		(344)				-	-	-	424	-	-	-	-
	QE Building	1,659		(1,659)				-	-	-	2,012	-	-	-	-
	Site-wide Infrastructure incl bridge	560		(560)				-	-	-	681	681	-	-	-
	Tudor	8,056		(8,056)				-	-	-	-	-	-	-	-
	Windsor Wards	4,046		(4,046)				-	-	-	-	-	-	-	-
Windsor Day Hospital	1,313		(1,313)				-	-	-	-	-	-	-	-	
Other mothballed estate	2,189		(2,189)				-	-	-	-	-	-	-	-	
98	Interim Endoscopy capacity		400					-	-	-	-	-	-	-	see Veralum
108b	HHH Critical Infrastructure (max)		0					-	-	-	-	-	-	-	-
112	New Build Planned Care at HHH		20,480					-	9,160	9,160				9,160	Includes UTC
	HHH Total	37,303	20,880	(25,983)			11,320		9,160	20,480	12,226	3,955	400	20,880	Should output be £19k?
SACH	Gloucester	7,393		(7,393)					-	-	4,058	-	560	560	ID 54 Interim
	Moynihan	5,291		(5,291)					-	-	4,350	-	100	100	ID 57 Interim
	Runcie	2,606		(2,606)					-	-	3,199	-	-	-	-
	Waverley	398		(398)					-	-	848	-	500	500	ID 68 Interim
	Estates & Boiler House	1,140		(1,140)					-	-	1,362	-	-	-	-
	Kitchen	1,914		(1,914)					-	-	2,317	-	-	-	-
	Site-wide Infrastructure	103		(103)					-	-	473	-	-	-	All OOC on completion of HHH
54	Provide Day Surgery Admissions Lounge		560					-	-	-	-	-	-	-	see Gloucester
57	Provide HDU space		100					-	-	-	-	-	-	-	see Moynihan
64	MRI/CT support to one-stop shops		275					-	-	-	-	275	275	275	Pre HHH new PC only
68	Refurb some OP (breast clinic)		500					-	-	-	-	-	-	-	see Waverley
79	Off site parking		0					-	-	-	-	-	-	-	-
85b	SACH Land Sale		0					-	-	-	-	-	-	-	Land sale
	SACH Total	18,845	1,435	(18,845)							16,607		1,435	1,435	
	All sites	117,805	55,242	(64,901)		2,300	14,007	36,597	36,542	89,446	51,271	22,558	2,393	55,242	

Table 69: Summary or works for Option 4 (includes interim works)

ID	Building	GIA	Work	Demolis h/OOC	Light Refurb	Med Refurb	Heavy Refurb	Untouch ed	New Build	Output	BM (C&S) cleared	BM (C&S) residual	Interim	Works total	Notes
		m2	m2	m2	m2	m2	m2	m2	m2	m2	Ek	Ek	m2	m2	x
	PMoK	22,803				500	2,687	19,616		22,803	2,671	13,227		3,187	ID 13 & 14
	WACS incl HD & OMF	10,734		(10,734)				-	12,686	12,686	10,072	-	558	13,244	ID 17 & 21
	AAU	6,042						6,042		6,042	-	1,128		-	
	Shrodells	3,297						3,297		3,297	-	1,644		-	
	Surge Units	2,493						2,493		2,493	448	-		-	
	Cardiac Centre	556						556		556	-	505		-	
	Sycamore House	1,001						1,001		1,001	-	424		-	
	Admin Block incl 62 Vicarage	2,873		(2,873)				-		-	1,434	358		-	ID 45
	H Block	2,550		(2,550)				-		-	1,351	-		-	ID 45
	Pathology incl NEQUAS	2,372						2,372		2,372	2,408	-		-	
	Willow House	1,423		(1,423)				-		-	728	-		-	ID 45
	Estates & Boiler House	1,522						1,522		1,522	1,248	-		-	
	Kitchen	2,650						2,650		2,650	-	1,462		-	
	Cherry Tree House	993						993		993	-	663		-	
	Site-wide Infrastructure	348						348		348	725	725		-	
8	Reconfig ED (Wave 4 - £11m)		500					-		-					see PMOK
9	New Build Assessment Bays (40)		1,734					-	1,734	1,734				1,734	
10	New Build Ambulatory Care Area		1,254					-	1,254	1,254				1,254	
13	Refurb Theatre 5 PMOK		1,828					-		-				-	see PMOK
14	Additional Theatre 6 PMOK		859					-		-				-	see PMOK
17	Increase size of Neonatal block		558					-		-				-	see WACs
21	New Build WACS block [including theatres]		12,686					-		-				-	see WACs
29	Additional 30 bed ward (capacity)		1,700					-	1,700	1,700				1,700	
30	Additional 15 bed ward (capacity)		850					-	850	850				850	
32	Pathology Hot lab		600					-	600	600				600	
32a	Mortuary		270					-	270	270				270	
33	Interventional Radiology Suite		0					-		-				-	Cost allowance
34	Additional MRI/CT		200					-	200	200				200	
38	New Build Helen Donaldson unit / OMFS		1,370					-	1,370	1,370				1,370	
42	WGH Critical Infrastructure		0					-		-				-	Cost allowance
45	Clear North & East of site		1,150					-	1,150	1,150				1,150	some replacement
	WGH Total	61,657	25,559	(17,580)		500	2,687	40,890	21,814	65,891	21,085	20,136	558	25,559	
	Veralum	11,320		(11,320)				-		-	7,910	-	400	400	ID98 Interim
	Jubilee	3,833		(3,833)				-		-	2,183	-		-	
	Main Building	2,600		(2,600)				-		-	1,154	-		-	
	Marham	483		(483)				-		-	136	-		-	
	Diagnostics	900		(900)				-		-	820	-		-	
	Estates & Boiler House	344		(344)				-		-	424	-		-	All OOC on completion of GFS
	QE Building	1,659		(1,659)				-		-	2,012	-		-	
	Site-wide Infrastructure incl bridge	560		(560)				-		-	1,362	-		-	
	Tudor	8,056		(8,056)				-		-	-	-		-	
	Windsor Wards	4,046		(4,046)				-		-	-	-		-	
	Windsor Day Hospital	1,313		(1,313)				-		-	-	-		-	
	Other mothballed estate	2,189		(2,189)				-		-	-	-		-	
98	Interim Endoscopy capacity		400					-		-				-	see Veralum
110	Land Sale from vacating HHH site		0					-		-				-	Land Sale
	HHH Total	37,303	400	(37,303)							16,001		400	400	
	Gloucester	7,393		(7,393)				-		-	4,058	-	560	560	ID 54 Interim
	Moynihan	5,291		(5,291)				-		-	4,350	-	100	100	ID 57 Interim
	Runcie	2,606		(2,606)				-		-	3,199	-		-	
	Waverley	398		(398)				-		-	848	-	500	500	ID 68 Interim
	Estates & Boiler House	1,140		(1,140)				-		-	1,362	-		-	
	Kitchen	1,914		(1,914)				-		-	2,317	-		-	
	Site-wide Infrastructure	103		(103)				-		-	473	-		-	All OOC on completion of GFS
54	Provide Day Surgery Admissions Lounge		560					-		-				-	see Gloucester
57	Provide HDU space		100					-		-				-	see Moynihan
64	MRI/CT support to one-stop shops		275					-		-			275	275	Pre GFS only
68	Refurb some OP (breast clinic)		500					-		-				-	see Waverley
85b	SACH Land Sale		0					-		-				-	Land sale
	SACH Total	18,845	1,835	(18,845)							16,607		1,435	1,435	
	GFS New Planned Care		19,914					-	19,914	19,914				19,914	Includes UTC
	GFS Total	-	19,914	-	-	-	-	-	19,914	19,914			-	19,914	
	All sites	117,805	47,308	(73,728)		500	2,687	40,890	41,728	85,805	53,693	20,136	2,393	47,308	

Short List Options - Phasing

The table below shows the assumed phasing of works for each shortlisted option. These were developed by WHHT's estates team and estates advisors. The Do Minimum was assumed to be able to start sooner but with a longer time for completion. Other options were assumed to have broadly similar timelines, except the New Planned Care build which would require a new site to be determined and planning permission gained.

Table 70: Summary of works for Option 4 (includes interim works)

Option	Emergency Care site			Planned Care site			Comment
	Start date	End date	Duration	Start date	End date	Duration	
Do Minimum	Apr-21	Mar-26	5 years	Apr-21	Mar-26	5 years	EC Earlier as shorter OBC/FBC stage. Spread across longer period
Option 1	Apr-22	Mar-25	3 years	Apr-22	Sep-23	1.5 years	PC Shorter as no New Build
Option 2	Apr-22	Mar-25	3 years	Apr-22	Mar-24	2 years	
Option 3	Apr-22	Mar-25	3 years	Apr-22	Mar-24	2 years	
Option 4	Apr-22	Mar-25	3 years	Apr-24	Mar-26	2 years	PC Later start due to needing to agree land and planning

Short List Options – Costs

The following costs and benefits are calculated for the shortlisted options

- Construction Costs (including works, fees, non-works, equipment, planning and optimism bias)
- Net Land Receipts
- Equipment Lifecycle Costs
- Building Lifecycle and Backlog
- Operating Costs
- Administration Estate Costs

These are described in more detail in the following sections.

Construction Costs

Construction costs are built up using standard OB forms as per HM Treasury and DHSC guidance. These are built up as follows:

Works Costs

- Departmental space (m²) for 'new build' is based upon Health Building Notes, and Health Technical Memorandum specification. With refurbished space assumed to come as close as possible to these areas.
- Departmental cost (£/m²) uses standard costs for clinical departments as per published Health Premises Cost Guide, adjusted for WHHT location, and inflation to the PUBSEC 250 reporting date.
- "On Costs" include specific allowances for non-departmental building area such as plant/engineering space and hospital street and circulation. They also include allowances for external works, parking, drainage, incoming utility services, site preparation, demolition works, access works and an assessment of site and building abnormal costs for critical infrastructure upgrade works, poor ground conditions, contamination and the diversion of services and drainage.

