



**West Hertfordshire
Teaching Hospitals**
NHS Trust

FUTURE OF HOSPITAL SERVICES IN WEST HERTFORDSHIRE

OBC ECONOMIC AND FINANCIAL CASE

DRAFT v0.7 04 May 2022

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Please note appendices are currently not available - they will be available with the full trust board papers

1 Economic Case

This section documents the wide range of options that have been considered in response to the potential scope identified within the strategic case, set out the long list and short list appraisals and confirms the 'preferred options' for emergency and planned care sites

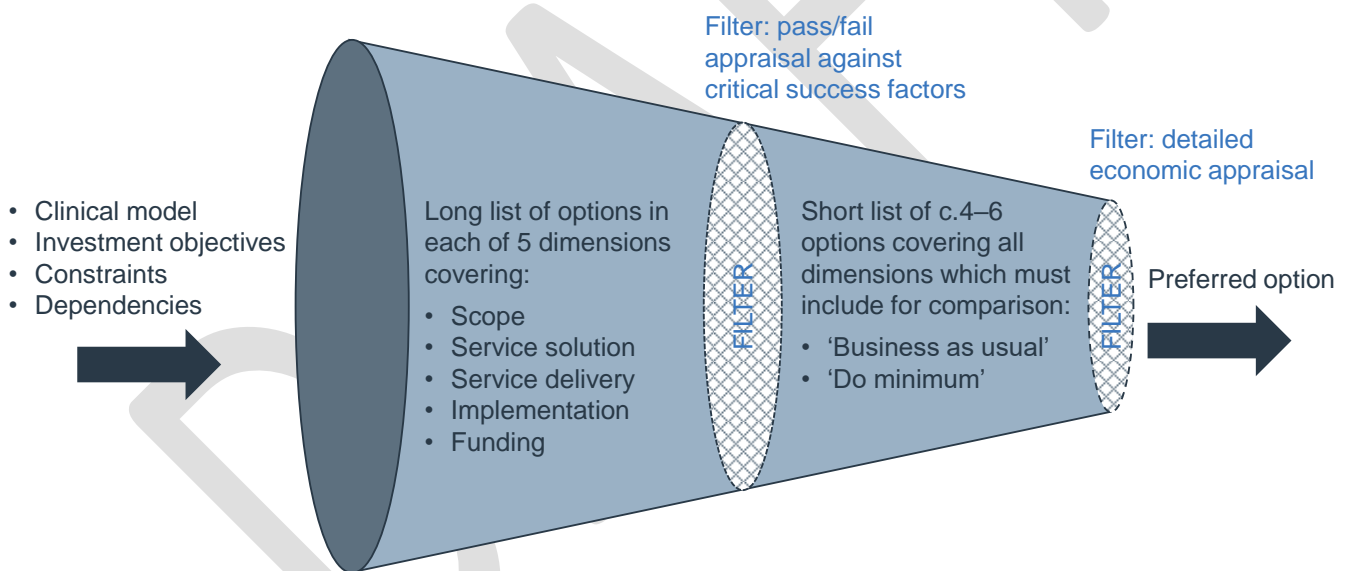
The analysis identifies:

- Option 6 is the preferred option for Emergency and Specialist Care
- The combination of Option 3 at SACH and Option 3 at HHH as the preferred options (when combined) for planned care.

1.1 Introduction

In the Five Case Model, the appraisal of options is undertaken in two stages. The long list is appraised against pass/fail critical success factors that represent a minimum acceptable threshold. A detailed economic appraisal of the short list is then undertaken, with non-economic factors considered alongside.

Figure 1: Summary of the HM Treasury appraisal process



As described in [strategic case section reference], the Trust has prioritised the redevelopment of emergency accommodation over planned care accommodation. The Trust has therefore taken the approach of appraising options for emergency care before considering planned care.

1.2 Long list appraisal: emergency care

This section is summary of the long list appraisal, undertaken in August 2020, which is set out in full detail in [Appendix X]

1.2.1 Critical success factors

Critical success factors (CSFs) are the attributes essential for successful delivery of the project, against which the initial assessment of the options for the delivery of the project will be appraised, alongside the investment objectives.

The CSFs for the project must be crucial, not merely desirable, and not set at a level that could exclude important options at an early stage of identification and appraisal.

Table 1: A starting point for identifying and agreeing the CSFs based on the Five Case Model

HM Treasury CSF category	Description – how well the option
Strategic fit and business needs	<ul style="list-style-type: none"> Meets the agreed investment objectives, related business needs and service requirements Provides holistic fit and synergy with other strategies, programmes and projects
Potential value for money	<ul style="list-style-type: none"> Optimises public value (social, economic and environmental), in terms of the potential costs, benefits and risks
Supplier capacity and capability	<ul style="list-style-type: none"> Matches the ability of potential suppliers to deliver the required services Is likely to be attractive to the supply side
Potential affordability	<ul style="list-style-type: none"> Can be funded from available sources of finance Aligns with sourcing constraints
Potential achievability	<ul style="list-style-type: none"> Is likely to be delivered given the organisation’s ability to respond to the changes required Matches the level of available skills required for successful delivery

The investment objectives (see [strategic case section reference](#)) were translated into pass/fail CSFs to appraise the long list in each domain of the options framework. Our investment objectives were developed by the Acute Reconfiguration Programme Team and were reviewed by the Stakeholder Reference Group. A number of changes were made in response to feedback received. The final critical success factors were approved by the Programme Board on 12 August 2020.

Table 2: Critical success factors as at August 2020

HM Treasury category	Critical success factor	Threshold
Strategic fit and business needs	1. Strategic alignment	<ul style="list-style-type: none"> The option must deliver the objectives and provide flexibility for the future
	2. Patient experience	<ul style="list-style-type: none"> The option must support an improvement in patient experience from current levels
	3. Quality	<ul style="list-style-type: none"> The option must support an improvement in service quality and safety from current levels
	4. Access	<ul style="list-style-type: none"> Services must be located to maintain or improve access for the local population
Potential value for money	5. Value for money	<ul style="list-style-type: none"> The option must have the potential to provide quantifiable benefits over the appraisal period (including both healthcare benefits and operational cost savings) that exceed the upfront capital investment
Potential affordability	6. Affordability	<ul style="list-style-type: none"> The option must have the potential to allow the Trust to return to a recurrent break-even position within three years of completion of the investment
Potential achievability	7. Deliverability	<ul style="list-style-type: none"> The site locations must have sufficient space to accommodate the requirements of the preferred model of care for the relevant site configuration option, provide flexibility for the future, and be capable of being delivered without undue disruption to clinical service delivery The option must be able to deliver significant improvements to emergency and specialist care facilities by 2025/26¹ and not be subject to significant planning or delivery risk

¹ Original objective date set by DHSC in its letter to the Trust in 2020.

1.2.2 Emergency care options framework

The options included in the long list were developed by the Acute Reconfiguration Programme Team in accordance with the requirements of HM Treasury's Green Book (central government guidance on appraisal and evaluation)². Options were generated using the Options Framework, which systematically works through the available choices for what, how, who, when and funding. The dimensions of the options framework are shown in Table 3.

Table 3: Summary of the options framework

Dimension	Description	
Service scope	The 'what', in terms of the potential coverage of the project	For our programme, we have defined this as the scope of acute services for which the facilities are required
Service solution	The 'how' in terms of delivering the 'preferred' scope for the project	For our programme, we have split this into two aspects: the site(s) from which the acute services will be provided; and the quality/lifetime of facilities to be provided for those services
Service delivery	The 'who' in terms of delivering the 'preferred' scope and service solution for the project	For our programme, we have defined this as the organisation(s) which will provide the required services (e.g. design, construction) required to achieve desired quality/lifetime of facilities and how they will be procured
Service implementation	The 'when' in terms of delivering the 'preferred' scope, solution and service delivery arrangements for the project	For our programme we have defined this as the implementation approach for the required works required to achieve desired quality/lifetime of facilities
Funding	The 'funding' required for delivering the 'preferred' scope, solution, service delivery and implementation path for the project	For our programme we have defined this as the source of capital investment necessary to undertake the required works

The Trust agreed the following options framework for emergency care – this summarises the long list of options in each dimension.

² [The Green Book](#), HM Treasury, 2020

Table 4: Options framework for emergency care

Category of choice (HMT guidance)	1. Service scope	2. Service solution		3. Service delivery	4. Service implementation	5. Funding
Definition (For WHHT acute redevelopment)	Coverage of the service to be delivered Scope of acute services for which the facilities are required	How this may be done (a) Site(s) from which the acute services will be provided	How this may be done (b) Quality/lifetime of facilities to be provided	Who is best placed to do this Organisation(s) to provide services (e.g. design / construction) required to achieve desired quality / lifetime of facilities	When and in what form can it be implemented Implementation approach	Source of capital
Emergency care options	Core emergency services only	Watford	Business as usual	WHHT	'Big bang' build <i>e.g. c.3-year construction period</i>	Public dividend funding
	Core emergency services and associated clinical dependencies and adjacencies (clinical)	St Albans	Resolve priority issues only, providing minimum 15yr lifetime across entire estate	Single private sector partner <i>e.g. procured through ProCure 2020 framework</i>		Phased build <i>e.g. c.10-year build programme</i>
		Hemel Hempstead	Provide fit for purpose facilities, providing minimum 30yr lifetime across the estate	Multiple private sector providers <i>i.e. separate providers for design, build, and maintenance services</i>	Private finance*	
	All clinical and non-clinical services required for an emergency and specialist care site	Greenfield site	Optimise facilities for long term, providing minimum 60yr lifetime across the estate			

Columns show available options within each dimension. Each column should be reviewed independently, there is no left-to-right read across.

*Private financing is not likely to be an option for this scheme (because it is no longer government policy)

The 'service solution' domain has been split into two parts:

- Site(s) from which the acute services will be provided
- Quality/lifetime of facilities to be provided for those services

We need to additionally consider the build options that arise from considering options for sites and quality/lifetime for this project in order to arrive at a short list for detailed economic appraisal. We discuss this in Section 1.2.4. These were appraised separately against all CSFs in light of the evidence presented.

Table 5 shows how the CSFs in Table 2 were used to assess the different dimensions.

Table 5: Mapping of critical success factors to dimensions of the Options Framework

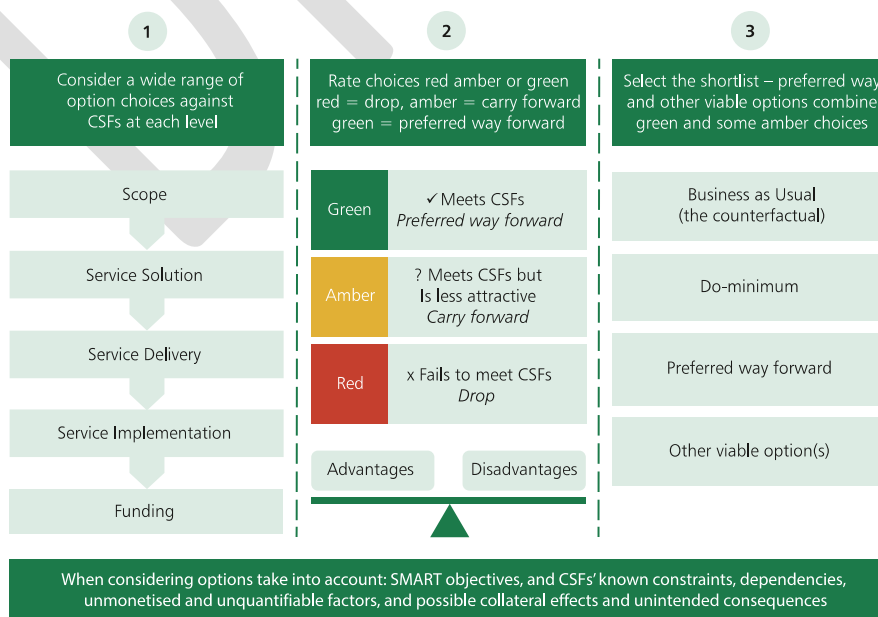
HM Treasury category	Critical success factor	Scope	Service solution (1)	Service solution (2)	Service delivery	Implementation	Funding
Strategic fit and business needs	1. Strategic alignment	●		●			
	2. Patient experience	●		●			
	3. Quality			●			
	4. Access		●				
Potential value for money	5. Value for money	●	●	●	●	●	
Potential affordability	6. Affordability		●	●	●	●	●
Potential achievability	7. Deliverability		●		●	●	●

The key elements of all of the investment objectives are represented in the critical success factors. A binary pass/fail assessment was made for each option against the critical success factors. This process resulted in options either being discounted, carried forward for further consideration in the short list or identified as a preferred choice for a particular dimension.

1.2.3 Options framework appraisal

On 18 August 2020, the emergency care options framework was presented to an appraisal panel alongside an evidence pack of supplementary evidence to support the assessment process for defining the short list. The Appraisal Panel assessed each of the options per dimension in the options framework against the agreed CSFs in accordance with the approach described in Section 4 of the Green Book:

Figure 2: Overview of longlisting with the options framework-filter process³



³ Figure 7, Section 4.32, The Green Book

After considering the evidence presented in [Appendix x], the Appraisal Panel arrived at the following appraisal. The evidence considered and the rationale are also presented in the Appendix.

Table 6: Appraised options framework for emergency care, August 2020

Category of choice (HMT guidance)	1. Service scope	2. Service solution		3. Service delivery	4. Service implementation	5. Funding
Definition (For WHHT acute redevelopment)	Coverage of the service to be delivered Scope of acute services for which the facilities are required	How this may be done (a) Site(s) from which the acute services will be provided	How this may be done (b) Quality/lifetime of facilities to be provided	Who is best placed to do this Organisation(s) to provide services (e.g. design / construction) required to achieve desired quality / lifetime of facilities	When and in what form can it be implemented Implementation approach	Source of capital
Emergency care options	Core emergency services only	Watford	Business as usual	WHHT	'Big bang' build e.g. c.3-year construction period	Public dividend funding
	Core emergency services and associated clinical dependencies and adjacencies (clinical)	St Albans	Resolve priority issues only, providing minimum 15yr lifetime across entire estate	Single private sector partner e.g. procured through ProCure 2020 framework		Mixed funding model e.g. energy efficiency financing, Section 106 funding, managed equipment service (MES)
	All clinical and non-clinical services required for an emergency and specialist care site	Hemel Hempstead	Provide fit for purpose facilities, providing minimum 30yr lifetime across the estate	Multiple private sector providers i.e. separate providers for design, build, and maintenance services	Phased build e.g. c.10-year build programme	Private finance*
		Greenfield site	Optimise facilities for long term, providing minimum 60yr lifetime across the estate			

Key: ■ Fails CSF ■ Potentially fails CSF Passes CSF ■ Passes CSF and is objectively the best option or class of options

*Private financing is not likely to be an option for this scheme (because it is no longer a government policy)

Columns show available options within each dimension. Each column should be reviewed independently, there is no left-to-right read across.

1.2.4 Build options appraisal

The Trust had identified ten build options aligned with the service solution appraisal:

Table 7: Build options, August 2020

	Quality/lifetime	1. Business as usual	2. Resolve priority issues only, providing minimum 15yr lifetime across entire estate	3. Provide fit for purpose facilities, providing minimum 30yr lifetime across the estate	4. Optimise facilities for long term, providing minimum 60yr lifetime across the estate
Site	Description	Only backlog maintenance – no investment in new buildings or refurbishment	Focused only on legal compliance	Implies part new build and part refurbishment	Full new build
1. Watford	Existing plot and/or adjacent Watford Riverwell plot	1. Watford business as usual		2. Watford 2019 SOC Option 1 ("SOC1") 3. SOC1 + ED and beds 4. SOC1 + replace PMOK*	5. Watford all clinical services new build* 6. Watford complete new build
2. St Albans	Existing St Albans City Hospital site				
3. Hemel Hempstead	Existing Hemel Hempstead General Hospital site				
4. Greenfield site A	Land east of A41				7. Greenfield site A complete new build
5. Greenfield site B	Eastern side of Hemel Hempstead South/Gorhambury Estate				8. Greenfield site B complete new build
6. Greenfield site C	Land off Junction 21, Chiswell Green				9. Greenfield site C complete new build
7. Greenfield site D	Former Radlett Airfield				10. Greenfield site D complete new build

*The difference between Options 4 and 5 is that AAU is included in Option 5

At the time of the appraisal, further work was required to define in detail the exact definitions of Options 4, 5 and 6; and potentially consolidate some of the options.

