

Reporting to:	Trust Board - 31 March 2016
Title	Sustainable Services Programme - Strategic Outline Case
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Previously considered by	Draft Strategic Outline Case (SOC) approved by Finance Committee and Trust Board February 2016. Draft SOC shared with the Future Fit Programme, Shropshire and Telford & Wrekin Clinical Commissioning Groups, Powys Teaching Health Board, Shropshire Community Trust and the Trust Development Authority.
Executive Summary	<p>The Strategic Outline Case (SOC) for the Sustainable Services Programme describes a potential solution to the Trust's workforce challenges in A&E and Critical Care. The SOC also identifies a potential solution to address the organisation's backlog maintenance issues.</p> <p>The SOC builds on the work within the health economy's Future Fit Programme. It describes the case for change and a way in which a new clinical model for emergency and urgent care in the county could be implemented. The SOC includes the capital and revenue impact of changes to the Trust's workforce and estate in delivering this model of care within three potential configurations. The estimated timescales for implementation and the ongoing and new work required are also identified.</p> <p>Following approval by the Trust Board, the SOC will be forwarded to Commissioners and the Trust Development Authority for their support and approval.</p>
Strategic Priorities	
1. Quality and Safety	<input checked="" type="checkbox"/> Reduce harm, deliver best clinical outcomes and improve patient experience. <input type="checkbox"/> Address the existing capacity shortfall and process issues to consistently deliver national healthcare standards <input checked="" type="checkbox"/> Develop a clinical strategy that ensures the safety and short term sustainability of our clinical services pending the outcome of the Future Fit Programme <input type="checkbox"/> To undertake a review of all current services at specialty level to inform future service and business decisions <input checked="" type="checkbox"/> Develop a sustainable long term clinical services strategy for the Trust to deliver our vision of future healthcare services through our Future Fit Programme
2. People	<input type="checkbox"/> Through our People Strategy develop, support and engage with our workforce to make our organisation a great place to work
3. Innovation	<input checked="" type="checkbox"/> Support service transformation and increased productivity through technology and continuous improvement strategies
4. Community and Partnership	<input type="checkbox"/> Develop the principle of 'agency' in our community to support a prevention agenda and improve the health and well-being of the population <input type="checkbox"/> Embed a customer focussed approach and improve relationships through our stakeholder engagement strategies
5. Financial Strength: Sustainable Future	<input type="checkbox"/> Develop a transition plan that ensures financial sustainability and addresses liquidity issues pending the outcome of the Future Fit Programme
Board Assurance	<input checked="" type="checkbox"/> If we do not deliver safe care then patients may suffer avoidable harm and poor clinical outcomes and experience

Framework (BAF) Risks	<input type="checkbox"/> If the local health and social care economy does not reduce the Fit To Transfer (FTT) waiting list from its current unacceptable levels then patients may suffer serious harm <input checked="" type="checkbox"/> Risk to sustainability of clinical services due to potential shortages of key clinical staff <input type="checkbox"/> If we do not achieve safe and efficient patient flow and improve our processes and capacity and demand planning then we will fail the national quality and performance standards <input checked="" type="checkbox"/> If we do not get good levels of staff engagement to get a culture of continuous improvement then staff morale and patient outcomes may not improve <input checked="" type="checkbox"/> If we do not have a clear clinical service vision then we may not deliver the best services to patients <input type="checkbox"/> If we are unable to resolve our structural imbalance in the Trust's Income & Expenditure position then we will not be able to fulfil our financial duties and address the modernisation of our ageing estate and equipment
Care Quality Commission (CQC) Domains	<input checked="" type="checkbox"/> Safe <input checked="" type="checkbox"/> Effective <input type="checkbox"/> Caring <input type="checkbox"/> Responsive <input checked="" type="checkbox"/> Well led
<input type="checkbox"/> Receive <input type="checkbox"/> Review <input type="checkbox"/> Note <input checked="" type="checkbox"/> Approve	Recommendation <ul style="list-style-type: none"> • APPROVE the Strategic Outline Case for the Trust's Sustainable Services Programme • APPROVE the Strategic Outline Case for submission to Commissioners and the Trust Development Authority for their support and approval

Sustainable Services Programme

A part of the NHS Future Fit Programme

FINAL Strategic Outline Case

**For submission to The Shrewsbury and Telford Hospital NHS
Trust Board**

22 March 2016

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- 1b Full analysis of SaTH patient activity
- 1c Interim Estates Strategy
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Trust Board approval minute

INTRODUCTION

This document represents the Strategic Outline Case for the acute service elements of the Future Fit Programme; known internally as Sustainable Services, it describes the Trust's plans to address the significant challenges to the safety and sustainability of patient services specifically in emergency and critical care.

This work builds on the discussion and feedback from staff, patients and the public within the Future Fit Programme to address the most significant of workforce challenges. The Trust was requested to progress this work by the Future Fit Programme Board in October 2015.

This Strategic Outline Case demonstrates that there are potential solutions which address the Trust's workforce challenges in A&E, Critical Care and Acute Medicine by developing a single Emergency Centre, a single Critical Care Unit and a Diagnostic and Treatment Centre with Urgent and Planned Care service provision at both PRH and RSH. This is in line with the Future Fit Clinical Model and the options developed in partnership with clinicians, staff, patients and the public.

The Strategic Outline Case also describes the 'backlog maintenance' of the estate at both PRH and RSH.

The proposed solutions describe an alternative way of implementing the options previously identified within Future Fit. Previous solutions proved unaffordable. They were also viewed as being too stark in terms of the differences between the two hospital sites; with one very large and busy and one much smaller with lots of redundant space. The revised solutions therefore move away from the 'hot' and 'cold' site solution to a much more evenly balanced distribution of services which would deliver recognisable, vibrant hospital sites 24/7 within the communities served.

The workforce opportunities and impact of the potential solutions is included, with an emphasis on new ways of working and new and expanded roles. The capital costs associated with each solution and the revenue impact is also identified along with the interdependency with the health systems sustainability and deficit reduction plans.

This Strategic Outline Case also introduces the opportunities these service changes may have for addressing the Trust's historical backlog maintenance challenges. Detailed surveys concluded in Autumn 2015 found that areas of the Trust's estate are failing and significant investment is required.

Reconfiguration of services also offers the opportunity to develop the concept of Clinical Centres of Excellence.

We acknowledge and recognise the impact these changes will have on patients and the public and are committed to working hard to understand and mitigate this impact where possible over the coming months. However, we believe we have identified solutions that could address our most significant workforce challenges, be affordable and maintain and improve patient experience in vibrant hospital services in both Shrewsbury and Telford.

THE PROBLEM WE ARE TRYING TO SOLVE

NHS services within Shropshire face an increasing challenge of delivering high quality, safe and sustainable acute services. This is within a climate of rising demand, reducing levels of funding and on-going changes within the workforce.

Like all hospitals, the greatest asset of Shrewsbury and Telford NHS Trust (SaTH) is its workforce. This workforce is skilled and well trained; striving to deliver high quality patient centred care, all day, every day. However, the Trust does not have all the staff it needs in the right locations. The organisation is faced with difficulties in recruiting to essential medical and nursing clinical roles; within the Emergency Departments, Critical Care services and other areas across the Trust. This means a heavy reliance on temporary staff and increased pressure on teams. Continued and innovative solutions to address this recruitment challenge have been explored: recruitment drives nationally and overseas; sharing posts and rotas with neighbouring Trusts; and creating new roles such as fellowships and advanced practice have all failed to provide a sustainable solution. Day to day operational plans are in place to ensure the care and safety of patients within the Trust's clinical services but a long term solution is urgently needed.

This need for a long lasting, sustainable solution is being addressed through a process of health economy wide transformational change. In line with the aspirations of the Future Fit Programme and its clinically-led models of care, the Trust has worked to address the urgent workforce challenges in A&E and Critical Care.

Guidance from the Trust Development Authority (TDA) has been used in the development of this Strategic Outline Case (SOC). It is based on three core principles for service reconfigurations:

- The Options are developed with people, not for them
- Its focus is redesign, not relocation; and
- A whole systems view is taken, with genuine integration and joint planning

The SOC has six sections:

Section 1: details the strategic context

Section 2: describes the health service need, the case for change that is the foundation of the SOC

Section 3: outlines the options being considered

Section 4: details the potential solutions for delivery of the options

Section 5: sets out the affordability of those solutions

Section 6: describes a timetable and outline for deliverability

1. STRATEGIC CONTEXT

The local health system faces a combination of challenges to deliver sustainable and high quality services for the populations it serves.

These challenges and their potential solutions have been debated within the county for many, many years. This has predominantly focussed on the provision of acute hospital services in Shrewsbury and Telford and at times, has also included the community hospitals in Whitchurch, Bishops Castle, Ludlow and Bridgnorth.

In 2013, SaTH alongside the two Clinical Commissioning Groups (CCGs), Shropshire Community Healthcare NHS Trust (ShropComm) and Powys Teaching Health Board (PTHB) all committed to work collaboratively as partners within the Future Fit Programme. All organisations agreed to engage fully with their patient populations and work with their health, social care and voluntary sector partners to shape the future of local healthcare services in order to secure the long-term sustainability of high quality patient care.

During 2014, this work produced an overarching clinical model. Activity and capacity modelling was undertaken to reflect the implications of the clinical model and a short list of site options was developed.

In September 2015, the short list of options was subject to a full options appraisal. At this time, the Future Fit Programme Board agreed to defer reaching any conclusion about recommending a 'preferred option' to the Future Fit Programme's Sponsor Boards, until it was assured that there was an approvable case for investment.

In October 2015, therefore, the Future Fit Programme Board identified two key pieces of work that needed to be undertaken:

- A system wide financial deficit reduction plan
- Business case development to address the Trust's immediate workforce challenges within A&E and Critical Care

Both these pieces of work have been progressed in parallel.

1.1 Shropshire and Telford and Wrekin Health Economy

Shropshire Clinical Commissioning Group (CCG) covers a large geography with issues of physical isolation and low population density within a mix of rural and urban ageing populations. Telford & Wrekin CCG has a large, younger urban population within areas of rurality; Telford is also ranked amongst the 30% of most deprived populations in England.

Both CCGs are dependent on services provided by the Trust and those provided by Shropshire Community Healthcare NHS Trust (ShropComm) for the majority of their populations hospital care. Both commissioners are also aware of the needs of some of the Powys population who also use services from the Trust.

1.2 Commissioner Support

To follow following CCG Board meetings in March 2016 (Appendix 1a).

1.3 The Shrewsbury and Telford Hospital NHS Trust

SaTH is the main provider of district general hospital services for around half a million people in Shropshire, Telford & Wrekin and mid Wales.

1.4 Services and Activities

The majority of the Trust's services are provided at the Princess Royal Hospital (PRH) in Telford and the Royal Shrewsbury Hospital (RSH) in Shrewsbury; providing 99% of Trust activity. Both hospitals provide a wide range of acute hospital services including accident & emergency, outpatients, daycases, diagnostics, inpatient medicine and critical care. Following recent service reconfigurations, inpatient adult Surgery (excluding breast) is provided at RSH, with Women and Children's Services (consultant-led

obstetrics, neonatology, inpatient and daycase paediatrics and inpatient Women's Services), head and neck and acute stroke care being provided at PRH.

In line with many organisations where the delivery of services is across multiple sites, the Trust is challenged with duplicate costs and inefficiencies inherent in many service structures.

Services	PRH	RSH
A&E	✓	✓
Outpatients	✓	✓
Diagnostics	✓	✓
Inpatient Medical Care	✓	✓
Critical Care	✓	✓
Inpatient head & neck surgery	✓	
Inpatient acute and elective surgery		✓
Surgical Assessment Unit		✓
Ambulatory Care	✓	✓
Inpatient women & children	✓	
Outpatient children	✓	✓
Children's Assessment Unit	✓	✓
Inpatient Oncology Care		✓
Midwife-led maternity services	✓	✓
Daycase surgery and procedures	✓	✓
Elective Orthopaedics	✓	*✓
Orthopaedic Trauma	✓	✓
Breast Surgery	✓	

Table 1: Services provided at PRH and RSH

*RSH activity is provided by Robert Jones and Agnes Hunt Orthopaedic Hospital NHS Foundation Trust

Alongside services at PRH and RSH the SaTH provides community and outreach services including:

- Consultant-led outreach clinics (held in Community Hospitals and the Wrekin Community Clinic at Euston House, Telford)
- Midwife-led units at Ludlow, Bridgnorth Community Hospital and RJA in Oswestry
- Renal dialysis outreach services at Ludlow Hospital
- Community services including midwifery, audiology and therapies

During 2014/15 the Trust saw:

- 47,431 elective and daycase spells (1.2% increase on 2013/14)
- 47,151 non-elective inpatient spells (2.4% increase on 2013/14)
- 7,143 maternity and transfer spells (19.0% decrease on 2013/14)
- 401,806 outpatient appointments (due to counting and coding methods changing in year a meaningful comparison to prior years is not possible)
- 109,360 accident and emergency attendances (2.5% increase)

A full analysis of SaTH's patient activity is provided at Appendix 1b.

1.5 Workforce

The Trust employs approximately 5,000 staff as summarised by staff group in table 2 below:

Workforce Category	WTE
Medical and Dental	544
Administration and Estates	996
Healthcare assistants and other support staff	1235
Nursing, midwifery and health visiting staff	1466
Nursing, midwifery and health visiting learners	40
Scientific, therapeutic and technical staff	819
Total	5100

Table 2: Summary of 2013/14 Workforce Whole Time Equivalents (WTEs) by Staff Group including internal bank excluding agency and locums

The Trust has an ageing workforce profile with >50% of nursing and midwifery registered staff, >20% medical and dental staff, > 25% Healthcare scientists, >33% of admin and clerical and >50% estates and ancillary staff able to retire within 10 years.

1.6 Finances

SaTH turnover for 2014/15 was £316.8m of which income from patient care accounted for £295.7m. The majority of the clinical income came from the following three largest volume commissioning bodies:

- Shropshire CCG (Income £126.7m, 43%)
- Telford and Wrekin CCG (Income £88.5m, 30%)
- NHS England (Income £47.8m, 16%)

Of the remainder of clinical income:

- 10% came from other commissioning organisations, including Welsh commissioners
- 1% came from “other clinical income” which consists of income from private patients, overseas visitors and the NHS Injury Cost Recovery Scheme

A summary of the Income & Expenditure (I&E) position is shown in Table 3 below.

Heading	£m
Income:	
Patient Care	295.7
Education, training & research	11.2
Other revenue	9.9
Total Operating Income	316.8
Expenditure:	
Pay	216.9
Non-Pay	88.6
Depreciation & Amortisation	10.5
Clinical Negligence	6.5
Impairments	8.4
Total Operating Expenses	331.2
Surplus/(deficit) for the financial year	(14.5)
PDC payable	6.1
Retained surplus/(deficit) for the year	(20.633)

Table 3: SaTH Income and Expenditure 2014/15

Table note: For reporting purposes the following are excluded:

- | | |
|---|-----------------|
| ▪ Impairments relating to plant, property and equipment | 8.363 |
| ▪ Adjustment in relation to donated asset elimination | 0.140 |
| ▪ Surplus/(deficit) at year end | (12.130) |

1.7 The Estate

Full details of SaTH's estate are contained within the Trust's Estate Strategy, which is in the process of being updated to reflect the findings of the six facet estate surveys, completed in the latter part of 2015 by Property Surveyors Oakleaf and NIFES. This was a scheduled refresh of the survey and the panel which appraised the options in 2015 was made aware that a new survey was due.

A summary of the survey outcomes and the approach to deliver a new estates strategy is attached in Appendix 1c.

As previously detailed, patient care services are primarily delivered from the two main hospital sites in Shrewsbury and Telford. The buildings on the Royal Shrewsbury Hospital (RSH) site comprise several separate developments, ranging in age from 1966 to the current day:

- the Maternity and Paediatric development at the south of the site adjacent to the main entrance roadway was built in 1967
- the central development of Wards, Outpatients, A&E, Imaging and Support services, which forms the main spine of the site and came into use between 1976 to 1978
- the Cobalt Unit that includes Linear accelerators and Oncology services dating from 1982
- the Renal unit at the north of the site, which was built in 1991 and extended in 2003
- the Treatment Centre opened in 2005 also at the north end of the site
- medical and nursing educational facilities in the north east corner of the site, built in 2002

- residential accommodation in the south west corner of the site, built in 1974 and extended in 1982
- Rooftops accommodation in replace of some of the old residential accommodation in the south west corner of the site, completed in phases from August 2009 to December 2010
- The Boiler House and Estate Department in the north-west corner of the site, built in 1966 and 1977 respectively
- the new and extended Cancer Centre opened in 2013

The buildings on the Princess Royal Hospital (PRH) site essentially comprise a 2 storey nucleus hospital opened in 1988 with some additions, as follows:

- extension in 1999 to provide a purpose designed Rehabilitation Unit
- the Management Suite was refurbished in 2013 to create a 28 bed inpatient short stay medical ward
- a new Women's and Children's Centre was opened in 2014
- staff residential blocks and a small private outpatient clinic in the south east corner of the site built in 1989
- a number of underutilised residential blocks were refurbished in 2013 to provide office accommodation

Existing Site Plans for RSH and PRH are included in Appendix 1d and Appendix 1e.

1.8 Estate Condition

Six facet estate surveys were completed in the latter part of 2015 by Property Surveyors Oakleaf and NIFES. They were commissioned to undertake assessments of respectively the Royal Shrewsbury (RSH) and Princess Royal (PRH) Hospitals to establish the condition and performance of the existing estate. The six estate facets assessed were:

- Physical Condition
- Functional Suitability
- Space Utilisation
- Quality
- Statutory Compliance (Fire and Health & Safety requirements)
- Environmental Management

Each facet was broken down into building systems and fabric elements, plus comments included in the reports about any significant issues noted within each block to give context to the backlog findings. Each element was then given a grade of A (as new) to D (life expired and/or serious risk of imminent failure). Where assets had a remaining life assessed at less than five years then a cost estimate was provided to either repair or replace the item (backlog).

As part of the surveys the backlog maintenance cost to bring the estate assets that were below condition B in terms of their physical condition and/or compliance with mandatory fire safety requirements and statutory safety legislation up to condition B (sound and operationally safe) were identified. All of the backlog condition surveys were based on the approach described in the Department of Health's 'A risk-based methodology for establishing and managing backlog' (2004).

Costs to replace, remove or upgrade assets that already met condition A or B criteria, for example for modernisation or best practice purposes have not been classified as backlog.

A summary of the key estate asset information is shown below in Table 4:

Estates Criteria	PRH	RSH	Offsite ¹	Total
Gross Internal Area (m ²)	46,765	61,400	1,477	109,642
Net Book Value (£m)	82.0	78.2	4.0	164.2
Capital Charges Relating to Buildings (£m)	5.7	5.5	0.3	11.5
Total Backlog (Years 0-5) (£m)	20.3	83.2	0.4	103.9
Functional Suitability Backlog (£m)	7.0	62.3		69.3

Table 4: Summary of SaTH Estates Data – September 2015

Table Notes: 1. Offsite area comprises the Queensway Decontamination Unit and some Business Support Departmental space within the Shrewsbury Business Park. 2. All backlog costs (unless otherwise state) are expressed as ‘gross’ works costs (that is the base cost to undertake the works, plus a 50% uplift to cover costs such as VAT, Consultants fees, decanting and temporary services. 3. NBV and Capital Charges as at 1st April 2015.

Tables 5 and 6 provide a summary of the proportion of the facilities (at each of the main sites) graded between condition ‘A’ (excellent/new) and condition ‘D’ (life expired/unacceptable), with condition ‘B’ generally acknowledged to be a satisfactory standard.

RSH	Rating and % of Total GIA				
Estates Facet	A	B	B/C	C	D
Physical Condition (%)	17	14	0	29	40
Statutory Compliance (%)	2	27	0	23	48
Quality – Environmental (%)	0	0	0	100	0
Quality – Amenity (%)	13	21	0	36	30

Table 5: RSH Facilities – Summary of Six Facet Estates Survey Assessment by Grade as a % of GIA

PRH	Rating and % of Total GIA				
Estates Facet	A	B	B/C	C	D
Physical Condition (%)	4	64	9	23	0
Statutory Compliance (%)	0	99	0	1	0
Quality – Environmental (%)	0	100	0	0	0
Quality – Amenity (%)	0	86	0	14	0

Table 6: PRH Facilities – Summary of Six Facet Estates Survey Assessment by Grade as a % of GIA

Table Notes: The data has been derived from the Oakleaf surveys completed in September 2015.

Over a five year investment horizon the total backlog gross cost across both main hospital sites is estimated at £103.5m, which includes £50.3m of items assessed as ‘high’ or ‘significant’ risk.

2. HEALTH SERVICE NEED

Acute hospital services provided by SaTH are of a good standard, recognised in the Care Quality Commission report published in 2015. Most services have developed over many years, with clinicians, managers and staff trying to keep pace with changes in demand, improvements in medicine and technology and increased expectations of the populations served. Nevertheless, it is recognised the current hospital configuration is not sustainable due to the healthcare and workforce issues including:

- Changing healthcare needs of the population now and into the future
- Quality standards that are required and that individuals and organisations aspire to deliver
- A need for improved productivity and a reduction in inefficiencies (in line with the Carter Review and the Trust's work with the Virginia Mason Institute)
- On-going developments in medicine and technology
- Workforce changes in terms of skills, availability and training

In addition, there are a number of estates issues, including:

- Level of backlog maintenance
- Poor quality existing facilities

All of this is underpinned by the economic climate in which the NHS must operate.

2.1 Healthcare and Workforce Need

A high level assessment of the health economy's service need against the health-service need criteria identified within the NHS Trust Development Authority Capital Regime and Investment Business Case Approvals Guidance for NHS Trusts is attached at Appendix 2a.

2.1.1 The Call to Action

Discussions and debate involving local clinicians, staff and many members of the public regarding the current service provision was developed during the major consultation exercise undertaken in November 2013 in response to the national Call to Action for the NHS. At this time, people started to accept that there was a case for making significant change provided there was no predetermination and that there was full engagement in thinking through the options. The outputs from Call to Action can be found on the Future Fit website (www.nhsfuturefit.org). This marked a turning point in terms of progressing a programme of works that would review and develop a new service configuration.

2.1.2 The Case for Change

Local clinicians, patients and members of the public who participated in the Call to Action recognised the need to tackle two things: the real and pressing local service issues and challenges faced by health services nationally that have an impact locally with the key challenge locally being workforce. The issues and challenges identified in the Call to Action include:

- Changes within the medical workforce
- Staffing within the key acute services (A&E; Critical Care; Acute Medicine)
- Changes in the populations profile and patterns of illness
- Higher expectations
- Clinical standards and developments in medical technology
- Economic challenges
- Opportunity cost in quality of service
- Impact of accessing services

- The quality of the patient facilities and the Trust's estate

Medical workforce challenges

Running duplicate services on two sites presents many workforce challenges and can result in a poor employee experience for some of the Trust's medical teams. This compounds an already challenging recruitment environment and leads to difficulty in recruiting the right substantive workforce.

The current service configuration and the requirement for consultants and other specialist staff to cover both hospital sites can at times limit their ability to provide senior patient reviews. In addition, the Trust is unable to achieve Royal College guidance standards in many areas. With the current staffing configuration, it will prove extremely difficult to achieve adequate staffing levels to provide 7-day working across both sites. Furthermore, because teams are spread so thinly services are vulnerable to unexpected absences and the non-availability of staff.

Emergency Department Staffing

The Trust does not currently meet staffing levels recommended by the College of Emergency Medicine across all medical roles including Consultant, Middle and Training grades. Research demonstrates a greater consultant presence in A&E reduces admissions, reduces inappropriate discharges, improves clinical outcomes and reduces risk to patients.

With this minimal workforce and the impact of unforeseen short-term staff absences, A&E staff are finding it increasingly difficult to cope with the increased numbers of attendances, the nature of the patients presenting and increasing numbers of attendances out-of-hours. The Trust is regularly hampered in the ability to provide rapid senior review to patients and this is causing significant numbers of breaches of the 4 hour A&E target at such times. These pressures in A&E; the growing age and acuity of those patients presenting, and the continued bed capacity deficit which routinely prevents timely patient flow, combine to significantly elevate risks in both the immediate term and for the foreseeable future.

Critical Care Staffing

In Critical Care, the Trust's staffing levels are again below the recommended standards. The core standards require:

- Care must be led by a consultant in Intensive Care Medicine
- Consultant work patterns must deliver continuity of care
- In general, the consultant/patient ratio must not exceed a range between 1:8 to 1:15 and the ICU resident/patient ratio should not exceed 1:8.
- A consultant in Intensive Care Medicine must be immediately available 24/7, be able to attend within 30 minutes and must undertake twice daily ward rounds
- Consultant intensivist led multi-disciplinary clinical ward rounds within Critical Care must occur every day (including weekends and national bank holidays)

Critical Care is covered with a mix of general anaesthetists and the small number of Intensivists available, but consultant presence is still well below recommended levels. The Trust is one of very few nationally that have not been able to split its Anaesthetics and Critical Care rotas. The Anaesthetic and Critical Care team face daily challenges, in particular on call, during which the on call consultant could be required in up to four different places.