Uplift to Works costs

Works Costs are uplifted to account for project fees, direct Trust transition costs, equipment costs, and planning risks/costs. All these uplifts are determined from benchmarking across similar schemes and then adjusting for local WHHT context.

Optimism Bias

Scheme costs are then adjusted for Optimism Bias to account for possible future unforeseen project costs. Levels of Optimism Bias are determined using a standard scoring for levels of risks assessed against specific project criteria and possible mitigation measures in place at the time of the assessment.

VAT and inflation

VAT and inflation are applied as required (excluded in the economic analysis but included in the financial analysis). VAT is assumed to be recoverable for professional fees, and inflation being assumed to the mid-point of each project.

Summary OB1 forms (showing VAT and inflation) are shown on the next page. Full OB forms are available upon request.

Table 71: Summary of OB1 forms for all options (inclusive of VAT)

	OB1 Form	Do Min incl. VAT	Option 1 incl. VAT	Option 2 incl. VAT	Option 3 incl. VAT	Option 4 incl. VAT
1	Departmental Costs (from Form SOC2)	25.87	142.53	141.91	152.82	139.46
2	On-Costs (from Form SOC3)	32.97	66.63	64.88	66.32	79.38
3	Works Cost Total (1+2) at PUBSEC 250	58.84	209.16	206.79	219.14	218.84
4	Provisional Location Adjustment (BCIS 110 included)	included	included	included	included	included
5	Sub-total (3+4)	58.84	209.16	206.79	219.14	218.84
6	Project Fees 14.0% (of 5)	6.99	24.47	24.19	25.63	25.59
7	Non-Works Costs (from Form SOC4) - Land - Other 3.0% (of 5)	- 1.77	- 6.27	- 6.20	- 6.57	- 6.57
8	Equipment Costs (from Form SOC2) 20.0% (of 1)	5.17	28.51	28.38	30.56	27.89
9	Planning Contingency %varies (of 5)	5% 2.94	6% 12.55	7% 14.48	6% 13.15	8% 17.51
10	Sub-total (5+6+7+8+9)	75.71	280.96	280.04	295.05	296.39
11	Optimism Bias %varies (of 10)	21.4% 16.19	24.5% 68.84	24.9% 69.59	24.9% 73.32	22.3% 66.16
12	Forecast Business Case Total (no inflation)	91.90	349.80	349.64	368.37	362.55
13	Inflation Adjustment to projected Tender Dates %varies (of 12)	16.9% 15.56	16.7% 58.53	16.8% 58.81	16.6% 61.48	20.1% 72.95
14	Forecast Business Case Total (inflation included)	107.47	408.32	408.44	429.85	435.50

Net Land Receipts

Net Land Receipts are built up using Land Registry data base as follows:

Table 72: Summary of net land receipts

Receipt/(purchase) £m	Do Min	Option 1	Option 2	Option 3	Option 4
WGH - clear north & east of site		5	5	5	5
SACH - sale of site				18	18
HHGH - partial / full sale of site		10	15		15
GFS - purchase of greenfield					(20)
Net Land Receipts	0	15	20	23	18

Equipment Lifecycle Costs

This additional ongoing capital required to replace the new equipment provided under each option. This assumes a 10-year life for all new equipment and is based upon the equipment costs calculated in the OB forms.

Table 73: Equipment Lifecycle costs

Receipt/(purchase) £m	Do Min	Option 1	Option 2	Option 3	Option 4
Equipment Costs (with VAT, no inflation)	6.3	35.5	35.4	38.2	34.1
Annual Lifecycle (with VAT, no inflation)	0.6	3.5	3.5	3.8	3.4

Building Lifecycle and Backlog

Building Lifecycle costs are the ongoing capital required to maintain the new or refurbished estate. These costs are determined by the levels of works in each option combined with benchmarking data from similar schemes. Lifecycle costs are applied as a smooth capital profile over 30 years as opposed to a lumpy capital profile identifying specific future works (see Table 74).

In addition to future work required, the WHHT estate has significant existing backlog costs which need to be addressed. The cost of addressing this backlog is different for each option depending on which estate is refurbished, replaced or maintained in each option. Backlog maintenance has been calculated for each option and then applied as a smooth capital costs over 30 years (see Table 74).

Operating costs

In addition to the capital costs of building and maintain estate, there are ongoing revenue costs to run the estate. These have been calculated using a benchmarking data base and are driven by the total footprint m² of each option. The categories of operating costs are listed below and detailed in Table 74.

- Hard facilities management (FM)
- Soft FM
- Utilities
- Ground Maintenance

Note that operating costs are lower in the shortlisted options than Business as Usual baseline, and this reduced cost of running the estate is often referred to as a benefit.

Cost of providing administration off site

All of the options, other than the Do Minimum option, assume that a significant amount of estate containing administration functions is provided off site. This is assumed to have a revenue cost of £1.2m per year.

Table 74: Operating costs for all options

SOC Option (All Sites) £m p.a.	Hard FM	Grounds Maintenance	Utilities	Soft FM	Life Cycle over 30 years	Residual BM over 30 years	Sub- Total	Option Total
Do Nothing / BAU								21.8
New Build								
Retained Estate	4.4		3.0	7.2	4.5	2.5	21.6	
Site Area		0.1					0.1	
Do Minimum								22.6
New Build	0.2		0.2	0.4	0.2		1.0	
Retained Estate	4.4		3.0	7.2	4.4	2.3	21.5	
Site Area		0.1					0.1	
Option 1 - 3 site								17.7
New Build	1.3		0.9	2.3	0.8		5.3	
Retained Estate	2.6		1.8	4.3	2.5	1.1	12.3	
Site Area		0.1					0.1	
Option 2 - 2 site (SACH)								17.0
New Build	1.4		1.0	2.5	0.9		5.8	
Retained Estate	2.4		1.6	3.9	2.2	1.0	11.1	
Site Area		0.1					0.1	
Option 3 - 2 site (HHH)								15.4
New Build	1.4		0.9	2.4	0.9		5.6	
Retained Estate	2.1		1.4	3.5	2.0	0.8	9.8	
Site Area		0.1					0.1	
Option 4 - 2 site (New PC)								14.7
New Build	1.5	0.0	1.0	2.5	1.1		6.1	
Retained Estate	1.8	0.0	1.2	3.1	1.7	0.7	8.5	
Site Area		0.1					0.1	

Table 75: WGH Operating costs for all options

SOC Option (WGH Site)	m2 GIFA	Hard FM £/m2 p.a.	Grounds Maint. £/m2 p.a.	Utilities £/m2 p.a.	Soft FM £/m2 p.a.	Life Cycle over 30 £/m2 p.a.	Residual BM over 30 £/m2 p.a.	Hard FM £m p.a.	Grounds Maint. £m p.a.	Utilities £m p.a.	Soft FM £m p.a.	Life Cycle over 30 £m p.a.	Residual BM over 30 £m p.a.	Sub-Total £m p.a.	Option Total £m p.a.
Do Nothing															12.4
New Build	0	39.2		26.8	69.4	25.3	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Retained Estate	61,657	41.3		27.9	70.4	38.0	22.3	2.5		1.7	4.3	2.3	1.4	12.3	
Site Area	99,800		0.5						0.0					0.0	
Do Minimum															13.1
New Build	5,674	39.2		26.8	69.4	25.3	0.0	0.2		0.2	0.4	0.1	0.0	0.9	
Retained Estate	61,657	41.3		27.9	70.4	37.6	20.0	2.5		1.7	4.3	2.3	1.2	12.2	
Site Area	99,800		0.5						0.0					0.0	
Option 1 - 3 site															12.9
New Build	31,297	39.2		26.8	69.4	25.3	0.0	1.2		0.8	2.2	0.8	0.0	5.0	
Retained Estate	41,584	41.3		27.9	70.4	37.0	12.7	1.7		1.2	2.9	1.5	0.5	7.9	
Site Area	75,000		0.5						0.0					0.0	
Option 2 - 2 site (SACH min)															13.1
New Build	31,297	39.2		26.8	69.4	25.3	0.0	1.2		0.8	2.2	0.8	0.0	5.0	
Retained Estate	41,584	41.3		27.9	70.4	37.3	15.1	1.7		1.2	2.9	1.5	0.6	8.0	
Site Area	75,000		0.5						0.0					0.0	
Option 3 - 2 site (HHH)															12.4
New Build	27,382	39.2		26.8	69.4	25.3	0.0	1.1		0.7	1.9	0.7	0.0	4.4	
Retained Estate	41,584	41.3		27.9	70.4	37.3	14.9	1.7		1.2	2.9	1.6	0.6	8.0	
Site Area	75,000		0.5						0.0					0.0	
Option 4 - 2 site (New PC)															12.0
New Build (WGH)	21,814	39.2		26.8	69.4	25.3	0.0	0.9		0.6	1.5	0.6	0.0	3.5	
Retained Estate (WGH)	44,077	41.3		27.9	70.4	37.8	15.2	1.8		1.2	3.1	1.7	0.7	8.5	
Site Area (WGH)	75,000		0.5						0.0					0.0	