Following the Appraisal Panel meeting, further discussions were undertaken with the NHSI/E regional team and colleagues at DHSC. The Trust recognised that it could not eliminate build Options 5–10 on value for money grounds and so assessed all options as passing CSF 5 (value for money). It also recognised that the high capital and revenue costs for Options 6–10 would create a corresponding high pressure on savings, and so these options should remain ‘amber’ for CSF 6 (affordability) regardless of physical location site

NHSI/E and DHSC colleagues took the view that describing Option 3 as the ‘do minimum’ and the difference between Option 1 (at c.£92m) and Option 2 (at c.£350m) meant that – in their view – there was no meaningful intermediate option to assess as the real do minimum.

The Trust took the view that BAU option as previously described included sufficient minor new additions (mostly refurbishment) to the estate that it could be recast as a worthwhile ‘do minimum’ that, although not meeting all of the Trust’s investment objectives, would nevertheless represent a significant improvement in the Trust’s estate. The Trust therefore included a new BAU option without these additions.

Table 8: Appraisal build options, September 2020

	CSF	CSF 1 Strategic alignment	CSF 2 Patient experience	CSF 3 Quality	CSF 4 Access	CSF 5 Value for money	CSF 6 Affordability	CSF 7 Deliverability	Overall assessment
Option	Description								
1. Watford business as usual	Existing plot and/or adjacent Watford Riverwell plot	Fail – will not meet objectives or provide future flexibility	Fail – will not improve patient experience	Pass	Pass – within agreed boundary	c.£92m capital – limited benefits	Revenue impact 1.7% of turnover – pass	Pass	Fails CSFs 1 and 2 – but carried forward as BAU
2. Watford 2019 SOC Option 1 (“SOC1”)		Pass – meets primary IO	Pass – refurb will improve pat exp	Pass	Pass – within agreed boundary	c.£350m capital – limited benefits	Revenue impact 4.9% of turnover – pass	New build element deliverable by 2025/26 but refurbishment element will not complete in this time frame	Carried forward as ‘do minimum’
3. SOC1 + ED and beds		Pass – meets primary IO	Pass – refurb will improve pat exp	Pass	Pass – within agreed boundary	c.£420m capital	Revenue impact 5.8% of turnover – pass	Pass	Carried forward
4. SOC1 + replace PMOK		Pass – meets primary IO	Pass – refurb will improve pat exp	Pass	Pass – within agreed boundary	c.£590m capital	Revenue impact 7.8% of turnover – pass	Pass	Carried forward as preferred
5. Watford all clinical services new build		Pass – meets all objectives	Pass (joint preferred)	Pass (joint preferred)	Pass – within agreed boundary	c.£650m capital – potential poor VFM	Revenue impact 8.6% of turnover – pass	Pass	Pass, subject to VFM
6. Watford complete new build		Pass – meets all objectives	Pass (joint preferred)	Pass (joint preferred)	Pass – within agreed boundary	c.£750m capital – potential poor VFM	High capital cost, pressure on capex; high revenue cost, pressure on savings	Pass	Potentially fails CSFs 6
7. Greenfield site A complete new build	Land East of A41	Pass – meets all objectives	Pass (joint preferred)	Pass (joint preferred)	Pass – within agreed boundary	c.£750m capital + c.£20m purchase – potential poor VFM	High capital cost, pressure on capex; high revenue cost, pressure on savings	Not deliverable by 2025/26 and medium to high risk deliverability	Discounted – fails CSF 7, potentially fails CSF 6
8. Greenfield site B complete new build	Eastern side of Hemel Hempstead South/ Gorbamby Estate	Pass – meets all objectives	Pass (joint preferred)	Pass (joint preferred)	Pass – within agreed boundary	c.£750m capital + c.£20m purchase – potential poor VFM	High capital cost, pressure on capex; high revenue cost, pressure on savings	Not deliverable by 2025/26 and medium to high risk deliverability	Discounted – fails CSF 7, potentially fails CSF 6
9. Greenfield site C complete new build	Land off Junction 21, Chiswell Green	Pass – meets all objectives	Pass (joint preferred)	Pass (joint preferred)	Pass – within agreed boundary	c.£750m capital + c.£20m purchase – potential poor VFM	High capital cost, pressure on capex; high revenue cost, pressure on savings	Not deliverable by 2025/26 and medium to high risk deliverability	Discounted – fails CSF 7, potentially fails CSF 6
10. Greenfield site D complete new build	Former Radlett Airfield	Pass – meets all objectives	Pass (joint preferred)	Pass (joint preferred)	Pass – within agreed boundary	c.£750m capital + c.£20m purchase – potential poor VFM	High capital cost, pressure on capex; high revenue cost, pressure on savings	Not deliverable by 2025/26 and medium to high risk deliverability	Discounted – fails CSF 7, potentially fails CSF 6

Key: ■ Fails CSF ■ Potentially fails CSF Passes CSF ■ Passes CSF and is objectively the best option or class of options

1.2.5 Short-listed options

The ‘preferred’ and ‘possible’ options identified were carried forward into the short list for further appraisal and evaluation. All the options that were discounted as impracticable have been excluded at this stage.

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

Table 9: Emergency care short list following discussions with NHSEI and DHSC, September 2020

Option	1. 'Business as usual'	2. 'Do minimum'	3. Smaller scope	4. Intermediate scope	5. 'Preferred way forward'	6. Larger scope
Description	Baseline for measuring improvement and value for money	A realistic and achievable option that meets essential requirements			Provides better value for money with greater capital investment	
Build	Business as usual – address high risk backlog maintenance	BAU + minor new additions (mostly refurbishment) to the estate	Watford 2019 SOC Option 1 ("SOC1")	SOC1 + ED and beds	SOC1 + replace PMOK	Watford all clinical services new build
Cost*	c.£XXm capital TBC	c.£92m capital TBC	c.£350m capital	c.£420m capital	c.£590m capital	c.£650m capital
Service scope	All clinical and non-clinical services required for an emergency and specialist site	All clinical and non-clinical services required for an emergency and specialist site	Core emergency services and associated clinical dependencies and adjacencies (clinical)	Core emergency services and associated clinical dependencies and adjacencies (clinical)	Core emergency services and associated clinical dependencies and adjacencies (clinical)	Core emergency services and associated clinical dependencies and adjacencies (clinical)
Service solution	Business as usual	BAU +	Provide fit for purpose facilities, providing minimum 30yr lifetime across the estate	Provide fit for purpose facilities, providing minimum 30yr lifetime across the estate	Provide fit for purpose facilities, providing minimum 30yr lifetime across the estate	Provide fit for purpose facilities, providing minimum 60yr lifetime across the estate
Service delivery	n/a	n/a	Single private sector partner (e.g. procured through ProCure 2020)	Single private sector partner (e.g. procured through ProCure 2020)	Single private sector partner (e.g. procured through ProCure 2020)	Single private sector partner (e.g. procured through ProCure 2020)
Implementation	n/a	n/a	'Big bang' build (e.g. c.3-year construction period)	'Big bang' build (e.g. c.3-year construction period)	'Big bang' build (e.g. c.3-year construction period)	'Big bang' build (e.g. c.3-year construction period)
Funding	Internally funded	Internally funded	Public dividend capital, considering alternative options to supplement where appropriate	Public dividend capital, considering alternative options to supplement where appropriate	Public dividend capital, considering alternative options to supplement where appropriate	Public dividend capital, considering alternative options to supplement where appropriate

Key: ■ Fails CSF ■ Potentially fails CSF Passes CSF ■ Passes CSF and is objectively the best option or class of options

*Estimated cost at the time of the discussions with NHSEI in September 2020, note that these numbers have excluded an allowance for NZC and Digital, and do not allow for revised demand and capacity modelling. However, these impact all options proportionally.

All financial numbers were provisional at the time of the long list to shortlist appraisal and subject to detailed determination in the economic appraisal of the short list.

Since the short list discussions with NHSEI in September 2020, the scope, capital costs, risks and benefits associated with the options have been refined and refreshed for the purpose of the economic appraisal. The latest values for these are outlined in sections 1.4.2 (benefits), 1.4.3 (costs), and 1.4.4 (risks) below.

1.3 Long list appraisal: planned care

1.3.1 Summary of long list appraisal in the SOC

The 2019 SOC considered a long list of options for planned care across two main dimensions:

1. Site configuration options (in combination with emergency care)

Three sites			Two sites			One site		
Emergency care	Planned medicine	Planned surgery	Emergency care	Planned medicine	Planned surgery	Emergency care	Planned medicine	Planned surgery

2. Site location options

- Watford General Hospital
- St Albans City Hospital
- Hemel Hempstead Hospital
- New greenfield site

The overall conclusion of the SOC was that investment should be prioritised in emergency care. The proposed preferred way forward was therefore that planned care should continue to be provided from HHH and SACH, due to the higher capital costs required to deliver a new single site, planned care model.

It is worth noting that the SOC was clear that the preferred way forward at that time was only a partial solution to the challenges on the emergency care site in order to remain within the externally set capital envelope. It was clear in the SOC that at least one further stage of development would be required in the future to replace the Princess Michael of Kent Wing at the very least.

1.3.2 Implications of revised scope and investment objectives

The scope and investment objectives for the acute redevelopment programme have now been revised, making clear what needs to be achieved with the investment available within the Government's New Hospital Programme (NHP). The refreshed emergency care long list appraisal undertaken for the OBC, based on these refreshed scope and investment objectives, has reconfirmed the 2019 SOC conclusion that emergency care is the priority for investment and should be retained at WGH

There is, therefore, no need to reappraise the full long list of planned care options:

- The 2019 analysis made clear that consolidating planned care onto a single site (either in combination with emergency care or on a separate standalone site) would require a higher level of investment than retaining the existing sites. This was not ruled out as a future (15+ year horizon) development.
- These options would achieve more than required by the agreed scope and investment objectives for the programme and thereby reduce the affordability and likely available capital for emergency care to an unnecessary extent.
- The original conclusion from the 2019 SOC, that planned care should continue to be provided from HHH and SACH, therefore stands.

1.3.3 Short-listed options

A short list of options for the specific works to be undertaken at both the HHH and SACH sites was defined. These were then taken forward and appraised to determine the best value for money solution for each site with the available investment. It should be noted that the original short-list (in October 2020) resulted in three options each for HHH and SACH. This was subsequently revised to four options to align to DHSC expectations. A summary of the short-listed options is below.

Table 10: Short-listed options for Hemel Hempstead

Option	1. 'Business as usual'	2. 'Do minimum'	3. Enhanced	4. Do All
Description	Baseline for measuring improvement and value for money	A realistic and achievable option that meets essential requirements	Tests whether better value for money could be achieved with greater capital investment	Tests whether better value for money could be achieved with greater capital investment
Build	HHH 2019 SOC do minimum	HHH 2019 SOC Option 1 ("SOC1")	SOC1 + Enhancements to Medical Care Unit (Diagnostics)	Additional scope
Initial capital cost	-	c.£79m capital ⁴	c.£61m capital (before land receipt)	c.£91m capital (before land receipt)
Land receipt	n/a	n/a	£10.0m	£10.0m

⁴ Do Minimum capital exceeds the enhanced options due to costs related to the retained estate.

Table 11: Short-listed options for St Albans

Option	1. 'Business as usual'	2. 'Do minimum'	3. Enhanced	4. Do All
Description	Baseline for measuring improvement and value for money	A realistic and achievable option that meets essential requirements	Tests whether better value for money could be achieved with greater capital investment	Tests whether better value for money could be achieved with greater capital investment
Build	SACH 2019 SOC do minimum	SACH 2019 SOC Option 1 ("SOC1")	SOC1 + replace Moynihan block	Additional scope
Initial capital cost	c.£8m capital	c.£83m capital	c.£94m capital	c.£125m capital

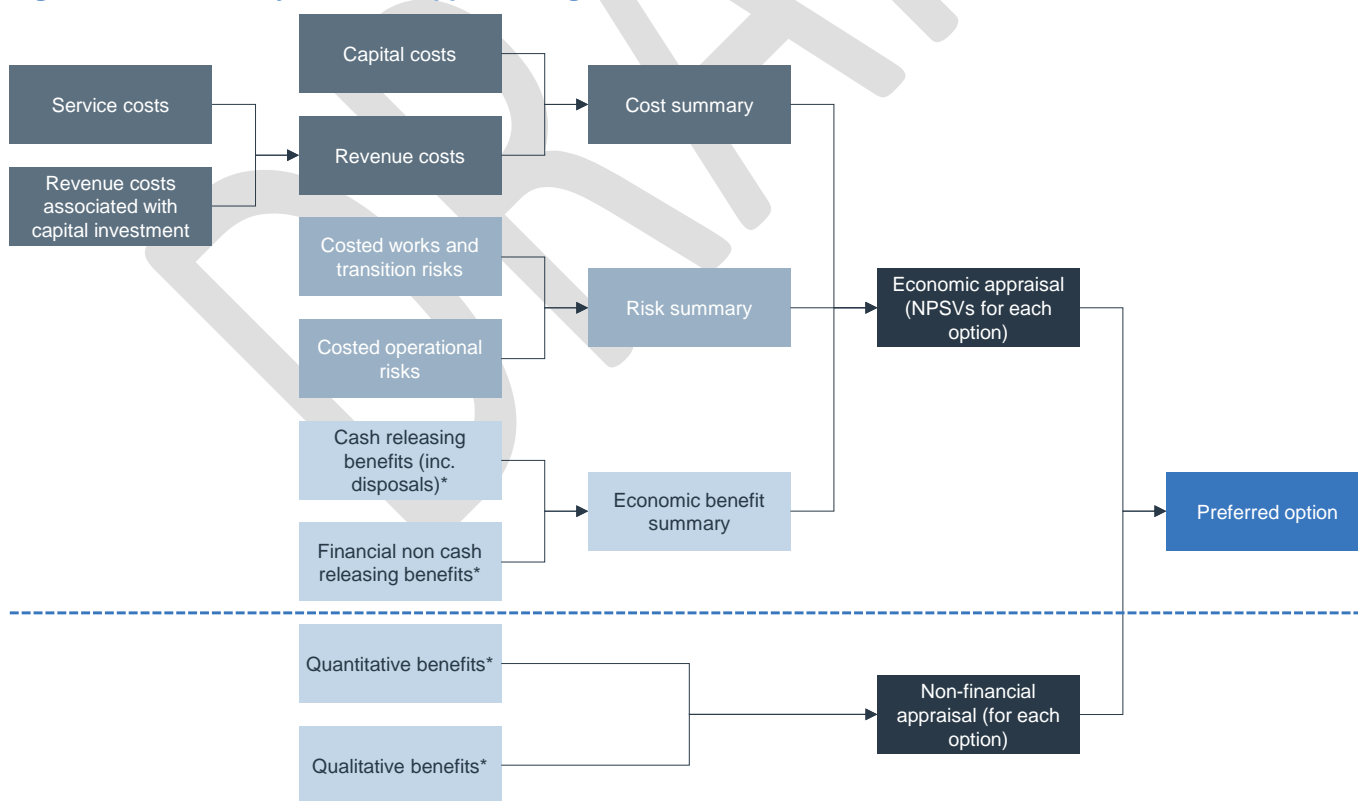
All financial numbers were provisional at the time of appraisal and subject to detailed determination in the economic appraisal of the short list.

1.4 Short list appraisal: emergency and planned care

This section provides a detailed overview of the main costs, benefits and risks associated with each of the selected options. Importantly, it indicates how they were identified and the main sources and assumptions. The costs, benefits and risks are brought together in the economic appraisal, with non-economic factors considered alongside in a separate qualitative appraisal. Detailed information is shown for each cost, benefit, and risk line within the economic appraisals in [\[Appendix A\]](#).

The table below demonstrates the logic model for the short list appraisal. This has been carried out for the short list options of each site, identified from the long list appraisal described above. Combining the preferred options for each site, presents the single preferred option for this scheme.

Figure 3: HM Treasury short list appraisal logic model



*NB all categories of benefit may be direct (to the Trust) or indirect (societal or national/regional/local NHS systems)

In following best practice and HMT Green Book guidance, we have taken steps to quantify the vast majority of risks and benefits, which means that we can rely on the net present social value (NPSV) as a truly objective economic appraisal. The non-financial appraisal would be used if there were material costs or benefits that are not

monetisable (and therefore not included in the NPSV). A qualitative appraisal would be most useful if there were not a clearly preferred option based on NPSV.

This analysis is only undertaken at the shortlisting stage after the application of analysis to the long list options via the critical success factors (as set out above).