The Trust has continuously attempted to recruit additional Intensivists; however potential candidates consider the absence of formal split rotas and very onerous on-call arrangements deeply unattractive.

The workforce challenges mean that the service and the team are highly vulnerable to further vacancies or unexpected absences.

Acute Medicine

In 2004, the Royal College of Physicians recommended that there should be a minimum of 3 acute physicians per hospital by 2008. In the 2012 Acute Care Toolkit, it is recommended that hospitals have at

least 1.5 wte acute physicians available for 12 hours per day for an Acute Medical Unit (with exact numbers based on the anticipated number of patient contacts during the core hours of service).

‘Involvement of a minimum of 10 consultants in the weekend rota should ensure a sustainable frequency of weekend working, even if the weekend working arrangements are shared between two consultants. For smaller units, it may be possible to operate a rota with fewer than 10 consultants if there is a comprehensive arrangement in place to provide days off in lieu.’¹

The Trust does not meet the recommended staffing levels; this again limits the ability to provide the levels of senior review needed to ensure timely patient assessment and treatment, and move towards more 7 day working.

Non-medical challenges

The Trust continues to experience recruitment difficulties across a number of non-medical professions such as nursing, operating department practitioners, diagnostic radiographers, domestics and healthcare scientists. These staff groups have historically experienced recruitment challenges in attaining establishment levels, and this has only been compounded by the recent national demand for such roles. Supply and demand data from Heath Education West Midlands suggests that this will not be improved in the short term.

Duplication of services on both sites reduces the ability to support favourable on call rotas which would improve employee experience and the ability for the Trust to be an employer of choice and improve recruitment. In addition there is limited scope to provide cost effective and efficient 7 day working.

Currently it is difficult to support the development of advancing and extending practice for non-medical staff as the ability of medical colleagues to mentor, support and clinically sign off training logs is compromised by the need for them to partake in intensive rotas.

Changes in the population profile

The welcome improvement in the life expectancy of older people experienced across the UK in recent years is particularly pronounced in Shropshire. The population over 65 has increased by 25% in just 10 years. This growth is forecast to continue over the next decade and more. As a result the pattern of demand for services has shifted, with greater need for the type of services that can support frailer people, often with multiple long-term conditions, to continue to live with dignity and independence at home and in the community.

Changing patterns of illness

Long-term conditions are increasing due to changing lifestyles. This means health services need to move the emphasis away from services that support short-term, episodic illness and infections towards services that support earlier interventions to improve health and deliver sustained continuing support, again in the community with consistent support for self-management and care. The increase in the elderly population and the number of people living with long-term conditions coupled with the reduction in funding in the voluntary sector and Social Services results in an increased pressure on acute services such as A&E and acute medicine.

Higher expectations

Quite rightly, the population demands the highest quality of care and also a greater convenience of care, designed around the realities of their daily lives. For both reasons, there is a push nationally towards 7-day provision or extended hours of some services and both of these require a redesign of how health services work given the inevitability of resource constraints.

¹ Royal College of Physicians (2012)

Clinical standards and developments in medical technology

Specialisation in medical and other clinical training has brought with it significant advances as medical technology and capability have increased over the years. But it also brings challenges. It is no longer acceptable nor possible to staff services with generalists or juniors and the evidence shows, that for particularly serious conditions, to do so risks poorer outcomes. Staff are of course, aware of this. If they are working in services that, for whatever reason, cannot meet accepted professional standards, morale falls and staff may seek to move somewhere that can offer these standards. It is also far more difficult to attract new staff to work in such a service. Clinicians are a scarce and valuable resource. Every effort must be made to seek to deploy them to greatest effect.

Economic challenges

The NHS budget has grown year on year for the first 60 years of its life. In one decade across the turn of the 21st century its budget doubled in real terms however, the UK economy is now in a different place. The NHS will at best have a static budget going forward and yet the rising costs of services, energy and supplies along with innovations and technological breakthroughs that require more investment mean that without changing the basic pattern of services, costs will rapidly outstrip available resources and services will face the chaos that always arises from deficit crises.

It is estimated that without radical changes to the way the system works, the NHS will become unsustainable with huge financial pressures and debts. Current trends in funding and demand will create a gap which projections suggest could grow to £30 billion a year by 2021 if nothing is done to address it.

Locally the Shropshire health economy is challenged and has a history of deferring the resolution of structural issues. This has resulted in short-term or one-off fixes rather than making difficult decisions in order to reach sustainable long-term solutions. As a result significant change to provide services that are clinically and financially sustainable is required through innovative solutions.

Opportunity costs in quality of service

In Shropshire and Telford and Wrekin the inherited pattern of services, especially hospital services, across multiple sites means that services are struggling to avoid fragmentation and are incurring additional costs of duplication and additional pressures in funding. The clinical and financial sustainability of acute hospital services has been a concern for more than a decade. Shropshire has a large enough population to support a full range of acute general hospital services, but splitting these services over two sites in their current configuration is increasingly difficult to maintain without compromising the quality and safety of services.

Impact on accessing services

In Shropshire, Telford and Wrekin there are distinctive populations. Particular factors include a responsibility for meeting the health needs of sparsely populated rural areas in the county, and that services provided in our geography can also be essential to people in parts of Wales. Improved and timely access to services is a very real issue and one which the public sees as a high priority. A network of provision already exists across Community Hospitals that can be part of the redesign of services to increase local care.

2.2 Estates Constraints and Drivers

In addition to the direct clinical need, there is also a need to address a number of issues with the existing estate. As described in Section 1.8 (above), there is residual backlog maintenance of over £100m across the 2 sites, which needs addressing, and a significant amount of the existing estate, particularly at RSH, does not conform to modern standards.

Any development at either RSH or PRH will have to fit in with and link to the existing hospital. There are also a number of constraints to development at either site, which are set out below.

2.2.1 Royal Shrewsbury Hospital

The RSH hospital buildings were predominantly built in the 1960s and 1970s, with over 75% of the site constructed between 1965 and 1984. Although there have been new developments (such as the new cancer centre) a lot of the core healthcare provision is still being provided from old buildings. Although

the service is able to be delivered safely, the areas in which some services are provided are challenged in relation to space, conformity to modern building standards and development opportunities.

Historic development at RSH has been largely uncoordinated as the Trust has responded to individual service needs. This has resulted in a site with few potential development zones as it is surrounded by urban housing development on two sides.

Any development at RSH therefore needs to be contained within the site constraints. There is very little spare land to develop on, and that which is present is currently utilised for car parking which would need to be re-provided. The site is also split level which presents challenges for new development. The existing buildings do not lend themselves to reuse or re-designation, and it is difficult to find areas for new buildings which are able to link into the existing core healthcare areas of the site.

2.2.2 Princess Royal Hospital

The Princess Royal Hospital comprises a 2 storey nucleus hospital opened in 1988. The building was extended in 1999 to provide a new rehabilitation unit, and again in 2014 to provide a new purpose built Women's and Children's Centre.

The age profile of the building is therefore generally acceptable and the building is designed as a purpose-built hospital, albeit the original template design is to a different set of space standards to new buildings.

The condition of the PRH hospital is generally fair, although there are a number of backlog items which need addressing.

At the PRH site the nucleus arrangement lends itself to further development with the potential to expand the buildings in a number of arrangements. Areas of the existing building also lend themselves to redevelopment and re-designation.

Any new development at the PRH site therefore needs to work within these constraints.

2.3 Determination of Trust Requirements for a Potential Solution

In order to develop a potential solution that addresses the challenges within A&E and Critical Care and responds to the issues with the existing estate, the Trust established the Sustainable Services Programme within the health economy wide Future Fit Programme.

2.3.1 Future Fit Clinical Model

As part of the Future Fit Programme a Clinical Reference Group (CRG) comprising fifty senior clinicians and leads from health and social care patient representatives, met in November 2013 which began the discussions and debate around the whole system design principles. The CRG agreed that there were three main areas of health care delivery. These are:

- Acute and episodic care
- Long-term conditions
- Planned care

In taking the work forward to address the Trust's immediate workforce challenges and the identification and development of a potential solution for Sustainable Services, senior clinical leaders within the individual Care Groups have come together within a structure of Clinical Working Groups (CWG). A series of CWG meetings have been held which included the Trust's key senior clinicians (medical and non-medical; nursing; therapies etc.) and senior operational managers. The CWG discussed the application of the Future Fit model of care to the immediate workforce challenges faced by the Trust.

2.3.2 Sustainable Services Clinical Working Group Outputs

Building on from the work of the Clinical Reference Group (CRG) and progressing discussions around the immediate workforce challenges, the Sustainable Services Programme potential solution remains in line with the service principles set out within Future Fit:

Acute and Episodic Care

Nearly 65% of the patients that currently attend the Trust's A&E departments do not have life or limb threatening illness or injury and could therefore potentially be seen and treated in an Urgent Care Centre.

The remaining 35% of patients could be treated within the Trust's single Emergency Centre (EC) as shown in the figure below.

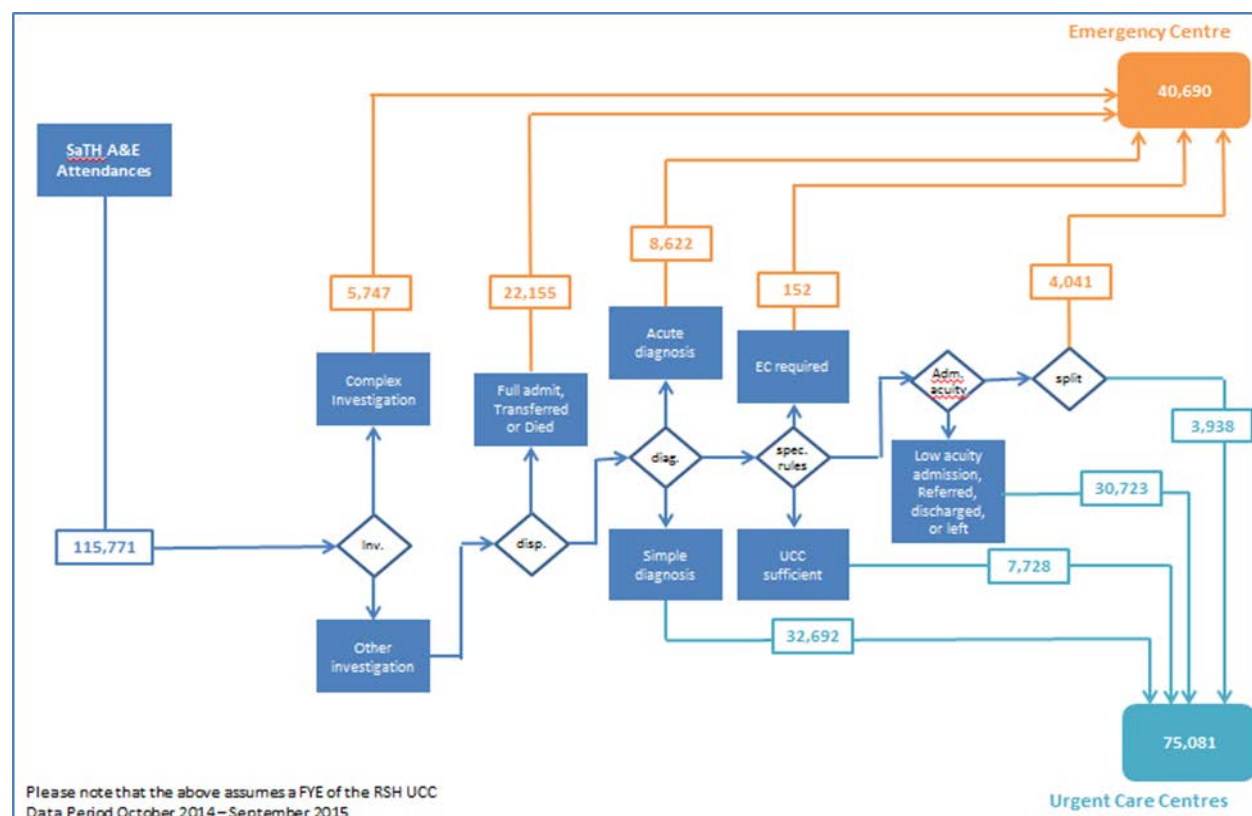


Figure 1: Emergency and Urgent Care Centre Patient Activity Numbers

Urgent Care Centres

The Urban Urgent Care service will be provided on each hospital site and where co-located alongside the Emergency Department will be accessed through a single front door. Patients will access the service as a 'walk-in' or via ambulance if it is considered to be clinically appropriate by the paramedic. The UCCs will have access to diagnostics and where appropriate, staff can draw upon the knowledge and expertise of specialist clinicians within the ED and other specialties in order to provide patients with an efficient and seamless service. The Urban UCCs will be open 24/7. A draft service outline is attached at Appendix 2b.

The Future Fit model for the delivery of rural urgent care continues to progress and is due to be finalised at the end of March 2016. This will enable patients, where clinically appropriate, to be seen and treated in a facility that is more local to them than the UCCs in either Shrewsbury or Telford. A network approach to urgent care with real-time communication and support for staff will be key to its deliverability.

Emergency Centre and Critical Care

For patients that are acutely ill with life or limb threatening injuries and require immediate diagnosis and treatment, they would be taken to the EC. The EC will be fully equipped and staffed to deliver high quality emergency medical and surgical care 24 hours a day, 7 days a week, 365 days a year. Access to the EC will be gained only via transfer from a UCC or Ambulance.

The EC will also serve as a Trauma Unit and will be co-located with a single Critical Care Unit (subject to discussion and approval by the Trauma Network). There will also be full and immediate access to diagnostics (Radiology, Pathology), Haematology (Blood Bank) and Pharmacy.

Planned Care

Outpatients and outpatient procedures will be undertaken at both sites. The majority of day case surgery and care would be delivered on the non-EC site via the Diagnosis and Treatment Centre (DTC).

2.3.3 Future Fit Activity Modelling

Within the Future Fit Programme, NHS Midlands & Lancashire Commissioning Support Unit (CSU) was commissioned to support the health system to develop a range of models to estimate future activity levels. Details of this process are included within Appendix 2c.

Phase 1 modelling estimated the levels of activity that the Trust and Shropshire Community Trust might be expected to manage in 2018/19 taking into account demographic change, a range of commissioner activity avoidance schemes and provider efficiency schemes. Aspects of demographic change were also considered and modelled.

A range of commissioner activity avoidance strategies was then analysed and considered based on the subsets of acute activity that commonly form the basis of commissioner Quality, Innovation, Productivity and Prevention (QIPP) plans. These included areas such as: Conditions amenable to ambulatory care; fall related admissions; Patients who left A&E without being treated; Obesity related admissions etc. A full list is provided in Appendix 2d.

The provider efficiency strategies considered during the modelling utilised the Trust's and other acute providers Cost Improvement Plans (CIPs) in both elective care and urgent care. The aim being to reduce the bed usage for admitted patients or the resource impact of outpatient and A&E activity. This included areas such as: enhanced recovery; frail elderly step-down care; A&E number of investigations etc.

The outputs of the first phase of activity modelling were summarised in two documents;

- Modelling Future Activity Levels Shrewsbury & Telford Hospital NHS Trust, May 2014;
- Modelling Future Community Hospital Provision in Shropshire and Telford, February 2014.

Figure 2 shows the headline changes in acute activity, resource use and costs between the baseline year 2012/13 and 2018/19, under the two demographic scenarios.

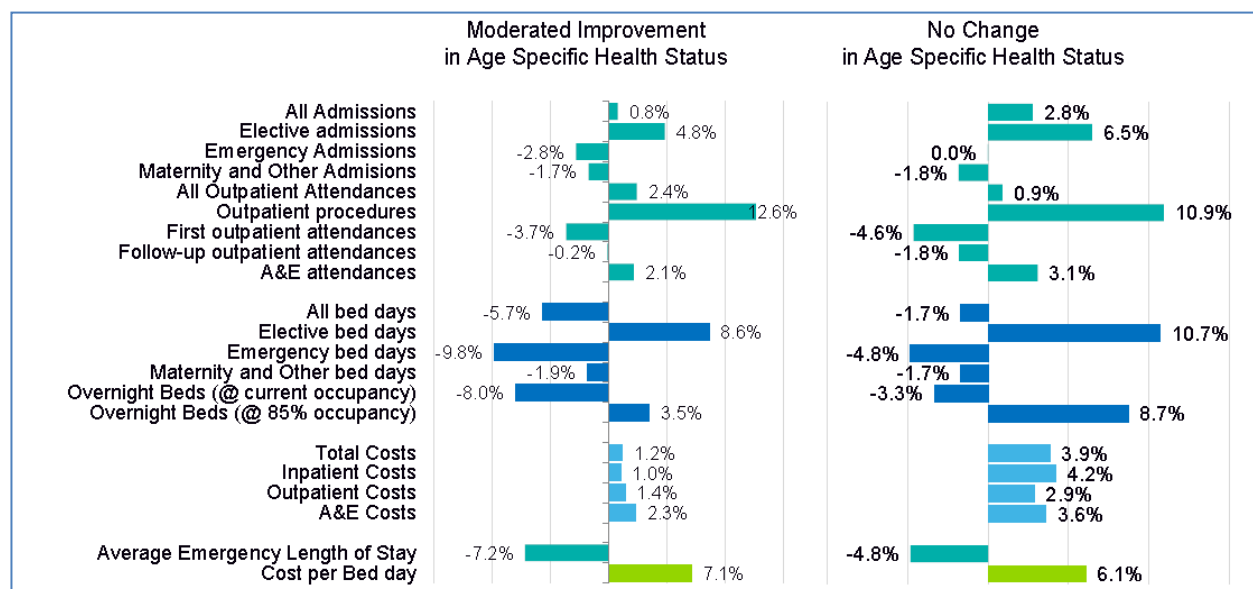


Figure 2: Headline changes in acute activity, resource and costs between 2012/13 and 2018/19

A second phase of modelling, Phase 2, was also undertaken. The outputs are summarised in the document:

- Modelling the Activity Implications of the Future Fit Clinical Model, December 2014.

This Phase 2 modelling built on the initial models to estimate the consequences of more radical redesign proposals generated by the three clinical redesign workstreams. The headline outputs are:

- 69% of front door urgent care activity incorporating activity currently in a number of different services could be managed at an Urgent Care Centre, with the remaining 31% (circa 68,000 attendances) requiring care in the Emergency Department (ED)
- 75% of the activity being managed by the Urgent Care Centres will take the form of minor injuries or ailments, 12% as Ambulatory Emergency Care, 8% as frailty management and 5% as others
- Approximately 35,000 follow-up outpatient attendances managed by the local planned care centres could take place virtually
- Of the 10,000 emergency admissions associated with either frailty or long term conditions in 2012/13, the phase 1 models suggested these admissions could fall by 8% by 2018/19 (largely as a consequence of improvements in primary care management and through better use of community hospitals)
- The Phase 2 models suggests that a further 24% could be avoided by reducing the prevalence of the key risk factors that give rise to Long Term Conditions (e.g. smoking, high cholesterol, high blood pressure) and through greater integration of community and primary care.

2.3.4 Sustainable Services Activity Modelling

The Trust's future activity is aligned to the Future Fit principles however the baseline has been amended from a 2012/13 out-turn to 2014/15 out-turn. Table 7 below shows the baseline and projected future activity for the Trust.

	2014/15 Outturn	Projected 2019/20
Elective Daycase	47,431	42,775
Elective Inpatient		6,806
Non Elective	47,151	42,902
Non Elective Other	8,137	8,647
First Attendance	401,806	91,927
Follow Up Attendance		166,862
Outpatient Procedure		109,656
A&E	109,360	112,836

Table 7: Baseline and Projected Activity

2.3.5 Capacity Modelling

The activity modelling was used to calculate the capacity requirements for the future. In doing this, the following throughput and utilisation assumptions have been made as shown in Table 8 below:

Category	Capacity Modelling Assumption
Inpatient % occupancy*	90%
Daycase turnover rate	1.5
Theatre weeks per year	52
Theatre sessions per week	10
Theatre minutes per session	210
Theatre end utilisation**	80%
Outpatient attendances per room per year: 1 st attendances	2,500
Outpatient attendances per room per year: follow-up attendances	3,500
Outpatient attendances per room per year: outpatient procedures	2,500

Table 8: Throughput and Utilisation Assumptions

* 90% inpatient occupancy rate relates to the main medicine and surgery bed pools, with remaining beds calculated at 85% occupancy.

** Theatre end utilisation takes account of multiple factors, including cancelled sessions as well as non-operating time within sessions (due to gaps between patients etc.), and logistical scheduling issues

The resulting amended capacity requirements for the future are summarised in table 9 below:

Bed Category	Projected Inpatient Bed Requirements (Sustainable Services)
General Beds (including Fit to Transfer)	649
Adult Critical Care	30
Paediatrics	38
Maternity (excluding Delivery Suite)	42
Neonatology	22
Total beds	781
Plus 55 Fit to Transfer Community Provision	

Table 9: Projected Inpatient Bed Requirements 2018/19

Work has been undertaken to quantify and plan for inpatients that no longer require acute hospital care. This cohort of patients equates to those who are classified as 'Fit to Transfer'. Within Future Fit it was agreed that care for these patients does not need to take place within the Emergency site.

Both CCGs have invested in the development of integrated health and social care services to improve the transfer of patients into community settings. Further work has also been led by the System Resilience Group to prototype a new model of Discharge to Assess for patients with complex discharge

needs. Partners across the health and social care system will continue to build on these initiatives to further reduce the numbers of patients delayed in acute hospital beds who could more appropriately receive their on-going treatment and care in their own homes or in community facilities.

2.4 Assumptions for a Potential Solution

The above work generates a number of assumptions, which need to apply to all potential solutions:

- The emergency route in to the Trust (UCC & EC) will be via a single door
- Bed numbers are based on the assumptions of Future Fit with adjustment for 2014/15 baseline as detailed above
- If existing wards are staying as wards, no works will be undertaken
- Critical Care – physical capacity will be provided for 30 spaces. More work is required to understand the staffed capacity initially
- New build wards will be 50% single occupancy and have 32 beds, unless the service requirements require a smaller bed base (e.g. paediatrics and maternity)
- Trust wide service efficiencies and improvements in space utilisation and scheduling will be delivered – focussing on Outpatients, Theatres, Diagnostics and offices

2.5 Functional Requirements

Strategic Healthcare Planning (SHP) were engaged to support the Trust using the activity modelling from Future Fit, the amended modelling to reflect the 2014/15 baseline, the capacity modelling and the assumptions all described above, SHP identified the functional requirements and developed some outline Schedules of Accommodation (Appendix 2e).

2.6 Clinical Centres of Excellence

Implicit within the discussions amongst clinicians within Future Fit and Sustainable Services is the concept of Clinical Centres of Excellence. For some services, consolidating the inpatient bed base or the majority of service delivery onto one site will support and enable the progression of this clinical vision. This work requires further discussion and planning during the development of the Outline Business Case and is something the Trust is committed to delivering in key clinical areas.

2.7 Possible Variations

Within the Future Fit Options, Obstetrics and Neonates was identified as a potential variant; that is, services that should be tested to determine whether they could be delivered on a different site to the Emergency Centre, Critical Care, Acute Surgery etc.

This variant remains under consideration and its further exploration will need to:

- be clinically led
- use best practice and national guidance to frame the discussion
- learn from other hospitals and health systems delivering similar models of care
- be tested against measures of risk, quality and safety, deliverability and sustainability.

3. DEVELOPMENT OF OPTIONS

During 2015, The Future Fit Programme Board established an Evaluation Panel to make recommendations on both the Options to be considered and the Criteria against which such judgements would be made. Each programme sponsor and stakeholder organisation was given the opportunity to nominate a member of the Evaluation Panel.

The Panel's early work included the development of a wide range of potential scenarios from which a long list was created. A number of pre-consultation public engagement events also informed the development and evaluation of options.

The Evaluation Panel was also responsible for recommending the criteria against which long listed options would be evaluated with the pre-consultation public engagement events also informing the development and weighting of the criteria.

Four criteria were proposed initially, to which the Programme Board added a fifth by separating out workforce considerations from wider quality impacts. This resulted in the following broad criteria:

- Accessibility;
- Quality;
- Workforce;
- Deliverability;
- Affordability.

The Evaluation Panel and the wider Future Fit Programme identified potential scenarios for how the approved Clinical Model could be delivered. Key assumptions, at that time, were:

- Emergency Care will be provided from a single location;
- A new "greenfield" site needs to be considered, either to provide all acute services or Emergency Care and some other services;
- It would be possible to deliver all acute services from a single location;
- Two "Urban" Urgent Care Centres will be provided, one at PRH and the other at RSH.
- On this basis the Future Fit Programme Board identified a long list of 13 options (including a Do Minimum Option 1) for consideration.

These scenarios were reduced to a manageable short list of options in line with Department of Health (DH) Capital Investment Manual and Her Majesty's (HM) Treasury Green Book guidance. The options comprise:

- A 'do minimum' option (as required by the Treasury)
- Seven options for the location of the Emergency Centre and the Diagnostic and Treatment Centre (all of which deliver the approved clinical model)
- Urgent Care Centres at both PRH and RSH sites under all options.