Table 76: SACH Operating costs for all options

SOC Option (SACH Site)	m2 GIFA	Hard FM £/m2 p.a.	Grounds Maint. £/m2 p.a.	Utilities £/m2 p.a.	Soft FM £/m2 p.a.	Life Cycle over 30 £/m2 p.a.	Residual BM over 30 £/m2 p.a.	Hard FM £m p.a.	Grounds Maint. £m p.a.	Utilities £m p.a.	Soft FM £m p.a.	Life Cycle over 30 £m p.a.	Residual BM over 30 £m p.a.	Sub-Total £m p.a.	Option Total £m p.a.
Do Nothing															
New Build	0													0.0	3.3
Retained Estate	18,845	33.8		23.4	51.5	38.0	29.4	0.6		0.4	1.0	0.7	0.6	3.3	
Site Area	39,000		0.7						0.0					0.0	
Option 1 - 3-site Do Minimum															3.4
New Build	525	33.8		23.4	51.5	25.3	0.0	0.0		0.0	0.0	0.0	0.0	0.1	
Retained Estate	18,845	33.8		23.4	51.5	37.3	28.4	0.6		0.4	1.0	0.7	0.5	3.3	
Site Area	39,000		0.7						0.0					0.0	
Option 2 - 3-site Min															3.4
New Build	1,950	32.1		22.5	50.6	25.3	0.0	0.1		0.0	0.1	0.0	0.0	0.3	
Retained Estate	18,845	33.8		23.4	51.5	36.5	22.4	0.6		0.4	1.0	0.7	0.4	3.2	
Site Area	39,000		0.7						0.0					0.0	
Option 3 - 2-site Min PC invest															3.9
New Build	6,150	32.1		22.5	50.6	25.3	0.0	0.2		0.1	0.3	0.2	0.0	0.8	
Retained Estate	18,845	33.8		23.4	51.5	36.5	19.0	0.6		0.4	1.0	0.7	0.4	3.1	
Site Area	39,000		0.7						0.0					0.0	
Option 4 - 2-site Max invest (l															0.0
New Build	0													0.0	
Retained Estate	0													0.0	
Site Area														0.0	
Option 6 - 2-site Max Invest (l															0.0
New Build	0													0.0	
Retained Estate	0													0.0	
Site Area														0.0	

Table 77: HHGH & GFS (New PC) Operating costs for all options

SOC Option (HHH Site & GF Site)	m2 GIFA	Hard FM £/m2 p.a.	Grounds Maint. £/m2 p.a.	Utilities £/m2 p.a.	Soft FM £/m2 p.a.	Life Cycle over 30 £/m2 p.a.	Residual BM over 30 £/m2 p.a.	Hard FM £m p.a.	Grounds Maint. £m p.a.	Utilities £m p.a.	Soft FM £m p.a.	Life Cycle over 30 £m p.a.	Residual BM over 30 £m p.a.	Sub-Total £m p.a.	Option Total £m p.a.
Do Nothing															6.0
New Build	0													0.0	
Retained Estate	37,303	33.8		23.4	51.5	38.0	14.3	1.3		0.9	1.9	1.4	0.5	6.0	
Site Area	57,000		0.7						0.0					0.0	
Do Minimum															6.0
New Build	110													0.0	
Retained Estate	37,303	33.8		23.4	51.5	37.9	14.3	1.3		0.9	1.9	1.4	0.5	6.0	
Site Area	57,000		0.7						0.0					0.0	
Option 1 - 3 site															1.3
New Build	0													0.0	
Retained Estate	8,000	33.8		23.4	51.5	36.3	12.7	0.3		0.2	0.4	0.3	0.1	1.3	
Site Area	20,000		0.7						0.0					0.0	
Option 2 - 2 site (SACH min)															0.0
New Build	-													0.0	
Retained Estate	0													0.0	
Site Area														0.0	
Option 3 - 2 site (HHH)															3.0
New Build	9,160	32.1		22.5	50.6	25.3		0.3		0.2	0.5	0.2	0.0	1.2	
Retained Estate	11,320	33.8		23.4	51.5	36.2	11.6	0.4		0.3	0.6	0.4	0.1	1.8	
Site Area	57,000		0.7						0.0					0.0	
Option 4 - 2 site (New PC)															2.6
New Build (GFS)	19,914	32.1	0.0	22.5	50.6	25.3	0.0	0.6		0.4	1.0	0.5	0.0	2.6	
Retained Estate (GFS)														0.0	
Site Area (GFS)	50,000		0.5						0.0					0.0	

Short List options – Benefits

Increase Cost Improvement Programme

WHHT has an ongoing Cost Improvement Programme (CIP) running at 4% reducing to 1.1% after four years (assuming tariff inflation rises to 1.8% - see Table 80). In addition to this existing programme a new hospital reconfiguration is assumed to deliver further savings. To identify the likely source and quantum of the savings, a long list of potential savings initiatives was drawn up – and then the most likely to deliver cashable savings were identified and quantified (see Table 78). These were then apportioned across the different options according to the identified benefit driver (see Table 79).

Contribution from marginal activity

In the baseline the Cost Improvement Programme (CIP) runs at 1.1% after 2022/23 based on the limitations of the estate. The Trust has assumed that after the investment in the hospital, it will be able to explore new opportunities and increase the efficiency to c1.25%. This additional 0.15% was arrived at by assuming that as the capacity is increased to meet the required demand, the additional activity can be delivered at c70% of the costs estimated.

Reduction in operating costs

WHHT's operating costs are expected to reduce in the different options. This is often described as a benefit as per below.

Table 78: List of schemes for enhanced CIP following new build – scale

Scheme	£m p.a.	Rationale for quantum
1 Reduced length of stay from improved patient flow through wards, theatres and diagnostics	5.0	Triangulated across model hospital and Dr Foster analysis. Matched with Activity modelling. Assumes £280 per excess bed day (current for WHHT).
2 Improved patient flow and staff efficiencies from enabling Digital Transformation	2.0	Assumes digital infrastructure will be built into new buildings. Based on similar business cases and agreed with Finance and IT depts as a sensible estimate which could be increased.
3 Reduced agency spend due to higher staff satisfaction from better working environment	1.5	Assumes agency spend further reduced on medical staff from 5% to 3% (doesn't include nursing as already significantly reduced)
4 Reduced administration costs due to efficiencies from working across fewer sites	1.1	Currently assumes 25% reduction in planned care administration costs.
5 Reduced non-pay costs due to improved workflow in theatres, wards, and diagnostics	1.0	6 x Specific Non-Pay categories identified for reduction by finance team.
6 Improved staff efficiency from having a single ED Assessment area with Ambulatory Care	1.8	Removal of previous non-recurrent investment into A&E services. (£3.5m - £1.7m of which already assumed as a benefit in Wave 4 bid)
7 Reduced nursing costs from having a standard Ward Layout / Design	3.0	Based on safe nursing calculation for standard ward sizes - compared to current ward sizes (c 85 FTE).
8 Financial and performance improvements due to improved theatre layout and design	1.5	Based on Model Hospital opportunity for surgical specialties, then cross checked against theatre efficiency improvement which gave similar opportunity.
9 Improved beds, staff utilisation in WACs as more mothers choose to give birth at Watford. This will reduce the pressure currently faced across the system	1.5	Assumes an additional 1,000 births at the hospital. 500 within current staff capacity. 500 requiring further staffing capacity.
10 Reduced CNST payments for Maternity due to lower clinical risk from environment	1.8	Based on Maternity CNST of £9m being reduced by 40% (as per model hospital guide) then risk rated by 50%
11 Costs avoided: mitigations in place during theatre shutdowns	1.4	Already contained in WHHT Long Term Financial plan, to be realised following work on PMOK theatres (or new theatres). Not double counted.
12 Eliminate outsourcing costs due to theatre shutdowns & additional costs of meeting resulting backlog	1.4	Already contained in WHHT Long Term Financial plan, to be realised following work on PMOK theatres (or new theatres). Not double counted.
13 Dedicated space for Interventional Radiology will release capacity	0.5	Based on additional theatre capacity released by having separate IR suite. £1m risk rated by 50% due to double counting with LOS.
14 Redesigned pathways will allow more achievement of best practice Tariff.	1.0	Assumed best practice tariff for Respiratory, Gynae, Paediatrics, and Urology. This is based on the simplified pathway after reconfiguring and consolidating services across sites.

Table 79: List of schemes for enhanced CIP following new build – profile

Scheme	£m p.a.	Do Min	Option 1	Option 2	Option 3	Option 4	Rationale for profile
1 Reduced length of stay from improved patient flow through wards, theatres and diagnostics	5.0	15%	65%	55%	60%	45%	% Bed stock improved + % NB/Refurb
2 Improved patient flow and staff efficiencies from enabling Digital Transformation	2.0	15%	55%	50%	55%	50%	% New Build/Refurb
3 Reduced agency spend due to higher staff satisfaction from better working environment	1.5	15%	55%	50%	55%	50%	% New Build/Refurb
4 Reduced administration costs due to efficiencies from working across fewer sites	1.1	0%	50%	100%	100%	100%	Only 50% if staying on 3 sites
5 Reduced non-pay costs due to improved workflow in theatres, wards, and diagnostics	1.0	0%	50%	100%	100%	100%	Only 50% if staying on 3 sites
6 Improved staff efficiency from having a single ED Assessment area with Ambulatory Care	1.8	10%	100%	100%	100%	100%	
7 Reduced nursing costs from having a standard Ward Layout / Design	3.0	15%	70%	55%	60%	40%	% Bed stock improved
8 Financial and performance improvements due to improved theatre layout and design	1.5	10%	85%	85%	50%	50%	100% for New Build. 50% for PC refurb, 25% for EC refurb. Weighted by Income.
9 Improved beds, staff utilisation in WACs as more mothers choose to give birth at Watford. This will reduce the pressure currently faced across the system	1.5	10%	100%	100%	100%	100%	
10 Reduced CNST payments for Maternity due to lower clinical risk from environment	1.8	10%	100%	100%	100%	100%	
11 Costs avoided: mitigations in place during theatre shutdowns	1.4	50%	100%	100%	100%	100%	Only partially achieved if theatre 5 improved
12 Eliminate outsourcing costs due to theatre shutdowns & additional costs of meeting resulting backlog	1.4	50%	100%	100%	100%	100%	Only partially achieved if theatre 5 improved
13 Dedicated space for Interventional Radiology will release capacity	0.5	0%	100%	100%	100%	100%	
14 Redesigned pathways will allow more achievement of best practice Tariff.	1.0	0%	100%	100%	100%	100%	

Financial Assumptions

Economic modelling

Equivalent Annual Value

The economic value of each option is calculated as an Equivalent Annual Value (EAV), rather than a Net Present Value (NPV). This is due to the different appraisal period for the do minimum option and the four “do something” options.