The net present social value is defined in the HMT Green Book as being: “..*the present value of a stream of future cost and benefits to UK society (that are already in real prices) that have been discounted over the life of a proposal by the social time preference rate*”. This means that £1 in the current year is worth marginally less in the next year and HMT set the value by which this decreases – the “discount rate”. This effectively says that £1 today is worth c. £0.966⁵ next year and less the year after and so on.

The purpose of this exercise is to show how the costs and benefits are counted over the expected life of the investment. In the case of a major new build, this would be expected to be 60 years from the building coming into use (although in practice the building may last much longer).

This approach takes into account the fact that a lot of investment proposals mean that the costs of that investment come towards the beginning of the investment period, but the benefits will come later. However, it is expected that the majority of the benefits can only be demonstrated once the building is complete. The approach means that all benefits which are longer term (as well as costs and risks) - and for which the impact can be measured over the longer term can be compared.

Effectively, this means that there may be upfront higher costs (and risks) but these can be outweighed by the longer-term benefits. This is captured in the NPSV.

There are some benefits which can be measured as a result of the building works taking place – such as local employment and the wider economic benefits which accrue from such activity – however, these benefits cannot be taken in the Trust’s analysis: these benefits are counted at an all-of-Government level, otherwise the benefits of this particular investment would be higher.

The benefit: cost ratio (BCR) is a slightly cruder measure but provides a helpful measure of effective an investment is in terms of the investment relative to the the benefits.

This approach applies to all Government investments.

1.4.1 Developing the short lists

Following the long list appraisal process the short list options were refined into detailed options which could be assessed for costs, risks, and benefits. These were developed by the estates team and architects with input from sessions held with all clinical divisions. The shortlist options remain as per the end of the long list appraisal, although the names and sometimes detailed scope of the options have been refined as would be expected for an OBC. The final short lists descriptions for each site for appraisal were as follows:

⁵ Non-QALY discount rate is 3.5% meaning that something worth £1 today is worth c. £0.966 the year after. For QALYs, the discount rate is 1.5% meaning that something worth £1 today is worth c. £0.985 the year after and so on.

Table 12: Summary of WGH final short list. October 2020

WATFORD	Long list option name	1. 'Business as usual'	2. 'Do minimum'	3. Smaller scope	4. Intermediate scope	5. 'Preferred way forward'	6. Larger scope
	Current option name	1. 'Business as usual'	2. 'Do minimum'	3. Aligned with SOC Option 1	4. Option 3 plus refurb of PMoK	5. Maximum build - 106 beds in AAU	6. Maximum Clinical Build - Support in AAU
	Description	Baseline for measuring improvement and value for money	A realistic and achievable option that meets essential requirements	SOC preferred option	Tests whether better value for money could be achieved with greater investment	Tests whether better value for money could be achieved with greater investment	Tests whether better value for money could be achieved with greater investment
	Build	Investment limited by the Trust's operational capacity.	Investment to clear all backlog maintenance and deliver essential service development	New WACS and theatre block. Circa 60% in-patient beds refurbished in PMOK. (As per SOC)	New WACS, theatre and ED block. All in-patient beds in PMOK refurbished/replaced	Replacement of all clinical facilities in a new build on the current WGH footprint. Non-clinical services provided in a separate new build.	As option 5 but with the AAU building retained for non-clinical support services.

Table 13: Summary of HHH final short list, October 2020

HEMEL HEMPSTEAD	Option	1. 'Business as usual'	2. 'Do minimum'	3. Enhanced option	4. Do All
	Description	Baseline for measuring improvement and value for money	A realistic and achievable option that meets essential requirements	Tests whether better value for money could be achieved with greater investment	Tests whether better value for money could be achieved with greater investment
	Build	Investment restricted to high and significant backlog maintenance risks	Investment to clear all backlog maintenance and deliver essential service development, including creation of planned medicine focus at the site. Consolidation of all services within smallest practicable footprint, releasing surplus land for disposal.	Consolidates existing planned medical services across the HHH estate into the Verulam Wing following decant of existing beds, pathology and endoscopy services from the building to alternative sites. Backlog maintenance including all significant as well as some moderate and low items, would be addressed for the Verulam Wing	As per option 3 but with a close to full refurbishment of the Verulam Wing.

Table 14: Summary of SACH final short list, October 2020

ST ALBANS	Option	1. 'Business as usual'	2. 'Do minimum'	3. Enhanced option	4. Do All
	Description	Baseline for measuring improvement and value for money	A realistic and achievable option that meets essential requirements	Tests whether better value for money could be achieved with greater investment	Tests whether better value for money could be achieved with greater investment
	Build	Relocates the existing nuclear medicine service from HHH onto the SACH estate; makes minor improvement to the existing diagnostic service through equipment replacement; and improves the current theatre service with replacement of theatre 5 which is near end of life. Endoscopy remains at HHH. Backlog maintenance not addressed.	As for BAU but includes new cancer services and co-location of diagnostic services in Runcie Wing.	As for Do Minimum with increases MRI and CT capacity; makes significant improvement to the existing theatre service with replacement of theatre 5 with two new theatres, increased recovery space and improvements to staff facilities; increases endoscopy capacity with a new six room derogated endoscopy unit.	As for Option 3 with additional improvements to; existing breast clinic service through expansion and co-location of clinical and admin space; front of house area; and staff wellbeing spaces. This option replaces the existing plant and distribution for the wider site to improve on NZC aspirations and addresses all backlog maintenance items.

The enhanced option for St Albans has been refined with designers and clinical groups since long-list stage, and now proposes to add a temporary theatre block rather than rebuild Moynihan block. These minor amendments to

the shape of options is quite normal between SOC and OBC stages as more information becomes available to the project and design teams.

Further information on each of these options across all three sites is provided in the “Stage 1 Report” by BDP and the accompanying estates information. A Stage 1 report refers to the stages of design set out by the Royal Institute of British Architects (RIBA) in its overall plan of work for designing a new facility. A Stage 1 report is usually sufficient to inform a preferred option solution. A Stage 2 report provides greater detail on that preferred option and informs the final costs, risks and benefits in the OBC.

The preferred options also inform the economic case, the financial case and the management case which do not consider the shortlisted options – only the preferred options which emerge from the economic case.

1.4.2 Estimating benefits

Anticipated benefits for each short-listed option at each site were identified by the Programme Team through engagement with a wide range of stakeholders from across the Trust and the CCG. Benefits fall into different classes which require different treatment within the OBC appraisals supporting the economic and financial cases – the distinctions are shown in Table 15.

Table 15: Main benefit classes

Type	Class	Description	Direct to organisation(s)	Indirect to organisation(s)
Financial	Cash releasing	Reduced cost, avoided spend, increased income, etc.	Economic and financial appraisals	Economic appraisal
	Non-cash releasing	Productivity improvement, e.g. cost of staff time etc.	Economic appraisal	Economic appraisal
Non-financial	Quantitative	Measurable, but not in financial terms	Qualitative appraisal	Qualitative appraisal
	Qualitative (or non-quantifiable)	Not measurable, even through proxies	Qualitative appraisal (as appropriate)	Qualitative appraisal

As well as the categories above, benefits have been categorised into the different classes in the NHS Comprehensive Investment Appraisal (CIA) Model. The use of this standard tool supports and facilitates the analysis in the economic case across all NHS investments for consistency.

Table 16: Benefit classes in CIA model

Class	Description	Direct to organisation(s)	Indirect to organisation(s)
Cash releasing	Reduced cost, avoided spend, increased income, etc.	Economic and financial appraisals	Economic appraisal
Non-cash releasing	Productivity improvement, e.g. cost of staff time etc.	Economic appraisal	Economic appraisal
Societal	Quantifiable, but realised by society outside DHSC / the NHS	n/a	Economic appraisal
Qualitative (or non-quantifiable)	Not measurable, even through proxies	Qualitative appraisal (as appropriate)	Qualitative appraisal

Wherever possible, benefits, including clinical benefits, were quantified in financial terms. Three review sessions were held with economists from DHSC to review the approach to benefits quantification.

Financial benefits

The **financial benefits** associated with each option were built up during the project. The approach to developing the financial benefits was to:

1. Identify a long list of potential benefits associated with the scheme from benefits carried over from the SOC, further potential benefits identified in workshops, and a comparison against benefits identified for other hospital developments.
2. Work through these with expert groups (including clinical, estates and finance) to determine which benefits could apply for WHHT and develop a short list of benefits to quantify.
3. Develop logic models for the shortlisted benefits and identify data required to quantify benefits.
4. Quantify the benefits assuming maximum transformation of all three hospital sites. Identify a high and low range for the benefits.
5. Apply a risk rating to the benefits depending on the data sources used to quantify.
6. Attribute a percentage of the maximum benefit to each site/option based on the following different attributions/drivers:
 - % of bed base redeveloped, split by POD where appropriate
 - % of GFA redeveloped
 - % theatre space redeveloped
 - % ED / UTC space redeveloped
 - % Outpatient space redeveloped
 - % radiology space redeveloped
 - Presence of education and research hub
 - Presence of increased retail space
 - Or “apply equally” across all options
7. Categorise the benefits into benefit groupings and benefit types.

This approach led to individual benefits being quantified, which were grouped up into 17 benefits groupings which are shown in the tables below. The benefits are phased in over between three and eight years (dependent on the individual benefit) post-build and apply for the full appraisal period. Benefits reach steady-state in 2037/38. The values below exclude inflation and VAT. Further details of all benefits, phasing and quantification can be found in [\[Appendix A\]](#).

A brief description and the drivers for apportioning these benefits across options is provided in Table 17 below.

Table 17: Description and drivers of benefits

Benefit grouping	Description	Driver
1. Ward design improvements	Benefits resulting from ward design improvements including reducing DTOCs, providing NEL surge capacity, reducing outlier bed days, reducing travel time needed for staff in transferring patients and travelling between wards and offices.	Redeveloped bed base
2. Increase in single rooms	Enabling improvement in length of stay through the use of single rooms.	Redeveloped bed base
3. Cash releasing LOS improvements	Design features reducing negative drug events, reducing negative infection events, reducing the likelihood of incurring pressure ulcers, UTIs, VTEs and AKIs.	Redeveloped bed base
4. Theatre design and capacity improvements	Increasing capacity enabling an increase in private sector activity, repatriating activity from other NHS providers, reducing late starts and finishes, cancellations and need for WLIs, reducing patient transfers due to capacity constraints, and reducing theatre repair costs.	Redeveloped theatres
5. ED/UTC design improvements	Improving the flow through ED as a result of increased NEL capacity, expanded ambulatory care capacity, reduced readmissions through improved quality of care and remote monitoring, increased radiology capacity, and more cubicles in the ED department for assessment.	By attendances & level of redevelopment
6. Outpatients improvements	Consolidation of services between sites, a better laid out hospital, and a hospital which improves patient experience should reduce the number of DNAs	Redeveloped OP space
7. Private patients	Modern facilities attracts more private patients, with space provided through larger site.	Redeveloped bed base

Benefit grouping	Description	Driver
8. CNST/litigation cost reductions	Reducing CNST and litigation costs through reducing negative drug events, reducing infections, reducing pay-outs for serious falls, reducing mortality rates, reducing CNST costs associated with maternity and reducing the likelihood of pressure ulcers, UCI and AKIs.	Redeveloped bed base
9. Workforce growth mitigation	Delivering workforce efficiencies through reduced use of agency, improve skills mix, reducing staff turnover, reduced travel times and expenses, reducing the estates workforce, achieving medical rota efficiencies, consolidating outpatients and ward design efficiencies associated with 28-bedded wards.	Level of redevelopment of clinical areas
10. Energy, estates and facilities management	Reducing the planned and emergency maintenance and hard and soft FM costs, increased energy efficiency and improved security.	Level of redevelopment by GFA
11. IT / Digital benefits	Digital technologies implemented enable cash releasing and non-cash releasing benefits	Level of digital investment
12. Education and research hub	There will be an increase in education and research grants received by the Trust as its reputation will improve from having better facilities.	Only applied to Options 5 and 6 at WGH
13. Non-cash releasing LOS improvements	Benefits to patients as a result of reducing Length of Stay	Redeveloped bed base
14. QALY/mortality improvements	Increasing Quality Adjusted Life Years and reducing mortality as a result of the improved facilities and changes to the clinical mode.	By ED attendances or by bed
15. Economic Labour Contribution from reduced Length of Stay	Pulling in all of the reductions in travel and length of stay, the impacts will allow patients to return home more quickly and return back to work, contributing to the economy.	Amalgamation of other related benefits
16. Travel time reduction – value of time saved	Reduced patient travel time and reduction in the amount of travelling done by staff.	Amalgamation of other related benefits
17. Energy and utilities – CO2 emissions	Improved gas and electrical supplies into the sites will reduce energy waste. There is a societal benefit from reduced CO2 emissions.	Amalgamation of other related benefits

For each of these benefits, the total maximum benefit has been identified across the HMT categories of financial benefit.

Table 18: Total maximum benefits, excluding VAT and inflation (£m)

Benefit grouping	Total maximum benefit (£m)		
	Cash releasing benefit	Non-cash releasing benefit	Societal benefit
1. Ward design improvements	1.34	4.31	-
2. Increase in single rooms	1.80	-	1.56
3. Cash releasing LOS improvements	0.50	-	-
4. Theatre design and capacity improvements	6.22	1.01	0.68
5. ED/UTC design improvements	3.15	-	-
6. Outpatients improvements	0.91	0.60	-
7. Private patients	1.30	-	-
8. CNST/litigation cost reductions	2.56	-	-
9. Workforce growth mitigation	8.84	0.53	-
10. Energy, estates and facilities management	9.03	-	-
11. Digital benefits	8.70	7.86	-
12. Education and research hub	0.19	-	-
13. Non-cash releasing LOS improvements	-	5.86	-
14. QALY/mortality improvements	-	-	20.18
15. Economic Labour Contribution from reduced Length of Stay	-	-	1.63
16. Travel time reduction – value of time saved	-	-	0.50
17. Energy and utilities – CO2 emissions	-	-	0.05
Total	44.53	20.18	24.60

Note that costs for both Modern Methods of Construction and Net Zero Carbon have been included in capital costs, but benefits for these items have not yet been included. These will only be finally measurable in the Full Business Case (FBC) once a construction partner has been able to design the building in detail. However, it is expected that these benefits will increase. At this stage the Trust has taken a very conservative approach to these savings.

Non-financial benefits

For this work every effort was made to quantify all benefits in financial terms. Those benefits which could not be quantified were identified and have been used to provide further evidence to alongside the NSPVs.

Table 19 below provides a summary of the unmonetisable benefits. Further details of all benefits and quantification can be found in [Appendix A](#)

Table 19: Unmonetisable benefits

Benefit grouping	Description	Driver
Emergency Department Improvements	Improved capacity and layout will reduce harms, better segregate paedics, and help achievement of the ED access standards.	Level of ED redevelopment
Outpatient Improvements	Consolidation of OP services and improved estates will lead to reduced DNAs/cancellation and hence better patient outcomes. Better utilisation will contribute towards meeting RTT and diagnostics access standards.	Level of OP redevelopment
Single Rooms	Increased provision of single beds will improve patient privacy and dignity and make the hospital pandemic resilient.	Redeveloped bed base
Increased Capacity	Improved capacity and flow across ED, inpatient wards, theatres and radiology will contribute towards meeting access standards.	Redevelopment across different PODs
Estates Improvements	General improvements in the environment will improve patient and staff experience. The new hospital will be more energy efficient and contribute towards the NHS's Net Zero Carbon aims.	Level of redevelopment by GFA
Education and Research Hub	Becoming a major education and research hub will act as a recruitment incentive and research outcomes will have spill over impacts across the NHS.	Presence of education and research hubs

[DN: for the next iteration, we may want to add how these apply to each option to strengthen our preferred option argument]

Non-financial benefits of the proposed Planned Surgical & Cancer Care model

Options 3 and 4 at the Planned Care sites include the movement of endoscopy from HHH to SACH, which is a key enabler of creating a Community Diagnostics Hub (CDH) at SACH. The CDH includes a relocated and expanded endoscopy unit collocated with a urology centre (or close by) and one stop-shop cancer services and is supported by an enhanced and upgraded elective surgical capability.