The potential to locate consultant-led obstetrics (and neonatal care) either at the Emergency Centre or at PRH was identified as a variant to these options for further exploration.

Option	PRH	RSH
Option A	Provider and Commissioner strategies implemented but no major service change, including A&E	
Option B	EC/Obs&Neo/UCC/LPC	DTC/UCC/LPC
Option C1	DTC/UCC/LPC	EC/Obs&Neo/UCC/LPC
Option C2	DTC/Obs&Neo/UCC/LPC	EC/UCC/LPC

Table 10: Initial Options

These options were fully developed for appraisal in September 2015. However in the light of the deficit in the Local Health System, an affordable case for investment could not be made. In response, the Future Fit Programme Board commissioned the development of a whole-system deficit reduction plan and asked the Trust identify alternative solutions to its most pressing workforce challenges.

3.1 Potential Solutions

Further to the outcome of the capacity modelling exercise and the determination of the functional requirements (as set out in Section 2 above), the Trust considered how services could be delivered across the two sites (PRH and RSH). Senior clinicians, together with operational and corporate leads and the project team, identified a number of ways services could be delivered. This was based on the need to provide:

- one Emergency Department(ED) (within a single Emergency Centre)
- one Critical Care (CC) Unit, to be co-located with the EC
- two Urgent Care Centres (UCC), one at each site
- a balance of activity across the two sites (PRH and RSH)

The site which accommodates the EC, CC Unit and a UCC would then become the **Emergency and Acute** site. The site which accommodates the DTC and stand-alone UCC would become the **Acute and Planned** site. Whilst not directly required to address the Trust's emergency workforce challenges, this configuration also has the potential to provide the services within a Diagnostic and Treatment Centre at the Acute and Planned site.

This potential solution addresses all of the Future Fit change options:

- Emergency and Acute at PRH and Acute and Planned at RSH (Option B)
- Emergency and Acute at RSH and Acute and Planned at PRH (Option C1)

As referenced in section 2.8, and in the context of Future Fit, a further variation of the Emergency and Acute at RSH and Acute and Planned at PRH is the location of the Women & Children's Services (**Option C2**). This variant will be discussed in section 4.2.

Based on the core requirement of one EC and CC Unit, the clinical teams identified those services that had a clinical and workforce interdependency with these two emergency services.

The development of the potential solution was progressed over time. The process and outcomes were determined by detailed considerations and discussions with the clinical and non-clinical teams within the Clinical Working Group structure.

The possible balance of services within across an Emergency and Acute and a Planned and Acute configuration has been identified. It is agreed that this will need much more discussion and work as the Trust progresses with a potential solution to its workforce challenges. The detail of this work so far is attached in Appendix 3a.

3.2 Range of Potential Solutions

A number of potential solutions were considered for delivering the Future Fit Options. In line with guidance, a 'do nothing option' was included. The solutions considered are shown in Figure 3 below and include:

- **Solution 1** – do nothing
- **Solution 2** – implementing the changes to create an Emergency and Acute site and an Acute and Planned site without any changes to the existing estate
- **Solution 3** – implementing the changes to create an Emergency and Acute site and an Acute and Planned site with changes to the estate for the key services listed above (new build and refurbishment) but without any other transfer and/or changes to any other services
- **Solution 4** – implementing the changes to create an Emergency and Acute site and an Acute and Planned site with changes to the estate for the key services (new build and refurbishment) and the transfer of further essential services to the Emergency and Acute site. These essential services were determined by the clinical teams as those that have a clinical pathway or workforce interdependency
- Two additional solutions were also considered, which challenged the need for an Urgent Care Centre at each site. **Solution 5** co-located a single UCC at the Emergency and Acute site and **Solution 6** co-located a single UCC at the Acute and Planned site.

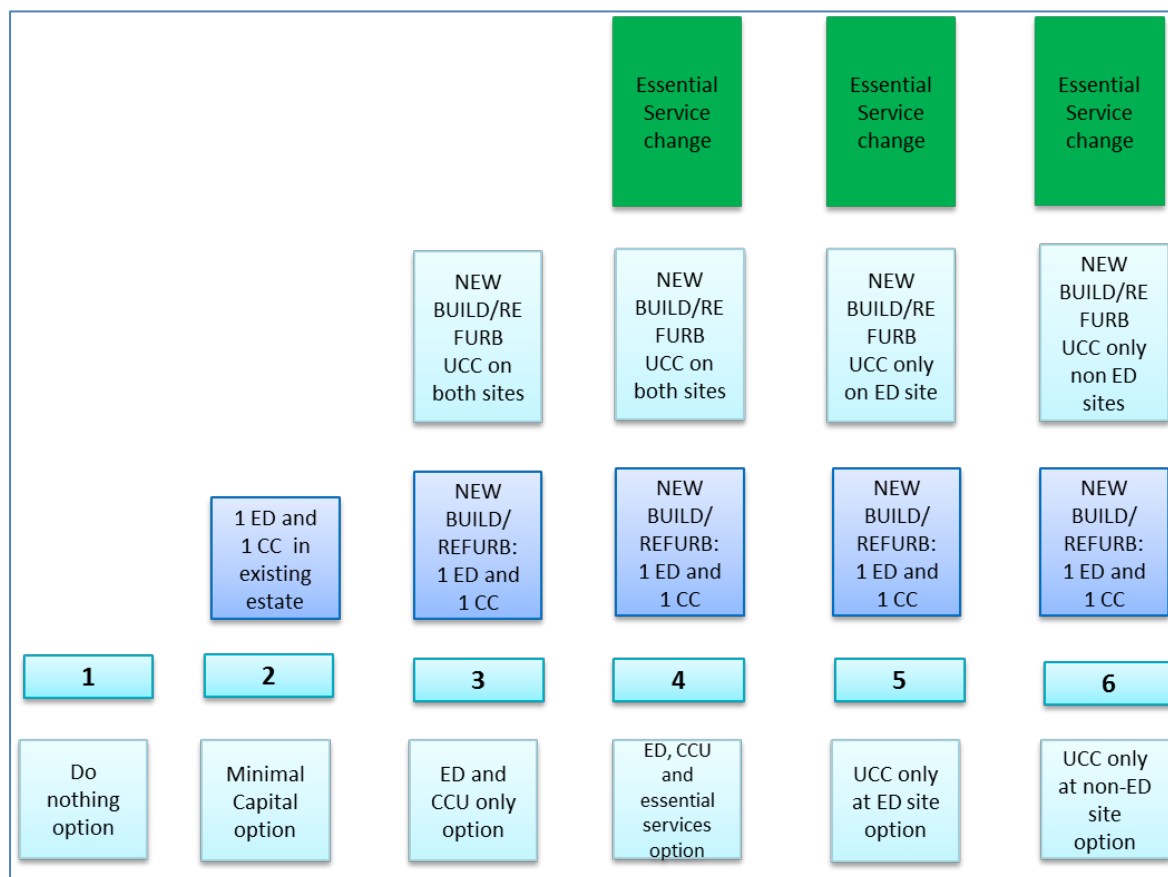


Figure 3: Potential Solutions

3.3 Evaluating the Potential Solutions

The Clinical Working Group and the Trust's Core Group (project, technical, corporate, IT, estates and facilities leads) determined that the following considerations were key to the deliverability of these potential options:

- Quality – Improving the clinical quality of services

- Access – Maximising access to services
- Environment – Optimising the environmental quality of services
- Workforce – Meeting staff recruitment, retention, training, teaching and staff support needs
- Deliverability – Practicality and timeliness of delivery
- Resources – Making more effective use of resources
- Future-proofing – Strategic fit
- Affordability* – Is the option likely to be affordable in the short/medium term

*It was acknowledged that detailed capital costs were not available at this time however, it was agreed that the affordability criteria should be included due to its significance in the projects progression. However a sensitivity analysis has been undertaken which excludes it to understand the true non-financial scoring.

The potential solutions were evaluated by the Clinical Working Group at a dedicated meeting on 25 November 2015. Following initial discussion, **Solution 5** and **Solution 6** were immediately discounted because they do not address the needs of the public in terms of access to urgent care, would result in unnecessary travel for many and do not fit with the national strategy around emergency and urgent care delivery. These solutions were also felt not to be adequately aligned with the Future Fit clinical model.

The remaining solutions were scored as follows:

Criteria	Weight	Option 1	Option 2		Option 3		Option 4	
			PRH	RSH	PRH	RSH	PRH	RSH
Workforce	20%	2.02	2.02	2.02	4.04	4.04	12.12	10.10
Quality	19%	7.68	3.84	3.84	5.76	5.76	13.43	13.43
Affordability*	18%	3.64	5.45	1.82	7.27	3.64	14.55	10.91
Deliverability	12%	12.12	3.64	3.64	4.85	3.64	8.48	4.85
Access	10%	4.04	2.02	2.02	3.03	3.03	5.05	5.05
Resources	8%	1.62	0.81	0.81	1.62	1.62	4.85	4.04
Future-proofing	6%	0.00	0.00	0.00	0.61	0.61	3.64	3.03
Environment	6%	1.21	0.00	0.00	0.61	0.61	3.64	2.42
TOTAL	100%	32.32	17.78	14.14	27.78	22.93	65.76	53.84
Rank		3	6	7	4	5	1	2

Table 11: Solutions Scoring

The above scoring shows that **Solution 2** (implement without any change/build) and **Solution 3** (implement with change/build to ED, CC Unit and UCC only) scored lower than **Solution 1** (do nothing). Options 2 and 3 were viewed by the clinical teams as being impossible to deliver and would actually make the situation worse than if nothing were done.

Alongside Option 1 (do nothing), **Solution 4** (ED, CC Unit, UCCs and Essential Service change) was therefore concluded to be the only viable option.

Further details of the scoring and evaluation process are included in Appendix 3b.

Further to the outcome of the above Evaluation, the Trust has progressed with **Solution 4** as the remaining viable delivery solution for the Future Fit options. It is hereafter referred to as 'The Potential Solution' without prejudice to which option is finally identified for implementation.

4. THE POTENTIAL SOLUTION

4.1 Description of the Shortlisted Options

The potential solution for Options B, C1 and C2 (with the Emergency and Acute site being at either RSH or PRH (and the Planned and Acute being on the alternate site) has then been developed to an initial level of detail. At this stage, this is to understand the impact, further assess its feasibility and to calculate the capital and revenue cost impact. This has included:

- A further review of the clinical services at each of the sites in more detail
- Understanding the workforce impact
- Developing possible physical solutions and the associated design standards
- Starting to understand the estates impact, including site-wide infrastructure and backlog position
- Exploring the impact on Facilities Management
- The IT considerations
- The impact on the wider hospital sites
- Deliverability and phasing

Each of these items is set out in more detail below:

4.2 Further Review of the Clinical Services

Following the evaluation of the range of solutions, the Trust team revalidated the detail of how the services will be split across the two sites for the potential solution.

A wider Clinical Working Group discussed the service configuration in detail on 8 February 2016 and agreed areas for further discussion and that all of the work developed for the potential solution within this SOC is based on the associated inpatient bed number splits.

This detail has also been shared and discussed at a number of key meetings (Executive Away Day 13 January 2016; Trust Board 28 January 2016; Future Fit Programme Team 4 February 2016; Future Fit Programme Board 18 February 2016).

As introduced in sections 2 and 3 above, the Trust's potential solution needs to include consideration of the potential variant of the separation of Obstetrics and Neonates from the Emergency Centre (Option C2). The Future Fit Programme identified the need for further work to be undertaken on this variant, including understanding clinical evidence to support it. It was agreed that the national 'Maternity Review' that was due to conclude in December 2015, and the parallel report of the Royal College of Obstetricians and Gynaecologists would help to inform this debate.

In addition to this, the Trust has undertaken high-level scoping of the impact of all Women and Children's Services (Obstetrics, Neonatology, Paediatrics and Gynaecology) being co-located on the Acute and Planned site and not the Emergency and Acute site. At this stage, this has been from a workforce and potential estate solution only. Detailed discussions with clinical leaders and teams will need to be undertaken during the development of the OBC. This work will need to include the evidence described above.

During these clinically led discussions further variants may be identified with the potential to align services clinically and still maintain two balanced sites.

4.3 Workforce Impact

The impact of the potential solution on the Trust's workforce has been considered, including the potential impact on recruitment, requirements for relocation of staff, opportunities for workforce transformation, and the impact on the revenue position.

The workforce risks associated with emergency medicine and critical care are addressed and as such the employment offer and ability to recruit improves, due to less onerous on call within acute medicine for example. Further work with regard to role development and workforce transformation would however be an enable and the potential solution identified would be able to support further developments.

- The workforce implications of the potential solution are summarised below:
- Reduction in duplicate costs saved through consolidating some services
- More favourable recruitment in challenged specialities due to single emergency department and critical care configuration
- Minimal new build impact on soft and hard facilities management
- Able to support workforce transformation opportunities and improvements for educating and training multi-disciplinary trainees

4.4 Possible Physical Solutions

The Trust has engaged AHR Architects to develop some initial layouts as to what the possible physical solutions could look like. This piece of work has considered potential locations for development at each of the sites, and has developed some initial block plans, with variants for PRH or RSH as the Emergency and Acute site. This work has considered:

- the likely layout and physical size of each of the key components (ED, CC Unit, UCC, Wards)
- clinical adjacencies and links to the existing services being maintained at each site
- provision of a 'big front door' for the collocated ED and UCC
- the need for future flexibility and potential for further development, service change and consolidation
- an opportunity to improve the overall hospital layout and flow
- an opportunity to create a new entrance and focal point at both sites
- deliverability and the need to minimise the impact on existing hospital services

These block layouts are included in Appendix 4a.

The block plans are designed as a series of 'component parts' that provide flexibility for further consolidation and change overtime, by adding to the core requirement of the potential solution. This provides a potential longer term vision for both hospital sites within an evidence-based Development Control Plan (DCP) for each site (Appendix 4b).

The layouts create a compact and efficient solution and are that built around a 'hot core' of clinical activity (ED, imaging theatres etc.). The layouts also respond to the need to simplify patient and public routes, especially at the RSH site.

It is important to note that these layouts are only an initial view of what might be developed, to check the feasibility and relative scale of the potential solution and to inform the capital costs. The layouts require working up to the next level of detail as part of developing the OBC.

These layout plans were reviewed in detail by the Clinical Working Group at the meeting on 20 January 2016 and were unanimously supported.

The new main entrance areas at each site will contribute significantly to the experience of patients, the public and staff and improve everyone's overall impression of hospital care provided by the Trust. The use of modern, uplifting and 'non-institutional' design has the potential to create a real hub of activity (coffee shops, retail, wayfinding etc.) whilst delivering patients and visitors into the heart of the hospital.

4.5 Design Standards

All new build and refurbished accommodation (where there is a change of use) required to deliver the potential solution will comply with all applicable standards with regard to:

- modern space standards
- control of Infection
- fire
- privacy and Dignity
- accessibility

Department of Health standards, such as HTMs (Health Technical Memorandums) etc.

This will be further discussed and developed at OBC.

4.6 Estates Impact Including Site-wide Infrastructure and Backlog

The Trust Estates team have reviewed the impact of the potential solution on the existing estate both in terms of site-wide infrastructure and the backlog position.

As stated above, all of the new and refurbished accommodation will be provided to modern standards which will provide an improved patient and staff experience in these areas. It will also improve the quality of the estate and the general environment – both recognised to be important contributors to the delivery of better healthcare.

The proposed development will address some of the areas of poor estate identified by the recently completed six facet estate surveys. It will provide additional high quality accommodation in the form of new build and refurbishment and will have some small impact on the backlog position at both sites which are affected by the development.

The impact of the option on the backlog (condition and statutory compliance) position is provided within Table 12 below:

Emergency and Acute Site	Site Reduction (£m)	Acute and Planned Site	Site Reduction (£)	Total Reduction (£m)	Total Residual Gross Condition & Statutory (£m)
RSH (Option C)	15.7	PRH	0.8	16.5	87.0
PRH (Option B)	0.6	RSH	12.8	13.4	90.1

Table 12: Backlog Impact

It can be seen that the reduction in backlog associated with the potential solution ranges from £13.4m to £16.5m depending on which Option is finally selected. This results in a residual backlog position of **£87.0m** under Option C (RSH is the Emergency and Acute Site) and **£90.1m** under Option B (PRH is the Emergency and Acute Site). All figures are gross.

The Trust recognises that the majority of backlog issues will therefore not be addressed. It is acknowledged that this therefore needs to be resolved. The cost pressure associated with capital charge consequence of resolving the backlog (to category B or above) is described in Section 5.

The addition of a significant amount of new estate will create pressures on some of the existing estates services at each site and hence will require some investment in new engineering services infrastructure. A very high level initial review of this has been undertaken by the Trust's Estates team, supported by DSSR Consulting (Mechanical & Electrical) Engineers. Details of the review outcome are provided in Appendix 4d. Further work and costing of the estate and site wide infrastructure will be undertaken in the OBC.

The provision of new estate will also increase the maintenance requirements. These have been considered within the workforce modelling.

4.7 Facilities Impact

As with estates, the addition of a new and changes to the existing estate at each site will require changes to facilities management. Pressure on some existing facilities services such as catering linen/laundry, portering, security, sterile services, and telephony should be noted and will need to be progressed in the OBC.

A very high level initial review of the impact of the potential solution on the existing facilities provision has been undertaken by the Trust Facilities team. Details of this review are provided in Appendix 4c.

The provision of new and changed estate will also increase the facilities management requirements for both hard and soft facilities management, which have been considered within the workforce modelling.

4.8 Impact on the Wider Hospital Sites

The addition of new buildings and refurbishments may have a ‘knock-on’ effect to the existing clinical, non-clinical and support services at both sites including:

- Imaging, Pathology, Mortuary, Pharmacy, Therapies
- Clinical administration, Education, Research and Training
- Medical Records and Medical Engineering
- Spiritual care, staff welfare, support services, outdoor space
- Staff offices, corporate functions, residences
- Car parking

A high level review and mapping of this impact has commenced and will be developed further in the OBC.

4.9 IT Considerations

An integrated and resilient IT network and infrastructure is a vital enabler within the Sustainable Services and Future Fit programmes. The model of care is built on the premise that clinical teams are connected and are able to interact with systems, view images, data and results at the point of need.

In line with this, the Trust’s IT Strategy (Appendix 4e) focuses on sustained and incremental improvements to the organisation’s infrastructure and systems. Key to all developments within this strategy is their need to deliver tangible improvements to patient care. All developments also require a resilient infrastructure in which they can safely and securely operate.

Over time, as with much of the NHS, the IT infrastructure and capacity within the Trust has struggled to keep pace with service needs and advances in technology such as the move to mobile devices, a need for wireless connectivity and advanced system protection.

The IT developments, as an enabler to the implementation of a new model of care, will require investment from all organisations within the health economy. A Local Health Economy group is progressing this work led by David Evans (T&W CCG) and Dr Steve James (Shropshire CCG). The focus is on the integration and sharing of information as well as the challenges with the economy’s infrastructure.

IT leads within the Trust are therefore clear that an incremental and ‘best of breed’ approach is required at SaTH. The system will continue to be developed from what is in place, take the best of others experience and combine a network of different systems in such a way that the user is not aware of the complexity behind. This results in a responsive IT network with a user interface that is easy and straightforward to use. This is outlined in Appendix 4f.

There are three levels of IT development that requires investment to deliver the IT system needs of the future. For SaTH, these costs form part of the Trust's capital and affordability position:

- Level 1: Development and improvement to the network including end-points, switches, wireless capability etc.
- Level 2: Investment in the IT infrastructure including increasing processing and storage capacity within the data centres; cooling and power management in computer rooms to manage increased traffic whilst maintaining availability, confidentiality and integrity.
- Level 3: Connection and front end improvements including the clinical portal, pharmacy (e-prescribing), electronic patient records and other as yet unspecified developments that demonstrably improve workflow across clinical teams and organisations.

The potential solution will require investment, to a greater or lesser extent, in current systems to ensure they meet the 'minimum standard' required. This includes the ability for any clinician to access information from any data point, on a mobile or static device within any patient area. This minimum standard will also need to be delivered within community facilities, if staff are to be able to deliver timely and appropriate care around the needs of the patient.

4.10 Deliverability and Phasing

The phasing and deliverability of the options under the potential solution has been considered at this stage and a potential phasing plan produced. This aims to achieve the fastest possible delivery whilst attempting to minimise capital costs and impact on the existing hospitals.

Initial phasing plans are included in Appendix 4g which demonstrates the potential solution is achievable. Indicative dates and an initial programme are included in Section 6.2. This will all be developed further as part of the OBC.

5. AFFORDABILITY

5.1 Capital

A high level capital cost estimate for the potential solutions has been undertaken by Rider Hunt Cost Advisors. These estimates follow best practice and the guidance within the NHS Capital Investment Manual and are presented on OB forms in the standard format.

The works costs are built up using the Healthcare Premises Cost Guides rates per m2 (HPCGs) applied to the building areas shown within AHR Architects' block plans, plus appropriate on-costs.

The HPCG rates have been adjusted accordingly for items such as storey height, and the areas have been adjusted to allow for main plant rooms and communication between departments.

For the refurbishment areas, a percentage of the new build rate has been taken based on the type of refurbishment indicated on the schedules.

External works are included based on the items shown on AHR's block plans as well as general allowances for items such as drainage.

General allowances have been made for items such as bad ground, diversions, connections, and breakthroughs. Additional costs have then been added to the above works costs to include for:

- fees, which are based on 15% of the works costs, as the HPCG guidance
- non-works costs, which are an allowance based on similar recent developments
- equipment, which is assumed to be all new and included at 15%, as the HPCG guidance
- location adjustment, based on Shropshire
- planning contingency, which is based on 10% of the works cost
- optimism Bias, as set out below
- inflation, which is included based on the PUBSEC indices
- VAT at the current rate
- VAT Recovery, at an assumed level of recovery based on 100% recovery for fees only

All site-wide impact and infrastructure costs are excluded from these capital cost estimates, and are included separately within the SOC.

No costs for land purchase have been included as there is none deemed to be required.

Equipment costs are deemed to include for all general equipment, and general IT infrastructure, but exclude any specialist medical equipment (such as CT, MRI etc.), and any specialist IT requirements (such as EPR or iPads, etc.).

The level of Optimism Bias has been calculated based on the approved guidance, and based on the level of development and confidence in the scheme at SOC stage. This calculation is included in Appendix 5a.

The costs are shown on form OB1, supported by OB 2-4, which are included in Appendix 5b, plus a separate set of High Level Cost Estimates (for supporting information only), which are included in Appendix 5c.

5.2 Overall Affordability and Key Planning Assumptions

In developing its strategy for an affordable option, the Trust has taken into account the following:

- Projections of income based on the Future Fit Phase 2 modelling including a forecast on demographic changes
- Efficiencies arising from the removal of duplicate rotas, reduction in Junior Doctor intensity payments, co-location of services and the co-horting of surgical specialities
- Increased facilities and ward costs associated with modern and national standards for new wards
- Application of inflation
- Net additional cost of capital
- Repatriation of activity currently being performed for local residents in organisations outside the local health economy.
- Increase of tariff payments in line with the current Sustainability and Transformational fund allocation
- Continued CIP delivery

A summary of the analysis can be found in Table 13 with a detailed analysis showing the impact on the Trust's Income & Expenditure in Table 14 and the key planning assumptions detailed in Table 15 below:

	Option A Do Minimum	Option B PRH Emergency	Option C RSH Emergency
	£000	£000	£000
Capital Expenditure (Current Prices)		102,028	195,325
Remaining Backlog	103,400	90,100	87,000
Income and Expenditure			
Baseline Recurrent Position	(17,271)	(17,271)	(17,271)
Revenue Impact (reduction)/Increase			
Sustainability Fund	0	10,500	10,500
Demographic Growth	11,300	11,300	11,300
Activity Reductions	(9,600)	(9,600)	(9,600)
Repatriation	12,000	8,640	12,000
General Efficiencies	32,786	32,786	32,786
Inflation	(49,800)	(49,800)	(49,800)
Sustainable Services Case Revenue Savings and Costs			
Workforce Savings	(4,600)	21,389	21,302
Cost of Capital	0	(5,805)	(11,112)
Total Savings from Sustainable Services Case	(4,600)	15,585	10,190
Total Revenue Impact	(7,914)	19,411	17,376
Recurrent Income and Expenditure Position	(25,185)	2,140	105

Table 13: Income Expenditure Analysis

The table above demonstrates the affordability of the potential solution at both PRH and RSH to the Trust. Savings achieved as a direct result of implementing the potential solution is £15.585m in Option B and £10.190m in Option C.

Option C does however enable the Trust to maximise the potential for the repatriation of activity currently being performed for local residents in provider organisations outside the local health system.