The economic value is calculated as the net benefits and costs for each option netted off against the business as usual position – which is based upon the Trust’s existing LTFM and capital plan.

Appraisal periods

The appraisal period for the do minimum option is 20 years beyond the life of the scheme. This is because:

- It is the approximate blended useful life of the estate across the do minimum option
- It aligns with the time period used to determine for the essential works which had to be carried out to keep the hospital running
- It is the maximum amount of time which the Women’s and Children’s building could last for without being replaced.

The appraisal period for the other four options is 30 years beyond the completion of the scheme. This is because:

- It is the approximate blended useful life of the estate across all options following the works
- It aligns with the remaining useful life of PMOK, which is assumed to remain in all options
- It aligns with the life of heavy refurb, and 50% new build
- It was the basis for the smoothing of backlog and lifecycle cost

Exclusions from economic modelling

The following are excluded from the economic modelling as per green book guidance

- All transfer costs are excluded including VAT and commissioner income.
- Inflation
- Depreciation and Capital Charges as per Green book

Residual values

The residual value of new buildings is assumed to decrease in a straight line over 60 year from the pre-revaluation construction cost. So are included at 50% of the value 30 years following build completion.

Financial modelling

The following assumptions are used to build up the financial position for the preferred option to determine the impact on the Trust’s finances if the work is undertaken.

Inflation

WHHT’s baseline financial position is based on the latest LTFM position including the following inflation assumptions

Table 80: Inflation profile for WHHT’s LTFM

	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28+
Tariff inflation	0.9%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%
Cost inflation	2.9%	2.9%	2.9%	2.9%	2.9%	2.9%	2.9%	2.9%	2.9%
CIP	-4.0%	-4.0%	-4.0%	-4.0%	-1.1%	-1.1%	-1.1%	-1.1%	-1.1%
Net cost change	-1.1%	-1.1%	-1.1%	-1.1%	1.8%	1.8%	1.8%	1.8%	1.8%
Net I&E impact	2.0%	2.9%	2.9%	2.9%	0.0%	0.0%	0.0%	0.0%	0.0%

Residual value and changes to income and expenditure

- Residual value assumes refurb elements written down straight-line over 30 years; new build 60 years.
- Buildings LCC and backlog maintenance charged straight-line over 30 years.
- Equipment LCC charged straight-line over 10 years.

Construction cost profile

Construction cost profiled according to site-by-site cashflow of OB elements.

Benefits apportionment

Income and expenditure benefits apportioned by type (income / expense), and assumed to be realised over three years, by $1/3^{\text{rd}}$ each year – except CNST which is assumed to be realised over six years by $1/6$ each year.

Depreciation

Depreciation calculated using useful economic lives as follows

- Building refurbishment: 30 years
- Building new build: 60 years
- Equipment: 10 years

Revaluation reserve

The book value of new buildings is assumed to be revalued to 80% of construction costs following completion. The 20% reduction hits the revaluation reserve so does not impact the I/E.

Capital charges

PDC dividend is calculated at 3.5% of average of (revalued construction cost net of land acquisition cost/receipt on disposal) in-year and prior-year.

Appendix B: WHHT Services

Summary of services across WHHT's three hospital services

This is not an entirely comprehensive list but is intended to give an overview of the differences between the sites.

Domain	Service	WGH	SACH	HHGH
Emergency and acute Services	24/7 consultant-led ED	✓		
	Intensive care	✓		
	Cardiac care and cath labs	✓		
	Hyper and acute stroke unit	✓		
	11/7 minor injuries unit/urgent care centre	✓	✓	✓
Emergency surgery	Emergency surgery (24/7)	✓		
	Emergency surgical assessment and ambulatory care	✓		
Trauma and orthopaedics	Trauma surgery	✓		
	Day surgery	✓	✓	
Medicine	Acute admissions unit	✓		
	Emergency medical assessment and ambulatory care	✓		
	Acute medicine Inpatient care	✓		
	Intensive care unit	✓		
Maternity	Consultant-led obstetric birth unit	✓		
	Co-located midwife led unit / birthing unit	✓		
Paediatrics	Inpatient beds	✓		
	Paediatric assessment unit	✓		
	Neonatology	✓		
	Emergency surgery	✓		
	Planned inpatient surgery	✓		
	Day surgery	✓		
Planned surgery	Planned inpatient and complex surgery	✓		
	Planned inpatient surgery for patients with low to medium complexity needs	✓	✓	
	Day surgery	✓	✓	
Outpatients	Trauma and orthopaedics	✓	✓	✓

Domain	Service	WGH	SACH	HHGH
	Medicine (incl. cancer)	✓	✓	✓
	Ante and postnatal maternity clinics	✓	✓	✓
	Paediatrics	✓	✓	✓
	Planned surgery	✓	✓	✓
Diagnostics	X-ray	✓	✓	✓
	CT	✓		✓
	MRI	✓		✓
	Ultrasound	✓	✓	✓
	Pathology lab	✓		✓
	Endoscopy	✓		✓
	Mammography		✓	
	Blood and specimen collection		✓	

Appendix C: Stakeholder Panel Summary

Summary of outputs from qualitative appraisal stakeholder panel

The following tables provide a summary of the scores from the stakeholder panel session held on 13th March 2019 as part of the qualitative appraisal of the shortlist of options and a list of all of the stakeholders who took part in the scoring

For more details on the stakeholder panel process and materials used, please visit the Trust's website:

<https://www.westhertshospitals.nhs.uk/about/strategicoutlinecase.asp>

Summary of stakeholder panel scores: combined

Benefit	Option 1	Option 2	Option 3	Option 4	Option DM
Safety & outcomes	1.5	-0.1	1.6	1.2	-1.3
Patient experience	1.4	-0.9	1.0	1.2	-1.1
Workforce satisfaction	1.5	0.2	1.2	1.3	-1.2
Future flexibility	1.7	-1.7	1.0	1.6	-0.5
All	1.5	-0.6	1.2	1.3	-1.0

Summary of stakeholder panel scores by stakeholder group

Benefit	Option 1	Option 2	Option 3	Option 4	Option DM
Clinicians	1.7	-0.2	1.3	0.9	-1.2
Trust other	1.9	0.0	1.3	1.1	-0.9
CCG other	0.9	-0.7	1.4	1.6	-1.6
Other organisation	1.2	-0.9	1.3	1.8	-0.9
Patient	1.7	-1.3	0.9	1.7	-0.6
All	1.5	-0.6	1.2	1.3	-1.0

Summary of stakeholder panel scores: clinicians

Benefit	Option 1	Option 2	Option 3	Option 4	Option DM
Safety & outcomes	1.7	0.6	1.6	0.8	-1.5
Patient experience	1.6	-0.5	1.1	0.5	-1.3
Workforce satisfaction	1.6	0.7	1.2	1.1	-0.9
Future flexibility	1.8	-1.7	1.1	1.2	-1.0
All	1.7	-0.2	1.3	0.9	-1.2

Summary of stakeholder panel scores: Trust (other)

Benefit	Option 1	Option 2	Option 3	Option 4	Option DM
Safety & outcomes	2.3	0.3	2.0	1.0	-2.0
Patient experience	1.7	-0.3	1.0	0.7	-1.0
Workforce satisfaction	1.7	0.7	1.0	1.0	-0.7
Future flexibility	2.0	-0.7	1.3	1.7	0.0
All	1.9	0.0	1.3	1.1	-0.9

Summary of stakeholder panel scores: CCG (other)

Benefit	Option 1	Option 2	Option 3	Option 4	Option DM
Safety & outcomes	0.8	-0.5	1.3	1.0	-2.3
Patient experience	0.8	-1.3	0.8	2.0	-1.0
Workforce satisfaction	0.5	0.5	1.8	1.8	-2.3
Future flexibility	1.8	-1.5	1.8	1.5	-0.8
All	0.9	-0.7	1.4	1.6	-1.6

Summary of stakeholder panel scores: Other organisation

Benefit	Option 1	Option 2	Option 3	Option 4	Option DM
Safety & outcomes	0.8	-0.4	1.8	1.8	-1.0
Patient experience	0.8	-1.2	1.4	1.8	-0.8
Workforce satisfaction	1.4	0.4	1.8	1.6	-1.4
Future flexibility	1.6	-2.2	0.2	1.8	-0.4
All	1.2	-0.9	1.3	1.8	-0.9

Summary of stakeholder panel scores: patient representatives

Benefit	Option 1	Option 2	Option 3	Option 4	Option DM
Safety & outcomes	1.6	-0.9	1.6	1.7	-0.6
Patient experience	1.6	-1.4	0.7	1.6	-1.1
Workforce satisfaction	2.0	-1.1	0.6	1.3	-1.0
Future flexibility	1.6	-1.7	0.9	2.1	0.1
All	1.7	-1.3	0.9	1.7	-0.6

List of scoring attendees for the Stakeholder Panel

A number of the patient representatives requested that their identity remain confidential for this exercise.