The creation of the CDH is also estimated to deliver significant benefits. At this stage, benefits of the CDH have not been fully quantified, but it is important to recognise them and acknowledge that options 3 and 4 (and not 1 and 2) at the Planned Care sites are key enablers of those benefits. The benefits are likely to include:

- Efficiencies achieved by having clinical staff operating from no more than two sites
- Efficiencies achieved by conducting a range of diagnostics activities on a single visit, rather than a number of separate visits
- Better and earlier diagnosis enabled by having 'state of the art' diagnostics equipment, replacing end of life equipment, and improving outcomes and reducing cost / time for more complex interventions due to late diagnosis
- Increased capacity delivered by new equipment and digital transformation across planned care pathways

It is also worth noting that, as well as the benefits associated with the creation of the CDH, movement of endoscopy to SACH from HHH is key enabler of the collocation of other planned medical services into Verulam building, and release of surplus land, which cannot be achieved otherwise. This point is discussed later as it is therefore important to understand that not all options across the two planned care sites are mutually compatible and therefore planned care investment will need to be taken in the round.

The unquantified benefits are considered alongside the quantitative analysis in the appraisal of the options at the Planned Care sites.

Assessing the benefits for the WGH options

The value of the annual monetisable benefits across each option for the WGH site is shown in Table 20 below.

Table 20: Value of annual monetisable benefits by option for WGH (£m)

Description	1. 'Business as usual'	2. 'Do minimum'	3. Aligned with SOC Option 1	4. Option 3 plus refurb of PMoK	5. Maximum build - 106 beds in AAU	6. Maximum Clinical Build - Support in AAU
Annual recurring benefits reached by ⁶	n/a	36/37	39/40	41/42	38/39	38/39
Cash releasing	-	2.54	23.07	29.12	35.76	36.61
Non-cash releasing	-	1.05	10.73	13.31	15.73	16.00
Societal	-	0.54	2.31	22.38	23.57	23.72
Total annual benefit	-	4.14	36.11	64.81	75.06	76.32
% of site maximum	0%	5%	46%	83%	96%	97%
% of Trust-wide maximum	0%	5%	40%	73%	84%	85%

As expected, the options which redevelop or rebuild the whole site attract all, or most of the benefits identified. The benefits accrue more slowly to Option 4 due to the time taken to redevelop PMOK rather than progress with a new build. Both Options 5 & 6 have the most favourable overall benefits realised and benefits profile over time.

Table 21 below shows the total discounted⁷ value of benefits over the 70-year appraisal period by option for WGH. This value is included as the total benefit value in the NPSV and BCR calculation in the CIA Model.

Table 21: Total discounted value of benefits by option for WGH, 70-year period (60 years of asset life and 10 years of construction) (£m)

Description	1. 'Business as usual'	2. 'Do minimum'	3. Aligned with SOC Option 1	4. Option 3 plus refurb of PMoK	5. Maximum build - 106 beds in AAU	6. Maximum Clinical Build - Support in AAU
Cash releasing	-	53.3	397.7	481.9	658.5	674.7
Non-cash releasing	-	21.7	191.6	219.9	293.0	298.2
Societal	-	16.7	65.3	749.3	935.6	939.8
Total discounted benefits	-	91.7	654.6	1,451.1	1,887.1	1,912.7

⁶ As part of the benefit quantification process, the Trust has estimated a number of periods over which the benefits are phased before they hit the maximum value. This is to reflect the potential risk of deliverability of benefits in the early years after completion.

⁷ Benefits are discounted per HMT Green Book guidance (see [Appendix A] for details on discount rates)

Assessing the benefits for the HHH options

The annual benefits across each option for the HHH site is shown in Table 22 below.

Table 22: Value of annual monetisable benefits by option for HHH (£m)

Description	1. 'Business as usual'	2. 'Do minimum'	3. Enhanced	4. Do All
Annual recurring benefits reached by ⁸	n/a	31/32	32/33	33/34
Cash releasing	-	0.76	0.81	0.83
Non-cash releasing	-	0.55	0.57	0.57
Societal	-	0.09	0.10	0.10
Total annual benefit	-	1.40	1.48	1.50
% of site maximum	0%	50%	53%	54%
% of Trust-wide maximum	0%	2%	2%	2%

Table 21 below shows the total discounted value of benefits over the 70-year appraisal period by option for WGH. This value is included as the total benefit value in the NPSV and BCR calculation in the CIA Model.

The benefits accruing due to the HHH redevelopment are much smaller as the site has no emergency care or beds and is only being partially redeveloped. Options 2-4 deliver very similar benefits due to similar levels of redevelopment. The Do All option has a marginally lower overall discounted benefit value compared to Do Minimum and the Enhanced option, due to redevelopment being completed a year later than the Enhanced option and 2 years after the Do Minimum.

Table 23: Total discounted benefits by category for each HHH option, 70-year period (£m)

Description	1. 'Business as usual'	2. 'Do minimum'	3. Enhanced	4. Do All
Cash releasing	-	16.6	17.0	16.9
Non-cash releasing	-	12.3	12.5	12.0
Societal	-	3.7	3.6	3.6
Total discounted benefits	-	32.6	33.1	32.5

Assessing the benefits for the SACH options

The annual benefits across each option for the SACH site is shown in Table 24 below.

⁸ As part of the benefit quantification process, the Trust has estimated a number of periods over which the benefits are phased before they hit the maximum value. This is to reflect the potential risk of deliverability of benefits in the early years after completion.

Table 24: Value of annual monetisable benefits by option for SACH (£m)

Description	1. 'Business as usual'	2. 'Do minimum'	3. Enhanced	4. Do All
Annual recurring benefits reached by ⁹	n/a	31/32	32/33	32/33
Cash releasing	-	3.08	3.40	3.49
Non-cash releasing	-	0.84	1.00	1.03
Societal	-	0.02	0.08	0.09
Total annual benefit	-	3.94	4.47	4.61
% of site maximum	0%	49%	55%	57%
% of Trust-wide maximum	0%	4%	5%	5%

The SACH site accrues some benefits due to the redevelopment of theatres and diagnostics. The Enhanced and Do all options have slightly a higher benefits apportionment due to the higher level of overall redevelopment in these options.

Table 25: Total discounted benefits by category for each SACH option, 70-year period (£m)

Description	1. 'Business as usual'	2. 'Do minimum'	3. Enhanced	4. Do All
Cash releasing	-	71.0	75.7	77.7
Non-cash releasing	-	19.4	22.4	23.3
Societal	-	0.9	2.8	3.2
Total discounted benefits	-	91.3	101.0	104.2

A full breakdown of all the benefits by year, site, option, and type can be found in [\[Appendix A\]](#).

1.4.3 Estimating costs

In order to deliver the benefits expected, a large capital investment across the hospital sites is required.

Capital requirements under each option have been calculated by expert professional cost advisors based on best practice and relevant standards and guidance, including DHSC Health Premises Cost Guides (HPCG).

The estimates include the costs required for new buildings and any refurbishment needed, across all relevant sites. The full detail of capital requirements for each option can be found in [\[Appendix A\]](#). A summary of the main drivers of capital costs within each option is below. Note that this includes all costs falling to public sector organisations. VAT and capital charges are excluded in the economic appraisal (as per HMT Guidance as these are essentially movements of money around within Government and have no wider economic value – but they are considered in the financial case as they have a monetary/cash value).

The section below shows the capital and revenue costs associated with each option for each site.

For each option a full set of "OB forms" (Outline Business case forms) has been produced based on prices at the mid-point of construction. Costs are shown exclusive of VAT and in real terms, constant (uninflated) prices with the current year as Year 0. A full list of capital cost assumptions can be found in [\[Appendix A\]](#). OB forms are a standard way of presenting capital costs for NHS investments.

Additionally, the capital costs contained within this economic appraisal have been adjusted for "optimism bias".

⁹ As part of the benefit quantification process, the Trust has estimated a number of periods over which the benefits are phased before they hit the maximum value. This is to reflect the potential risk of deliverability of benefits in the early years after completion.

Optimism bias was introduced into public sector investment appraisals in the early 2000's and reflects the natural human tendency to be over-optimistic over the estimation of capital costs, operating costs, risk and benefits and seeks to adjust these accordingly and reflects the degree or remaining uncertainty at each point on the approval process. In effect, optimism bias is higher at SOC stage, lower at FBC stage as costs are better understood, and at a range in-between at OBC stage.

The optimism bias assessment follows HMT Green Book best practice and took into account scheme characteristics and mitigating factors. The optimism bias percentage and value are shown separately within the tables below. The OB forms ([Appendix A](#)) provide a detailed breakdown of how optimism bias varies between options.

Capital costs are shown for the core build as well as additional programme costs as follows:

- **Consequential Costs/Savings:** Enabling works, Land purchase (where applicable), Additional plant and comms allowance, IM&T move
- **Policy change:** Net Zero Carbon, Modern Methods of Construction, digital, energy centre and AAU refurbishment. See [Appendix A](#) for additional detail and an explanation on each policy change area and how these assumptions have changed since the SOC.

In addition to the initial capital cost requirement for each option, a full estimate of additional capital cost requirements for each option up to year 70 has been calculated to account for:

- Lifecycle replacement costs for new build and refurbished assets part of the redevelopment
- Backlog and lifecycle to retained estate
- Rebuild of retained estate

A full breakdown of these additional costs is provided in [Appendix A](#)

The core revenue costs across the options are the same and have been developed in line with the Trust's latest Long Term Financial Model (LTFM), reflecting the most recently issued planning guidance for 22/23 and expectations around growth rates and non-recurrent items including COVID-19 top-up funding.

Additional revenue costs are identified across the options to reflect the increased operating expenditure associated with the implementation of digital technologies over and above those included in the LTFM. These additional revenue costs are also summarised in the following sections.

Assumptions about revenue costs from the LTFM and those associated with digital technology implementation is provided in [Appendix A](#)

Assessing the costs for the WGH options

Table 26: Initial Capital requirement for each WGH option (£k)

Description	1. 'Business as usual'	2. 'Do minimum'	3. Aligned with SOC Option 1	4. Option 3 plus refurb of PMoK	5. Maximum build - 106 beds in AAU	6. Maximum Clinical Build - Support in AAU
Core capital cost	-	170,411	326,036	486,280	547,065	547,541
Adjustment for optimism bias	-	24%	19%	18%	15%	15%
Optimism bias value	-	41,205	63,479	86,655	81,786	81,857
Must do and potential additions	-	12,230	121,807	130,659	129,836	132,233
Total capital costs for economic appraisal	-	223,846	511,322	703,594	758,687	761,631
Excluded costs (inflation and VAT)	-	102,927	242,635	343,558	348,343	349,809
Total capital costs for financial appraisal	-	326,773	753,957	1,047,153	1,107,030	1,111,440

Options 3, 4, 5, and 6 all attract high capital costs. Option 4, to substantially refurbish PMOK, is similar in capital costs to the two new build options. Option 3, the original SOC option is approximately two-thirds of the cost of the full build options.

Table 27: Additional lifecycle, backlog and rebuild costs included in economic appraisal for each WGH option, 70-year appraisal period (£k)

Description	1. 'Business as usual'	2. 'Do minimum'	3. Aligned with SOC Option 1	4. Option 3 plus refurb of PMoK	5. Maximum build - 106 beds in AAU	6. Maximum Clinical Build - Support in AAU
Lifecycle costs on redeveloped asset	-	33,739	193,224	285,806	406,517	430,376
Backlog and lifecycle to retained estate	233,470	38,830	116,094	138,370	145,623	146,557
Rebuild of retained estate	849,041	859,718	557,409	557,409	106,463	74,475
Allowance for optimism bias, management and fees	227,327	195,780	182,013	206,133	138,307	136,796
Total additional capital for economic appraisal (excl. VAT and inflation)	1,309,838	1,128,067	1,048,739	1,187,718	796,909	788,204

There is a significant reduction in capital expenditure on rebuilds of retained estate in options 5 and 6 as a result of the higher level of initial investment. The higher initial investment rebuilds key parts of the estate that would otherwise need to be rebuilt in the future once they reach the end of their useful lives which is illustrated in the table above.

Table 28: Revenue costs and net contributions for each WGH option, 70-year appraisal period, before discounting (£m)

Description	1. 'Business as usual'	2. 'Do minimum'	3. Aligned with SOC Option 1	4. Option 3 plus refurb of PMoK	5. Maximum build - 106 beds in AAU	6. Maximum Clinical Build - Support in AAU
Gross increase in operating expenditure from implementing digital technologies ¹⁰	-	19.9	120.1	133.0	139.8	139.4
Net contributions	-	-	(5.0)	(5.0)	(5.0)	(5.0)
Total revenue costs and net contributions net increase/(decrease)	-	19.9	115.1	128.0	134.8	134.4

Net contributions are flat across the WGH options. Increasing contributions from private patients and education and research are included in benefits. Options 3-6 at WGH include a £5m cash receipt for the sale of surplus land, this is estimated for consistency with the SOC and will be defined for the FBC. This is reflected in the Net contributions row of the table above.

¹⁰ Note that this is the gross increase in operating expenditure. There are also benefits associated with the digital investment which offset the operating expenditure to varying degrees depending on the option (as outlined in [appendix A])

Table 29: Initial Capital requirement for each HHH option (£k)

Description	1. 'Business as usual'	2. 'Do minimum'	3. Enhanced option	4. Do All
Core capital cost	-	46,617	31,790	46,057
Adjustment for optimism bias	-	18%	18%	18%
Optimism bias value	-	8,615	5,875	8,511
Must do and potential additions	-	966	5,482	16,928
Total capital costs for economic appraisal	-	56,198	43,146	71,497
Excluded costs (inflation and VAT)	-	23,132	17,827	29,065
Total capital costs for financial appraisal	-	79,330	60,974	100,562

The capital costs for the HHH site development are much lower than the WGH site. The agreed investment objective for the business case is to maximise investment into the Emergency Care site. The Do All option is the most expensive due to more internal reconfiguration of the estate which remains.

Table 30: Additional lifecycle, backlog and rebuild costs included in economic appraisal for each HHH option, 70-year appraisal period (£k)

Description	1. 'Business as usual'	2. 'Do minimum'	3. Enhanced	4. Do All
Lifecycle costs on redeveloped asset	-	3,681	9,538	13,910
Backlog and lifecycle to retained estate	83,268	55,034	40,026	30,720
Rebuild of retained estate	265,043	265,043	158,011	158,011
Allowance for optimism bias, management and fees	73,145	67,989	43,591	42,555
Total additional capital for economic appraisal (excl. VAT and inflation)	421,456	391,747	251,166	245,195

There is a significant reduction in capital expenditure on rebuilds of retained estate in options 5 and 6 as a result of the higher level of initial investment.

This assumes that the planned care sites remain for the duration of the 70-year appraisal period. As noted above, it is the Trust's future intention (15+ years hence) to re-evaluate the locations of planned care to reflect the health needs at the time. However, until that investment decision is taken, the appraisal assumes that the sites will remain in their current use.

Table 31: Revenue costs for each HHH option, 70-year appraisal period (£m)

Description	1. 'Business as usual'	2. 'Do minimum'	3. Enhanced	4. Do All
Gross increase in operating expenditure from implementing digital technologies ¹¹	-	8.1	8.0	7.8

Additional revenue costs associated with the implementation of digital technologies are the same across options 2-4 for the HHH site. The only difference in the numbers above is driven by the different completion dates of the options. There are no other revenue cost changes across the different options for the HHH site, except those captured within the financial benefits articulated above.

Assessing the costs for the SACH options

Table 32: Initial Capital requirement for each SACH option (£k)

Description	1. 'Business as usual'	2. 'Do minimum'	3. Enhanced option	4. Do All
Core capital cost	4,928	49,739	50,388	58,148
Adjustment for optimism bias	17%	17%	17%	17%
Optimism bias value	825	8,326	8,435	9,734
Must do and potential additions	-	1,083	6,796	20,775
Total capital costs for economic appraisal	5,753	59,148	65,619	88,656
Excluded costs (inflation and VAT)	2,285	23,480	27,920	36,566
Total capital costs for financial appraisal	8,038	82,628	93,539	125,222

The capital costs for the SACH site development are much lower than the WGH site. The agreed investment objective for the business case is to maximise investment into the Emergency Care site. The Do All is the most expensive due to the additional work within the existing estate.

This assumes that the planned care sites remain for the duration of the 70-year appraisal period. As noted above, it is the Trust's future intention (15+ years hence) to re-evaluate the locations of planned care to reflect the health needs at the time. However, until that investment decision is taken, the appraisal assumes that the sites will remain in their current use.