	<i>Total 2015/16 Baseline</i> £000	Option A Do Minimum £000	Option B PRH Emergency £000	Option C RSH Emergency £000
Income				
Baseline Income	315,859	315,859	315,859	315,859
Phase 1 and 2 Activity Reductions	0	(16,000)	(16,000)	(16,000)
Demographics	0	22,600	22,600	22,600
S&T Fund	0	0	10,500	10,500
Repatriation	0	20,000	14,400	20,000
	315,859	342,459	347,359	352,959
Expenditure				
Pay	(215,945)	(215,945)	(215,945)	(215,945)
Pay Inflation		(34,860)	(34,860)	(34,860)
Efficiency Delivered		24,746	24,746	24,746
Repatriation - Pay Implications		(5,600)	(4,032)	(5,600)
Demographic Changes - Pay Implications		(7,910)	(7,910)	(7,910)
Phase 1&2 Pay Implications		4,480	4,480	4,480
Additional Estates and Facilities Pay costs		(600)	0	0
Additional investment in Medical Staffing		(4,000)	0	0
Workforce Reductions - duplicate costs		0	10,153	10,153
Workforce Savings IT		0	2,300	2,300
Additional Workforce Savings		0	9,110	9,110
HCA Pay Costs associated with safer staffing levels		0	(174)	(261)
Total Pay	(215,945)	(239,689)	(212,132)	(213,787)
Non Pay & Inflation Reserves	(99,741)	(99,741)	(99,741)	(99,741)
Non Pay Inflation		(14,940)	(14,940)	(14,940)
Efficiency Delivered	0	8,040	8,040	8,040
Repatriation - Non Pay Implications		(2,400)	(1,728)	(2,400)
Demographic Changes - Non Pay Implications		(3,390)	(3,390)	(3,390)
Phase 1 & 2 Non Pay Implications		1,920	1,920	1,920
Total Non Pay	(99,741)	(110,511)	(109,839)	(110,511)
Finance Costs	(17,444)	(17,444)	(17,444)	(17,444)
Additional Capital Charges		0	(5,805)	(11,112)
Total Finance Costs	(17,444)	(17,444)	(23,249)	(28,556)
Total Income and Expenditure	(17,271)	(25,185)	2,140	105

Table 14: Income and Expenditure Analysis (Price base at 2020/21)

	2016/17	2017/18	2018/19	2019/20
Tariff Uplift	1.1%	0%	0%	0%
Inflation (blended)	3.1%	2.8%	2.8%	2.8%
Efficiency Factor	3.4%	2.5%	2.5%	2.5%
Growth	1.5%	1.5%	1.5%	1.5%

Table 15: Planning Assumptions

5.3 Commissioners

An analysis of the Trust's income pre and post scheme implementation can be seen in Table 16 below:

Commissioner	Current proportion of income with Commissioner		Proposed proportion of income with Commissioner post implementation		Proposed proportion of income with Commissioner post implementation	
			Option B		Option C	
			(Year 1 or base year)		(Year 1 or base year)	
	%	£000s	%	£000s	%	£000s
Local Health Economy	66.22	209,174	63.71	221,319	64.29	226,919
Others	26.41	83,429	26.09	90,620	25.67	90,620
Other Clinical	0.91	2,861	0.88	3,066	0.87	3,066
Non Clinical	6.46	20,394	6.29	21,853	6.19	21,853
Sustainability and Transformation Fund	-	0	3.02	10,500	2.97	10,500
Total		315,858		347,358		352,958

Table 16: Expected Commissioner Contributions post Phase 2 Modelling

5.4 Potential Variant (Option C2)

A financial appraisal has also been completed to illustrate the potential financial impact of the differing configuration of services where, if the Emergency and Acute site is situated at RSH site, the Women and Children's services remain on the PRH site within the Planned and Acute site.

Financial Summary as at 2020/21

	Option C2 RSH Emergency with W&C Separate £000
Capital Expenditure (Current Prices)	168,167
Remaining Backlog	87,000
Income and Expenditure	
Baseline Recurrent Position	(17,271)
Revenue Impact (reduction)/Increase	
Sustainability Fund	10,500
Demographic Growth	11,300
Activity Reductions	(9,600)
Repatriation	12,000
General Efficiencies	32,786
Inflation	(49,800)
Sustainable Services Case Revenue Savings and Costs	
Workforce Savings	17,710
Cost of Capital	(9,567)
Total Savings from Sustainable Services Case	8,143
Total Revenue Impact	15,329
Recurrent Income and Expenditure Position	(1,942)

Table 17: Financial summary of Women & Children's potential solution variant

The above table illustrates that whilst the capital cost of Option C2 is £1.5m lower than Option C1 there is a significant reduction (£3.5m) in the potential workforce savings; predominately due to the requirement to provide additional medical rotas to deliver the required emergency and cover on the non-emergency site. As a result this variant of the potential solution reduces the revenue performance for the Trust by £2m.

5.5 Wider Health Economy Position

Whilst the tables within Section 5.2 demonstrate the affordability of the potential solution to the Trust, affordability should also be considered within the wider context of the overall health system's financial sustainability.

The health system met in December 2015 to discuss and explore the likely financial challenges facing all providers and commissioners across the population served for the period 2016-2021.

The system leaders commissioned Price Waterhouse Coopers (PWC) to undertake a granular level assessment of the challenges. The conclusion of this will be available in the first week of March 2016, however given the information currently available, a draft financial summary and overview has been produced illustrating the key elements that need to be delivered to deliver financial sustainability over a 5 year period.

Local Health Economy Position

	Commissioner's Providers				
	Commissioners	SATH	RJAH / Community Trust	Other (inc Mental Health)	Total
	£000	£000	£000	£000	
Opening Deficit 2015/16	-4,900	-17,271	2,000		-20,171
Additional Pressures					
Winter Pressures		-2,800			-2,800
Additional Agency Spend		-3,500			-3,500
Opening Deficit 2016/17	-4,900	-23,571	2,000	0	-26,471
Commissioner allocation					
Shortfall	-18,100				-18,100
Community Fit	-6,000				-6,000
Sustainability and Transformation Fund		10,500			10,500
Winter Funds	-2,800	2,800			0
Inflationary Pressures		-49,800	-22,900		-72,700
Deemed Net Gain from Demographic Growth		11,300	6,500	7,400	25,200
QIPP Schemes required to Deliver CCG Business Rules	38,000	-16,000	-11,000	-11,000	0
System wide Financial Problem	6,200	-64,771	-25,400	-3,600	-87,571
Provider Solutions					
Direct Costs Savings as a result of QIPP Schemes		6,400	4,400		10,800
Repatriation of Activity Net Gain		8,640			8,640
Agency Premium - National Cap		3,500	1,000		4,500
CIP Achievable		27,286	22,900		50,186
SATH Sustainable Services Business Case		15,585			15,585
Staff Unavailability		3,000			3,000
Back office Functions		1,000	300		1,300
Review of Midwifery Service		1,500			1,500
Saving identified	0	66,911	28,600	0	95,511
Resultant Position 2020/21	6,200	2,140	3,200	-3,600	7,940

Table 18: Local Health Economy Position

The table above demonstrates the significance of the Trust's delivery of the Sustainable Services Programme on the local health system. The health system CCGs are able to deliver their required business rules and the local providers can deliver their required surpluses when the Sustainable Services Programme is one of the fundamental elements of the system's financial recovery.

5.6 Financial Impact of Addressing the Trust's Estate Backlog Issues

As highlighted in Section 4.6 it is important to note that the significant issue of the remaining backlog maintenance not fundamentally being addressed within the potential solution detailed above.

The Trust is clear that it wishes to address its backlog issues. However, this would result in an additional revenue pressure associated with the cost of capital expenditure of circa £6m.

It is therefore assumed that this cost pressure will feature in the local health system's recovery plan going forward.

6. TIMETABLE AND DELIVERABILITY

The Trust recognises that the delivery of the project is a significant task, requiring good quality project management and a real commitment from all parties involved to ensure its success. The Trust has robust arrangements in place for the on-going management of the project. This section sets out the Trust's timetable and delivery plan to ensure the successful delivery of the project, including:

- Proposed Timetable for achieving the completion of the scheme
- Potential delivery dates and phasing requirements
- Main risks identified at this stage, and arrangements for risk management
- Summary of the project management arrangements
- Confirmation of Trust commitment of time and resource, and plans for knowledge transfer
- Arrangements for consultation, engagement and communication
- Procurement
- Next steps

6.1 Proposed Timetable

The proposed timetable for the next stages of the scheme up to the completion of the FBC is shown in Table 19 below. These proposed dates provide the fastest possible route to delivering the potential solution, whilst ensuring adequate planning, engagement, approvals, and due diligence are undertaken; as well as sufficient periods for the Trust to obtain the necessary approvals from the Trust Development Authority, including HM Treasury as appropriate. An outline programme, including interdependencies and milestones will be developed with the OBC. The Trust's proposed arrangements for managing delivery are set out below.

Milestone	Start	Finish
Trust Board formally approve final draft SOC	-	25 Feb 16
Submit SOC to TDA for approval	-	11 Mar 16
TDA SOC approval period (local and national, inc DH and Treasury)	14 Mar 16	30 Oct 16
Reviews with TDA and responding to queries as required	14 Mar 16	31 May 16
Trust Board formally approve final OBC	27 Oct 16	27 Oct 16
Public consultation	1 Dec 16*	12 Mar 17*
Full Planning Application (allow 16 weeks)	13 Mar 17	30 Jun 17
TDA OBC approval period (local and national, inc DH and HMT)	1 Jun 17	31 Dec 17
Final Commissioner Decision	30 Jun 17	30 Jun 17
Procurement process (assuming D&B or P21+ route)	1 Sep 17	30 Mar 18
Full Business Case (FBC) Approval	30 Aug 18	30 Aug 18

Table 19: Proposed Milestones

* Dates for the public consultation shown are the target dates as set out within the Future Fit Critical Path and are subject to change (especially as a result of external approval processes).

6.2 Delivery Dates and Phasing Requirements

The construction and delivery phase varies according to which site is the emergency acute site. A first pass at the potential phases and associated delivery dates is shown in Tables 19 and 20 below. The outline phasing plans which correspond with these dates are included in Appendix 4g. All of this will be developed further at OBC stage.

All of these dates are deemed to include construction, fit-out, and decanting. At this stage Phase 1 at either site is deemed to commence after the FBC is approved and a short lead-in time is provided to the Contractor (say 2 months). It may be that some early work can be undertaken at risk in parallel with finalising the FBC, particularly at PRH.

NOTE: All dates are very indicative at this stage and require verification. They are for guidance only and are subject to change.

6.3 PRH as the Emergency and Acute Site

There are some initial enabling works required to deliver the potential solution at PRH, but the majority of the work is built in a single phase, with the final CC Unit refurbishment as a final phase.

	Phase	Duration
1	Enabling works and create new parking at PRH	9 months
2	Create new ED/CC Unit/UCC/AEC at PRH plus other works	24 months*
3	Refurbish CC Unit at PRH, refurbish A&E at RSH	9 months
	TOTAL	42 months (3 years 6 months)

Table 20: PRH as the Emergency Acute Site

*at the end of this phase the first part of the service becomes operational

6.4 RSH as the Emergency and Acute Site

There are a series of enabling works and sequencing required to deliver the potential solution at the RSH site. This is as a result of the need to relocate a number of existing non-core services to create the space to develop the new scheme. In addition, the need to move Women and Children's from PRH creates an additional set of phasing.

	Phase	Duration
1	Enabling works to reprovide and relocate existing services at RSH	12 months
2	Demolition of existing services at RSH	4 months
3	Create new ED/CC Unit/UCC/AEC and W&C's Unit at RSH	30 months*
4	Transfer of services from PRH to RSH, vacation at RSH and PRH, demolition at RSH	2 months
5	Reconfiguration and create new entrance at RSH; refurbishment of old W&C's unit at PRH	12 months
6	Final moves and refurbishments	9 months
	TOTAL	69 months (5 years 9 months)

Table 21: RSH as the Emergency Acute Site

**at the end of this phase the first part of the service becomes operational*

6.5 Risks and Risk Management

There are a number of risks associated with the planning and delivery of the Sustainable Services Programme. These risks, their mitigation, and supporting actions are reviewed and managed through the project team and the governance structure in place; which aligns with the normal Trust operational risk management processes and procedures. All identified risks are documented in a project risk register and assessed for likelihood and potential impact and given a RAG rating.

The Programme Risk Register is formally reviewed and updated on a monthly basis by the Project Team. Red rated risks are reported to the Programme Board each month. The current top risks (10 and above) are shown in Table 22 below, and a copy of the latest Risk Register is in Appendix 6a:

Risk	Additional Actions Identified to address risk
Lack of clarity of roles regarding Sustainable Services Programme and NHS Future Fit resulting in a failure to meet the '4 tests' and Gunning Principle required for all NHS service reconfigurations	Urgent need to clarify relationship and roles and communicate with stakeholders and the public. Meetings planned
Risk around wider NHS Future Fit progression including perceived divergence from clinical model, lack of GP support and/or because the NHS Future Fit model has not been adequately refreshed (e.g. Community Fit, the rural offer, financial sustainability) leading to CCGs not being able to approve the plans for, and lead on public consultation	Refreshed messages and mandate through NHS Future Fit Programme for an update to the clinical model required to encompass progress and any changes. Meeting of SROs and Accountable Officers/CEO with communication team to discuss and progress. Outcomes to be fed into meeting of key leads above
Capital costs of the emerging solutions in higher than anticipated leading to concerns around affordability and deliverability	Cost advisors working closely with Architecture and Technical Team. Information to be shared with Trust teams. Draft capital costs received and being worked through. Revenue impact to be mapped

Table 22: Top rated risks

6.6 Project Management Arrangements

The Trust is managing the Sustainable Services Programme as a single project. It is being managed internally, complemented by external advisors where appropriate. The Trust has successfully managed the project to date using the processes outlined within this SOC, which will be developed further as we progress through the OBC and then FBC.

A robust governance structure has been established with defined roles for individuals; and the establishment of a series of groups, teams and boards. This ensures all team members understand their role and responsibilities, and provides a clear and auditable route for decision making and the escalation of risks and issues.

Progress against the key milestones is monitored by the Project Team using an Action Tracker, which is presented each month to the Programme Board and Core Group meeting, and any corrective action taken if required.

A budget for each stage of the project is established at the outset of the stage, and the on-going costs are controlled and monitored by the Project Team, including fees for external consultants. An overall project budget will be established as part of the OBC.

The proposed benefits of the project are emerging within this SOC, which will be developed within the OBC, and a benefits management process established to ensure these are achieved.

A robust project brief will be established, and the design will be managed and controlled by the Project Team and through the Technical Project Manager, to ensure it complies with the brief and will meet all relevant statutory requirements and guidance, with any derogations agreed and documented.

Appropriate change control, issues management, and contract administration will be established as the project progresses.

A robust commissioning, completion, and post-completion process will be established, which will include a Post-Project Evaluation.

All of the project management arrangements are documented in a Project Initiation Document (PID), which is included in Appendix 6b.

6.7 Time and Resource

The Trust confirms that adequate time, resource, and expertise is being allocated to the project to ensure its successful delivery.

6.8 Lessons Learnt and Transfer of Expertise from FCHS Project

The Trust has recently undertaken a major reconfiguration programme, the Future Configuration of Hospital Services (FCHS). In addition to retaining a number of key internal and external project team members from this project, a detailed lessons learnt process was carried out, both of which have helped inform the Sustainable Services Programme and ensure knowledge transfer.

6.9 Consultation, Engagement and Communication

As work within the Sustainable Services Programme is aligned to the health economy's Future Fit Programme, communication and engagement with patients, the public and wider stakeholders is within the Future Fit Programme and managed accordingly.

Involvement and support from the Clinical Commissioning Groups and liaison with the Trust Development Authority has been held throughout the SOC process. Monthly project updates have been provided to the Future Fit Programme Board.

Plans for the Public Consultation are being developed, in partnership with the Future Fit Programme Team.

The project will undergo all required internal and external assurance, including formal review by the West Midlands Clinical Senate as part of Stage 2 NHSE Assurance, regular reporting to the Joint Overview and Scrutiny Committee. It is also envisaged that the project will undergo a 'Gateway' Review.

6.10 Procurement

The procurement options to be explored through the OBC development will include traditional funding routes (Public Dividend Capital (should this be available), DH loans) as well as potential private sources of funding (private loans, property-led funding solutions e.g. Joint Ventures, property development solutions etc.)

No allowance for land purchase has been included, as there is no new land deemed to be required and the Trust currently owns and controls all of the areas to be developed.

6.11 Next Steps

The next steps for the Sustainable Services Programme are:

- Progress this SOC through the formal approval process
- Work with the Future Fit Programme to support and enable them to lead an Appraisal and Assurance Process in the coming months
- Develop communication and engagement plans in partnership with the Future Fit Programme and CCGs to support and enable them to lead Public Consultation later in 2017
- Commence work on the OBC

CONCLUSION

This document presents the Strategic Outline Case for the Trust's Sustainable Services Programme as part of the Future Fit Programme. It describes the Trust's plans to address the significant challenges to the safety and sustainability of patient services specifically in emergency and critical care.

The SOC outlines the potential solution for the creation of balanced hospital sites. Each site will continue to provide essential services for the population served including: Urgent Care, Outpatients, Ambulatory Emergency Care, Diagnostics and Midwifery Led Care. Either site will then provide Emergency Care (the single ED and Critical Care) or the majority of Planned Care (the Diagnostic Treatment Centre). Clinically-led discussion and debate will need to continue on the best location for other essential hospital services: Women and Children's, Surgery, Cancer etc. – many of which can further develop into the Trust's ambition for Centres of Excellence.

It also introduces the Trust's backlog maintenance challenge and highlights the need for an approach to bring much of the estate at RSH back to its 'as built' standard. However, this would result in an additional revenue pressure associated with the cost of capital expenditure of circa £6m.

The SOC identifies the high-level capital costs associated with the required new build and refurbishments to enable this vital service change. The workforce and revenue impact of the proposed changes is also identified. The financial impact is described within the context of the Trust and local health systems long term financial sustainability and deficit reduction plans.

The potential solution is affordable to the Trust at both the PRH and RSH (Options B and C1).

The potential variant of the Emergency and Acute site being at RSH and Women and Children's Services being located on the Acute and Planned site at PRH (Option C2) currently appears to be marginally unaffordable.

The SOC has been developed in accordance with the requirements of the TDA. These requirements include the identification of a range of deliverable and affordable options that will address the problem that we are trying to solve. First, to resolve the workforce challenges within A&E and Critical Care and second, to address the backlog estate issues.

The Trust Board is asked to:

- Review the Strategic Outline Case for the Trust's Sustainable Services Programme
- Approve the Strategic Outline Case for submission to Commissioners and the Trust Development Authority for their support and approval

(Trust Board minute to follow)

APPENDIX 1a – Letter of Support from Commissioners

APPENDIX 1a - LETTER OF SUPPORT FROM COMMISSIONERS

To follow – mid March 2016

APPENDIX 1b – Full Analysis of SaTH Patient Activity

APPENDIX 1b – Full Analysis of SaTH Patient Activity

2014/15 out-turn

Services	Inpatient/Day Case	Non Elective and Maternity	Outpatient
Diagnostics	0	0	588
Emergency Care	0	1,088	3,486
Head and Neck & Ophthalmology	7,418	1,083	93,351
Medicine	2,893	24,266	101,639
Musculoskeletal	3,748	3,526	55,051
Surgical, Oncology & Haematology	30,527	8,545	89,058
Theatres, Anaesthetics & Critical Care	0	1	591
Therapies	0	0	13,150
Women and Children's	2,845	15,785	44,892
Total	47,431	54,294	401,806

APPENDIX 1c – Interim Estates Strategy

The Shrewsbury and Telford Hospital NHS Trust

Updating the Trust's Estates Strategy

March 2016

All NHS Trusts have a statutory responsibility for the management of their assets. A well-developed estate strategy that meets the needs of the organisation is an essential element of that management.

The Trust's estate strategy now needs to be updated to reflect the Trust's current position: a Strategic Outline Case for the Sustainable Services Programme that has been approved by the Trust Board; and the outcome of the Facet Surveys for both the Princess Royal and Royal Shrewsbury Hospitals.

Background

In 2012, as part of the Full Business Case submission for the Future Configuration of Hospital Services, the Trust's Estates Strategy was updated.

It was noted at this time that a new Estates Strategy would need to be developed following the completion of the works and moves described within this business case; predominantly the construction and opening of the Shropshire Women and Children's Centre at the Princess Royal Hospital (PRH) in September 2014.

Similarly during 2015, the Trust identified that the Facet Surveys of 2007 needed to be revised. This work was commissioned and was undertaken at the end of 2015. The summary reports are attached.

Current Position

Whilst the Trust's service challenges are primarily focussed around its workforce in particular clinical areas (A&E, Critical Care, Acute Medicine), day-to-day service provision and service development and improvement is hampered by the current estate. This is for a number of reasons and includes:

- A lack of formal 'reserve space' that would support surge capacity, maintenance or the testing of new delivery models
- The situation where services have 'out grown' their areas meaning that any service change is difficult
- A gap in the required numbers of facilities such as toilets and bathrooms to what is currently provided

The Trust therefore needs an Estate Strategy that clearly details the current estate, the subsequent challenges this generates, the estates response to new and emerging models of care and service configurations and a plan to address the backlog maintenance across both hospital sites.

Plan and Approach

The Trust will now develop a new Estates Strategy for 2016-2021. This will respond to the developing business cases for the Sustainable Services Programme and the areas identified above.

The Estates Strategy will be developed in partnership with clinical and corporate teams and will be submitted to the Sustainability Committee in May/June 2016 ahead of ratification by the Trust Board.

**REPORT FOR SHREWSBURY AND
TELFORD HOSPITAL NHS TRUST—
7 FACET SURVEYS SUMMARY
REPORT
PRINCESS ROYAL HOSPITAL**



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QUALITY REVIEW AND APPROVAL RECORD

NIFES Consulting Group is committed to delivering the highest possible standard of service and operates a Quality Management System certified to ISO 9001: 2008.



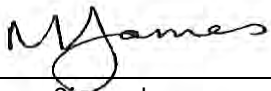
As part of this process, your deliverable has been checked and authorised for issue, as evidenced by the approval record below.

Customer Name : Shrewsbury and Telford Hospital NHS Trust

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NIFES Altrincham

Author:	 Signature	Elaine Marshall Name	13/01/2016 Date
Technical Approval:	 Signature	Mark James Name	13/01/2016 Date
Approved for Issue:	 Signature	Mark James Name	13/01/2016 Date

REPORT FOR SHREWSBURY AND TELFORD HOSPITAL NHS TRUST – 7 FACET SURVEYS SUMMARY REPORT- PRINCESS ROYAL HOSPITAL

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1.0 KEY POINTS

The document provides an Executive Summary of the findings of the Seven Facet Property Appraisal undertaken at Princess Royal Hospital covering Physical Condition, Statutory, Function, Quality, Space, Disabled Access and Environmental Management.

It should be noted that costs identified within this document and within the MICAD system are net costs only and do not include for Project Management, Contractors allowance for overheads and profits, traveling time and transport, inspection of the works and VAT. Approximately, an additional 50% uplift will need to be applied to cover these costs (Appendix A provides an explanation of the breakdown of this uplift cost)

Key points are summarised below, further detail can be found on the following pages of this report and within the MICAD system.

Condition

The Estate is overall in a generally fair condition with total costs for a 10 year lifecycle of £17,310,032; this consists of a total of £9,094,895 of condition items which require immediate attention (Backlog), works which are required within the years 1 to 5 period (Impending Backlog) total £4,189,534 and a remaining £4,025,603 being items which require longer term lifecycle works within the 6-10 year period.

Backlog items have been risk assessed and total costs adjusted in accordance with the NHS document (A Risk Based Methodology for Establishing and Managing Backlog) to give a total risk adjusted backlog cost of £6,149,897 a significant number of items identified during the survey have been risk assessed as Significant or High risk resulting in a fairly high risk adjusted backlog cost.

Statutory

There are statutory items that require immediate remedial action in the majority of blocks with a total risk adjusted backlog cost of £129,816 for the whole site. The majority of costs under the statutory facet relate to fire safety with some costs for asbestos management works.

Function, Quality and Space

These three Facets have been assessed holistically with costs primarily going into the Functional Suitability facet; this is due to issues identified during the survey relating to layout, and facilities being unsuitable for current service users, which can lead to associated problems with the quality of the environment and space provision.

Defects have been noted to all facets as applicable however where items are primarily felt to be Functional suitability issues costs will be included in this facet only and this results in a total cost for function of £5,307,000, £34,965 for quality and a £0 cost for space.

Disabled Access

The accessibility of the physical environment for disabled users has been assessed with a cost of £141,890 being identified. Many of the costs identified are associated with sanitary provision and evacuation.

Environmental Management

No costs have been identified under the environmental management facet which is reported at a site level only. Energy performance is classified as a B under Estate code benchmarking and water consumption was overall felt to be well managed.

Some management tasks were noted to be required including review and board approval of energy, waste and transport policies.

Total costs for the entire surveyed Estate for all 7 facets are £23,047,577 for a 10 year programme (these are net costs).

2.0 INTRODUCTION

A seven Facet Property Appraisal was carried out at the Princess Royal Hospital site during October - November 2015. The survey covered the Condition of the properties, (including the fabric of the buildings, fixtures and fittings and the electrical and mechanical installations), Statutory Compliance, Space Utilisation, Functional Suitability, Quality of Environment, Disabled Access and Environmental Management.

The results are presented in tabular form on MICAD spreadsheets with total costs and Risk analyses of the Condition and Statutory costs.