Name	Organisation/Title	Stakeholder Type	Panel Role
Meg Carter	Healthwatch	Other Organisation	Scoring panel member
Fiona McMillan-Shields	Hertfordshire Partnership Foundation Trust	Other Organisation	Scoring panel member
Confidential	Patient representative (St Albans)	Patient representative	Scoring panel member
Rami Eliad	GP, Herts Valleys	Clinical	Scoring panel member
Debbie Foster	Director Ops, WHHT	Trust other	Scoring panel member
Karen Walker	Head of Nursing – children’s, WHHT	Clinical	Scoring panel member
Mike van der Waatt	Medical Director, WHHT	Clinical	Scoring panel member
Confidential	Patient representative (Dacorum)	Patient representative	Scoring panel member
Carole Whittle	Carers in Hertfordshire	Other Organisation	Scoring panel member
Anna Wood	Deputy Medical Director, WHHT	Clinical	Scoring panel member
Confidential	Patient representative (Watford)	Patient representative	Scoring panel member
Anthony Divers	Divisional Director Clinical Support Services, WHHT	Clinical	Scoring panel member
Paddy Hennessy	Director Environment, WHHT	Trust other	Scoring panel member
Miranda Sutters	Herts County Council & Herts Valleys CCG - Public Health Consultant	Other Organisation	Scoring panel member
Clare Molloy	Deputy Director Nursing, WHHT	Clinical	Scoring panel member
Stephanie Johnson	Divisional Manager Surgery, WHHT	Trust other	Scoring panel member
Colette Mannion	Head of Midwifery, WHHT	Clinical	Scoring panel member
Arla Ogilvie	Divisional Director Medicine, WHHT	Clinical	Scoring panel member
Confidential	Patient representative (Watford)	Patient representative	Scoring panel member
Mark O'Connor	Joint consultative committee, WHHT	Trust other	Scoring panel member
Zub Baq	Herts Valleys CCG Financial Planning	CCG Other	Scoring panel member
Daryl Knight	Hertfordshire County Council	Other Organisation	Scoring panel member
Harper Brown	STP - Director Strategy	Other Organisation	Scoring panel member
Freddie Banks	Associate Medical Director, WHHT	Clinical	Scoring panel member
Ian Armitage	CCG - Programme Director Urgent Care	CCG other	Scoring panel member
Neil Hudson	EEAST - Business Support Manager	Other Organisation	Scoring panel member

Name	Organisation/Title	Stakeholder Type	Panel Role
Confidential	Patient representative (St Albans)	Patient representative	Scoring panel member
Confidential	Patient representative (Hertsmere)	Patient representative	Scoring panel member
Confidential	Patient representative (Dacorum)	Patient representative	Scoring panel member
David Thorpe	Deputy Chief Nurse	Clinical	Scoring panel member

Appendix D: Financial Outputs

The following tables show:

Table 81 to Table 85 = Economic Appraisal construction for each option

Table 86 to Table 91 = Financial Appraisal for each of the shortlisted options.

NB in Economic Analysis 18/19 labelled as Y1 to reflect current prices used in capital costings whereas in Financial Analysis 19/20 is labelled as Y1 which is first year of forecasting.

Table 81: Economic Appraisal – Do Minimum

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	...	27	28	
	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33	33/34	34/35	35/36	36/37	37/38	...	44/45	45/46	
1.1 Land values																								
All sites disposal																								
All sites (purchase)																								
1.1.1 Residual values for GEM																								
Residual value																								16.7
1.2. Capital expenditure, excl VAT at Current Prices																								
Do Min backlog & LLC costs (to capital)								0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	...	0.0	0.0	
Equipment lifecycle								(0.5)	(0.5)	(0.5)	(0.5)	(0.5)	(0.5)	(0.5)	(0.5)	(0.5)	(0.5)	(0.5)	(0.5)	(0.5)	...	(0.5)	(0.5)	
Total Option-specific PDC-funded Capex		(0.7)	(1.0)	(1.8)	(20.6)	(31.8)	(21.4)	(0.7)																
1.3. Income and Expenditure at Current Prices																								
Total Option Specific Revenue - Current Prices								0.3	0.6	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	...	0.9	0.9	
Total Option Specific Non Pay - Current Prices								0.8	2.2	3.6	4.2	4.8	5.3	5.9	6.4	7.0	7.5	8.1	8.7	9.2	...	9.2	9.2	
1.4. Interest and PDC cost																								
Option-specific interest cost																								
Cashflow	0.0	(0.7)	(1.0)	(1.8)	(20.6)	(31.8)	(21.4)	(0.1)	2.2	4.0	4.5	5.1	5.7	6.2	6.8	7.4	7.9	8.5	9.0	9.6		9.6	26.3	
Discount Factor	1.000	0.966	0.934	0.902	0.871	0.842	0.814	0.786	0.759	0.734	0.709	0.685	0.662	0.639	0.618	0.597	0.577	0.557	0.538	0.520		0.409	0.395	
Discounted Cashflow	0.0	-0.7	-1.0	-1.7	-17.9	-26.8	-17.4	-0.1	1.7	2.9	3.2	3.5	3.8	4.0	4.2	4.4	4.6	4.7	4.9	5.0		3.9	10.4	

Table 82: Economic Appraisal – Option 1

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	...	37	38
	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33	33/34	34/35	35/36	36/37	37/38	...	54/55	55/56
1.1 Land values																							
All sites disposal							10.0	5.0															(15.0)
All sites (purchase)																							0.0
1.1.1 Residual values for GEM																							
Residual value																							107.6
1.2. Capital expenditure, excl VAT at Current Pric																							
Do Min backlog & LLC costs (to capital)								2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	...	2.5	2.5
Equipment lifecycle								(3.0)	(3.0)	(3.0)	(3.0)	(3.0)	(3.0)	(3.0)	(3.0)	(3.0)	(3.0)	(3.0)	(3.0)	(3.0)	...	(3.0)	(3.0)
Total Option-specific PDC-funded Capex		(2.5)	(3.6)	(6.4)	(71.2)	(119.5)	(89.5)	(3.8)															
1.3. Income and Expenditure at Current Prices																							
Total Option Specific Revenue - Current Prices								1.3	2.6	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	...	3.9	3.9
Total Option Specific Non Pay - Current Prices								5.7	10.9	16.1	17.0	17.8	18.7	19.2	19.8	20.3	20.9	21.4	22.0	22.6	...	22.6	22.6
1.4. Interest and PDC cost																							
Option-specific interest cost																							
Cashflow	0.0	(2.5)	(3.6)	(6.4)	(71.2)	(119.5)	(79.5)	7.7	13.1	19.6	20.4	21.3	22.1	22.7	23.2	23.8	24.3	24.9	25.5	26.0		26.0	118.7
Discount Factor	1.000	0.966	0.934	0.902	0.871	0.842	0.814	0.786	0.759	0.734	0.709	0.685	0.662	0.639	0.618	0.597	0.577	0.557	0.538	0.520		0.298	0.290
Discounted Cashflow	0.0	-2.5	-3.4	-5.7	-62.1	-100.6	-64.6	6.1	9.9	14.4	14.5	14.6	14.6	14.5	14.4	14.2	14.0	13.9	13.7	13.5		7.8	34.4

Table 83: Economic Appraisal – Option 2

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	...	37	38	
	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33	33/34	34/35	35/36	36/37	37/38	...	54/55	55/56	
1.1 Land values																								
All sites disposal								15.0	5.0														(20.0)	
All sites (purchase)																								0.0
1.1.1 Residual values for GEM																								
Residual value																								121.6
1.2. Capital expenditure, excl VAT at Current Pric																								
Do Min backlog & LLC costs (to capital)								2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	...	2.8	2.8	
Equipment lifecycle								(3.0)	(3.0)	(3.0)	(3.0)	(3.0)	(3.0)	(3.0)	(3.0)	(3.0)	(3.0)	(3.0)	(3.0)	(3.0)	(3.0)	...	(3.0)	(3.0)
Total Option-specific PDC-funded Capex		(2.5)	(3.5)	(6.0)	(60.5)	(134.2)	(86.2)	(3.6)																
1.3. Income and Expenditure at Current Prices																								
Total Option Specific Revenue - Current Prices								1.3	2.6	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	...	3.9	3.9	
Total Option Specific Non Pay - Current Prices								6.1	11.3	16.5	17.3	18.2	19.0	19.6	20.1	20.7	21.2	21.8	22.4	22.9	...	22.9	22.9	
1.4. Interest and PDC cost																								
Option-specific interest cost																								
Cashflow	0.0	(2.5)	(3.5)	(6.0)	(60.5)	(134.2)	(71.2)	8.6	13.7	20.2	21.0	21.9	22.7	23.3	23.8	24.4	25.0	25.5	26.1	26.7			26.7	128.3
Discount Factor	1.000	0.966	0.934	0.902	0.871	0.842	0.814	0.786	0.759	0.734	0.709	0.685	0.662	0.639	0.618	0.597	0.577	0.557	0.538	0.520			0.298	0.290
Discounted Cashflow	0.0	-2.4	-3.2	-5.4	-52.7	-113.0	-57.9	6.8	10.4	14.8	14.9	15.0	15.0	14.9	14.7	14.6	14.4	14.2	14.0	13.9			8.0	37.2

Table 84: Economic Appraisal – Option 3

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	...	37	38	
	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33	33/34	34/35	35/36	36/37	37/38	...	54/55	55/56	
1.1 Land values																								
All sites disposal								18.0	5.0														(23.0)	
All sites (purchase)																								0.0
1.1.1 Residual values for GEM																								
Residual value																								110.2
1.2. Capital expenditure, excl VAT at Current Pric																								
Do Min backlog & LLC costs (to capital)								3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	...	3.3	3.3	
Equipment lifecycle								(3.2)	(3.2)	(3.2)	(3.2)	(3.2)	(3.2)	(3.2)	(3.2)	(3.2)	(3.2)	(3.2)	(3.2)	(3.2)	...	(3.2)	(3.2)	
Total Option-specific PDC-funded Capex		(2.7)	(3.9)	(7.1)	(71.9)	(152.4)	(71.5)	(2.9)																
1.3. Income and Expenditure at Current Prices																								
Total Option Specific Revenue - Current Prices								1.3	2.6	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	...	3.9	3.9	
Total Option Specific Non Pay - Current Prices								7.2	12.3	17.6	18.4	19.3	20.1	20.6	21.2	21.8	22.3	22.9	23.4	24.0	...	24.0	24.0	
1.4. Interest and PDC cost																								
Option-specific interest cost																								
Cashflow	0.0	(2.7)	(3.9)	(7.1)	(71.9)	(152.4)	(53.5)	10.7	15.1	21.6	22.4	23.3	24.1	24.7	25.2	25.8	26.3	26.9	27.5	28.0		28.0	115.3	
Discount Factor	1.000	0.966	0.934	0.902	0.871	0.842	0.814	0.786	0.759	0.734	0.709	0.685	0.662	0.639	0.618	0.597	0.577	0.557	0.538	0.520		0.298	0.290	
Discounted Cashflow	0.0	-2.6	-3.6	-6.4	-62.7	-128.3	-43.5	8.4	11.4	15.8	15.9	15.9	16.0	15.8	15.6	15.4	15.2	15.0	14.8	14.6		8.4	33.4	