¹¹ Note that this is the gross increase in operating expenditure. There are also benefits associated with the digital investment which offset the operating expenditure to varying degrees depending on the option (as outlined in [Appendix A])

Table 33: Additional lifecycle, backlog and rebuild costs included in economic appraisal for each SACH option, 70-year appraisal period (£k)

Description	1. 'Business as usual'	2. 'Do minimum'	3. Enhanced	4. Do All
Lifecycle costs on redeveloped asset	1,730	9,034	17,574	19,972
Backlog and lifecycle to retained estate	74,412	50,274	62,572	48,991
Rebuild of retained estate	293,618	292,054	290,258	290,258
Allowance for optimism bias, management and fees	77,649	73,786	77,785	75,436
Total additional capital for economic appraisal (excl. VAT and inflation)	447,409	425,148	448,190	434,658

There is overall a similar level of capital expenditure on lifecycle, backlog and rebuilds of retained estate across all options at SACH.

Table 34: Revenue costs for each SACH option, 70-year appraisal period (£m)

Description	1. 'Business as usual'	2. 'Do minimum'	3. Enhanced	4. Do All
Gross increase in operating expenditure from implementing digital technologies ¹²	-	9.0	8.9	8.9

Additional revenue costs associated with the implementation of digital technologies are the same across options 2-4 for the SACH site. The cost is marginally higher in the Do Minimum option, driven only by the completion date being one year earlier than that for Options 3 and 4. There are no other revenue cost changes across the different options for the SACH site and increases in diagnostics and endoscopy capacity, except those captured within the financial benefits articulated above.

Residual values

In line with HMT Green Book guidance, an estimated residual value of assets across each of the options has been estimated and included in the CIA Model as part of the economic appraisal. Residual values have been estimated as the carrying value of assets on the balance sheet at the end of the appraisal period for each option, adjusted for inflation and VAT. These values have been included within the cost sheets of the CIA Model and are subtracted from the overall capital cost values outlined above.

¹² Note that this is the gross increase in operating expenditure. There are also benefits associated with the digital investment which offset the operating expenditure to varying degrees depending on the option (as outlined in [Appendix A])

Table 35: Residual values for each WGH option (£m)

Description	1. 'Business as usual'	2. 'Do minimum'	3. Aligned with SOC Option 1	4. Option 3 plus refurb of PMoK	5. Maximum build - 106 beds in AAU	6. Maximum Clinical Build - Support in AAU
Residual value of assets at end of appraisal period (89/90)	476.0	482.3	360.9	385.8	139.8	157.0

Table 36: Residual values for each HHH option (£m)

Description	1. 'Business as usual'	2. 'Do minimum'	3. Enhanced option	4. Do all
Residual value of assets at end of appraisal period (89/90)	151.1	151.1	86.7	86.6

Table 37: Residual values for each SACH option (£m)

Description	1. 'Business as usual'	2. 'Do minimum'	3. Enhanced option	4. Do all
Residual value of assets at end of appraisal period (89/90)	153.3	153.0	150.5	150.7

1.4.4 Estimating risks

In order to ensure that there is clear understanding of the inherent business as usual and transition risks associated with each option, a detailed risk analysis comparing the options was undertaken by the Programme Team, using the risk categories set out in the CIA model as a guide.

Our principles in quantifying risks have been:

- Risks will not be created for the delivery of cash-releasing or financial benefits – the likely delivery of a benefit will be assessed as part of the benefit analysis or sensitivity analysis in order to avoid duplicating reduction of benefits
- The risks developed in the CIA Model should be material to the cost of options and help to differentiate them
 - Not all of the risks in the programme risk log and construction risk log will need to be included
 - Risks should be specific to the scheme and material to the options appraisal
- Risks that have been costed as a proportion of capital costs (such as some construction risks) of the option have been captured, but not included below as they are considered to be captured by the optimism bias value included in the capital cost.
- Construction risks will ultimately be quantified post-procurement in the GMP pack (or equivalent) for the FBC
- The cost of 1 month's programme delay to be estimated as £250,000, based on estimates from the Trust's estates team and independent expert advisors. This estimate is a proxy for:
 - 1 month's run rate of the core programme team
 - Value of 1 month's delayed capital costs
 - By option, value of 1 month's delayed benefits
- Revenue risks quantified as the net additional cost to the public sector

Table 38: CIA model risk categories

Category	Risks associated with...	Including...
A. Design	Finalising and building to the design	Risks associated with changes in requirements and failure to deliver the design
B. Construction	Construction of the facilities	Incorrect cost and time estimates, unforeseen ground conditions, project management
C. Performance	Delivery by the supplier against the construction contract	Meeting performance standards
D. Operating	Costs incurred by the Trust as a result of delivering and operating in the new facilities	
E. Revenue	Income as a result of delivering and operating in the new facilities	Disruption during construction, changes in demand
F. Termination	Unexpected termination of construction contract	
G. Technology	Changes in technology	Implementation and technological obsolescence
H. Control	Control of clinical and FM services	
I. Residual value	Value of assets at the end of the contract	
J. Other	Planning risk and land sale receipts	
K. Additional	(Factors not described above) We have considered in this category: <ul style="list-style-type: none"> • Supplier capacity • Procurement framework uncertainty • Availability of funding • Changes to approval process • Net Zero Carbon – penalty • Impact of COVID-19 on programme management resources • Incorrectly estimating amount of equipment re-use • Impact of unusual market conditions 	

Risks were also classified according to the three types of risk specified by the HM Treasury Green Book:

Table 39: HM Treasury Green Book risk types

Type	Description	Notes
Business	Remain with the public sector and cannot be transferred	Risks that cannot be outsourced and are not external
Service	May be shared between the public and private sectors	Risks that may be outsourced during design, build, financing, operating or maintenance (DBFOM) stages
External	Arise from the wider environment, not the intervention being appraised	Affect all of society

The following sections outline the estimated value of costed risks identified across each of the options. It is worth noting that the following sections only include specific costed risks over and above the allowance for risk included in the optimism bias with the OB1 forms outlined above. The risks below are therefore added to the CIA model and

are treated as a cost in the risk Adjusted Net Present Value (NPSV) and Benefit-cost Ratio (BCR) calculations. Further detail on costed risks is provided in [\[Appendix A\]](#).

Assessing the risks for the WGH options

The capital risks associated with the WGH options is set out in Table 40 below.

Table 40: Probability adjusted capital risks associated with WGH options (£m)

HMT Risk Type	CIA model ref	Risk	1. 'Business as usual'	2. 'Do minimum'	3. Aligned with SOC Option 1	4. Option 3 plus refurb of PMoK	5. Maximum build - 106 beds in AAU	6. Maximum Clinical Build - Support in AAU
Business	J2	Delayed planning approval (3 months)	-	-	0.1	0.1	0.1	0.1
	K1	Procurement framework uncertainty (6 months)	-	0.7	0.7	0.7	0.7	0.7
	K2	Availability of funding	-	-	0.3	0.7	0.7	0.7
	K3	Changes to approval process	-	0.5	0.5	0.5	0.5	0.5
	K4	Net zero carbon - penalty	-	-	1.0	1.0	1.0	1.0
External	K5	Inflation due to unusual market conditions	-	1.0	2.2	3.1	3.4	3.4
TOTAL CAPITAL RISK			-	2.1	4.8	6.0	6.3	6.4

Options 4, 5 & 6 attract a greater level of risk primarily due to the higher capital costs which means the risk of changing market conditions (e.g. higher construction inflation, impact of unusual market conditions, etc.) would have a greater impact on these options.

All risks will continue to be refined and revised ahead of the final version of the OBC and then again at FBC stage to reflect the changing profile of risks over time.

The revenue risks associated with the WGH options is set out below.

Table 41: Revenue risks associated with WGH options (£m)

Category	Risk	1. 'Business as usual'	2. 'Do minimum'	3. Aligned with SOC Option 1	4. Option 3 plus refurb of PMoK	5. Maximum build - 106 beds in AAU	6. Maximum Clinical Build - Support in AAU
Revenue risks	Reduced income as a result of temporary disruption	-	-	4.93	5.07	4.81	4.81
	Higher revenue costs as a result of temporary disruption	-	-	4.10	4.13	4.05	4.05
	Impact of dealing with a non-COVID major incident*	0.67	0.67	0.67	0.67	0.67	0.67
TOTAL REVENUE RISKS		0.67	0.67	9.70	9.87	9.54	9.54

*Note, this risk is recurrent, but is shown as an annual risk for consistency.

Assessing the risks for the HHH options

Table 42: Probability adjusted capital risks associated with HHH options (£m)

HMT Risk Type	CIA model ref	Risk	1. 'Business as usual'	2. 'Do minimum'	3. Enhanced	4. Do All
Business	K1	Procurement framework uncertainty (6 months)	-	-	0.21	0.21
	K3	Changes to approval process	-	-	0.15	0.15
External	K5	Inflation due to unusual market conditions	-	0.24	0.18	0.29
TOTAL CAPITAL RISK			-	0.24	0.54	0.65

The level of costed risk across the HHH options is much lower than WGH. This is because of the relatively low capital costs across all HHH options.

Table 43: Capital risks associated with SACH options (£m)

HMT Risk Type	CIA model ref	Risk	1. 'Business as usual'	2. 'Do minimum'	3. Enhanced	4. Do All
Business	K1	Procurement framework uncertainty (6 months)	-	-	0.18	0.18
	K3	Changes to approval process	-	-	0.13	0.13
External	K5	Inflation due to unusual market conditions	0.03	0.25	0.28	0.38
TOTAL CAPITAL RISK			0.03	0.25	0.60	0.70

The level of costed risk across the SACH options is much lower than WGH. This is because of the relatively low capital costs across all SACH options.

1.4.5 Net present social value findings

The system net present social value (NPSV) brings together the quantified benefits, costs and risks for each option.

NPSV is used as best practice within the HM Treasury Green Book as an **objective** measure for comparing total benefits for different options over an extended period of time. The option with the highest risk-adjusted NPSV provides the greatest value to society and is therefore considered the most economically advantageous.

NPSV considers the total benefits for each option and each site, including:

- Operating and other income
- Financial benefits from the clinical model

The system NPSV is then less the investments required and the costs at current values, including:

- Operating and non-operating expenditure (e.g. costs of providing services)
- Capital investment required
- Transition costs (e.g. cost of temporary buildings and double-running of some services in the intervening period)
- Costed risks

A discount rate of 3.5% first the first 30 years, and 3% up to 75 years has been applied to weight the relative value of future cash flows in line with best practice guidance in the HM Treasury Green Book.

Sunk costs, transfer payments, VAT, capital charges, depreciation and other non-resource costs have been excluded from the NPSV analysis, as required in the Green Book

A risk adjusted NPSV has also been calculated for each site and option. This includes all quantifiable risks across each option, adjusted for probability above. The full detail for this calculation is provided in [\[Appendix A\]](#).

The benefit-cost ratio was also estimated as part of the CIA Model for each site and option and is shown in the tables below.

Net present social value for WGH options

Table 44: Net Present Social Value of WGH options over 70 years

Description	1. 'Business as usual'	2. 'Do minimum'	3. Aligned with SOC Option 1	4. Option 3 plus refurb of PMoK	5. Maximum build - 106 beds in AAU	6. Maximum Clinical Build - Support in AAU
Total incremental Costs	-	(94)	(359)	(539)	(468)	(461)
Total Benefits	-	92	665	1,466	1,903	1,929
Risk-adjusted Net Present Social Value (NPSV) (£m)	-	(2)	306	927	1,435	1,468
Benefit-cost ratio	-	0.97	1.85	2.72	4.07	4.19
Ranking (1 = most preferable)	6	5	4	3	2	1

The NPSV for option 6 at WGH is the highest, driven by the high initial capital investment unlocking significant transformational recurrent benefits and reducing the capital expenditure requirement in future years for maintenance and lifecycle costs on the retained estate, so although the up-front capital is higher the ongoing benefits associated with this investment are realised earlier.

Net present social value for HHH options

Table 45: Net Present Social Value of HHH options over 70 years

Description	1. 'Business as usual'	2. 'Do minimum'	3. Enhanced	4. Do All
Total incremental costs	-	(29)	(3)	(8)
Total Benefits ¹³	-	33	55	41
Risk-adjusted Net Present Social Value (NPSV) (£m)	-	4	52	33
Benefit-cost ratio	-	1.13	17.32	5.03
Ranking (1 = most preferable)	4	3	1	2

The NPSV of options 3 at HHH is higher, driven primarily by the fact that after the initial investment, the ongoing maintenance costs of the retained estate are much lower than in the BAU. This means that the overall capital cost for Option 3 is lower than the BAU, driving a significant capital expenditure benefit in addition to the operational benefits outlined in the 'Assessing the benefits for the HHH options' section.

It is worth noting that whilst the BCR of option 3 is very high, this metric is extremely sensitive to small changes in the incremental costs due to the very low denominator in the BCR calculation and so this metric should be treated with caution for the HHH options. This highlights the need to consider all economic analysis metrics in the round when determining the preferred option, including total costs, total benefits, NPSVs, BCRs, unquantifiable benefits and the deliverability of a combination of options across the planned care sites as there are some options which cannot be delivered without a particular option on another site.

¹³ Total benefits include the reduction in overall capital expenditure vs the BAU, driven by lower maintenance costs on the retained estate after the initial investment, as outlined in the 'Assessing the costs for the HHH options' section

Table 46: Net Present Social Value of SACH options over 70 years

Description	1. 'Business as usual'	2. 'Do minimum'	3. Enhanced	4. Do All
Total Costs	-	(29)	(66)	(73)
Total Benefits	-	91	101	104
Risk-adjusted Net Present Social Value (NPSV) (£m)	-	62	35	31
Benefit-cost ratio	-	3.14	1.52	1.43
Other factors	-	No additional benefits	Additional unquantifiable benefits (see 1.4.6)	Additional unquantifiable benefits (see 1.4.6)
Ranking (1 = most preferable)	4	2	1	3

All options at SACH generate a positive NPSV, suggesting improved value for money compared to the business as usual option.

Whilst the do minimum option appears to show the greatest BCR and NPSV, this is driven by a number of specific factors, including relatively low levels of capital across all options, which means the BCR is skewed by small shifts in capital (which are reflected in the BCR as much larger relative changes). This means that the BCRs should be treated with caution for the SACH options. This highlights the need to consider all economic analysis metrics in the round when determining the preferred option, including total costs, total benefits, NPSVs, BCRs and unquantifiable benefits.

However, option 2 does not provide for the transfer of endoscopy services from HHH which is a key part of the Trust's overall model of planned care.

A summary of other factors to be considered, which means that option 3 (Enhanced option) has been identified as the preferred option is provided in 1.4.6 below. In summary, it is driven by:

- Greater total benefits over the appraisal period
- Only c. £37m greater capital, which is small in the context of the overall capital programme
- A number of additional benefits associated with this options which have not yet been quantified, including bringing in new services (new diagnostics, improving theatres, endoscopy transfer and increased capacity)
- The enhanced option is a key enabler to delivering the preferred HHH option. A key interdependency that the preferred option at HHH which delivers significant benefits, can only be delivered under the enhanced option

1.4.6 Planned Care sites combined preferred option

The following section sets out additional reasons for the recommendation of the Planned Care site preferred options, considering the viability of combining certain combination of options, as well as qualitative benefits associated with HHH and SACH option 3, which are not captured in the analysis in section 1.4.5.

Viability of option combinations at HHH and SACH

As outlined in the sections above, whilst a separate options appraisal has been carried out for each individual site, only certain combinations of SACH and HHH options are actually optimal and in line with the service model.

The Trust clinical model only requires one endoscopy centre for elective care. Any option combination which results in two planned endoscopy centres, or leaves the Trust with no planned endoscopy centre is therefore not optimal.

Table 47 below highlights which combination of options are therefore considered. In summary:

- No option that leaves Endoscopy at HHH (HHH option 1 and 2) can be paired with an option that creates a new Endoscopy unit at SACH (SACH option 3 and 4)
- Options that relocate Endoscopy from HHH (HHH option 3 and 4) can only be paired with options that create endoscopy at SACH (Options 3 and 4)

Therefore, all option combinations shown in red in Table 47 below are not optimal and have been excluded from the combined Planned Care quantitative analysis

Table 47: Viability of combinations of HHH and SACH options

	SACH Option 1	SACH Option 2	SACH Option 3	SACH Option 4
HHH Option 1				
HHH Option 2				
HHH Option 3				
HHH Option 4				

Compliance with Clinical Model objectives

The Clinical Model requires the creation of a planned medical service at HHH and planned surgical model at SACH. This model ensures staff only work from a maximum of two locations, that specialist services are collocated, and that one-stop shop clinicals can be established (enabling early diagnosis, minimising outpatient visits to hospital and making the most efficient use of specialist equipment). The BAU and Do Minimum options at HHH and SACH do not deliver this change, and therefore the anticipated benefits.