2.1 AIM

The Aim of the Executive Summary is to identify the major defects and failures identified during the survey relating to the Facets. This will assist in highlighting particular trends or patterns in the problems identified, thus assisting in the planning of future maintenance, refurbishments, Estate Strategies or rationalisation of facilities and the way they are utilised to maximise the benefit to the Service Users and Staff. Conclusions and Recommendations relating to the management of the Estate are also included, based solely on the results of the survey and not clinical or other requirements.

2.2 SURVEYED PROPERTIES

The following properties were surveyed as part of this commission:

Block Identifier	Block Name
PRHAP	Block AP-Apley Clinic
PRHGG	Block GG- Grounds
PRHMA1	Block MA1-Sub-Station Medical Air Plant Room
PRHNA	Block NA-Boiler House/ Wrekin Maternity & Endoscopy
PRHNB	Block NB-Loading Bay/Sub Station 1 & 2
PRHNC	Block NC-Estates/MES/Stores & Catering
PRHND	Block ND - Pharmacy/Admin
PRHNE	Block NE - Admin Hub/Path Lab
PRHNF	Block NF - Apley Ward/AMU & Theatres 1 to 5
PRHNG	Block NG - Wards 12/14 & 19
PRHNH	Block NH Children's OP
PRHNJ	Block NJ - GP X RAY/Fracture Clinic & Plaster Room
PRHNK	Block NK - Ward 22 & Ward 24
PRHNS	Block NS - Mortuary/Path Lab/Admin Hub
PRHRO1	Block RO1-Sub-Station RO Plant
PRHRS	Block RS- Residences (1-8)
PRHRS	Block RS- Residences (9-17)
PRHRT	Block RT - Doctors Mess
PRHSB	Block SB - Paul Brown/ Wards 15 & 16
PRHSC	Block SC - Rehabilitation/ Education
PRHSD	Block SD - Main Entrance/ Education
PRHSE	Block SE - Outpatients/ Ward 4 & Renal
PRHSF	Block SF - Outpatients/Dental/ITU & HDU
PRHSG	Block SG - X Ray/Wards 06 & 07/CCU
PRHSH	Block SH - A&E/ Wards 08 & 09/Head & Neck
PRHSJ	Block SJ - Day Ward/Theatres 6,7 & 8/Wards 10 & 11
PRHSK	Block SK - Opthamology
PRHSS1	Block SS1-Sub-Station Generator Plant 3
PRHSS1	Block SS1-Sub-Station Generator Plant 4
PRHST	Block ST - Street
PRHT1	Block HT1-Sub-Station Transformer & RMU 5

Section 3 provides brief summaries of defects at the individual blocks and sites surveyed.

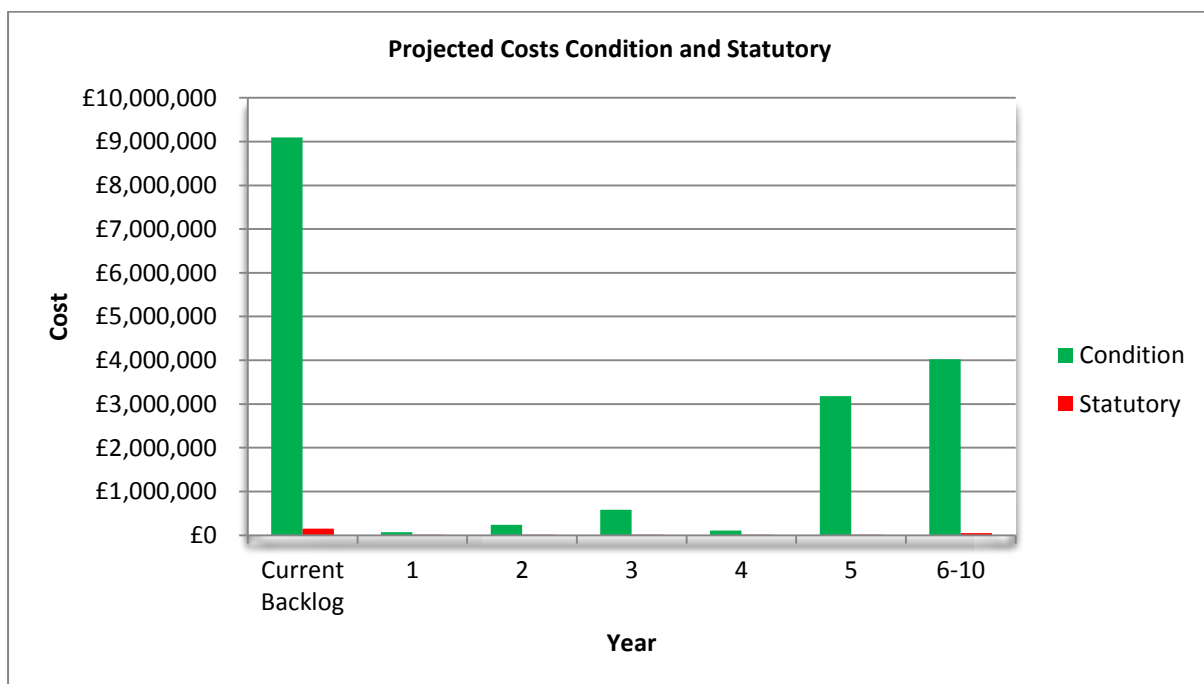
3.0 PROJECTED COSTS

In this section an overall analysis of costs for the whole surveyed Estate is provided followed by a summary of costs by site.

3.1 Projected Costs Condition & Statutory

The total projected cost for the rectification of all items identified under Condition is £17,310,032. The total cost for Statutory Compliance is £253,690. An indication of the projected costs per year is shown in Chart 1 below.

Chart 1 - Condition and Statutory Costs (Years 0 - 10)



A breakdown of the various ratings for both Condition and Statutory are shown in Charts 2 and 3 below.

Chart 2

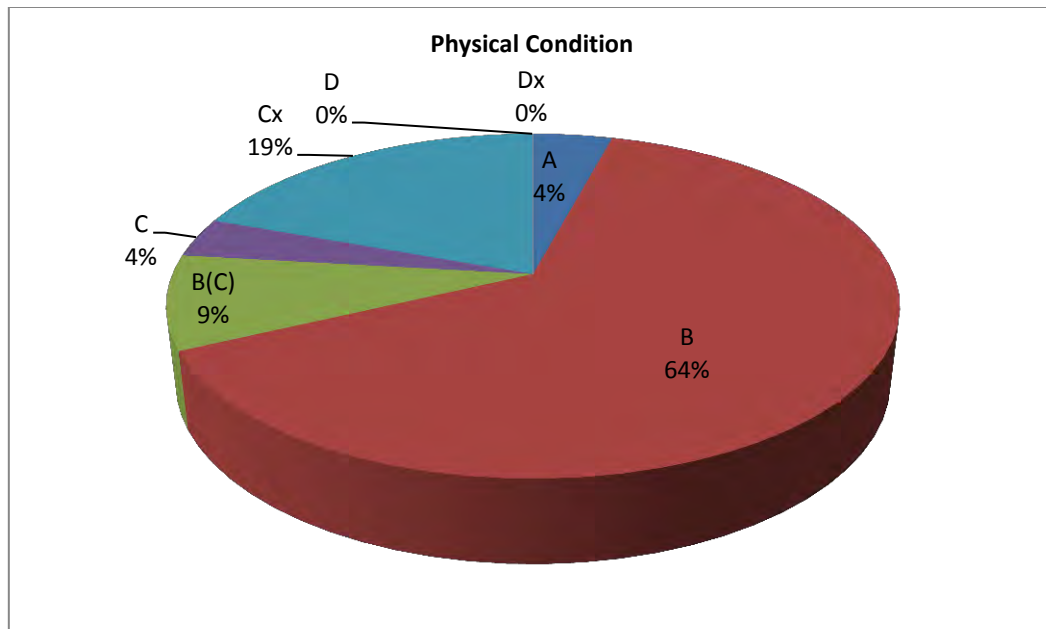
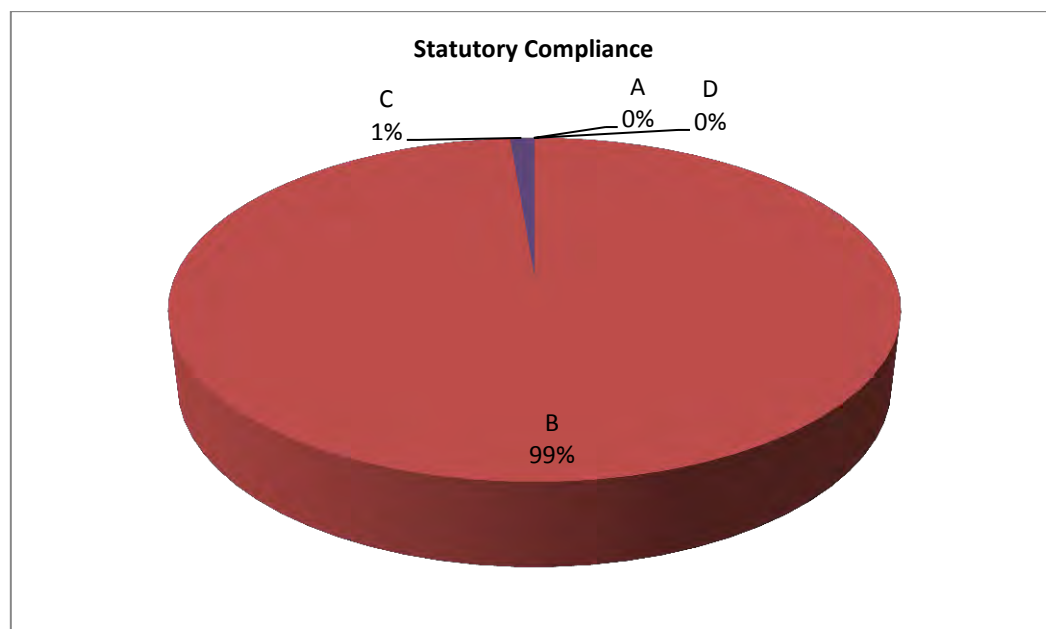


Chart 3



Where defects were duplicated in Condition or Statutory Compliance, e.g. for inadequate heating, the costs were only recorded under one facet. In the Facet spreadsheet where the duplicated costs are not entered, the alternative location of the cost is displayed in the 'Remedial Action' column.

Please note these are net costs only and do not include for Project Management, Contractors allowance for overheads and profits, traveling time and transport, inspection of the works and VAT. Approximately, an additional 50% uplift will need to be applied to cover these costs (See Appendix A for further details).

3.2 Backlog and Impending Backlog

Items which have been assessed by the surveying team as in a condition which requires immediate rectification have been scored as a C rating or less these are classified as Backlog maintenance items which require action immediately, for items which are currently in a satisfactory condition but were felt likely to require attention within the next 5 years these have been scored as a B(C) condition and these items are known as Impending Backlog items. (See Appendix B for further details on rankings).

Examples of the difference between backlog and impending backlog can be seen to the Site Infrastructure report deteriorated corroded drainage is in need of immediate attention and so is ranked as C and has a backlog cost year 0. On the same report additional secondary and tertiary supplies to VIE compound are recommended to improve resilience this is not a backlog item but is recommended for attention at year 5 this therefore is an impending backlog item ranked B(c).

3.3 Backlog Maintenance Costs (Costs Year 0)

Backlog Maintenance and Statutory costs (items which have been identified for immediate rectification) are graded as Low, Moderate, Significant and High Risk. The division of Low, Moderate, Significant and High Risks plus the calculation for Risk Adjusted totals were carried out as per the NHS Estates guide 'A Risk-Based Methodology for Establishing and Managing Backlog'. The Risk Adjusted totals take into account the perceived 'Risk' of the defect in terms of 'Likelihood' and

'Severity', the estimated cost for rectification and, in the case of Low or Moderate Risks, the estimated remaining life of the building. For Low and Moderate Risks the projected costs are divided by the estimated life expectancy of the building as prescribed in the Guide, for Significant and High Risk items no adjustment is made. (See Appendix D for the risk assessment process and matrix).

The Risk adjusted backlog formula is based on the premise that the eradication of safety-critical backlog will have greater impact on the Risk Adjusted figure than non-critical backlog (and hence will focus attention on reducing 'High' and 'Significant' risk sub-elements). Similarly, the higher the remaining life of each building/block the longer the period in which the lower risk sub-elements can be addressed and therefore the lower the risk adjusted backlog figure.

Within the MICAD system no building remaining life is normally assigned to Site Infrastructure, the result is that when running Risk Adjusted Backlog reports, risk totals for Site Infrastructure are not taken into account. To remedy this issue a building remaining life of 20 years has been assigned to Site Infrastructure to ensure all backlog risk items are included in the calculations.

The total Backlog cost, for both Condition and Statutory (including costs for site infrastructure) are shown in Table 1 below.

Table 1 (Backlog costs year 0)

Risk Totals (Condition)		Risk Totals (Statutory)	
Low Risk Totals	£57,761	Low Risk Totals	£0
Moderate Risk Totals	£2,963,142	Moderate Risk Totals	£24,600
Significant Risk Totals	£5,910,167	Significant Risk Totals	£129,090
High Risk Totals	£163,825	High Risk Totals	£0
Total Backlog Cost	£9,094,895	Total Backlog Cost	£153,690
Total Risk Adjusted Backlog Cost	£6,149,897	Total Risk Adjusted Backlog Cost	£129,816

The figures given above for the 'Low', 'Moderate', 'Significant' and 'High' Risk totals are the total sums taken from the 'Condition' and 'Statutory' spreadsheets. The 'Total Risk Adjusted Backlog Costs' are the totals for all the 4 Risk groups, but divided by the remaining life of the building for 'Low' and 'Moderate' risks only, hence the Total Risk Adjusted Backlog Cost appears less than the sum of the 4 Risk Groups (See Appendix C for the risk adjusted backlog formula.

An example of a significant risk item is found to the Site infrastructure report -No mains water ring installed so issues regarding resilience / continuity of supply. Water storage is provided but is considered inadequate (6-8 hours of supply).

An example of a low/moderate risk item would be decoration or floor finishes.

A breakdown of the backlog costs, by risk for both Condition and Statutory are shown in Charts 4 and 5 below.

Chart 4

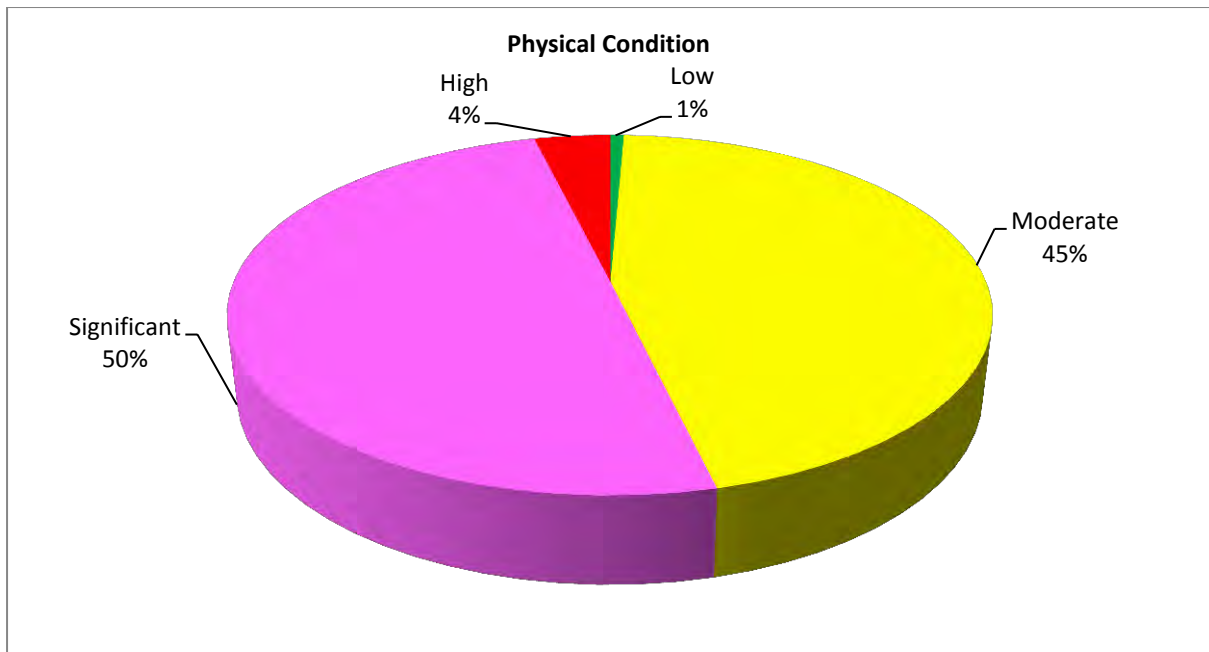
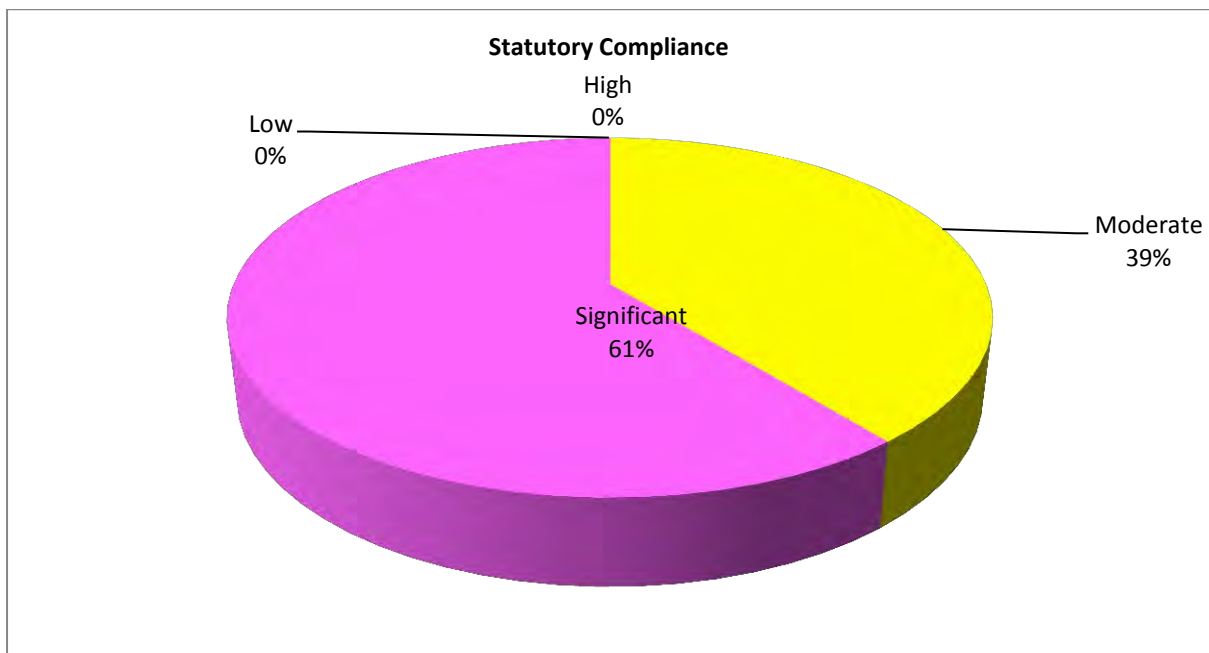


Chart 5



3.4 Impending Backlog costs

Impending backlog relates to B(C) sub-elements; sub elements currently in Condition B that will fall below B within 5 years, assuming no major investment in the interim.

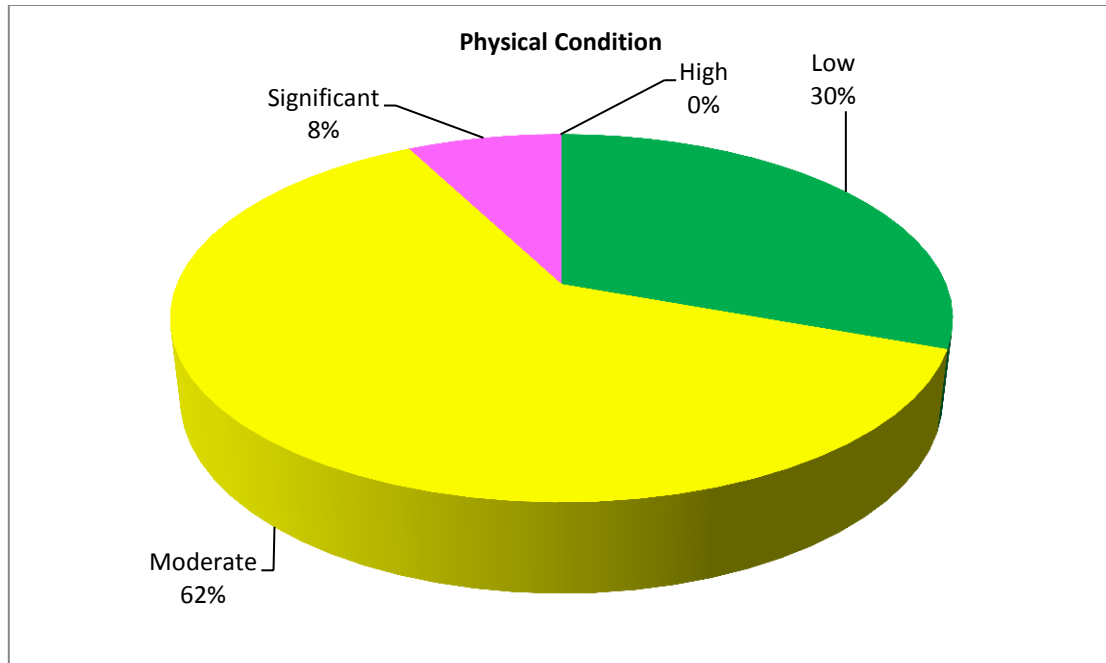
The total Impending Backlog costs, for Condition (including costs for site infrastructure) are shown in Table 2 below.

Table 2 (Impending backlog costs years 1-5)

Impending Backlog By Risk (Condition)	
Low Risk Totals	£1,035,243
Moderate Risk Totals	£2,689,015
Significant Risk Totals	£465,276
High Risk Totals	£0
Total Impending Backlog	£4,189,534

A breakdown of the impending backlog, by risk for Condition is shown in Chart 6 below.

Chart 6



3.5 Lifecycle Costs Years 6-10

Condition items that may require works within the 10 year life cycle in years 6-10 are scored as a B with a cost designated in the year 6-10 column, common instances where this may occur includes decoration which has a typical lifecycle of 7 years, but other instances may include items that in the surveyors judgement will reach the end of design life and require upgrade.

The total cost for the entire surveyed estate for items in years 6-10 is £4,025,603.

3.6 Projected Costs Function, Quality, Space, Environment & DDA

A breakdown of the Facet Totals for Functional Suitability, Quality, Space, Environment and Disabled Access are shown in Table 3 below. *Note that Defects identified under these facets are not assigned a year for remedial action to be undertaken and no risk assessments are undertaken.* (See Appendix B for further details)

Table 3

	Total Cost
Functional Suitability	£5,307,000
Space Utilisation	£0
Quality	£34,965
Environmental Management	£0
Disabled Access	£141,890
TOTAL	£5,483,855

3.6.1 Function, Quality and Space

The Function, Quality and Space facets are closely related and often areas which are functionally unsuitable also have issues related to space utilisation and quality, to avoid double costing of defects therefore costs have only been included to one facet which is usually Functional Suitability with the majority of costs coming under the Critical Dimensions Element. This is often due to changes in service users and old estate which it is difficult to reconfigure to provide suitable facilities for today's work practices. A typical example of this is current recommendations are for a maximum of 4 beds to a multi-bed bay with ensuite facilities, many ward areas do not currently meet this criteria having 6 bed bays and no ensuite facilities for example to blocks SG and SJ. Another example is that of changes in equipment use and the reliance on larger equipment/different operational requirements that cannot easily be accommodated within current layout an example of this is Block ND Pharmacy

where there is inadequate provision of storage facilities to allow the required quantities of pharmaceuticals to be stored. Another example is to X-ray where some rooms are too small for new X-ray equipment.

The surveyor takes an overall view of the functional area and judges whether it will be possible to provide adequate facilities within the current space provided and would therefore allow for reconfiguration, if it was felt that there was an inadequate space provision and combined reconfiguration and extension cost would be allowed. In some cases if the location means that extension is not possible in that location then a cost for a new build provision will be provided.

In many cases during the survey it was felt that overall the functional suitability was poor therefore the majority of the costs are within this facet. The costs within the Quality facet relate primarily to comfort engineering issues i.e. heating and ventilation and also to issues relating to appearance of the area.

3.6.2 Environmental Management

The environmental management facet is assessed at site level only and examines environmental management of the Estate.

Benchmarking of energy performance in accordance with Estatecode benchmarks gave a performance of 62GJ/100m³ which is a B ranking. In addition water usage was monitored and felt to overall be well managed.

Environmental policies including energy, waste and transport were all under review and this process needs to be completed and board approval obtained.

3.6.3 Disabled Access

The access into the physical environment was assessed, survey recommendations are in accordance with published guidance including relevant Building Regulations, British Standards and other recommended access guidance for example published by UK government sectors and other disability rights bodies.