Table 85: Economic Appraisal – Option 4

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	...	37	38	
	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33	33/34	34/35	35/36	36/37	37/38	...	54/55	55/56	
1.1 Land values																								
All sites disposal								5.0	33.0														(38.0)	
All sites (purchase)						(20.0)																	20.0	
1.1.1 Residual values for GEM																								
Residual value																								151.7
1.2. Capital expenditure, excl VAT at Current Pric																								
Do Min backlog & LLC costs (to capital)								3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	...	3.5	3.5	
Equipment lifecycle								(2.6)	(2.8)	(2.8)	(2.8)	(2.8)	(2.8)	(2.8)	(2.8)	(2.8)	(2.8)	(2.8)	(2.8)	(2.8)	(2.8)	...	(2.8)	(2.8)
Total Option-specific PDC-funded Capex		(2.3)	(3.0)	(4.7)	(33.3)	(70.1)	(99.7)	(92.3)	(2.1)															
1.3. Income and Expenditure at Current Prices																								
Total Option Specific Revenue - Current Prices								1.3	2.6	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	...	3.9	3.9	
Total Option Specific Non Pay - Current Prices								7.2	11.8	16.6	17.4	18.3	19.1	19.6	20.2	20.8	21.3	21.9	22.4	23.0	...	23.0	23.0	
1.4. Interest and PDC cost																								
Option-specific interest cost																								
Cashflow	0.0	(2.3)	(3.0)	(4.7)	(33.3)	(90.1)	(99.7)	(77.9)	46.1	21.2	22.0	22.8	23.7	24.2	24.8	25.4	25.9	26.5	27.0	27.6			27.6	161.3
Discount Factor	1.000	0.966	0.934	0.902	0.871	0.842	0.814	0.786	0.759	0.734	0.709	0.685	0.662	0.639	0.618	0.597	0.577	0.557	0.538	0.520			0.298	0.290
Discounted Cashflow	0.0	-2.2	-2.8	-4.2	-29.0	-75.8	-81.1	-61.2	35.0	15.5	15.6	15.6	15.7	15.5	15.3	15.1	14.9	14.8	14.6	14.4			8.2	46.7

Table 86: Trust financial position - Business As Usual baseline

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33	33/34	34/35	35/36	36/37	37/38	38/39
2.1 Land values, (opening) / closing and/or (purchases) / receipts																				
All sites disposal																				
All sites (purchase)																				
2.2. Capital expenditure, including Optimism Bias, incl VAT and inflation																				
Total Internally Funded Capex with inflation	(17.5)	(11.5)	(9.0)	(9.2)	(9.4)	(9.6)	(9.9)	(10.1)	(10.4)	(10.6)	(10.9)	(11.2)	(11.5)	(11.8)	(12.0)	(12.3)	(12.7)	(13.0)	(13.3)	(13.6)
Total Option-specific PDC-funded Capex with inflation																				
TOTAL capex all sources with inflation	(17.5)	(11.5)	(9.0)	(9.2)	(9.4)	(9.6)	(9.9)	(10.1)	(10.4)	(10.6)	(10.9)	(11.2)	(11.5)	(11.8)	(12.0)	(12.3)	(12.7)	(13.0)	(13.3)	(13.6)
2.3 Income and Expenditure Forecast with inflation																				
TOTAL REVENUE with inflation	336.4	345.1	353.8	363.0	372.1	381.0	389.9	398.3	407.0	416.1	425.5	435.0	444.8	454.9	465.1	475.7	486.4	497.5	508.8	517.7
TOTAL EXPENSES with inflation	(364.4)	(364.1)	(362.9)	(361.5)	(371.9)	(382.6)	(391.9)	(402.3)	(413.1)	(423.1)	(433.2)	(443.6)	(454.2)	(465.1)	(476.3)	(487.7)	(499.5)	(511.5)	(523.9)	(533.4)
Surplus/(Deficit) from operations	(28.0)	(19.0)	(9.1)	1.6	0.3	(1.6)	(2.0)	(4.0)	(6.0)	(7.0)	(7.7)	(8.6)	(9.4)	(10.3)	(11.2)	(12.1)	(13.0)	(14.0)	(15.1)	(15.7)
2.4 Income and Expenditure Reserve																				
Total Depreciation & Amortisation	(8.0)	(8.0)	(8.0)	(8.0)	(8.0)	(8.0)	(8.0)	(8.0)	(8.0)	(8.0)	(8.0)	(8.0)	(8.0)	(8.0)	(8.0)	(8.0)	(8.0)	(8.0)	(8.0)	(8.0)
Total interest payable on Loans and leases	(2.3)	(2.3)	(2.3)	(2.3)	(2.2)	(2.2)	(2.2)	(2.1)	(2.1)	(2.1)	(2.1)	(2.1)	(2.1)	(2.1)	(2.1)	(2.1)	(2.1)	(2.1)	(2.1)	(2.1)
PDC Dividend																				
Net Surplus/(Deficit)	(38.4)	(29.3)	(19.4)	(8.7)	(10.0)	(11.8)	(12.2)	(14.2)	(16.2)	(17.1)	(17.8)	(18.6)	(19.5)	(20.3)	(21.2)	(22.2)	(23.1)	(24.1)	(25.1)	(25.8)

Table 87: WHHT financial position - Do Minimum

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33	33/34	34/35	35/36	36/37	37/38	38/39
2.1 (Purchases) / receipts on disposal with inflation																				
All sites disposal																				
All sites (purchase)																				
2.2. Capital expenditure, including Optimism Bias, incl VAT and inflation																				
Total Internally Funded Capex - incl VAT with inflation	(17.5)	(11.5)	(9.0)	(9.2)	(9.4)	(9.6)	(10.6)	(10.9)	(11.1)	(11.4)	(11.7)	(12.0)	(12.3)	(12.6)	(12.9)	(13.2)	(13.6)	(13.9)	(14.2)	(14.6)
Total Option-specific PDC-funded Capex incl VAT with inflation	(1.0)	(1.4)	(2.5)	(28.3)	(43.8)	(29.5)	(0.9)													
TOTAL capex all sources incl VAT with inflation	(18.5)	(12.9)	(11.5)	(37.5)	(53.2)	(39.1)	(11.5)	(10.9)	(11.1)	(11.4)	(11.7)	(12.0)	(12.3)	(12.6)	(12.9)	(13.2)	(13.6)	(13.9)	(14.2)	(14.6)
2.3 Income and Expenditure Forecast with inflation																				
TOTAL REVENUE with inflation	336.4	345.1	353.8	363.0	372.1	381.0	390.2	398.9	408.0	417.2	426.5	436.1	445.9	455.9	466.2	476.8	487.6	498.6	510.0	518.9
TOTAL EXPENSES incl VAT with inflation	(364.4)	(364.1)	(362.9)	(361.5)	(371.9)	(382.6)	(391.1)	(399.7)	(408.6)	(417.9)	(427.1)	(436.7)	(446.5)	(456.5)	(466.7)	(477.2)	(488.0)	(499.0)	(510.3)	(519.5)
Surplus/(Deficit) from operations	(28.0)	(19.0)	(9.1)	1.6	0.3	(1.6)	(0.9)	(0.8)	(0.6)	(0.7)	(0.6)	(0.6)	(0.6)	(0.5)	(0.5)	(0.5)	(0.4)	(0.4)	(0.3)	(0.7)
2.4 Income and Expenditure Reserve																				
Residual Depreciation & Amortisation	(8.0)	(8.0)	(8.0)	(8.0)	(8.0)	(8.0)	(4.7)	(4.7)	(4.7)	(4.7)	(4.7)	(4.7)	(4.7)	(4.7)	(4.7)	(4.7)	(4.7)	(4.7)	(4.7)	(4.7)
Option-specific depreciation							(2.5)	(2.5)	(2.5)	(2.5)	(2.5)	(2.5)	(2.5)	(2.5)	(2.5)	(2.5)	(2.5)	(2.5)	(2.5)	(2.5)
Total interest payable on Loans and leases	(2.3)	(2.3)	(2.3)	(2.3)	(2.2)	(2.2)	(2.2)	(2.1)	(2.1)	(2.1)	(2.1)	(2.1)	(2.1)	(2.1)	(2.1)	(2.1)	(2.1)	(2.1)	(2.1)	(2.1)
PDC Dividend	(0.0)	(0.1)	(0.1)	(0.7)	(1.9)	(3.2)	(3.4)	(3.0)	(3.0)	(3.0)	(3.0)	(3.0)	(3.0)	(3.0)	(3.0)	(3.0)	(3.0)	(3.0)	(3.0)	(3.0)
Net Surplus/(Deficit)	(38.4)	(29.4)	(19.6)	(9.4)	(11.9)	(15.0)	(13.6)	(13.2)	(12.9)	(13.0)	(12.9)	(12.9)	(12.8)	(12.8)	(12.8)	(12.7)	(12.7)	(12.6)	(12.6)	(12.9)