In addition to this, the Trust has considered the impact of retaining all the current estate footprint and buildings at HHH in the BAU and do Minimum options, which are addressed in options 3 and 4. In particular:

- The inefficiency created by retaining c. 35,000m² of estate at HHH (including estate which is currently empty or underutilised) when only c. 12,000m² is required to deliver the service model.
- The impact on the population of Dacorum and on the reputation of the NHS resulting from the retention of large areas of unoccupied estate close to Hemel Hempstead town centre, restricting the council’s ability to meet government housing targets and the associated services (e.g., schools), which can be achieved under Options 3 and 4..

Therefore, whilst combinations involving the BAU and Do Minimum options are considered as part of the evaluation, the benefits are minimal when assessed against the investment objectives.

Net present social value findings for Planned care site combinations

As outlined above, only certain combinations of the options at HHH and SACH are viable. The Trust has therefore assessed the NPSV for the different combinations of viable options, outlined in Table 48.

Table 48: NPSV of the combined Planned Care site options (£m)

	SACH Option 1	SACH Option 2	SACH Option 3	SACH Option 4
HHH Option 1	-	62.3	Not achievable	Not achievable
HHH Option 2	3.8	66.0	Not achievable	Not achievable
HHH Option 3	Not achievable	Not achievable	86.8	83.4
HHH Option 4	Not achievable	Not achievable	67.1	63.8

Table 49: BCR of the combined Planned Care site options

	SACH Option 1	SACH Option 2	SACH Option 3	SACH Option 4
HHH Option 1	-	3.14	Not optimal	Not optimal
HHH Option 2	1.13	2.14	Not optimal	Not optimal
HHH Option 3	Not optimal	Not optimal	2.25	2.10
HHH Option 4	Not optimal	Not optimal	1.90	1.79

Table 48 above outlines that the combination of options across HHH and SACH which delivers the highest NPSV is:

- **HHH: Option 3: Enhanced option**
- **SACH: Option 3: Enhanced option**

The combination is estimated to deliver an NPSV of c. £86.8m and a BCR of 2.25.

It should be noted that the combined BCR of HHH option 1 and SACH option 2 delivers a higher BCR than the combination of HHH and SACH option 3, due to the relatively low cost of this combination. However, as noted above the combination of Option 2 at SACH and Option 1 at HHH does not:

- Deliver the required location and capacity of endoscopy services as part of the overall clinical strategy and model of care;
- Deliver the reconfiguration of services within HHH to achieve the model of planned care at that site
- Release surplus land for wider societal benefit.

It is appropriate for the Trust to consider these options in line with the HMT Green Book, but when the options are considered alongside each other, there are only a limited number of combinations which can achieve the overall clinical strategy and model of planned care.

Therefore, due to the fact that HHH and SACH option 3 deliver a higher overall level of benefit (and therefore NPSV), as well as the qualitative benefits outlined in 1.4.6, these are recommended as the preferred options for the planned care sites.

1.4.7 Preferred option

As identified in the sections above, the preferred options for each site are as follows:

- **WGH: Option 6: Maximum Clinical Build - Support in AAU**
- **HHH: Option 3: Enhanced option**
- **SACH: Option 3: Enhanced option**

Combining these options presents an NPSV of £1,555m and a BCR of 3.93 as shown in Table 50 below compared to the combined BAU options. Table 51 shows the NPSV and BCR for the Emergency Care (WGH) Planned Care (HHH and SACH) combined preferred options – which demonstrates the value for money of the overall Acute Redevelopment Programme.

Table 50: NPSV and BCR of the overall combined preferred option

	Combined Do Minimum option	Combined preferred option
NPSV (£m)	64	1,555
BCR	1.42	3.93

Table 51: Breakdown of the NPSV and BCR for the preferred options

	Planned Care	Emergency Care	Combined preferred option
NPSV (£m)	87	1,468	1,555
BCR	2.25	4.19	3.93

1.4.8 Sensitivity analysis

To ensure the findings of our economic appraisal were robust to potential changes to the scheme, sensitivity analysis was undertaken on the preferred option at each site.

Several scenarios, detailed in Table 52, have been alternately altered from the core scenario to stress test the NPSV conclusions. The aim of this analysis was to determine whether the ranking of the NPSV changes between the options under any scenario. The following sections outline the conclusions to be drawn from the sensitivity analysis

Table 52: Sensitivity analysis

Sensitivity tested	Is the ordering of NPSV between options maintained when tested?		
	WGH	HHH	SACH ¹⁴
Reduction in benefits by 10%	✘*	✓	n/a
Increase in costs by 10%	✘*	✓	n/a
Increasing risks by 50%	✓	✓	n/a
Removing land sale value	✓	✓	n/a

*In both cases, option 5 becomes the preferred option at WGH

WGH Sensitivity analysis

The sensitivity analysis suggests that, as expected, the difference in NPSV between WGH option 5 and 6 is sensitive to changes in parameters. However, it also suggests that there is a significant gap between option 6 and all of options 1-4.

- Reducing the option benefits by 10% for option 6 reduces the NPSV to £1,275m**, meaning it ranks second, behind option 5, but is still significantly higher (c. 44%) than option 4. It is worth noting however, that due to the similar scope of options 5 and 6, any reduction in benefits realised in option 6 would likely also apply to option 5. We are therefore confident that option 6 remains the preferred option.
- Increasing the capital cost (including optimism bias) by 10% for option 6 reduces the NPSV £1,373**, meaning it ranks second, behind option 5, but is still significantly higher (c. 49%) than option 4. It is worth noting however, that due to the similar scope of options 5 and 6, any increase in capital costs in option 6 would likely also apply to option 5. The Trust is therefore confident that option 6 remains the preferred option.
- Increasing costed risks by 50% for option 6 reduces the NPSV to £1,457m**, meaning it still ranks first out of the options and remains the preferred option.
- Removing the land sale for option 6 reduces the NPSV to £1,465m**, meaning it still ranks first out of the options and remains the preferred option.

¹⁴ Sensitivity analysis has not been carried out for SACH options, as the recommended preferred option 3 does not rank highest in the NPSV and BCR. Switching analysis is carried out in 1.4.9 to assess the value at which key assumptions would have to change by for the NPSV and BCR ordering to change.

HHH Sensitivity analysis

The sensitivity analysis suggests that the finding that option 3 has the highest NPSV out of the HHH options is robust to changes in parameters.

- 1. Reducing the benefits by 10% for option 3 reduces the NPSV to £47m**, meaning it still ranks first out of the options and remains the preferred option.
- 2. Increasing the capital cost (including optimism bias) by 10% for option 3 reduces the NPSV to £39m**, meaning it still ranks first out of the options and remains the preferred option.
- 3. Increasing the costed risks by 50% for option 3 has no significant impact on the NPSV**, meaning it still ranks first out of the options and remains the preferred option.
- 4. Removing the land sale for option 3 reduces the NPSV to £43m**, meaning it still ranks first out of the options and remains the preferred option.

SACH Sensitivity analysis

As outlined in Table 46, option 3 at SACH is recommended as the preferred option, despite the NPSV ranking second behind the do minimum. One of the key reasons for recommending option 3 at SACH as the preferred option is that, unlike the do minimum, it is a key enabler to delivering the preferred HHH option. Since the section above suggests that the finding that option 3 at HHH is the preferred option is robust to changes in parameters, it is recommended that option 3 at SACH remains the preferred option even after changes in key parameters. The switching analysis below determines the value at which changes in values of benefits and costs would have to change by for option 3 at SACH to rank higher than the do minimum in terms of the NPSV.

1.4.9 Switching analysis

Switching values analysis was also carried out to further test the robustness of our preferred option recommendations. This analysis included:

- **Benefits.** Determining the percentage by which benefits will have to change by for the preferred option to change.
- **Capital costs.** Determining the percentage by which capital costs will have to change by for the preferred option to change.

WGH switching analysis

As outlined in 1.4.8, due the similar scope of option 5 and 6 at WGH, relatively small changes in parameters in option 6 result in option 5 ranking higher in terms of the NPSV. It is noted however that changes to parameters in option 6 would likely also apply to option 5, meaning that option 6 remains a robust preferred option after the sensitivity analysis. As part of the switching analysis, the robustness of option 6 compared to option 4 has also been tested, as this is the highest-ranking option where the scope is significantly different.

Table 53: Switching analysis at WGH

Variable assumption	Compared to option 5	Compared to option 4
Reduction in benefits required to change NPSV ranking of preferred option	1.7%	28.0%
Increase in capital required to change NPSV ranking of preferred option	3.5%	57.0%

The switching analysis suggests that significant reductions in the benefits (28.0%) or increase in capital costs (57.0%) would have to be applied to option 6 in order for the NPSV to reduce to the same as option 4 (£927m). Therefore, the Trust is confident that option 6 remains a robust preferred option at WGH.

HHH switching analysis

Table 54: Switching analysis at HHH

Variable assumption	Compared to do minimum
Reduction in benefits required to change NPSV ranking of preferred option	61.6%
Increase in capital required to change NPSV ranking of preferred option	15.4%

The switching analysis suggests that significant reductions in the benefits (61.6%) or increase in capital costs (15.4%) would have to be applied to option 3 in order for the NPSV to reduce to the same as option 4 (£33m). Therefore, the Trust is confident that option 3 remains a robust preferred option at HHH.

SACH switching analysis

Table 55: Switching analysis at SACH

Variable assumption	Compared to do minimum
Increase in benefits required to make option 3 highest NPSV	27.4%
Decrease in capital required to make option 3 highest NPSV	41.7%

The switching analysis suggests that a significant increase in benefits (27.4%) or reduction in capital (41.7%) would have to be applied to option 3 to make the NPSV rank higher than the do minimum option. It does however remain the preferred option due to the reasons stated in 1.4.6.

1.4.10 Conclusion

As outlined in Section 1.4.7, the economic appraisal identifies the preferred option as:

- **WGH: Option 6: Maximum Clinical Build - Support in AAU**
- **HHH: Option 3: Enhanced option**
- **SACH: Option 3: Enhanced option**

The sensitivity analysis and further review of the qualitative evidence further supports this selection of the preferred option.

The Economic Case recommends this combination of options is carried forward as the preferred options for detailed appraisal of the procurement options (Commercial Case) financial affordability (Finance Case) and deliverability (Management Case). This is in line with the process described in HMT Green Book.

2 Financial Case

This Financial Case sets out the total capital costs, funding arrangements and relative affordability of the Preferred Options (as set out in the Economic Case) for Emergency and Specialist Care (at the Watford site) and for Planned Care across the SACH and HHH sites to assess whether they represents a viable proposition overall and meet the key investment objectives. The conclusion of the analysis is that the investment overall will be affordable in the medium term.

2.1 Introduction and context

Prior to the COVID-19 pandemic, the Trust operated in deficit, largely driven by the deteriorating estate and significant capacity constraints:

- A series of risk assessments undertaken by the Board, and publication of the Francis report, resulted in additional investment required to improve quality through increased staffing and infrastructure.
- Corrective actions were undertaken following the CQC inspection in 2015.
- Additional clinical capacity has been needed to accommodate increasing non-elective admissions
- Further capacity issues have been driven by seasonal demand for non-elective services leading to suspension of elective operations. The non-elective work has a higher cost base relative to income.
- Infrastructure limitations and degradations have resulted in high levels of reactive maintenance costs and non-availability of some services temporarily or high outsourcing costs.

In 2020/21 the Trust delivered a breakeven position. However, this was principally due to non-recurrent income streams of around £55m top up and £25 for COVID provided to help the Trust respond to (a) COVID-19 pressures, and (b) to replace the previous financial recovery fund income stream. The Preferred Option will address the key drivers of financial pressures derived from the capacity and estate limitations, as well as delivering the incremental benefits detailed in the Economic Case.

The analysis used to support this Financial Case has been developed based on the Trust's current Long- Term Financial Model (LTFM)¹⁵, which has been aligned to the most recently issued planning guidance for 22/23 and expectations around growth rates and non-recurrent items including COVID-19 top-up funding. These assumptions are outlined in detail in Section 2.1.1.

To reflect the uncertainty in the benefits and capital associated with the Preferred Option, as well as the pandemic, a number of sensitivity cases have been developed to test the impact of flexing key assumptions. These are detailed in Section 2.2.4.

2.1.1 Forecast income and expenditure in the BAU option

A c.£3.0m deficit is forecast in 2036/37 as a result of the BAU capital expenditure programme and range of standard planning assumptions. This is the comparator upon which to measure the financial impact of the Preferred Option.

The Business As Usual scenario includes c.£305.0m of capital expenditure up until the financial year 2030/31 and £537.4 up to 2036/37. The Economic Case describes the scope of the BAU option across each site. Further information on each of these options is provided in the RIBA Stage 1 Report by the Trust's advisors BDP and the accompanying estates and costing information provided by Arcadis.

This level of capital investment and resulting capital charges is forecast to worsen the Trust's income and expenditure position significantly, as outlined in Table 56 below as it does not unlock any of the benefits which increased investment (in the estate and digital) is likely to bring. This figure represents a snapshot of the Trust's income and expenditure position in 2036/37.

The table outlines:

1. **NET SURPLUS / (DEFICIT) FOR THE PERIOD FROM LTFM.** A net surplus / (deficit) position resulting from the Trust's LTFM (to 30/31) and a continuation of the Trust's LTFM thereafter. This represents the capital charges resulting from internally funded operational capital only.
2. **TOTAL DEFICIT USED FOR COMPARISON.** The total deficit used for comparison of the preferred option throughout the financial case. This represents the capital charges resulting from the additional capital over and

¹⁵ The Trust is continuing to refresh the LTFM in line with the 2022/23 plan submitted on 28/04/2022. At FBC stage the modelling will be refreshed and aligned to the latest LTFM. It is worth noting that we do not expect changes to the LTFM to have a material impact on the key strategic messages of this case.

above the amount included in the Trust's LTFM, as outlined in 1.4.3. This additional capital reflects the level of investment required to maintain services at the current standard, rather than maintaining a historical level of capital investment, per the HMT Green Book guidance

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Table 56: BAU forecast income and expenditure position 2020/21 - 2036/37¹⁶ (£m)

	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
Operating income from patient care activities	359.8	345.0	356.6	360.1	374.2	386.6	399.8	413.9	428.5	443.6	459.6	476.3	493.5	511.4	530.0	549.1	569.0
Other operating income	112.8	122.0	103.9	94.2	94.2	94.2	94.2	94.2	94.2	94.2	94.2	94.2	94.2	94.2	94.2	94.2	94.2
Total operating revenue	472.6	467.0	450.9	454.3	468.4	480.8	494.0	508.1	522.7	537.8	553.8	570.5	587.7	605.6	624.1	643.3	663.2
Employee expenses	(297.9)	(287.3)	(290.5)	(282.7)	(287.6)	(294.5)	(301.7)	(309.2)	(317.1)	(325.3)	(333.8)	(344.4)	(355.5)	(366.9)	(378.7)	(391.0)	(403.7)
Other operating expenses	(154.5)	(161.8)	(150.1)	(150.3)	(156.0)	(159.5)	(164.9)	(169.3)	(174.3)	(181.6)	(188.2)	(194.2)	(200.4)	(206.9)	(213.6)	(220.5)	(227.7)
Total operating expenses	(452.4)	(449.1)	(440.7)	(433.0)	(443.5)	(454.0)	(466.7)	(478.5)	(491.4)	(506.9)	(522.0)	(538.6)	(555.9)	(573.8)	(592.3)	(611.5)	(631.4)
OPERATING SURPLUS	20.2	17.9	10.2	21.3	24.8	26.8	27.4	29.6	31.3	30.9	31.8	31.8	31.8	31.8	31.8	31.8	31.8
Non-operating expenses ¹⁷	(24.6)	(17.9)	(19.9)	(21.3)	(22.1)	(23.2)	(22.8)	(24.1)	(24.9)	(23.5)	(23.4)	(23.4)	(23.4)	(23.4)	(23.4)	(23.4)	(23.4)
Top up funding	-	-	9.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NET SURPLUS / (DEFICIT) FOR THE PERIOD FROM LTFM	(4.4)	-	-	-	2.7	3.6	4.6	5.5	6.4	7.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4
Additional capital charges over and above LTFM	-	(1.7)	(2.2)	(2.9)	(3.0)	(3.7)	(4.1)	(4.4)	(5.1)	(5.8)	(6.2)	(4.6)	(4.2)	(5.2)	(7.9)	(9.4)	(11.4)
DEFICIT USED FOR COMPARISON	(4.4)¹⁸	(1.7)	(2.2)	(2.9)	(0.3)	(0.1)	0.5	1.1	1.3	1.6	2.2	3.8	4.2	3.2	0.5	(1.0)	(3.0)

¹⁶ 36/37 is used as the reference year as it is 5 full years after redevelopment and is 'steady state' in that all relevant cash releasing benefits have been realised by this point.