Where costs for major reconfiguration, extension or rebuild have been included to Functional suitability no costs have been included to the Disabled Access facet to avoid double costing.

Many defects identified relate to evacuation primarily fire alarm systems, other issues commonly identified are the provision of adequate sanitary facilities for example Block NA Maternity has no disabled sanitary facilities.

3.7 Total Costs

A summary of total costs for the whole surveyed Estate are shown in Table 4 below.

Table 4

	Total Cost
Physical Condition	£17,310,032
Statutory Compliance	£253,690
Functional Suitability	£5,307,000
Space Utilisation	£0
Quality	£34,965
Environmental Management	£0
Disabled Access	£141,890
TOTAL	£23,047,577

A breakdown of total costs per building for the whole surveyed Estate is shown below.

Block Number	Name	Physical Condition		Statutory Compliance		Function	Quality	DDA	Total current Backlog	Total Costs
		Backlog Year 0	Impending years 1-10	Backlog Year 0	Impending years 1-10					
	SITE INFRASTRUCTURE	£201,042	£370,280	£129,390	£100,000	n/a	£0	£8,100	£330,432	£808,812
PRHAP	AP Apley Clinic	£31,223	£34,433	£4,900	£0	£1,500	£5,165	£3,600	£36,123	£80,821
PRHGG	Grounds	£0	£0	£0	£0	£0	£0	£0	£0	£0
PRHMA1	Sub-Station Medical Air Plant Room,	£674	£824	£0	£0	n/a	n/a	n/a	£674	£1,498
PRHNA	Block NA -Boiler House/ Wrekin Maternity & Endoscopy	£73,807	£667,011	£10,500	£0	£0	£9,500	£19,900	£84,307	£780,718
PRHNB	NB - Loading Bay/Sub Station 1 & 2	£51,002	£66,728	£0	£0	n/a	n/a	n/a	£51,002	£117,730
PRHNC	Block NC - Estates/MES/Stores & Catering	£587,625	£808,547	£0	£0	£0	£0	£7,240	£587,625	£1,403,412
PRHND	Block ND - Pharmacy/Admin	£189,687	£107,653	£0	£0	£164,000	£0	£2,970	£189,687	£464,310
PRHNE	Block NE - Admin Hub/Path Lab	£415,663	£534,463	£100	£0	£150,150	£8,800	£9,260	£415,763	£1,118,436
PRHNF	Block NF - Apley Ward/AMU & Theatres 1 to 5	£729,059	£438,675	£0	£0	£727,500	£0	£1,220	£729,059	£1,896,454
PRHNG	Block NG - Wards 12/14 & 19	£0	£99,529	£0	£0	£0	£0	£0	£0	£99,529
PRHNH	Block NH childrens OP	£0	£37,077	£0	£0	£0	£0	£150	£0	£37,227
PRHNJ	Block NJ - GP X RAY/Fracture Clinic & Plaster Room,	£0	£115,374	£4,500	£0	£150,500	£2,000	£4,580	£4,500	£276,954
PRHNK	Block NK - Ward 22 & Ward 24	£0	£166,998	£0	£0	£0	£0	£0	£0	£166,998
PRHNS	Block NS - Mortuary/Path Lab/Admin Hub	£242,562	£166,297	£0	£0	£50,000	£0	£6,000	£242,562	£464,859
PRHRO1	Sub-Station RO Plant	8,514.00	£9,400	£0	£0	n/a	n/a	n/a	£8,514	£17,914
PRHRS	RS Residences (1-8)	108,874	£207,759	£0	£0	£0	£0	£1,420	£108,874	£318,053
PRHRS	Block RS Residences (9-17)	222,824	£172,842	£0	£0	£0	£0	£11,120	£222,824	£406,786
PRHRT	Block RT - Doctors Mess	£43,555	£28,388	£3,300	£0	£0	£0	£7,270	£46,855	£82,513
PRHSB	Block SB - Paul Brown/ Wards 15 & 16	£25,296	£651,379	£0	£0	£65,000	£0	£1,550	£25,296	£743,225
PRHSC	Block SC - Rehabilitation/ Education	£800,297	£432,151	£0	£0	£0	£0	£13,500	£800,297	£1,245,948
PRHSD	Block SD - Main Entrance/ Education	£123,324	£336,710	£0	£0	£0	£0	£1,920	£123,324	£461,954
PRHSE	Block SE - Outpatients/ Ward 4 & Renal,	501,588	£352,071	£0	£0	£374,500	£0	£9,050	£501,588	£1,237,209
PRHSF	Block SF - Outpatients/Dental/ITU & HDU	£710,265	£371,206	£1,000	£0	£725,000	£0	£10,440	£711,265	£1,817,911
PRHSG	Block SG - X Ray/Wards 06 & 07/CCU	£823,952	£365,177	£0	£0	£1,250,050	£0	£10,750	£823,952	£2,449,929
PRHSH	Block SH - A&E/ Wards 08 & 09/Head & Neck	£629,038	£424,185	£0	£0	£535,000	£0	£1,860	£629,038	£1,590,083
PRHSJ	Block SJ - Day Ward/Theatres 6,7 & 8/Wards 10 & 11	£987,613	£325,493	£0	£0	£1,113,800	£9,500	£4,970	£987,613	£2,441,376
PRHSK	Block SK - Opthamology	£0	£25,308	£0	£0	£0	£0	£3,470	£0	£28,778
PRHSS1	Sub-Station Generator Plant 4	£674	£3,839	£0	£0	n/a	n/a	n/a	£674	£4,513
PRHSS1	Sub-Station Generator Plant 3 ,	£674	£73,119	£0	£0	n/a	n/a	n/a	£674	£73,793
PRHST	Block ST - Street	£1,585,389	£821,547	£0	£0	£0	£0	£1,550	£1,585,389	£2,408,486
PRHT1	Sub-Station Transformer & RMU 5,	£674	£674	£0	£0	n/a	n/a	n/a	£674	£1,348
	TOTAL	£9,094,895	£8,215,137	£153,690	£100,000	£5,307,000	£34,965	£141,890	£9,248,585	£23,047,577

4.0 SITE AND BLOCK SUMMARIES

The following provides a summary of significant issues found at Princess Royal Hospital, for further details on these and other issues identified reference should be made to individual reports within the MICAD system.

4.1 Site Infrastructure

4.1.1 Condition

- Drainage is deteriorated in places, corroded due to age, frequent blockages throughout site
- Many uneven road and path surfaces
- No ring installed so issues regarding resilience / continuity of supply to steam/condensate systems
- No mains water ring installed so issues regarding resilience / continuity of supply. Water storage is provided but is considered inadequate (6-8 hours of supply).

4.1.2 Statutory

- Fire risk assessments required
- Compartmentation surveys required
- On-going management of asbestos
- Remedial works required to lightning protection systems

4.1.3 Quality

- No defects noted

4.1.4 Disabled Access

- Improvements to disabled parking and signage
- Uneven surfaces create trip hazards
- Poor contrast to bollards to some areas

4.1.5 Environment

- Policies in place but some review and approval required to energy, waste and transport policies
- Lack of parking provision

4.2 Block AP-Apley Clinic

4.2.1 Condition

- Aged boiler plant and calorifiers
- Aged heating systems
- Aged electrical systems including distribution boards
- Poor emergency lighting

4.2.2 Statutory

- Fire alarm system manually operated bell only (no fire alarm system)
- Unguarded radiators to public areas

4.2.3 Function, Quality and Space

- No panic alarm (nurse Call) system
- Poor signage
- Some inappropriate floor finishes

4.2.4 Disabled Access

- Disabled WC needs improvement
- Narrow corridors make access difficult
- No lowered section to reception

4.3 Block GG- Grounds

4.3.1 Condition

- See site infrastructure for defects

4.3.2 Statutory

- See site infrastructure for defects

4.3.3 Function, Quality and Space

- See site infrastructure for defects

4.3.4 Disabled Access

- See site infrastructure for defects

4.4 Block MA1-Sub-Station Medical Air Plant Room

4.4.1 Condition

- Timber fascias soffit fair, treatment flaking and deteriorated.
- Aged/weathered external light fittings

4.4.2 Statutory

- No defects noted

4.5 Block NA-Boiler House/ Wrekin Maternity & Endoscopy

4.5.1 Condition

- Aged water treatment plant
- 3 no. DX units serving scan rooms ageing (c. 2002) reported to be prone to break down
- Aged electrical systems level 1
- Aged distribution boards to boiler room

- R/o unit in the boiler house obsolete and on last legs (on risk register)
- Pressure units undersized
- Nurse call system obsolete (all n/call system in building requires upgrading)

4.5.2 Statutory

- No defects noted

4.5.3 Function, Quality and Space

- Poor sound insulation to scanning rooms
- Air conditioning required to one scan room

4.5.4 Disabled Access

- No accessible sanitary facilities to Maternity Ward
- Inadequate vision panels to corridor doors
- Alarms are audible only
- Intercom located too high and it is not clear if the call has been answered

4.6 Block NB-Loading Bay/Sub Station 1 & 2

4.6.1 Condition

- Original electrical systems require replacement
- Original emitters in poor condition in corridor and loading bay area and bed store, including high level Biddle unit heaters.
- Aged distribution boards

4.6.2 Statutory

- Painted floor warning markings worn in loading bay and main corridor.

4.7 Block NC-Estates/MES/Stores & Catering

4.7.1 Condition

- Aged emergency lighting
- Aged catering switchgear
- Aged electrical systems
- Aged server equipment
- Aged cold room chillers
- Aged heating systems

4.7.2 Statutory

- No defects noted

4.7.3 Function, Quality and Space

- No defects noted

4.7.4 Disabled Access

- No disabled toilets to restaurant
- Alarms are audible only

4.8 Block ND - Pharmacy/Admin

4.8.1 Condition

- Timber fascias soffit fair, treatment flaking and deteriorated.
- Roof leaks starting to appear
- Aged suspended ceilings
- Blitzer condensing units for cold room require upgrade and coldroom requires refurbishment
- Aged electrical systems
- Aseptic suite AHU requires UPS installing

- Aged AHU to aseptic suite (all AHUs aged and needs replacing bar W&C build and ward 17)

4.8.2 Statutory

- No UPS provided for Pharmacy Aseptic Suite air handling unit.

4.8.3 Function, Quality and Space

- Lack of storage space in department to store drugs, not able to keep the necessary supplies required by guidance
- Aseptic suite is no longer fit for purpose
- Reception area is vulnerable, there is no security screen and the desk is not manned
- Rear door to stores is on a combination lock and vulnerable to intruders

4.8.4 Disabled Access

- No disabled WC provided
- Alarms are audible only
- No lowered section to reception desk

4.9 Block NE - Admin Hub/Path Lab

4.9.1 Condition

- Substation 2 original 500kVA transformers and ring main units require upgrade, along with associated original cabling / switchgear
- Aseptic suite AHU requires UPS installing.
- Aged electrical systems
- Aged laboratory benching
- Aged suspended ceilings
- Aged floor finishes
- Aged heat emitters

4.9.2 Statutory

- No voltage warning sign on electrical switch cupboard

4.9.3 Function, Quality and Space

- Path labs area now too small for current demand
- There are no training facilities
- Rear door does not lock
- No air conditioning in Pathology lab, compromising functioning of machines and equipment.

4.9.4 Disabled Access

- No accessible sanitary facilities
- No lowered section to reception desk
- Alarms are audible only

4.10 Block NF - Apley Ward/AMU & Theatres 1 to 5

4.10.1 Condition

- Timber fascias soffit fair, treatment flaking and deteriorated.
- Leaks staring to appear on roof
- Substation 2 LV switch room - main Merlin Gerin LV switchboard is original and requires upgrade
- Aged electrical systems
- Aged nurse call
- Some aged suspended ceilings
- Aged floor finishes
- Oxygen and vacuum services in Apley Ward are generally poor with inadequate bed coverage and requires upgrade
- 5 theatres lights aged and will require replacing soon

- All AHU plant aged requires replacing
- No UPS & IPS to theatres only backed by main generators
- Med gas alarm required upgrading (on risk register)

4.10.2 Statutory

- No defects noted

4.10.3 Function, Quality and Space

- Theatres are generally too small for current recommendations, however they are manageable
- There are only 6 recovery spaces for 5 theatres these spaces are also cramped
- There is not enough equipment storage space, with many items cluttering up main corridors
- HDU bay is too short, curtain cannot be closed due to door
- Poor quality heating and ventilation systems

4.10.4 Disabled Access

- Intercom is located too high
- Alarms are audible only

4.11 Block NG - Wards 12/14 & 19

4.11.1 Condition

- Lifecycle décor
- New part of W&C build but infrastructure feeding ward is of existing build hence only essential supply backed by generator
- Drains of existing aged pipe work

4.11.2 Statutory

- No defects noted

4.11.3 Function, Quality and Space

- No defects noted

4.11.4 Disabled Access

- No defects noted

4.12 Block NH- Children's OP

4.12.1 Condition

- Lifecycle décor
- New part of W&C build but infrastructure feeding ward is of existing build hence only essential supply backed by generator
- Drains of existing aged pipe work

4.12.2 Statutory

- No defects noted

4.12.3 Function, Quality and Space

- No defects noted

4.12.4 Disabled Access

- Intercom too high for wheelchair users

4.13 Block NJ - GP X RAY/Fracture Clinic & Plaster Room

4.13.1 Condition

- Ageing flooring
- Lifecycle décor
- Ageing air conditioning units

4.13.2 Statutory

- No defects noted

4.13.3 Function, Quality and Space

- Many parts of the department are now overcrowded - waiting area, main consulting room corridor (one corridor cannot be used by patients due to placement of clinical waste bins)
- Consulting room and examination rooms are generally too small
- X-ray room off waiting area is small therefore only has limited use
- No panic alarm system
- Privacy to some changing cubicles is compromised by smokers congregating outside

4.13.4 Disabled Access

- No accessible changing facilities in X Ray
- Inadequate vision panels to circulation doors
- Alarms are audible only
- Corridors obstructed by seating etc.

4.14 Block NK - Ward 22 & Ward 24

4.14.1 Condition

- Lifecycle décor

4.14.2 Statutory

- No defects noted

4.14.3 Function, Quality and Space

- No defects noted

4.14.4 Disabled Access

- No defects noted

4.15 Block NS - Mortuary/Path Lab/Admin Hub

4.15.1 Condition

- Timber fascias soffit fair, treatment flaking and deteriorated.
- Leaks staring to appear on roof
- Aged electrical systems
- Aged heating systems
- Some aged lab benching
- Aged doors
- Some aged suspended ceiling

4.15.2 Statutory

- No defects noted

4.15.3 Function, Quality and Space

- Inadequate body fridges
- Some poor quality lighting

4.15.4 Disabled Access

- No disabled toilet facilities

4.16 Block RO1-Sub-Station RO Plant

4.16.1 Condition

- Aged softener plant
- Aged electrical systems

- Aged water distribution

4.16.2 Statutory

- No defects noted

4.17 Block RS- Residences (1-8)

4.17.1 Condition

- Some aged boiler plant
- Aged electrical systems
- Aged heating emitters
- Aged décor

4.17.2 Statutory

- No defects noted

4.17.3 Function, Quality and Space

- No defects noted

4.17.4 Disabled Access

- No disabled parking provision
- Alarms are audible only

4.18 Block RS- Residences (9-17)

4.18.1 Condition

- Some aged boiler plant
- Aged electrical systems
- Aged heating emitters
- Aged décor

- Poor fire alarm systems

4.18.2 Statutory

- All bedrooms and most kitchens do not have detectors installed.

4.18.3 Function, Quality and Space

- No defects noted

4.18.4 Disabled Access

- House 17 has no accessible shower facilities
- Alarms are audible only

4.19 Block RT - Doctors Mess

4.19.1 Condition

- Aged boiler plant
- Flaking external décor
- Aged electrical systems
- Aged heating emitters

4.19.2 Statutory

- Aged battery / mains fire detectors only - most areas do not have detectors installed.

4.19.3 Function, Quality and Space

- Poor quality appearance
- Underutilised

4.19.4 Disabled Access

- Poor quality disabled toilet
- Poor signage

- Alarms are audible only

4.20 Block SB - Paul Brown/ Wards 15 & 16

4.20.1 Condition

- Original Sauter BMS / control components require upgrade to Trend system
- Timber fascias soffit fair, treatment flaking and deteriorated

4.20.2 Statutory

- No defects noted

4.20.3 Function, Quality and Space

- 6 bedded bays are cramped. There is a low ratio of single rooms
- Inadequate sanitary facility provision

4.20.4 Disabled Access

- Alarms are audible only

4.21 Block SC - Rehabilitation/ Education

4.21.1 Condition

- Timber fascias soffit fair, treatment flaking and deteriorated
- Roof leaks starting to appear.
- Aged electrical systems
- Aged nurse call
- Original (c. 1987) pool tank, timber surround and pool water heating, filtration, control and treatment equipment require refurbishment
- Aged suspended ceilings
- Aged floor coverings

4.21.2 Statutory

- Aged floor finishes

4.21.3 Function, Quality and Space

- Heating and ventilation systems poor quality
- Aged and poor quality appearance

4.21.4 Disabled Access

- Disabled WC's to Physio are poor
- Alarms are audible only
- Vision panels to corridor doors are unsuitable

4.22 Block SD - Main Entrance/ Education

4.22.1 Condition

- Timber fascias soffit fair, treatment flaking and deteriorated.
- Roof leaks starting to appear.
- Some aged electrical systems
- Some aged suspended ceilings
- Some aged floor finishes

4.22.2 Statutory

- No defects noted

4.22.3 Function, Quality and Space

- Poor layout ward level 2 means observation is poor
- Poor signage and use of colour to dementia ward

4.22.4 Disabled Access

- Poor signage to sanitary facilities
- Lack of variable seating to waiting areas
- Alarms are audible only

4.23 Block SE - Outpatients/ Ward 4 & Renal

4.23.1 Condition

- Timber fascias soffit fair, treatment flaking and deteriorated.
- Roof leaks starting to appear.
- Aged wiring systems
- Some Aged nurse call
- Some aged medical gas systems
- Some aged sanitaryware
- Some aged suspended ceilings
- Some aged floor finishes

4.23.2 Statutory

- No defects noted

4.23.3 Function, Quality and Space

- Many of the reception desks in outpatients are not staffed, therefore the monitoring of patients coming in to each clinic is not done
- No panic system to consulting rooms to most areas
- Ward 4 have cramped bed space in bays and side rooms, there is a lack of ensuite facilities and a low ratio of side rooms
- Space between patients in dialysis inadequate

4.23.4 Disabled Access

- Disabled WC is poor quality
- Inadequate vision panels to circulation doors
- Alarms are audible only

4.24 Block SF - Outpatients/Dental/ITU & HDU

4.24.1 Condition

- Timber fascias soffit fair, treatment flaking and deteriorated.
- Roof leaks starting to appear
- Aged electrical systems
- Aged nurse call
- Aged medical gas to Dental
- Aged heat emitters
- Some aged suspended ceilings
- Aged medical gas distribution

4.24.2 Statutory

- Unsafe storage in store room next to equipment store on 1st floor.
- ITU isolation rooms do not meet HTMs not true isolation rooms
- HDU AHU not adequate air flow

4.24.3 Function, Quality and Space

- Many of the reception desks in outpatients are not staffed, therefore the monitoring of patients coming in to each clinic is not done
- No panic system to consulting rooms to most areas
- ITU has inadequate provision of side rooms, 2 provided but one cannot be used due to poor observation. Relatives facilities are inadequate

including overnight accommodation. Inadequate staff facilities including female changing. There is no entrance/reception area to greet visitors.

4.24.4 Disabled Access

- No disabled WC for relatives in ITU, HDU
- Inappropriate vision panels to circulation doors
- Alarms are audible only
- Dental reception has no lowered section

4.25 Block SG - X Ray/Wards 06 & 07/CCU

4.25.1 Condition

- Timber fascias soffit fair, treatment flaking and deteriorated.
- Roof leaks starting to appear
- Aged electrical systems
- Aged nurse call
- 10 (9 Daikin, 1 Mitsubishi) DX units serving Scan rooms, MRI waiting and control rooms in mixed condition
- Aged heat emitters
- Some aged suspended ceilings
- Aged medical gas distribution

4.25.2 Statutory

- No defects noted

4.25.3 Function, Quality and Space

- Some x-ray rooms are now undersized for new machines to go in. There is no segregation of inpatients/outpatients. The main waiting area is undersized. There is a lack of storage space.
- Wards have cramped bed space in bays and side rooms. There is a lack of ensuite facilities and a low ratio of side rooms.

- Aged and poor quality appearance
- Poor quality heating systems

4.25.4 Disabled Access

- Lack of accessible sanitary facilities to many areas
- X ray reception has no lowered section
- Unsuitable vision panels to corridor doors
- Intercom is located too high
- Alarms are audible only

4.26 Block SH - A&E/ Wards 08 & 09/Head & Neck

4.26.1 Condition

- Timber fascia's soffit fair, treatment flaking and deteriorated.
- Roof leaks starting to appear
- Aged electrical systems
- Some aged nurse call
- Some aged medical gas systems
- Aged heat emitters
- Some aged suspended ceilings
- Some aged floor finishes

4.26.2 Statutory

- No defects noted

4.26.3 Function, Quality and Space

- Majors/minors too small (although extension is imminent), there is no mental health suite, no body viewing room for relatives, staff room is currently also used a patients kitchen

- Ward 9 has cramped bed space in bays. There is a lack of ensuite facilities and a low ratio of side rooms.
- Poor quality appearance

4.26.4 Disabled Access

- Alarms are audible only

4.27 Block SJ - Day Ward/Theatres 6,7 & 8/Wards 10 & 11

4.27.1 Condition

- Timber fascia's soffit fair, treatment flaking and deteriorated.
- Roof leaks starting to appear
- Aged electrical systems
- Some aged nurse call
- Some aged medical gas systems
- Aged heat emitters
- Some aged suspended ceilings
- Some aged floor finishes

4.27.2 Statutory

- No defects noted

4.27.3 Function, Quality and Space

- Theatres are undersized, in particular theatre 8 has no anaesthetics room
- Wards cramped bed space in bays. There is a lack of ensuite facilities and a low ratio of side rooms.
- Privacy and dignity in scanning rooms is poor due to poor sound insulation between rooms and corridor.
- One of the scan rooms does not have A/C.

- Wards 10 and 11 have aged finishes, fixtures, fittings and lighting throughout.

4.27.4 Disabled Access

- Disabled WC to day theatres change area requires upgrade
- No lowered section to day theatres reception
- Alarms are audible only

4.28 Block SK – Opthamology

4.28.1 Condition

- Lifecycle decor

4.28.2 Statutory

- No defects noted

4.28.3 Function, Quality and Space

- Staff report that an intruder alarm is fitted but is not currently in use

4.28.4 Disabled Access

- Steps to rear of property only
- Alarms are audible only

4.29 Block SS1-Sub-Station Generator Plant 3

4.29.1 Condition

- Timber fascias soffit fair, treatment flaking and deteriorated
- Aged original generator
- Aged wiring systems
- Aged lighting

4.29.2 Statutory

- No defects noted

4.30 Block SS1-Sub-Station Generator Plant 4

4.30.1 Condition

- Timber fascias soffit fair, treatment flaking and deteriorated.
- Aged distribution board
- Aged lighting
- All AHU aged from PC to PJ
- Fire dampers aged and obsolete
- BMS system in fair condition however all actuators are aged and will need replacing
- Generators under sized and can only support essential supply
- Several of the roofs have leaks and most valleys require attention
- Several areas requires needs new flooring

4.30.2 Statutory

- No defects noted

4.31 Block ST – Street

4.31.1 Condition

- Original air handling units to PRE/F/G/H/J
- Fan control panels original
- Aged wiring systems and distribution boards
- Aged heating distribution
- 8 no. Original fire damper controls require upgrade at fire panels 1 - 8 in original construction.

- Roofs will require repair within the near future
- 3 no. Concept 2 level 2100 kg lifts (Lifts 1 to 3) original (1987) require upgrade. Controls have had a past upgrade.

4.31.2 Statutory

- No defects noted

4.31.3 Function, Quality and Space

- No defects noted

4.31.4 Disabled Access

- Alarms are audible only

4.32 Block HT1-Sub-Station Transformer & RMU 5

4.32.1 Condition

- Timber fascias soffit fair, treatment flaking and deteriorated.

4.32.2 Statutory

- No defects noted

5.0 CONCLUSIONS

The Estate is overall in a generally fair condition with a total risk adjusted backlog of £6,149,897. The majority of areas will require lifecycle replacements to some items with a total impending backlog (years 1-5) of £4,189,534 for the whole site.

There are Statutory items that require immediate remedial action in the majority of blocks with a total risk adjusted backlog cost of £129,816 for the whole site.

As part of the Trust's Estate Strategy it is recommended that the Trust addresses statutory compliance items first, followed by high risk backlog items under physical condition, followed by significant then moderate and low risk items. It may also be appropriate to address the significant issues identified under Function, Quality, Space and Environmental as discussed below during any Capital works to address backlog issues.

Impending backlog issues should be tabled as per the recommended year of remedial action and as appropriate by risk as described for backlog items above, i.e. high risk items should be addressed as a priority in that years impending works.