Table 88: WHHT financial position - Option 1

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33	33/34	34/35	35/36	36/37	37/38	38/39
2.1 (Purchases) / receipts on disposal with inflation																				
All sites disposal						11.6	5.9													
All sites (purchase)																				
2.2. Capital expenditure, including Optimism Bias, incl VAT and inflation																				
Total Internally Funded Capex - incl VAT with inflation	(17.5)	(11.5)	(9.0)	(9.2)	(9.4)	(9.6)	(11.0)	(11.3)	(11.6)	(11.8)	(12.1)	(12.4)	(12.7)	(13.0)	(13.3)	(13.6)	(14.0)	(14.3)	(14.6)	(15.0)
Total Option-specific PDC-funded Capex incl VAT with inflation	(3.5)	(4.9)	(8.7)	(97.8)	(164.7)	(123.4)	(5.3)													
TOTAL capex all sources incl VAT with inflation	(21.0)	(16.4)	(17.7)	(107.0)	(174.1)	(133.0)	(16.3)	(11.3)	(11.6)	(11.8)	(12.1)	(12.4)	(12.7)	(13.0)	(13.3)	(13.6)	(14.0)	(14.3)	(14.6)	(15.0)
2.3 Income and Expenditure Forecast with inflation																				
TOTAL REVENUE with inflation	336.4	345.1	353.8	363.0	372.1	381.0	391.3	401.2	411.6	420.8	430.2	439.8	449.7	459.8	470.2	480.8	491.7	502.8	514.2	523.2
TOTAL EXPENSES incl VAT with inflation	(364.4)	(364.1)	(362.9)	(361.5)	(371.9)	(382.6)	(385.0)	(388.7)	(392.4)	(400.8)	(409.3)	(417.9)	(427.1)	(436.6)	(446.3)	(456.2)	(466.3)	(476.7)	(487.4)	(495.9)
Surplus/(Deficit) from operations	(28.0)	(19.0)	(9.1)	1.6	0.3	(1.6)	6.3	12.5	19.2	19.9	20.9	21.9	22.6	23.2	23.9	24.6	25.3	26.1	26.9	27.3
2.4 Income and Expenditure Reserve																				
Residual Depreciation & Amortisation	(8.0)	(8.0)	(8.0)	(8.0)	(8.0)	(8.0)	(4.1)	(4.1)	(4.1)	(4.1)	(4.1)	(4.1)	(4.1)	(4.1)	(4.1)	(4.1)	(4.1)	(4.1)	(4.1)	(4.1)
Option-specific depreciation							(9.0)	(9.0)	(9.0)	(9.0)	(9.0)	(9.0)	(9.0)	(9.0)	(9.0)	(9.0)	(9.0)	(9.0)	(9.0)	(9.0)
Total interest payable on Loans and leases	(2.3)	(2.3)	(2.3)	(2.3)	(2.2)	(2.2)	(2.2)	(2.1)	(2.1)	(2.1)	(2.1)	(2.1)	(2.1)	(2.1)	(2.1)	(2.1)	(2.1)	(2.1)	(2.1)	(2.1)
PDC Dividend	(0.1)	(0.2)	(0.4)	(2.3)	(6.9)	(11.7)	(12.3)	(10.8)	(10.8)	(10.8)	(10.8)	(10.8)	(10.8)	(10.8)	(10.8)	(10.8)	(10.8)	(10.8)	(10.8)	(10.8)
Net Surplus/(Deficit)	(38.4)	(29.5)	(19.9)	(11.0)	(16.9)	(23.5)	(21.2)	(13.5)	(6.8)	(6.1)	(5.1)	(4.0)	(3.4)	(2.7)	(2.0)	(1.3)	(0.6)	0.1	0.9	1.3

Table 89: WHHT financial position - Option 2

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33	33/34	34/35	35/36	36/37	37/38	38/39
2.1 (Purchases) / receipts on disposal with inflation																				
All sites disposal						17.4	5.9													
All sites (purchase)																				
2.2. Capital expenditure, including Optimism Bias, incl VAT and inflation																				
Total Internally Funded Capex - incl VAT with inflation	(17.5)	(11.5)	(9.0)	(9.2)	(9.4)	(9.6)	(10.7)	(11.0)	(11.2)	(11.5)	(11.8)	(12.1)	(12.3)	(12.6)	(12.9)	(13.2)	(13.6)	(13.9)	(14.2)	(14.5)
Total Option-specific PDC-funded Capex incl VAT with inflation	(3.4)	(4.8)	(8.2)	(83.3)	(184.9)	(118.9)	(5.0)													
TOTAL capex all sources incl VAT with inflation	(20.9)	(16.3)	(17.2)	(92.5)	(194.3)	(128.5)	(15.7)	(11.0)	(11.2)	(11.5)	(11.8)	(12.1)	(12.3)	(12.6)	(12.9)	(13.2)	(13.6)	(13.9)	(14.2)	(14.5)
2.3 Income and Expenditure Forecast with inflation																				
TOTAL REVENUE with inflation	336.4	345.1	353.8	363.0	372.1	381.0	391.3	401.2	411.6	420.8	430.2	439.8	449.7	459.8	470.2	480.8	491.7	502.8	514.2	523.2
TOTAL EXPENSES incl VAT with inflation	(364.4)	(364.1)	(362.9)	(361.5)	(371.9)	(382.6)	(384.5)	(388.2)	(391.9)	(400.3)	(408.8)	(417.4)	(426.6)	(436.0)	(445.7)	(455.6)	(465.7)	(476.1)	(486.7)	(495.3)
Surplus/(Deficit) from operations	(28.0)	(19.0)	(9.1)	1.6	0.3	(1.6)	6.8	13.0	19.6	20.4	21.4	22.5	23.1	23.8	24.5	25.2	25.9	26.7	27.5	27.9
2.4 Income and Expenditure Reserve																				
Residual Depreciation & Amortisation	(8.0)	(8.0)	(8.0)	(8.0)	(8.0)	(8.0)	(3.2)	(3.2)	(3.2)	(3.2)	(3.2)	(3.2)	(3.2)	(3.2)	(3.2)	(3.2)	(3.2)	(3.2)	(3.2)	(3.2)
Option-specific depreciation							(8.7)	(8.7)	(8.7)	(8.7)	(8.7)	(8.7)	(8.7)	(8.7)	(8.7)	(8.7)	(8.7)	(8.7)	(8.7)	(8.7)
Total interest payable on Loans and leases	(2.3)	(2.3)	(2.3)	(2.3)	(2.2)	(2.2)	(2.2)	(2.1)	(2.1)	(2.1)	(2.1)	(2.1)	(2.1)	(2.1)	(2.1)	(2.1)	(2.1)	(2.1)	(2.1)	(2.1)
PDC Dividend	(0.1)	(0.2)	(0.4)	(2.0)	(6.7)	(11.7)	(12.1)	(10.6)	(10.6)	(10.6)	(10.6)	(10.6)	(10.6)	(10.6)	(10.6)	(10.6)	(10.6)	(10.6)	(10.6)	(10.6)
Net Surplus/(Deficit)	(38.4)	(29.5)	(19.9)	(10.8)	(16.7)	(23.5)	(19.3)	(11.6)	(4.9)	(4.1)	(3.1)	(2.1)	(1.4)	(0.7)	(0.0)	0.7	1.4	2.2	3.0	3.4

Table 90: WHHT financial position - Option 3

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33	33/34	34/35	35/36	36/37	37/38	38/39
2.1 (Purchases) / receipts on disposal with inflation																				
All sites disposal						20.9	5.9													
All sites (purchase)																				
2.2. Capital expenditure, including Optimism Bias, incl VAT and inflation																				
Total Internally Funded Capex - incl VAT with inflation	(17.5)	(11.5)	(9.0)	(9.2)	(9.4)	(9.6)	(10.4)	(10.6)	(10.9)	(11.1)	(11.4)	(11.7)	(12.0)	(12.2)	(12.5)	(12.8)	(13.1)	(13.4)	(13.7)	(14.0)
Total Option-specific PDC-funded Capex incl VAT with inflation	(3.7)	(5.3)	(9.7)	(98.9)	(209.6)	(98.6)	(3.9)													
TOTAL capex all sources incl VAT with inflation	(21.3)	(16.8)	(18.7)	(108.1)	(219.0)	(108.3)	(14.3)	(10.6)	(10.9)	(11.1)	(11.4)	(11.7)	(12.0)	(12.2)	(12.5)	(12.8)	(13.1)	(13.4)	(13.7)	(14.0)
2.3 Income and Expenditure Forecast with inflation																				
TOTAL REVENUE with inflation	336.4	345.1	353.8	363.0	372.1	381.0	391.3	401.2	411.6	420.8	430.2	439.8	449.7	459.8	470.2	480.8	491.7	502.8	514.2	523.2
TOTAL EXPENSES incl VAT with inflation	(364.4)	(364.1)	(362.9)	(361.5)	(371.9)	(382.6)	(383.2)	(386.9)	(390.6)	(398.9)	(407.3)	(415.9)	(425.0)	(434.4)	(444.1)	(453.9)	(464.0)	(474.3)	(484.9)	(493.4)
Surplus/(Deficit) from operations	(28.0)	(19.0)	(9.1)	1.6	0.3	(1.6)	8.1	14.3	21.0	21.8	22.9	24.0	24.7	25.4	26.1	26.9	27.7	28.5	29.3	29.8
2.4 Income and Expenditure Reserve																				
Residual Depreciation & Amortisation	(8.0)	(8.0)	(8.0)	(8.0)	(8.0)	(8.0)	(3.6)	(3.6)	(3.6)	(3.6)	(3.6)	(3.6)	(3.6)	(3.6)	(3.6)	(3.6)	(3.6)	(3.6)	(3.6)	(3.6)
Option-specific depreciation							(9.6)	(9.6)	(9.6)	(9.6)	(9.6)	(9.6)	(9.6)	(9.6)	(9.6)	(9.6)	(9.6)	(9.6)	(9.6)	(9.6)
Total interest payable on Loans and leases	(2.3)	(2.3)	(2.3)	(2.3)	(2.2)	(2.2)	(2.2)	(2.1)	(2.1)	(2.1)	(2.1)	(2.1)	(2.1)	(2.1)	(2.1)	(2.1)	(2.1)	(2.1)	(2.1)	(2.1)
PDC Dividend	(0.1)	(0.2)	(0.5)	(2.4)	(7.8)	(12.8)	(12.6)	(11.1)	(11.1)	(11.1)	(11.1)	(11.1)	(11.1)	(11.1)	(11.1)	(11.1)	(11.1)	(11.1)	(11.1)	(11.1)
Net Surplus/(Deficit)	(38.4)	(29.5)	(19.9)	(11.1)	(17.8)	(24.6)	(19.9)	(12.1)	(5.4)	(4.5)	(3.5)	(2.4)	(1.7)	(1.0)	(0.2)	0.5	1.3	2.1	3.0	3.5