¹⁷ Non-operating expenses from 2031/32 – 2036/37 assumed to be the same as 2030/31 from LTFM before injection of additional capital expenditure

¹⁸ Deficit of £4.4m includes £7.9 impairment charge and £3.3m income from donated assets, which are not recognised in measuring the Trust's financial performance. Normalising for these items results in a £0.3m normalised surplus in 20/21

The planning assumptions driving the BAU position are consistent with the Trust's 2022/23 LTFM up until 2030/31. From 2030/31 these planning assumptions, and therefore the average income and cost growth rate, are carried forward to 2036/37. The only exception to this is that the capital expenditure in the BAU scenario is consistent with the costs calculated specifically for the Acute Redevelopment Programme by independent advisors, and therefore the capital financing charges (depreciation and PDC charges) are different to the amounts reported in the Trust's LTFM. A summary of the planning assumptions is provided in Table 57 below.

Table 57: Key financial planning assumptions included in BAU forecast

Assumption	Value	Description
Top-up funding / FRF / PSF / MRET	c. £55m p.a.	Assumed level of top-up funding to be included in commissioner allocations going forward
Income growth due to demographic change	c. 1.2% - 1.4%	Growth due to demographic growth. This is based on ONS 2018 projections for the Herts Valley clinical commissioning group (CCG).
Income growth due to non-demographic change	c. 1.0% - 1.1%	Based on historical growth of activity over and above the demographic growth rate.
Cost of meeting additional activity (as % of income)	c. 2.3% - 2.5%	Cost of meeting additional activity from demographic and non-demographic pressures
Cost inflation rates	c. 2.1% - 2.8%	Cost inflation in line with national planning assumptions
Tariff inflation rates	c. 0.9 – 1.6%	Tariff inflation in line with national planning assumptions
Non-recurrent expense	c. £8.3m - £10.8m	Additional non-recurrent cost pressures associated with Covid-19 including pressures to address estate degradation risks
Recurrent cost pressures	c. £0.5 - £2.5m	Additional recurrent cost pressures resulting from delivering activity within current constraints
National minimum efficiency requirement (as a % of cost)	c. 1.1%	Per national efficiency requirements
Convergence adjustment requirement (as a % of cost)	c. 0.8% in 22/23 only	Adjustment to move allocations to ICB's fair share over time
Additional efficiency required from service transformation	c. 0.6% - 1.8%	Efficiency over and above the national minimum required from service transformation
Service Developments	various	Revenue impact of BAU service developments including EPR and Pathology business cases
Additional depreciation	various	Additional depreciation associated with the c. £537.4m capital expenditure in the BAU scenario from 2021/22 to 2036/37.
Annual dividend payable	various	Additional PDC charge associated with the increased net relevant assets as a result of the BAU capital expenditure.

The planning assumptions have been derived through an iterative process and conversations with a range of finance and non-finance stakeholders. The uncertainty around the future financial regime makes forecasting future assumptions a particular challenge. This case uses conservative estimates, in line with similar schemes at this stage and will be refreshed at full business case (FBC) stage.

The notably worsened deficit of £3.0m in 2036/37 is primarily due to the substantial depreciation and PDC charges resulting from the £537.4m capital expenditure in the BAU scenario. This investment does not support significant transformation and therefore does not deliver cash releasing benefits over and above the standard efficiencies outlined above (which the Trust would be expected to deliver in any event).

2.1.2 Future Non-recurrent Income streams

The LTFM assumes that top-up funding will continue to be received inherently within Commissioner contracts from 2022/23 onwards.

Prior to COVID-19 the Trust operated in an underlying deficit driven by a combination of factors. In order to support the delivery of a position closer to breakeven, the Trust had received non-recurrent top-up funding of £55m to replace financial recovery funding received in previous years and £25m to cover increased costs resulting from dealing with the pandemic.

The current uncertainty resulting from the pandemic means that planning complexity is likely to continue, making forecasting with accuracy a challenge. However, it is known that from 22/23 onwards, commissioner allocations will include all top-up funding granted to providers within their ICS. The Trust's LTFM therefore assumes that it will continue to receive c. £55m of top-up funding from 22/23 inherently within commissioner funding agreements.

Over time, commissioner allocations are expected to shift towards a 'fair shares' funding approach, where recurrent funding is distributed on a needs basis rather than historic allocations uplifted for growth and inflation— this could create a financial challenge for the Trust.

2.2 Impact of the redevelopment on the Trust's income and expenditure account

2.2.1 Capital investment

The total initial capital cost associated with the Preferred Option is £1.27bn.

The capital costs for each option have been developed in line with the relevant NHS guidance. These costs include appropriate levels of optimism bias (15.0% - 18.5%) and contingency (5.0%) for OBC stage, as outlined in Table 58 below.

A summary of the key elements of these costs is outlined in Table 58, with further details on costs and assumed useful economic lives of assets available within [Annex X](#). Work will continue to refine and solidify these values as the programme progresses towards FBC. For the purpose of this financial analysis, all of these costs have been included. Details of these additional costs are included in [Annex X](#).

Two separate cash receipts are included for the sale of land (£5m at WGH and £10m at HHH). These have been deducted from the initial capital expenditure as outlined below, based on the assumption that the Trust would use the cash receipt as part of the redevelopment budget, reducing the total ask for PDC (Public Dividend Capital) funding. This assumption will be appropriately tested with NHP regulators as the case progresses, including the CDEL impacts. CDEL is the Capital limit held at Department of Health and Social Care level and set by HMT.

An impairment¹⁹ of 20% of the capital cost has been included in the completion year for each site, in line with other NHP business case assumptions and early testing locally. This reflects the reduced value of the assets as they come in to operation, compared to the business case outturn costs.

The Trust is working with an independent valuer to validate this assumption and it will be refined as the programme progresses to FBC. The impairment reduces the ongoing capital charges associate with the redevelopment. This accounting treatment needs to be tested with auditors – and the result of this testing could mean an additional negative income and expenditure impact in intervening years if the decision is for the full impairment to be fed through the Income & Expenditure (I&E) projections rather than through the revaluation reserve.

However, the immediate impact of the impairment is stripped out of the normalised I&E (the main I&E used for reporting), meaning the different treatments will not impact the key strategic messages of this case.

¹⁹ An impairment is the potential result of the estate valuation, if the valuation is lower than the capitalised value of the estate. 20% of the OBC capital cost has been used as a proxy for the effect of the revaluation of the estate, once the redevelopment is complete.

Table 58: Summary of initial capital expenditure (£m)²⁰

Capital expenditure item	WGH	HHH	SACH	Total
Departmental Costs	294	11	23	328
On-Costs	110	11	12	133
Works Cost Total	404	22	36	462
Provisional Location Adjustment	-	-	-	-
Sub-total	404	22	36	462
Project Fees	57	3	5	65
Non-Works Costs	8	1	1	10
Equipment Costs	59	5	7	71
Planning Contingency	20	1	2	23
Sub-total	548	32	50	630
Optimism Bias Adjustment	82	6	8	96
Inflation Adjustment	121	8	12	141
VAT	135	8	13	156
Sub-total	885	53	84	1,022
Net Must do and Potential additional costs	228	8	10	246
Total cost included	1,111	61	94	1,268
Land receipt	(5)	(10)	-	(15)
Total net cost included	1,106	51	94	1,253

2.2.2 Impact of the Preferred Option on the Income and Expenditure position

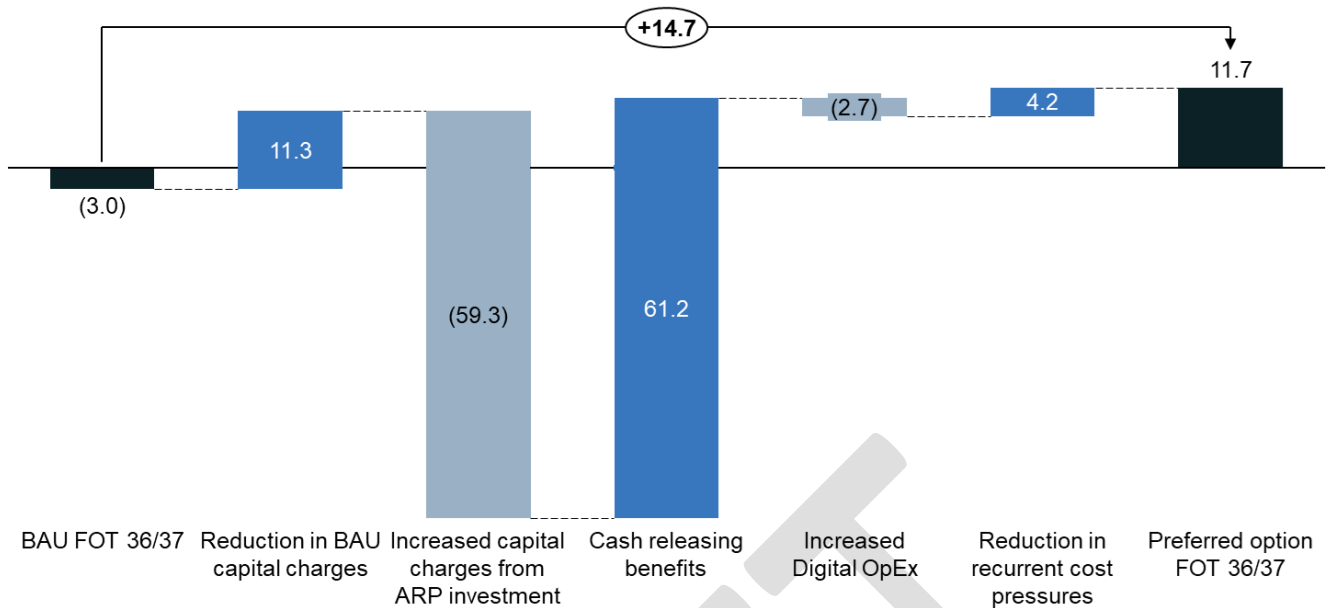
The Preferred Option is expected to improve the 2036/37 I&E by £14.4m, from a deficit of £3.0m to a surplus of £11.7m.

Within this section we explore the total financial impact of implementing the Preferred Option. This investment generates a strong return, improving the deficit by £14.7m to a surplus of £11.7m (compared to the BAU deficit of £3.0m).

The main driver of the improved position is the significant cash releasing financial benefits which the £1.2bn capital investment unlocks, allowing the Trust to realise efficiencies over and above those assumed to be achieved in the BAU option.

²⁰ In addition to the initial capital expenditure, each site also has additional lifecycle costs reflecting the ongoing maintenance of the new buildings as they come online, as well as maintenance and rebuild costs for the retained estate. These additional amounts are summarised in [Annex X](#)

Figure 4: Impact of the Preferred Option on the income and expenditure position



The movements between the BAU Forecast Outturn (FOT) 2036/37 and the Preferred Option FOT 2036/37 are as follows:

- **Reduction in BAU capital charges.** As a result of a high level of initial capital investment in the Preferred Option, the Trust is able to significantly reduce operational capital expenditure on maintaining the existing estate, predominantly using only the Trust’s internal cash to fund any maintenance. This results in significantly lower capital charges on BAU capital expenditure in the Preferred Option.
- **Increased capital charges from ARP investment.** As a result of the c.£1,268m initial capital expenditure in the Preferred Option, there is an increase in capital charges (PDC and depreciation).
- **Cash releasing benefits.** The redevelopment results in significant cash releasing benefits over and above the efficiencies assumed in the BAU option. These are outlined in 1.4.2 and offset the increased capital charges and running costs of the Preferred Option.
- **Increased operating expenditure from Digital.** The Preferred Options includes a significant (c.£31.3m) capital investment in digital technologies, which is included in the initial capital expenditure in Table 58 above. In addition to this, there is also increased gross operating expenditure associated with implementing these technologies, resulting in a c.£2.7m cost pressure per annum. It should be noted that there are also benefits associated with this investment, which are included in the total “cash releasing benefits” figure. Overall, Digital investment results in a net revenue benefit.
- **Reduction in recurrent cost pressures.** As a result of the significant capital investment in the preferred option, the Trust is able to reduce a proportion of the recurrent cost pressures included in the LTFM after the completion of the redevelopment, resulting in a £4.2m improvement in the position in 36/37.
- **Preferred option FOT 36/37.** As a result of the above movements, the preferred option is estimated to generate a c. £14.7m return vs the BAU scenario in 36/37, improving the Trust’s position from a £3.0m deficit to a £11.7m surplus

Table 59, below, summarises the incremental differences in the income and expenditure position as a result of the Preferred Option compared to the BAU. The terminology used for the formal statement of income and expenditure is known as the Statement Of Comprehensive Income (SOCl),

Table 59: Preferred Option SOCI incremental vs BAU

	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
Operating income from patient care activities	-	-	-	-	-	-	0.1	0.1	0.1	0.1	1.0	1.0	1.0	1.0	1.1	1.1	1.1
Other operating income	-	-	-	-	-	-	0.2	0.2	0.2	0.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Total operating revenue	-	-	-	-	-	-	0.3	0.3	0.3	0.3	2.2	2.3	2.3	2.3	2.3	2.3	2.3
Employee expenses	-	-	-	-	-	-	1.9	2.1	2.3	2.4	25.1	26.6	28.7	29.5	30.2	30.9	31.6
Other operating expenses	-	-	-	-	-	-	2.2	2.3	2.4	2.4	18.6	21.0	24.1	25.2	26.4	27.6	28.8
Total operating expenses	-	-	-	-	-	-	4.1	4.4	4.7	4.8	43.7	47.6	52.8	54.7	56.6	58.5	60.4
OPERATING SURPLUS	-	-	-	-	-	-	4.4	4.7	5.0	5.1	46.0	49.9	55.1	57.0	58.9	60.8	62.7
Non operating expenses	-	(0.4)	(0.2)	(0.2)	(0.6)	(0.5)	(3.7)	(10.6)	(9.6)	(8.1)	(52.3)	(65.8)	(63.2)	(59.9)	(54.5)	(52.1)	(48.0)
NET SURPLUS / (DEFICIT) FOR THE PERIOD FROM LTFM	-	(0.4)	(0.2)	(0.2)	(0.6)	(0.5)	0.6	(5.9)	(4.6)	(3.0)	(6.4)	(16.0)	(8.2)	(2.9)	4.4	8.7	14.7

2.2.3 Cost pressures in the intervening years

There are a number of cost pressures expected in the years before and immediately after opening the new hospital.

The previous section has outlined the forecast income and expenditure position of the Preferred Options in 2036/37, by which point all the cash releasing benefits associated with the capital investment will be realised, resulting in a positive return versus the BAU position.

It should be noted, however, that in the intervening years there is a cost pressure to the Preferred Options, between 25/26 and 32/33, where all capital charges are being accrued, but a small portion of the benefits are yet to be fully realised²¹.

Table 60, below, summarises the cost pressure of the Preferred Options in the intervening years before benefits are fully realised.

Table 60: Return / (cost pressure) of Preferred Option vs the BAU

	25/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33	33/34	34/35	35/36	36/37
BAU position	(0.1)	0.5	1.1	1.3	1.6	2.2	3.8	4.2	3.2	0.5	(1.0)	(3.0)
Preferred Options position	(0.6)	1.1	(4.9)	(3.3)	(1.4)	(4.1)	(12.2)	(4.0)	0.3	4.9	7.7	11.7
Return / (Cost pressure)	(0.5)	0.6	(5.9)	(4.6)	(3.0)	(6.4)	(16.0)	(8.2)	(2.9)	4.4	8.7	14.7

The Trust will work closely with the Integrated Care Board (when established) to address the treatment of this cost pressure in the interim years. However, there is precedent for central support for the transitional cost pressures for major capital developments and this will also be explored. As noted above, if the impairment (amount of the capital value written off when the building opens) increases above 20%, this will increase this shorter-term cost pressure but improve the point at which the Trust achieves a break-even point.

2.2.4 Financial mitigation and sensitivity analysis

Sensitivity analysis suggests the affordability of the Preferred Options relative to the BAU option is robust to flexing key inputs including benefits and capital costs.