A significant item identified is a £5,307,000 cost for functional suitability for the whole Estate. This is primarily due to changes in service provision, changes in work practices and expansions in teams within buildings that are simply too small for function or were constructed and designed for another function which does not provide a suitable layout and space for services. Older Estate is often difficult to reconfigure to provide correct layouts and facilities suitable for today's work methods and services and costs have been allowed to reflect this. Space provision is also an issue to some areas.

Quality of the environment to some blocks was an issue with a cost of £34,965 identified for the whole Estate with recommendations including improvements to general appearance and comfort engineering being common issues.

Space issues are generally Functional suitability issues primarily therefore all costs have been assigned to that facet.

A cost of £141,890 has been identified for Disabled Access which includes improvements to sanitary facilities and evacuation systems including fire alarms, other improvements include to reception areas and access and corridor doors.

Total costs for the entire surveyed Estate for all 7 facets are £23,047,577 for a 10 year programme (please note these are net costs and we recommend a 50% uplift).

7.0 APPENDIX A – UPLIFT

Item	Percentage
Addition for main contractor's preliminaries, overheads and profit	10%
Allowance for Contingency	10%
Addition for Professional Fees	10%
Addition for Value Added Tax	20%
Addition for Decanting	Excluded
Addition for Trust Direct Costs	Excluded
Allowance for Inflation`	Excluded
TOTAL UPLIFT	50%

8.0 APPENDIX B – PROPERTY APPRAISAL USER NOTES

1	Reporting at sub-element level	
2	Reporting at Premises level or by Block if premises are sub-divided	
3	The physical condition of each sub-element is categorised as follows :	
	A	As new and can be expected to perform adequately to its full normal life.
	B	Sound, operationally safe and exhibits only minor deterioration
	B(C)	Currently as B, but will fall below B within five years
	C	Operational, but major repair or replacements is currently needed to bring up to condition B
	D	Operationally unsound and in imminent danger of breakdown
	X	Supplementary rating added to C or D to indicate that it is impossible to improve without replacements
4	Costs for Condition Defects to be scheduled over years 1-10	
5	Risk Assessment using (5 x 5 matrix) on sub-elements if Backlog (i.e., current defects) with a score of 7 or less. The results of the risk assessment exercise will feed into the immediate and longer-term investment planning process.	
	Low Risk :	Should be addressed through agreed maintenance programmes or included in the later years of the estate improvement strategy
	Moderate Risk :	Should be addressed by close control and monitoring; can be effectively managed in the medium term so as not to cause undue concern to statutory enforcement bodies or risk to healthcare delivery or safety. These items require expenditure planning for the medium term.
	Significant Risk :	Require expenditure in the short term but should be effectively managed as a priority so as not to cause undue concern to statutory enforcement bodies or risk to healthcare delivery or safety.
	High Risk :	Must be addressed as an urgent priority in order to prevent catastrophic failure, major disruption to clinical services or deficiencies in safety liable to cause serious injury and/or prosecution.
	Risk Ranking	Score Range
	Low	1 - 6

	Moderate	7 - 10
	Significant	11 - 16
	High	17 - 25
6	Costs for any Statutory Non-Compliance deemed to be backlog in year 1. Each sub-element is ranked according to compliance with mandatory requirements (including 'Firecode') and statutory safety legislation as follows-	
	A	Complies fully with current mandatory fire safety requirements and statutory safety legislation
	B	Complies with all necessary mandatory fire safety requirements and statutory safety legislation with minor deviations of a non-serious nature
	B(C)	Currently as B, but will fall below B within five years as a consequence of unabated deterioration or knowledge of impending mandatory fire safety requirements or statutory safety legislation
	C	Contravention of one or more mandatory fire safety requirements and statutory safety legislation, which falls short of B
	D	Dangerously below conditions A and B
7	Photographs to be taken of Building frontage and any significant defects	
8	If Sub-element is not present condition is n	
9	Disabled Access Statutory safety requirements under facet 5; other Disability Access issues to be reported under Facet 2 : Functional Suitability	
10	Functional Suitability - Assessed on the basis of three elements; internal space relationships, support facilities and location	
	A	Very satisfactory, no change needed
	B	Satisfactory, minor change needed
	C	Not satisfactory, major change needed
	D	Unacceptable in its present condition
	X	Supplementary rating added to C or D to indicate that nothing but a total rebuild or relocation will suffice (that is, improvements are either impractical or too expensive to be tenable)
11	Space Utilisation - An overall judgement about the space under consideration' categorised as follows -	
	Empty : (E)	Empty or grossly under-used at all times (excluding temporary closure)
	Under-Used : (U)	Generally under-used, utilisation could be significantly increased
	Fully Used : (F)	A satisfactory level of utilisation

	Overcrowded : (O)	Overcrowded, overloaded and facilities generally over-stretched
12	Quality - For each element is assessed to produce an overall ranking of the quality of the estate as follows -	
	A	Facility of excellent quality
	B	A facility requiring general maintenance investment only
	C	A less than acceptable facility requiring capital investment
	D	A very poor facility requiring significant capital investment or replacement
	X	Supplementary rating added to C or D to indicate that nothing but a total rebuild or relocation will suffice (that is, improvements are either impractical or too expensive to be tenable)
13	Energy - For Strategic Planning Purposes, the ranking for the site and/or building block based on the following energy usage per unit volume figures	
	A	35-55 GJ per 100 cubic metres
	B	56-65 GJ per 100 cubic metres
	C	66-75 GJ per 100 cubic metres
	D	76-100 GJ per 100 cubic metres
	X	Supplementary rating added to C or D to indicate that nothing but a total rebuild or relocation will suffice (that is, improvements are either impractical or too expensive to be tenable)
14-	DDA	
	A	Facility of excellent quality for disabled access
	B	A facility requiring general maintenance investment only
	C	A less than acceptable facility requiring capital investment to improve disabled access
	D	A very poor facility requiring significant capital investment or replacement to improve disabled access
	X	Supplementary rating added to C or D to indicate that nothing but a total rebuild or relocation will suffice (that is, improvements are either impractical or too expensive to be tenable)
<u>DDA Audits Priority</u> Priorities 1 and 2 do not meet the recommendations of Building Regulations Part M or provide a significant barrier to accessibility: 1- High Priority – poor provision meaning that item is not suitable and not accessible. Presents a significant obstacle to access. In some cases a safety issue is highlighted here FOR EXAMPLE ACCESS TO THE BUILDING ENTRANCE IS NOT POSSIBLE DUE TO STEPS		

2-Medium/High Priority- poor provision, presents obstacle to access but its significance is deemed to be lower

FOR EXAMPLE NO MARKED DISABLED BAYS BUT PARKING IS AVAILABLE

Priorities 3 and 4 do not meet the recommendations of BS8300 or do not meet the recommendations of Building Regulations Part M but are of a lower priority due to the type of area, or the likelihood of access being required

3-Medium./Low Priority- There are improvements possible in provision, which would improve accessibility in accordance with BS8300

FOR EXAMPLE PROVISION OF IMPROVED SIGNAGE IN ACCORDANCE WITH BS8300

4-Low Priority- Low priority improvements which would improve accessibility

FOR EXAMPLE PROVISION OF VARIABLE HEIGHT SEATING

9.0 APPENDIX C – RISK ADJUSTED BACKLOG

The formula used to calculate the Risk Adjusted Backlog cost for each building/block is as follows:

$$\text{Risk Adjusted Backlog (£)} = \frac{\text{Non-critical backlog}}{\text{Remaining life of building/block}} + \text{Safety-critical backlog}$$

Where:

Non-critical backlog (£) = Total backlog cost relating to low and moderate risk sub-elements for the building/block.

Remaining life (years) = Remaining life of the building/block.

Safety-critical backlog (£) = Total backlog cost relating to significant and high risk sub-elements for the building/block.

10.0 APPENDIX D- RISK BASED METHODOLOGY EXTRACT FROM NHS DOCUMENT

5. RISK ASSESSMENT

Figure 5.1 Risk assessment process

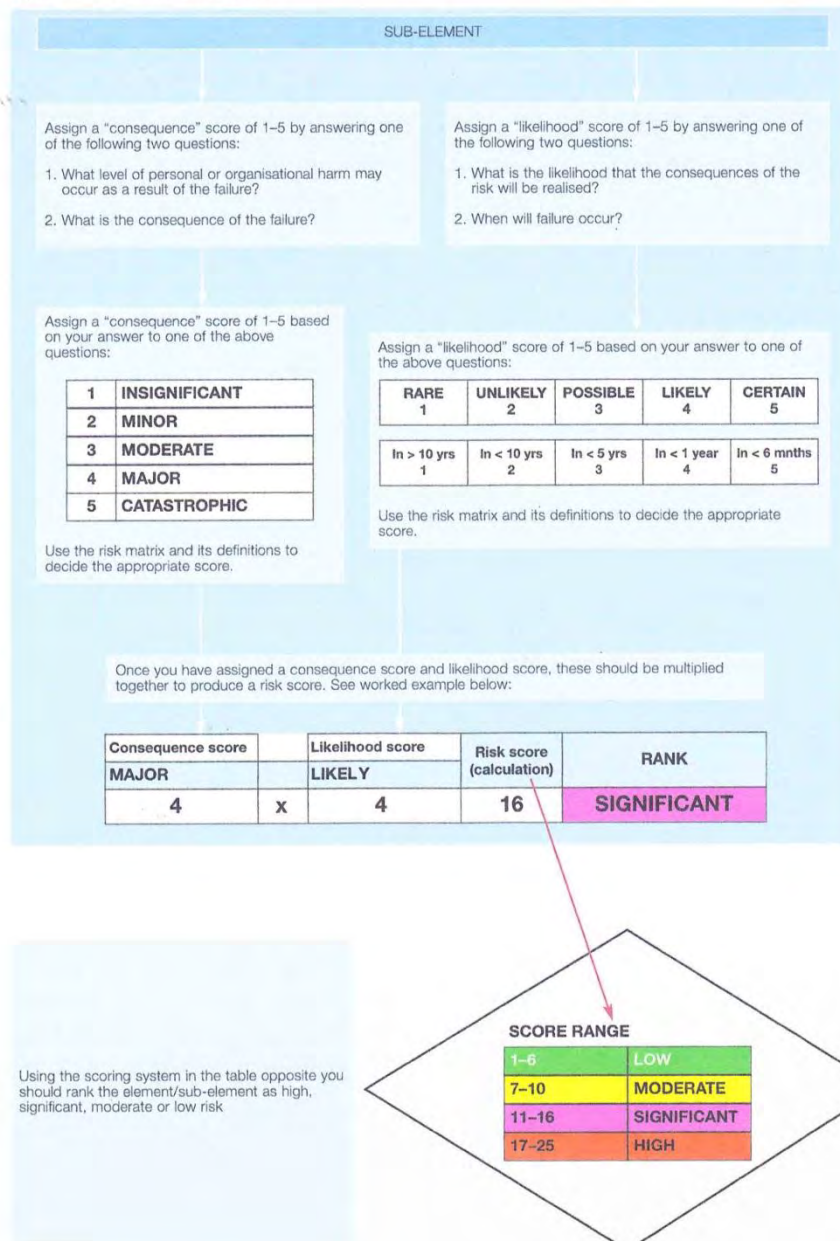


Figure 5.2 Risk matrix

SCORE RANGE	RISK RANKING
1-6	LOW
7-10	MODERATE
11-16	SIGNIFICANT
17-25	HIGH

Rating	PROBABILITY OF FAILURE				
	1	2	3	4	5
Failure descriptors	RARE	UNLIKELY	POSSIBLE	LIKELY	CERTAIN
	None or minimal remedial action required and/or new/recent upgrade. Estimated time to failure may be circa > 10 yrs	Normal wear and tear. Sound, operationally safe and exhibits only minor deterioration. Estimated time to failure may be circa < 10 yrs	Reasonable physical damage/deterioration. Reassignment of life may be acceptable based on technical tests or residual robustness. Estimated time to failure may be circa < five yrs	Major physical damage/deterioration. Failure apparent/assessed as imminent or unacceptable built environment. Not appropriate to reassign life. Estimated time to failure may be circa < one yr	Failure occurred. Unacceptable built environment. Not appropriate to reassign life. Estimated time to failure may be circa < six months

	SEVERITY		Health & safety	Environment	Business	Operational/ building/ engineering element	Fire/statutory Complies with mandatory fire safety requirements and statutory safety legislation.	Fire/statutory Complies with mandatory fire safety requirements and statutory safety legislation with minor deviations of a non-serious nature	Fire/statutory Known contravention of one or more requirements – which falls short of "B".	Fire/statutory Dangerously below "B"	Fire/statutory Dangerously below "B"
	Rating	Descriptor									
POTENTIAL CONSEQUENCES	1	INSIGNIFICANT	No injury/breach of guidance/procedures	No or minimal impact breach of guidance/procedures.	Unlikely cause of complaint. Litigation remote. Minimal reputation loss/limited awareness within organisation.	Minimal or no impact. Minimal or no disruption.	1	2	3	4	5
	2	MINOR	Minor injury/ill health (first aid or self-treatment). Breach of legal requirement.	Breach of legal requirement.	Possible complaint. Litigation unlikely. Loss of reputation (widespread internal awareness).	Localised impact. Disruption to normal services.	2	4	6	8	10
	3	MODERATE	Moderate injury/ill health statutory obligations. Improvement notice issued.	Single breach of legal requirement. Improvement notice issued.	Possible complaint. Possible litigation. Loss of reputation. National paper reporting.	Moderate impact. Moderate disruption to normal services.	3	6	9	12	15
	4	MAJOR	Major/significant injury or long-term incapacity/disablement. Prohibition notice issued.	Multiple breach of legal requirement. Prohibition notice issued.	Litigation expected. Loss of reputation. National reporting.	Major/significant impact. Severe disruption to normal services.	4	8	12	16	20
	5	CATASTROPHIC	Fatality and/or permanent incapacity/disablement. Prosecution.	Multiple breach of legal requirement. Prosecution.	Litigation certain. National adverse publicity.	Critical impact. Service closure.	5	10	15	20	25

SIX FACET REVIEW

ROYAL SHREWSBURY HOSPITAL



VERSION 7

SURVEY CARRIED OUT BY

the
OAKLEAF GROUP
MARKET LEADING SURVEYS

JANUARY 2016

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1. THE PROJECT TEAM

The Project Team comprises:

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2. INTRODUCTION

The Oakleaf Group carried out a Six Facet Survey at the Royal Shrewsbury Hospital on behalf of Shrewsbury and Telford Hospital NHS Trust during August to September 2015.

The following report summaries each of the six facets surveyed and includes:

- Facet 1: Physical Condition
- Facet 2: Functional Suitability
- Facet 3: Space Utilisation
- Facet 4: Quality Audit
- Facet 5: Statutory Compliance
- Facet 6: Environmental Management

The following blocks have been surveyed:

Site Code	Site Name
RSH23	Maternity
RSH24	Boiler House
RSH25	Grounds & Ancillary Buildings
RSH27B	Blocks Adjacent to Staff Residential
RSH27C	Blocks Adjacent to Staff Residential
RSH27D	Blocks Adjacent to Staff Residential
RSH28	Pathology
RSH29	Mortuary
RSH30	Out Patients Department
RSH31	Administration
RSH32	Pharmacy
RSH33	WD31, WD32, Fertility & EPAS
RSH34	Catering
RSH35	X-Ray
RSH36	A&E
RSH37	Head & Neck
RSH38	I.T.U
RSH39	Stores
RSH40	Sterile Services (SSD)
RSH41	Theatres
RSH42	Ward Block
RSH43	Estates Department
RSH44	Faculty of Health
RSH45	Radio Therapy & Chemo
RSH46	Mytton Oak Centre
RSH47	Renal Unit
RSH48	Phlebotomy / ShropDoc - Elizabeth House
RSH49	Ward Block Extension

Site Code	Site Name
RSH50	Treatment Centre
RSH51	Hamar Centre
RSH52	Hummingbird Centre
RSH54	Learning Centre
RSH55	Daisy Chain Nursery
RSH56	Cancer Treatment Centre

3. PROJECTED COSTS

3.1 Projected Costs – Physical Condition & Statutory Compliance

This section summarises the costs associated to the Royal Shrewsbury Hospital in relation to Physical Condition and Statutory Compliance.

The Physical Condition facet looks at the following: Building (Structure, Roof, Internal Fabric, Fixtures and Fittings etc), Mechanical (Heating Systems, Ventilation, Lifts etc) and Electrical elements (Electrical System, Fixed Plant, Telecommunications etc).

The Statutory Compliance Survey reviews: Asbestos, Health & Safety, Fire Safety, Disabled Access, Legionella Control and various other aspects.

Backlog Maintenance Works (Items at Condition C and D)

Total remedial work required for the current year:

Building Survey	£ 32,316,350
M&E Survey	£ 3,505,350
Statutory Survey	£ 10,100,000
Fire Survey	£ 652,100
TOTAL COST	£ 46,573,800
Cost per m2 (average)	£ 758.53/m2

Note that the statutory costs include for the safe removal of known asbestos, this is not a statutory requirement to remove however the cost will be incurred as part of any refurbishment/remodelling work.

Impending Backlog (Items at Condition B(C))

Total remedial work likely to be required within a five year period:

Building Survey	£ 3,725,500
M&E Survey	£ 5,112,352
Statutory Survey	£ 0
Fire Survey	£ 49,150
TOTAL COST	£ 8,887,002
Cost per m2 (average)	£ 144.74/m2

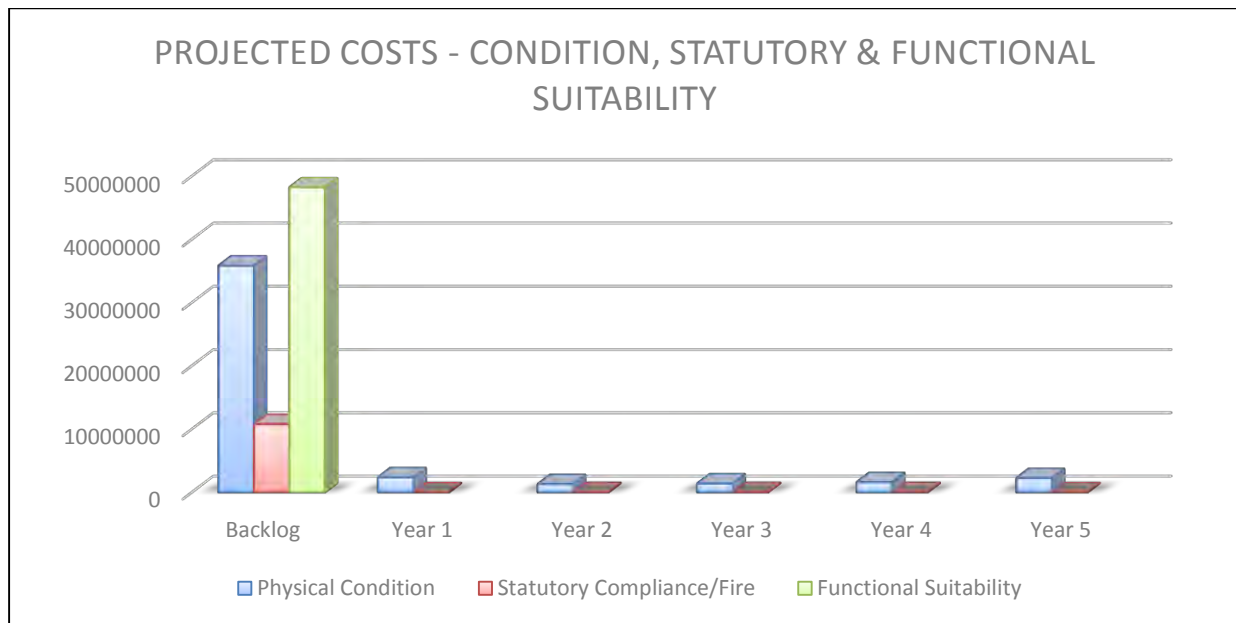
Functional Suitability (Items at Condition C and D)

Total remedial work likely to be required within a five year period:

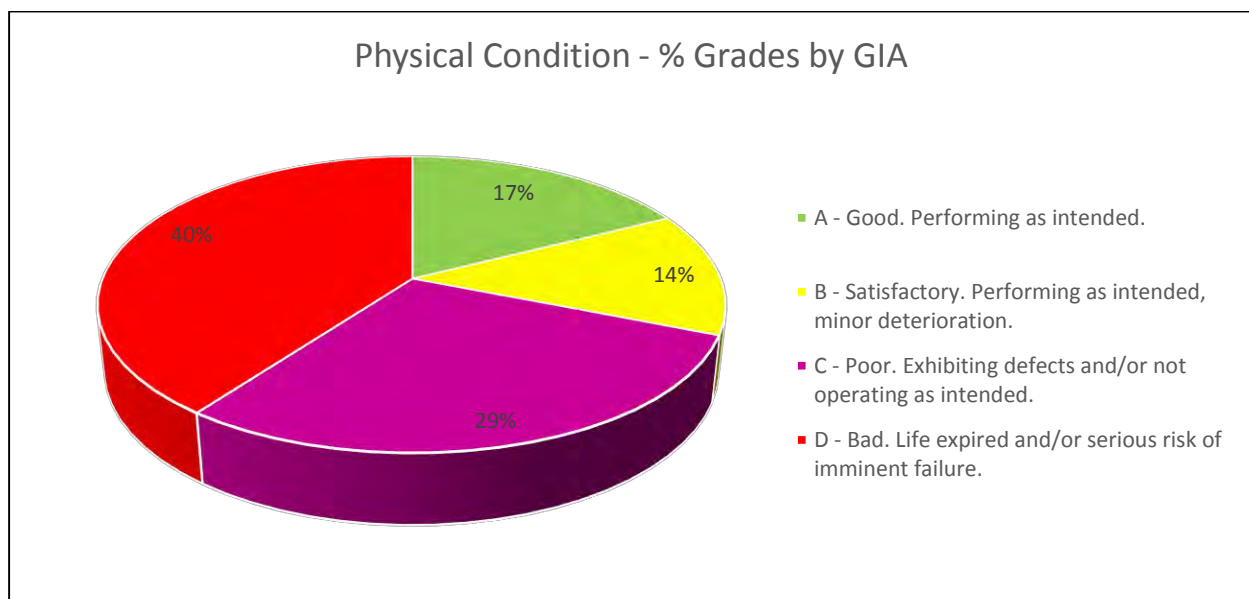
Functional Suitability	£ 48,213,000
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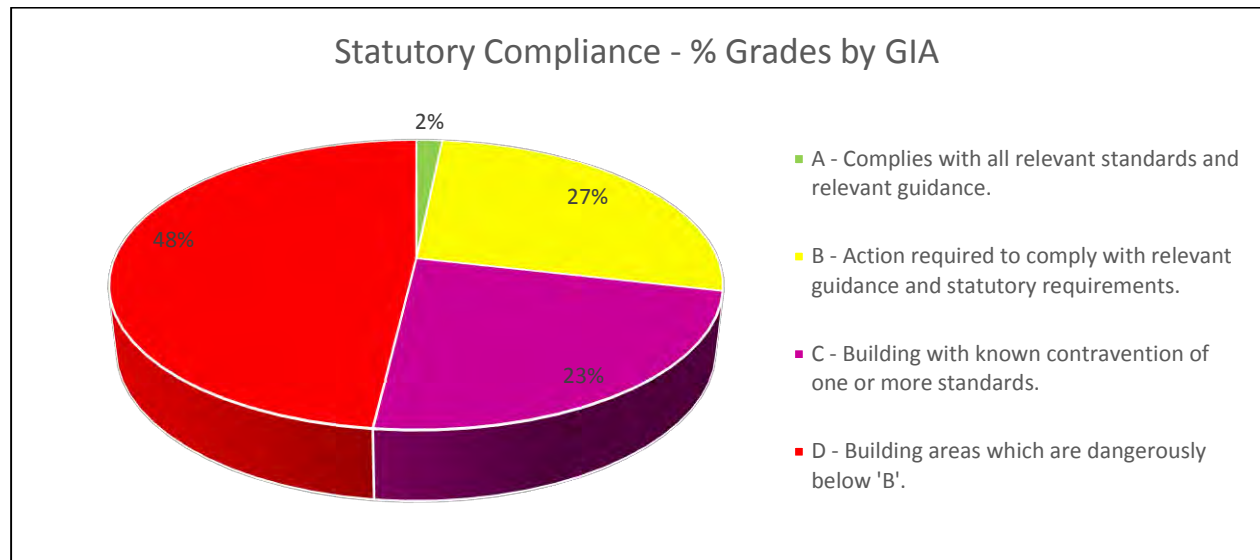
Note that the functional costs relate to providing new and suitable ward accommodation providing optimum bed spacing and sanitary provision and for new build Emergency department.

An indication of the projected costs per year is shown in the Chart below.



A breakdown of the block gradings for each facet (percentage based on GIA of building)





The pie charts above shows the grades of the blocks surveyed. *This is based on the surveyor's subjective view of the overall condition of the block.*

For detailed methodology, please see the Facet 1 Physical Condition Report.