Table 91: WHHT financial position - Option 4

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33	33/34	34/35	35/36	36/37	37/38	38/39
2.1 (Purchases) / receipts on disposal with inflation																				
All sites disposal								5.9	40.2											
All sites (purchase)					(22.6)															
2.2. Capital expenditure, including Optimism Bias, incl VAT and inflation																				
Total Internally Funded Capex - incl VAT with inflation	(17.5)	(11.5)	(9.0)	(9.2)	(9.4)	(9.6)	(9.3)	(9.8)	(10.1)	(10.3)	(10.5)	(10.8)	(11.0)	(11.3)	(11.6)	(11.8)	(12.1)	(12.4)	(12.7)	(12.9)
Total Option-specific PDC-funded Capex incl VAT with inflation	(3.2)	(4.2)	(6.6)	(46.2)	(97.0)	(141.0)	(134.2)	(3.0)												
TOTAL capex all sources incl VAT with inflation	(20.7)	(15.7)	(15.6)	(55.4)	(106.4)	(150.6)	(143.5)	(12.9)	(10.1)	(10.3)	(10.5)	(10.8)	(11.0)	(11.3)	(11.6)	(11.8)	(12.1)	(12.4)	(12.7)	(12.9)
2.3 Income and Expenditure Forecast with inflation																				
TOTAL REVENUE with inflation	336.4	345.1	353.8	363.0	372.1	381.0	391.3	401.2	411.6	420.8	430.2	439.8	449.7	459.8	470.2	480.8	491.7	502.8	514.2	523.2
TOTAL EXPENSES incl VAT with inflation	(364.4)	(364.1)	(362.9)	(361.5)	(371.9)	(382.6)	(383.2)	(387.5)	(391.9)	(400.3)	(408.7)	(417.3)	(426.5)	(435.9)	(445.6)	(455.5)	(465.6)	(476.0)	(486.6)	(495.1)
Surplus/(Deficit) from operations	(28.0)	(19.0)	(9.1)	1.6	0.3	(1.6)	8.1	13.7	19.7	20.5	21.5	22.6	23.2	23.9	24.6	25.3	26.1	26.8	27.6	28.0
2.4 Income and Expenditure Reserve																				
Residual Depreciation & Amortisation	(8.0)	(8.0)	(8.0)	(8.0)	(8.0)	(8.0)	(8.0)	(2.7)	(2.7)	(2.7)	(2.7)	(2.7)	(2.7)	(2.7)	(2.7)	(2.7)	(2.7)	(2.7)	(2.7)	(2.7)
Option-specific depreciation								(8.6)	(8.6)	(8.6)	(8.6)	(8.6)	(8.6)	(8.6)	(8.6)	(8.6)	(8.6)	(8.6)	(8.6)	(8.6)
Total interest payable on Loans and leases	(2.3)	(2.3)	(2.3)	(2.3)	(2.2)	(2.2)	(2.2)	(2.1)	(2.1)	(2.1)	(2.1)	(2.1)	(2.1)	(2.1)	(2.1)	(2.1)	(2.1)	(2.1)	(2.1)	(2.1)
PDC Dividend	(0.1)	(0.2)	(0.4)	(1.3)	(4.2)	(8.8)	(13.5)	(13.5)	(11.4)	(11.4)	(11.4)	(11.4)	(11.4)	(11.4)	(11.4)	(11.4)	(11.4)	(11.4)	(11.4)	(11.4)
Net Surplus/(Deficit)	(38.4)	(29.5)	(19.8)	(10.0)	(14.2)	(20.5)	(15.5)	(13.2)	(5.0)	(4.2)	(3.2)	(2.1)	(1.5)	(0.8)	(0.1)	0.6	1.4	2.1	2.9	3.4

Appendix E: Summary Risk Register

Key area of risk	Likelihood	Impact	Risk Management
Changes in demand Greater than projection Less than projection	Medium Medium	Medium Medium	Activity and population growth forecasts will be reviewed with STP following publication of this SOC. At OBC stage, activity forecasts reflect latest STP plans
Financial viability Failure to achieve planned revenue cost savings	Medium	Medium	The Trust will continue to seek further opportunities to reduce costs throughout the business case process and extend capability to generate third party income.
Approval process Failure to obtain: <ul style="list-style-type: none"> • Public support • Staff support • HVCCG support • STP support • SOC approval • Bidders • Preferred partner • Financial close 	Medium Low Low Low Medium Medium Medium Medium	Medium High High High High Medium Medium Medium	A programme of staff, public and stakeholder engagement is under way and will continue throughout the business case process. If a SOC is not approved, the Trust will revert to a “do minimum” scenario of addressing pressing compliance issues and developing plans for small-scale improvements to services.
Construction Adverse site conditions	Medium	Medium	All planned work is on existing WHHT sites so the Trust know what is there already. The Trust have been working with the Riverwell development at Watford to improve external connectivity to road network and major utilities. Outline phasing plans have been developed for the sites to ensure minimum disruption to operational activity. WHHT is engaging with major infrastructure contractors to understand the deliverability challenges.
Clinical model Failure to implement	Low	High	There is wide clinical support for the model. The Trust will ensure that ongoing development and dialogue takes place and that appropriate resources are in place to support transformation activities
Planning Failure to get approval	Low	High	Ongoing dialogue with the planning authorities and access to expert planning advice.
Operational The redeveloped hospitals do not perform as well as planned	Low	Medium	The Trust will develop a transitional plan for moving to the working practices and performance required in the redeveloped hospitals. The significant investment in new buildings will minimise disruption for services during construction as new buildings will be built and then services moved into the new buildings. Design flexibility will allow modification of

Key area of risk	Likelihood	Impact	Risk Management
			care processes.
Patient Patients are adversely impacted (e.g. patient experience, safety and outcomes of care) during transition and implementation of the proposed service model	Low	High	The Trust will develop a transitional plan for changing any patient pathways as a result of building work and service reconfiguration
Business Continuity The costs of keeping the building assets in good condition vary from Budget	Medium	High	The latest Six Facet Survey conducted in September 2018 provided an accurate and up to date summary of the costs required to keep WHHT buildings in good condition. This has been factored into the economic appraisal and financial analysis and will continue to be tracked as the programme proceeds.
Digital Transformation Failure to optimise changes in technology result in services being provided using sub-optimal technical solutions	Low	Medium	A separate business case is being developed by WHHT to outline the investment in digital technologies required to support the redevelopment of WHHT's hospitals.
Funding The availability of funding leads to delays and reductions in scope as a result of reduced investment	Medium	High	Maintain constant dialogue with national regulators about the availability of funding
Economic Project outcomes are sensitive to economic influences e.g. where actual inflation differs from assumed inflation rates	Medium	Medium	Sensible levels of Optimism Bias and contingency will continue to be tested as the project progresses through the business case process
Land sale The land sale receipts are greater or less than anticipated	Medium	Low	The Trust continually review land sale values and adjust costings and plans accordingly
Capital costs The estimated capital costs required for the redevelopment vary significantly from estimates outlined in the SOC	Low	Medium	Cost estimates and the assumptions underpinning these will continue to be revised as the Trust proceeds with the business case and more details around specific build requirements are developed.
Enabling works Delays to implementation of key enabling works, such as car park and pathology impact on redevelopment plans	Low	High	The Trust will continue to closely manage implementation of key enablers, ensuring they are delivered successfully prior to commencing redevelopment
Policy Changes in policy direction lead to unforeseen change	Low	High	Ongoing engagement with national regulators

Appendix F: Supporting Letters

Hertfordshire and West Essex
Sustainability and Transformation Partnership



Christine Allen
Chief Executive Officer
West Hertfordshire Hospitals NHS Trust
Watford General Hospital
Vicarage Road
Watford
Herts WD18 0HB

Hertfordshire & west Essex STP
James Taylor House
St Albans Road East
Hatfield
Hertfordshire AL10 0HE

22nd July 2019

Dear Christine

West Hertfordshire Hospital Capital Bid

Further to the presentation and discussion at the STP CEO Board on 16th July, I am writing to confirm that, on the basis that the proposal developed so far is consistent with the STP's integrated health and care strategy, MTFP and estates strategy, the proposal was supported to proceed to the next stage of the national process.

It was also noted that the proposal was supported by the Herts Valleys Clinical Commissioning Group.

Thank you to both you and your team for the hard work in getting the proposal to this stage and we look forward to working with you as the proposal is progressed.

Yours sincerely

A handwritten signature in blue ink, appearing to read "B. Flowers".

Beverley Flowers
Joint STP Lead

A handwritten signature in black ink, appearing to read "I. MacBeath".

Iain MacBeath
Joint STP Lead

Cc: Kathryn Magson, AO, Herts Valley CCG
Caroline Hall, CFO, Herts Valley CCG
Don Richards, CFO, West Herts Hospitals
Helen Brown, Deputy CEO, West Herts Hospitals
Dean Westcott, FD, HWE STP

Appendix G: Final amendments to the SOC

Page	Amendment
2	Version 5 - date corrected to 2019, not 2017
2	Formatting of titles amended, so aligned to left of page - had misaligned in word version of document
2	Document sign-off dates added
11	Format to final sentence of capital costs paragraph changed to match rest of section.
31	Format change to heading sentence to match others in section.
40	Changed pagination to keep table all on one page
79	The revised preferred way forward set out in this SOC is an evolution of the proposals informed by previous engagement and the extensive public engagement undertaken in 2016 as part of the Your Care, Your Future programme. Corrected to say 'extensive engagement' - had previously referred to Your Care Your Future as a 'significant consultation'.
80	A further public consultation exercise was held as part of Your Care, Your Future in 2015/16. ' Changed to: 'A further extensive public engagement exercise.'
95	Formatting error changed
140	Letter of support from STP (that also states CCG support) added as Appendix F