Sensitivity analysis has been undertaken to test the impact of flexing individual parameters on the forecast position. The impacts of these scenarios are summarised in Table 61 below. Additional sensitivities are included in the overall financial model.

The sensitivity analysis suggests that the affordability of the preferred option is robust

²¹ As part of the benefit quantification, the Trust has made an assumption on the period over which benefits will “phase up” before they are fully realised. Most benefits are realised in the year of completion, however some are phased in over a longer period of time, up to 3 years (i.e. 33% in year 1, 67% in year 2, 100% in year 3). Full details of this phasing are included in [Annex X](#).

Table 61: Sensitivity analysis of the preferred option (£m)

Sensitivity	Description	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
1. Decrease benefit by 10%	Impact on surplus/(deficit)	-	-	(0.5)	(0.5)	(0.5)	(0.5)	(4.6)	(5.1)	(5.6)	(5.7)	(5.9)	(6.0)	(6.1)
	Resulting surplus/(deficit)	(1.0)	(0.6)	0.7	(5.4)	(3.8)	(1.9)	(8.7)	(17.3)	(9.6)	(5.5)	(0.9)	1.7	5.6
	Compared to BAU	(0.6)	(0.5)	0.2	(6.4)	(5.1)	(3.5)	(10.9)	(21.1)	(13.8)	(8.7)	(1.4)	2.7	8.5
2. Increase capital expenditure by 5%	Impact on surplus/(deficit)	-	-	(0.4)	(0.5)	(0.5)	(0.5)	(12.4)	(3.4)	(3.4)	(3.3)	(3.2)	(3.1)	(3.0)
	Resulting surplus/(deficit)	(1.0)	(0.6)	0.7	(5.4)	(3.8)	(1.8)	(16.5)	(15.6)	(7.4)	(3.0)	1.7	4.6	8.7
	Compared to BAU	(0.6)	(0.5)	0.2	(6.4)	(5.1)	(3.5)	(18.7)	(19.4)	(11.5)	(6.2)	1.2	5.5	11.7
3a Impairment increased to 25%	Impact on surplus/(deficit)	-	-	0.2	0.3	0.3	0.3	3.1	4.0	3.9	3.9	3.8	3.7	3.6
	Resulting surplus/(deficit)	(1.0)	(0.6)	1.4	(4.6)	(3.0)	(1.1)	(1.0)	(8.2)	(0.1)	4.1	8.7	11.4	15.3
	Compared to BAU	(0.6)	(0.5)	0.9	(5.6)	(4.3)	(2.7)	(3.2)	(12.0)	(4.2)	0.9	8.2	12.4	18.3
3b Impairment decreased to 15%	Impact on surplus/(deficit)	-	-	(0.2)	(0.3)	(0.3)	(0.3)	(3.1)	(4.0)	(3.9)	(3.9)	(3.8)	(3.7)	(3.6)
	Resulting surplus/(deficit)	(1.0)	(0.6)	0.9	(5.2)	(3.6)	(1.7)	(7.2)	(16.2)	(8.0)	(3.6)	1.1	4.0	8.1
	Compared to BAU	(0.6)	(0.5)	0.4	(6.3)	(4.9)	(3.3)	(9.5)	(20.0)	(12.1)	(6.8)	0.6	4.9	11.0
4. Increase CIP to 3%	Impact on surplus/(deficit)	-	5.1	10.1	15.2	20.3	25.5	30.6	30.6	30.6	30.6	30.6	30.6	30.6
	Resulting surplus/(deficit)	(1.0)	4.4	11.3	10.3	17.0	24.1	26.5	18.4	26.6	30.9	35.6	38.4	42.3
	Compared to BAU	(0.6)	(0.5)	0.6	(5.9)	(4.6)	(3.0)	(6.4)	(16.0)	(8.2)	(2.9)	4.4	8.7	14.7
5. Double benefits phasing period	Impact on surplus/(deficit)	-	-	(2.9)	(1.8)	(0.4)	(0.3)	(25.7)	(16.8)	(6.2)	(4.2)	(2.0)	(0.3)	(0.3)
	Resulting surplus/(deficit)	(1.0)	(0.6)	(1.8)	(6.7)	(3.7)	(1.6)	(29.8)	(29.0)	(10.2)	(3.9)	2.9	7.4	11.4
	Compared to BAU	(0.6)	(0.5)	(2.3)	(7.7)	(5.0)	(3.2)	(32.1)	(32.8)	(14.4)	(7.1)	2.4	8.4	14.4
6. PDC dividend to 1.5%	Impact on surplus/(deficit)	-	-	1.2	2.3	2.1	2.0	10.5	18.7	17.9	17.2	16.5	15.8	15.1
	Resulting surplus/(deficit)	(1.0)	(0.6)	2.3	(2.6)	(1.1)	0.7	6.4	6.5	13.9	17.5	21.4	23.5	26.8
	Compared to BAU	(0.6)	(0.5)	1.8	(3.7)	(2.4)	(1.0)	4.1	2.7	9.8	14.3	20.9	24.5	29.8

2.2.5 Switching analysis

Switching analysis indicates that the preferred options may be able to deliver an overall breakeven position from 20/21 to 36/37 with a small increased CIP delivery.

It also suggests that only a significant decrease in benefits or increase in capital cost would cause a result in the preferred option worsening the I&E position in 36/37 compared to the BAU.

Switching analysis has been undertaken to assess to what level certain parameters would need to be stretched in order to drive specific changes in the forecast position. The results of this switching analysis are summarised in Table 62 below.

Table 62: Results of switching analysis

	Variable assumption	Result
1.	Recurrent CIP required from 24/25-30/31 to deliver overall breakeven position between 20/21 and 36/37 (Note base CIP in these years is 1.6%)	1.87% ²²
2.	Reduction in benefits required to make worsen preferred option forecast to BAU position in 36/37	23.9%
3.	Increase in capital required to worsen preferred option forecast to BAU position in 36/37	24.6%

The switching analysis suggests that it would require a significant increase in capital cost (24.6%) or decrease in cash releasing benefits (23.9%) for the preferred option to deliver a worsened I&E position compared to the BAU.

2.3 Financial Summary

The Preferred Option has a strong return compared to the BAU option.

An overall summary of the financial appraisal of the BAU and Preferred Option is shown in Table 63, below.

²² 1.87% represents a c. 0.7 percentage point increase from the 1.8% included in the base scenario from 24/25 to 30/31. It is worth noting that the recurrent CIP in the base scenario in 22/23 and 23/24 is 3.6% and 3.0% respectively

Table 63: Financial summary

		BAU scenario	Preferred Option
Estates and capital	Capital expenditure	Avg. c.£32m p.a. ²³	£1,268m ²⁴
	Land sale receipts	-	£15m
	Estimated year of completion	n/a – ongoing annual maintenance	WGH: 30/31 ²⁵ HHH: 26/27 SACH: 26/27
Finance	36/37 Trust income	663.2	665.5
	36/37 Trust expenditure	(666.2)	(653.8)
	- Of which depreciation	(17.5)	(44.6)
	- Of which PDC charge	(17.3)	(38.2)
	- Of which cash releasing benefits	-	61.2
	36/37 net surplus / (deficit)	(3.0)	11.7

2.4 Impact on the Trust's Statement of Cash Flow (SoCF)

There is a significant improvement in the Trust's cash position as a result of the initial capital investment, driven by cash releasing benefits exceeding the higher PDC charges paid on the redeveloped assets.

Table 64 shows the impact of the Preferred Option on the cash position of the Trust for the years up to and following the completion of the redevelopments. A detailed breakdown of the SoCF for both the BAU and Preferred Option can be found in [Appendix X](#).

This analysis shows that there is an overall increase in the Trust's cash balance by 2036/37 driven by:

- Increase in cash generated from operating activities, driven by significant cash releasing benefits reducing operating expenditure compared to the BAU.
- Increase in cash used in investing activities to 30/31, driven by c.£1,260 investment in initial ARP capital expenditure. After 30/31 the cash used in investing activities is lower in the preferred option compared to the BAU scenario, reflecting the lower costs of ongoing maintenance and lifecycle expenditure.
- Increase in cash generated from financing activities to 30/31 with a decrease thereafter, driven by receipt of PDC funding for the initial redevelopment capital investment and a portion of the ongoing Lifecycle costs, offset by a higher PDC dividend payment compared to the BAU.

²³ BAU scenario capital expenditure includes lifecycle costs associated with maintaining the current estate, as well as significant investments to address the high and significant risk backlog

²⁴ This figure represents the initial capital expenditure. In addition to this, the model also assumes a continued level of BAU capital expenditure, as well as ongoing lifecycle maintenance costs on the redeveloped estate from the point of completion

²⁵ Note that the majority of the build is complete by 28/29, however the completion of AAU is not until 30/31

Table 64: Preferred Option incremental SoCF compared to BAU (£m)

	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
Net cash generated from/(used in) operating activities	-	-	-	-	-	4.4	4.7	5.0	5.1	46.0	48.2	53.2	56.6	58.5	60.4	62.3
Net cash generated from/(used in) investing activities	(9.6)	(34.9)	(21.4)	(133.9)	(323.4)	(320.0)	(249.7)	(137.4)	6.9	(2.0)	15.5	48.0	45.3	24.8	14.2	9.4
Net cash generated from/(used in) financing activities	9.2	34.7	21.2	133.3	322.6	317.1	244.8	133.6	(9.3)	(14.5)	(46.0)	(75.9)	(69.8)	(44.7)	(31.4)	(24.6)
Increase/(decrease) in cash and cash equivalents	(0.4)	(0.2)	(0.2)	(0.6)	(0.8)	1.4	(0.2)	1.2	2.8	29.4	17.7	25.4	32.1	38.6	43.2	47.2
Balance at year-end	(0.4)	(0.6)	(0.9)	(1.5)	(2.3)	(0.9)	(1.1)	0.1	2.9	32.3	50.0	75.4	107.4	146.0	189.3	236.5

2.5 Impact on the Trust's Statement of Financial Position (SoFP)

There is a large increase in net assets on the balance sheet as a result of the preferred option redevelopment. This reflects the higher initial investment compared to the BAU scenario and results in a higher PDC dividend charge in the preferred option.

Table 65, below, summarises the impact of the Preferred Option on the Trust's balance sheet compared to the BAU. A detailed summary of the BAU and Preferred Options SoFP (i.e balance sheet) is provided in [Appendix A](#).

The new buildings will be accounted for in line with IFRS guidance, with the fair value of the asset recognised as property, plant and equipment on the Trust balance sheet.

The Preferred Options result in an overall increase in the Trust's net assets, driven by:

- A significant increase in non-current assets as a result of the higher initial capital expenditure compared to the BAU this is offset by a smaller reduction in all other non-current assets, as the high initial capital investment reduces the ongoing maintenance capital expenditure on retained assets.
- Non-current assets associated with the redevelopment are impaired at the point of completion by 20%, meaning that the value of the assets on the balance sheet are reduced by 20% upon the point of completion²⁶.
- Current assets are increased, due to the overall increase in the cash balance as described above.
- Smaller movements in liabilities such as trade payables and other liabilities.

²⁶ WGH = 30/31, SACH and HHH = 26/27

Table 65: Preferred Option incremental SoFP compared to BAU (£m)

	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
ARP-related assets	7.9	17.6	62.2	73.6	194.3	515.5	791.6	1,040.0	1,198.2	1,205.5	949.4	913.6	877.7	841.9	807.0	772.0	739.0
All other non-current assets	11.5	11.5	1.8	11.8	25.1	28.7	31.2	26.8	(4.8)	(24.7)	(24.7)	(38.9)	(85.2)	(128.1)	(148.4)	(157.5)	(161.1)
Cash	-	(0.4)	(0.6)	(0.9)	(1.5)	(2.3)	(0.9)	(1.1)	0.1	2.9	32.3	50.0	75.4	107.4	146.0	189.3	236.5
Current assets	-	-	-	-	-	-	-	-	-	-	-	(0.0)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)
Current liabilities	-	-	-	-	-	-	-	-	-	-	-	1.7	3.6	4.0	4.3	4.7	5.1
Non-current liabilities	-	-	-	-	-	-	-	-	-	-	-	0.0	0.0	0.0	0.0	0.0	0.0
Net asset / equity position	19.4	28.6	63.4	84.5	217.8	541.9	821.9	1,065.7	1,193.5	1,183.6	956.9	926.4	871.5	825.2	808.9	808.5	819.5

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2.6 Transitional costs

The Trust anticipates that some transition costs will be incurred to implement the Preferred Option. This includes things such as removal costs, clinical deep cleaning and double-running costs. To capture these costs, a c.£10m allowance has been made in the non-work costs as outlined in Table 58. The scope and price of these costs will be refined at a later stage as part of the RIBA 2 cost plan.

These costs will be identified in outline as part of the Management Case for the OBC and refined more precisely at FBC stage. The Management Case sets out the key responsibilities for implementing the construction and service transformation work, when this will be done and how it will be done. The costs, therefore, will be dependent upon the final nature and scope of the preferred options and the more detailed design work to be undertaken.

2.7 VAT treatment

VAT treatment is consistent with 2020/21 NHS / HMRC accounting rules. VAT at 20% is included on the capital scheme, except for VAT on fees which is assumed to be 100% recoverable. All revenue is based on current costs and income which includes VAT. There may also be an incremental improvement to the position based on HMRC assessment of the amount of work undertaken in existing buildings (particularly at SACH and HHH) which could increase the amount of VAT to be reclaimed at those sites.

2.8 Sources of capital funding

PDC funding has been identified as the preferred funding source for the required capital investment. The land sales of WGH (£5m in 2028/29) and HHH (£10m in 26/27) will net off the gross capital costs and therefore reduce the PDC asks. The CDEL implications of this will be tested with regulators. The BAU capital outlined is assumed to be funded internally through depreciation. Table 66 below outlines the total gross capital expenditure and the funding sources for the Preferred Option.

Table 66: Sources of capital funding for the Preferred Option (£m)

	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30	30/31
Initial capital expenditure											
WGH	7.0	8.7	43.6	10.5	82.6	235.4	293.6	254.1	164.0	13.0	2.0
HHH	0.4	0.4	0.4	0.4	13.8	28.7	15.7	-	-	-	-
SACH	0.6	0.6	0.6	0.6	31.5	56.2	3.3	-	-	-	-
Subtotal: initial capital expenditure	8.0	9.7	44.6	11.5	127.9	320.3	312.5	254.1	164.0	13.0	2.0
Additional capital expenditure ²⁷	12.3	57.2	34.5	28.3	32.1	30.1	27.6	16.2	15.0	15.0	14.9
Total gross capital expenditure	20.3	66.9	79.2	39.8	160.0	350.4	340.1	270.3	179.0	28.0	16.9
Funding											
PDC drawdown	-	55.5	66.6	25.8	145.1	334.4	314.5	254.3	158.0	13.7	2.6
Land sale	-	-	-	-	-	-	10.0	-	5.0	-	-
Internal funding ²⁸	20.3	11.4	12.5	14.0	14.9	16.0	15.6	16.0	15.9	14.3	14.2
Total funding	20.3	66.9	79.2	39.8	160.0	350.4	340.1	270.3	179.0	28.0	16.9

2.9 Conclusion

The financial case has demonstrated that the Preferred Options (for Emergency & Specialist Care and for Planned Care) are likely to be affordable within the lifetime of the project, relative to the BAU option.

The underlying position of the Trust is based on a structural deficit that has been worsening over recent years and reasonable assumptions around the future funding regime.

This case has summarised the financial impact and affordability of the Preferred Option. It finds that under the most realistic scenario, the Preferred Option is affordable within the lifetime of the project and supports the Trust to move to a breakeven position by 33/34, though there are cost pressures in the interim.

Sensitivity analysis suggests the affordability of the Preferred Option relative to the BAU option is robust to flexing key inputs including benefits and capital costs.

Switching analysis suggests that a small increase in recurrent CIP to 1.87% from 24/25 to 30/31 could enable the preferred option to deliver an overall breakeven position between 20/21 and 36/37.

The preferred option requires a significant initial capital investment, but allows the Trust to realise cash releasing benefits meaning the Preferred Option delivers a continually improving position, allowing the Trust to become financially sustainable. Conversely, the BAU position will continue to deteriorate and require regular injections of capital to maintain the existing insufficient service.

A robust delivery plan around benefits to ensure these deliver, will be critical to achieving an affordable position.

²⁷ Additional capital expenditure includes ongoing lifecycle maintenance costs to the redeveloped estate and the retained estate.

²⁸ Internal funding is capped at the depreciation value in any given year