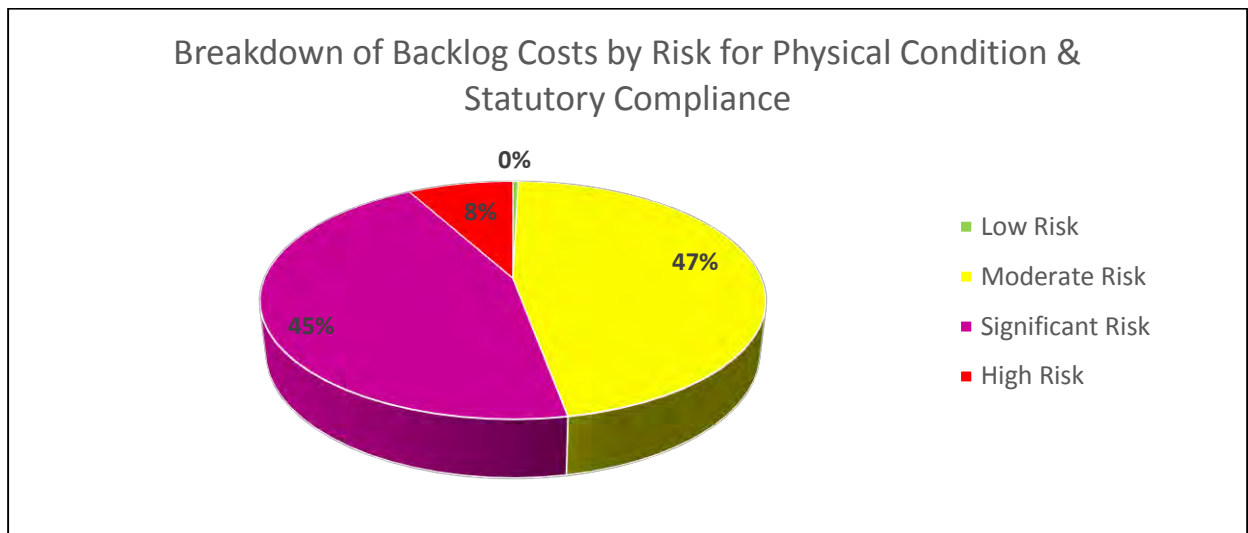
Please note, further statutory items to be included once received from the Trust.

3.2 Backlog Maintenance Costs (Exc Functional Suitability)

The backlog maintenance cost is the cost identified to bring assets at a condition of C or below in terms of their physical condition and/or statutory compliance up to a condition B. Condition rankings are based on those given in 'Estatecode' and are referenced within the methodology of the Physical Condition Report.

Each element/sub-element will be risk assessed in order to identify the high risk items within the estate by using the Risk Assessment Matrix (See Facet 1 Physical Condition Report methodology for more details).

Backlog Summary	Physical Condition	Statutory Compliance
Low Risk	£185,250	£0
Moderate Risk	£11,752,650	£10,000,000
Significant Risk	£20,893,500	£0
High Risk	£2,990,300	£752,100
Total Backlog	£35,821,700	£10,752,100



3.3 Risk Adjusted Backlog

The Risk Adjusted Backlog identifies the cost of combining the backlog costs and associated risk rankings by the remaining life of the building (See Facet 1 Physical Condition Report methodology for more details).

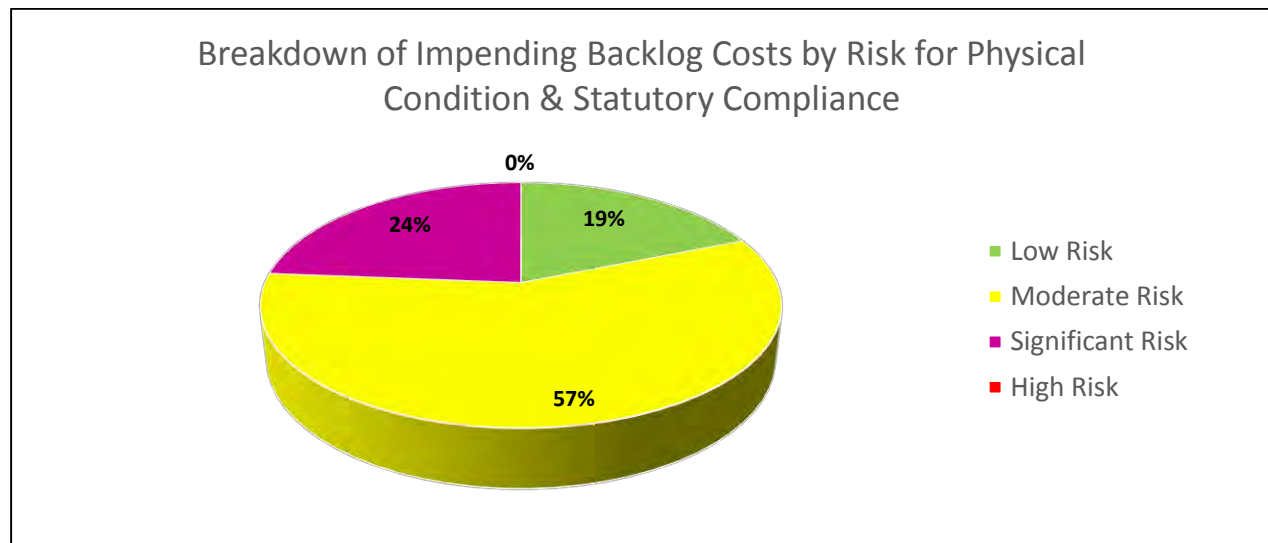
	Physical Condition	Statutory Compliance
Risk Adjusted Backlog	£24,230,941	£1,085,433

3.4 Impending Backlog Costs (Exc Functional Suitability)

The impending backlog costs refer to those items that are considered condition B at present but will fall below condition B within the maintenance schedule (5 years).

Table below shows the total impending backlog for Physical Condition and Statutory Compliance.

Impending Backlog Summary	Physical Condition	Statutory Compliance
Low Risk	£1,675,250	£0
Moderate Risk	£5,051,352	£49,150
Significant Risk	£2,111,250	£0
High Risk	£0	£0
Total Impending Backlog	£8,837,852	£49,150



Note that nominal cost statutory items refer to local lifecycle failures of fire equipment only

3.5 Projected Costs – Quality, Space, Environmental & DDA

Table below shows the breakdown for the remaining facets.

Facet	Total Cost
Space Utilisation	No costs allocated
Quality	Costs inc. to Facet 1
Environmental Management	No costs allocated
Disabled Access	£530,000
TOTAL COST	£530,000

3.6 Projected Costs – All Facets total 5 Year Spend

Facet	Total Cost
Physical Condition	£44,659,552
Statutory Compliance	£10,801,250
Functional Suitability	£48,213,000
Space Utilisation	No costs allocated
Quality	Costs inc. to Facet 1
Environmental Management	No costs allocated
Disabled Access	£530,000
TOTAL COST	£104,203,802

A breakdown of the costs per building and the overall grades are located in the dashboard below.

Royal Shrewsbury Hospital		Gross Floor Area	61,400m ²	Backlog Summary	£s	Site Location & Description
Mytton Oak Road		Net Usable Area	49,120m ²	Low Risk	£185,250	Royal Shrewsbury Hospital is a medium sized acute hospital located to a sloping site on the Western edge of Shrewsbury town centre. Buildings to the site are predominately of concrete frame construction and built circa 1970 with numerous additions built circa 2005 which include the Treatment Centre and the Ward Block Extension.
Shropshire		Building Year	1970-2010	Moderate Risk	£21,752,650	
SY3 8XQ		Total Backlog	£46,573,800	Significant Risk	£20,895,500	
		Total Budget	£8,887,002	High Risk	£3,748,400	
Survey Date		August to September 2015	Total Cost (Exc. On Costs)	£55,460,802	£46,573,800	



Condition & Statutory Backlog Maintenance Works

Total remedial work required for the BUILDING, M&E, STATUTORY & FIRE Elements:

Building	£32,316,350
M&E	£3,505,350
Statutory Compliance	£10,000,000
Fire Safety	£752,100
Backlog Total Cost	£46,573,800

Condition & Statutory Future Planned Costs for Future Maintenance Works (5 years)

Total remedial work likely to be required within a 5 year period for the BUILDING, M&E, STATUTORY & FIRE Elements:

Building	£3,725,500
M&E	£5,112,352
Statutory Compliance	£0
Fire Safety	£49,150
Future Planned Total Cost	£8,887,002

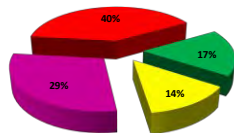
Net Combined Total Costs (Condition & Statutory) £55,460,802

Gross Combined Total Costs (Condition & Statutory) £83,191,203

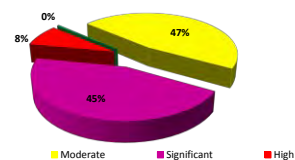
The on-costs include for: Contingency, Fees, Prelims, Profit and VAT (50%).

Breakdown of Overall Grades based on GIA

- A - Good. Performing as intended.
- B - Satisfactory. Performing as intended, minor deterioration.
- C - Poor. Exhibiting defects and/or not operating as intended.
- D - Bad. Life expired and/or serious risk of imminent failure.



Condition Backlog Costs by Risk



Block Code	Block Name	GIA	Condition & Statutory		Facet Grades & Costs										Overall Grade & Costs	
			Backlog Costs (2015)	Budget Costs (2016-2020)	Facet 1 Condition Grade	Facet 2 Function Grade	Facet 3 Function Cost	Facet 3 Space Utilisation	Facet 4 Quality Grade	Facet 5 Statutory Compliance	Facet 6 Fire Safety	Facet 7 Environmental	Facet 8 DDA	Facet 8 DDA Cost	Overall Grade	Total Cost (Net)
RS423	Maternity	4000	£13,003,400	£1,008,252	C	C	£0	Underused	D	D	C	TBC	C	£0	D	£14,011,652
RS424	Boiler House	1100	£389,300	£231,600	C	C	£0	Fully Used	B	D	B	TBC	D	£0	C	£620,900
RS425	Grounds & Ancillary Buildings	20ha	£15,821,100	£1,299,500	B	B	£0	Underused	C	B	B	TBC	C	£530,000	B	£17,650,600
RS427B	Blocks Adjacent to Staff Residential	750	£251,150	£45,950	D	D	£0	Underused	D	D	C	TBC	D	£0	D	£297,100
RS427C	Blocks Adjacent to Staff Residential	750	£252,200	£60,500	D	D	£0	Underused	D	D	C	TBC	D	£0	D	£312,700
RS427D	Blocks Adjacent to Staff Residential	750	£273,000	£47,250	D	D	£0	Empty	D	D	C	TBC	D	£0	D	£320,250
RS428	Pathology	2400	£803,500	£310,900	C	D	£0	Overcrowded	D	D	B	TBC	C	£0	D	£1,114,400
RS429	Mortuary	750	£2,042,600	£2,350	D	D	£0	Fully Used	D	D	B	TBC	C	£0	D	£2,044,950
RS430	Our Patients Department	3000	£670,000	£504,300	C	D	£0	Fully Used	C	D	B	TBC	C	£0	D	£1,174,300
RS431	Administration	3000	£870,600	£356,300	C	C	£0	Overcrowded	C	D	B	TBC	C	£0	C	£1,226,900
RS432	Pharmacy	800	£80,000	£0	B	B	£0	Fully Used	B	B	B	TBC	C	£0	B	£80,000
RS433	W013, W012, Fertility & EPAS	4000	£1,302,900	£641,850	C	D	£1,468,500	Overcrowded	D	D	B	TBC	C	£0	D	£3,413,250
RS434	Catering	2000	£668,000	£240,500	D	C	£0	Underused	D	C	B	TBC	C	£0	D	£908,500
RS435	X-Ray	1500	£345,150	£366,500	C	D	£0	Overcrowded	D	D	B	TBC	C	£0	C	£711,650
RS436	A&E	1500	£1,220,000	£205,650	C	D	£5,940,000	Overcrowded	C	D	B	TBC	C	£0	C	£7,365,650
RS437	Head & Neck	1150	£2,181,500	£118,000	C	D	£1,468,500	Overcrowded	C	D	B	TBC	C	£0	D	£3,760,000
RS438	LTU	750	£320,800	£115,100	C	D	£0	Overcrowded	C	D	B	TBC	C	£0	D	£435,900
RS439	Stores	2150	£280,700	£25,300	D	C	£0	Fully Used	C	D	B	TBC	C	£0	D	£306,000
RS440	Sterile Services (SSD)	400	£412,500	£2,000	D	D	£0	Underused	C	D	B	TBC	C	£0	D	£414,500
RS441	Theatres	1600	£4,133,750	£164,000	D	D	£0	Fully Used	D	D	B	TBC	C	£0	D	£4,297,750
RS442	Ward Block	8000	£853,050	£1,977,700	C	C	£26,713,500	Fully Used	C	C	B	TBC	C	£0	C	£29,544,250
RS443	Estates Department	800	£114,600	£41,750	C	B	£0	Fully Used	B	C	B	TBC	D	£0	C	£156,350
RS444	Faculty of Health	2000	£145,400	£185,500	C	C	£0	Underused	B	C	C	TBC	D	£0	C	£330,900
RS445	Radio Therapy & Chemo	3000	£70,500	£161,500	B	B	£1,468,500	Fully Used	B	B	B	TBC	C	£0	B	£1,700,500
RS446	Mytton Oak Centre	1500	£30,000	£134,900	B	B	£0	Underused	B	C	B	TBC	B	£0	B	£154,900
RS447	Renal Unit	1000	£20,600	£76,000	B	B	£0	Fully Used	B	B	B	TBC	B	£0	B	£96,600
RS448	Philosophy / ShropDoc - Elizabeth House	200	£0	£16,100	B	C	£0	Overcrowded	C	B	B	TBC	C	£0	B	£16,100
RS449	Ward Block Extension	3000	£0	£122,700	A	C	£11,154,000	Fully Used	B	B	A	TBC	B	£0	A	£11,276,700
RS450	Treatment Centre	4750	£22,000	£224,200	A	A	£0	Fully Used	A	B	A	TBC	B	£0	A	£246,200
RS451	Hamar Centre	500	£0	£78,800	B	B	£0	Fully Used	B	B	B	TBC	B	£0	B	£78,800
RS452	Hummingbird Centre	750	£3,000	£47,050	B	B	£0	Fully Used	B	B	B	TBC	B	£0	B	£50,050
RS454	Learning Centre	1000	£0	£25,000	A	A	£0	Fully Used	A	A	A	TBC	B	£0	A	£25,000
RS455	Day Chain Nursery	550	£2,500	£35,000	B	B	£0	Fully Used	B	B	B	TBC	B	£0	B	£37,500
RS456	Cancer Treatment Centre	2000	£0	£15,000	A	A	£0	Fully Used	A	B	A	TBC	B	£0	A	£15,000
RS456	TOTAL	61,400	£46,573,800	£8,887,002	-	-	£48,213,000	-	-	-	-	-	-	£530,000	-	£104,203,802

Legends:

Physical Condition:

- A - Good. Performing as intended.
- B - Satisfactory. Performing as intended, minor deterioration.
- C - Poor. Exhibiting defects and/or not operating as intended.
- D - Bad. Life expired and/or serious risk of imminent failure.

Quality

- A - A facility of excellent quality.
- B - A facility requiring general maintenance investment only.
- C - A less than acceptable facility requiring major capital investment or replacement.
- D - A very poor facility requiring major capital investment or replacement.

DDA

- A - Reasonably Accessible
- B - Minor Barriers to Access
- C - Major Barriers to Access
- D - Building not considered accessible.

Functional Suitability

- A - Very satisfactory, no change needed.
- B - Satisfactory, minor change needed.
- C - Not satisfactory, major change needed.
- D - Unsatisfactory in its present condition.

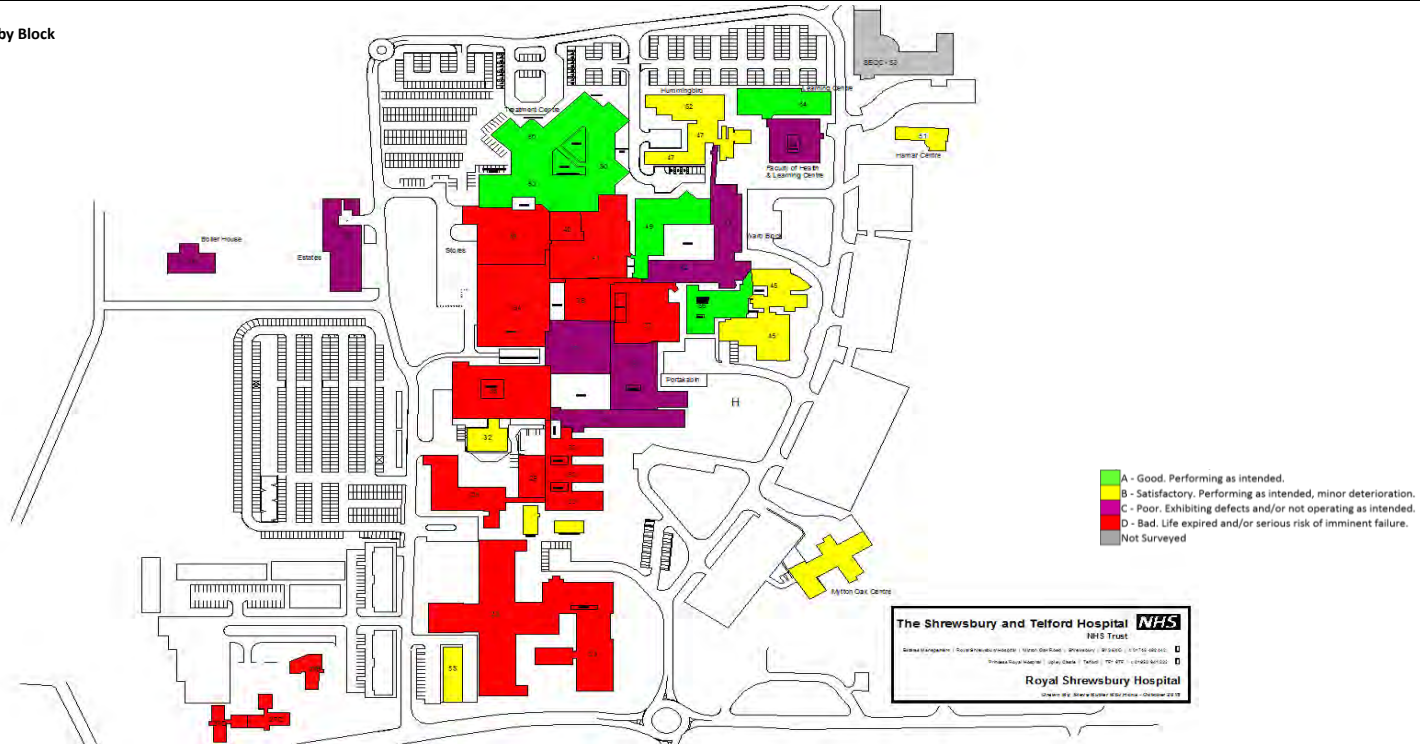
Statutory Compliance

- A - Complies with all relevant standards and relevant guidance.
- B - Action required to comply with relevant guidance and statutory requirements.
- C - Building with known contravention of one or more standards.
- D - Building areas which are dangerously below 'B'.

Royal Shrewsbury Hospital		Gross Floor Area	61,400m²	Backlog Summary	£s	Site Location & Description
Mytton Oak Road		Net Usable Area	49,120m²	Low Risk	£185,250	
Shrewsbury		Building Year	1970-2010	Moderate Risk	£21,752,650	
Shropshire		Total Backlog	£46,573,800	Significant Risk	£20,893,500	
SY3 8XQ		Total Budget	£8,887,002	High Risk	£3,742,400	
Survey Date		August to September 2015	Total Cost (Exc. On Costs)	Total Backlog	£46,573,800	

Royal Shrewsbury Hospital is a medium sized acute hospital located to a sloping site on the Western edge of Shrewsbury town centre. Buildings to the site are predominately of concrete frame construction and built circa 1970 with numerous additions built circa 2005 which include the Treatment Centre and the Ward Block Extension.

Site Plan showing Overall Grades by Block



4. SITE & BLOCK SUMMARIES

4.1 Site Infrastructure

4.1.1 Condition

- Site wide lighting requires upgrading with costs allocated within the maintenance schedule to replace lamps as required.
- Substantial works are required to replace failing sub-surface cast iron foul water pipes; costs based on anecdotal comments from estates staff.
- Site-wide replacement of failing calorifiers with new plate heat exchangers has been included at site level. The Trust may opt for a site-wide 'de-steaming' scheme with the introduction of satellite boiler houses, this is beyond the scope of a Six Facet survey and no further costs have been allocated.

4.1.2 Statutory

- Costs have been allocated for the removal of known asbestos, at the time of survey further detailed asbestos surveys were being undertaken and costs allocated within the survey are based on removal costs from similar era hospital estates surveyed by Oakleaf. It should also be noted that there is no statutory requirement to remove the asbestos however when refurbishment or remodelling works are required substantially increased maintenance costs can be incurred.
- Ductwork cleaning is required as a matter of urgency with costs allocated accordingly.

4.2 Block RSH23 – Maternity

4.2.1 Condition

- Significant roof replacement and upgrade schemes are required with GWP roof lights defective and allowing significant water ingress.
- Original aluminium windows are in excess of forty years and are difficult to operate and no longer open as intended.
- Internal finishes are dated with significant investment required to generally improve the condition of flooring, ceilings and to redecorate.
- Sanitary areas are not to expected standards with costs allocated to refurbish both public and ward area WCs.
- The basement area is prone to flooding with costs allocated to investigate cause and to remedy as required.
- Theatre ventilation to the decommissioned maternity theatre does not conform to HTM 03-01; costs allow for full refurbishment including to provide compliant air handling.
- Substantial investment is required to upgrade lifecycle expired electrical infrastructure.

4.2.2 Function, Quality & Space

- The ward areas have been effectively mothballed and do not conform to modern expected standards. Refurbishment costs have been included within the condition section to avoid duplications.
- The existing maternity theatres have been decommissioned and are not fit for purpose. Refurbishment costs have been included within the condition section to avoid duplications.
- Generally the building is in poor decorative order and does not meet the basic expected quality standards, costs included within condition facet to upgrade.
- Given the partially vacant areas within the building the block has been reported as underused.

4.3 Block RSH24 – Boiler House

4.3.1 Condition

- Robel Coaltherm boiler and associated plant requires removal and replacement to improve the overall resilience of heating to the site.
- The reverse osmosis plant requires replacement.
- The Enwarmatic water treatment plant requires replacement.
- The asphalt and mineral felt roof coverings are failing and in generally poor condition with their replacement required.
- Sanitary fittings require upgrading.

4.4 Block RSH25 – Grounds & Ancillary Buildings

4.4.1 Condition

- The sub surface service ducts that run to the west of the site have been supported by acrow props and require significant investment to prevent structural collapse and to reinforce to ensure increase vehicle loads are accounted for. Given that the defect could affect fire tenders reaching site, it also has statutory implications.
- Large scale resurfacing of aging asphalt roads and car parks is required with costs apportioned to resurface within the condition data.

4.5 Blocks RSH27B, 27C & 27D – Blocks adj. Staff Residential

4.5.1 Condition

- The blocks are largely vacated with all existing flats requiring complete refurbishment to bring up to current standards.

4.6 Block RSH28 – Pathology

4.6.1 Condition

- Significant flat roof upgrade and replacement required.
- Original aluminium windows are in excess of forty years and are difficult to operate and no longer open as intended.
- Old medical gas pipework is unused and requires removal, including below ground duct to remove the risk of the redundant pipes leaking.
- Internal finishes are dated with significant investment required to generally improve the condition of flooring, ceilings and to redecorate.
- Sanitary areas are not to expected standards with costs allocated to refurbish changing areas and WCs.
- Laboratory Benches are dated and require upgrading to modern standards.
- Internal doors are dated and do not confirm to current standards.

4.6.2 Statutory

- Tripping circuits due to portable air conditioning units.

4.6.3 Function, Quality & Space

- Ventilation and cooling is poor with widespread use of portable A/C units currently being used.
- Area is overused and running beyond capacity with additional office, laboratory and storage space required.

4.7 Block RSH29 –Mortuary (part surveyed, due to significant building works)

4.7.1 All Facets

- Area is dated and falls below current standards with it recommended that the on-going refurbishment is extended to include all of the Mortuary areas.

4.8 Block RSH30 – Out-patients

4.8.1 Condition

- Significant flat roof upgrade and replacement required with localised failures present.

- Original aluminium windows and doors are in excess of forty years and are difficult to operate and no longer open as intended.
- Fitted units and sink units are dated and not to current standards with their upgrade and replacement allowed for.
- Sanitary areas are not to expected standards with costs allocated to refurbish public and staff WCs.

4.9 Block RSH31 – Administration

4.9.1 Condition

- Significant flat roof upgrade and replacement required with localised failures present.
- Original aluminium windows and doors are in excess of forty years and are difficult to operate and no longer open as intended.
- Internal finishes are dated with significant investment required to generally improve the condition of flooring, ceilings and to redecorate.
- Sanitary areas are not to expected standards with costs allocated to refurbish staff WCs.
- The moveable racking to Medical Records is reported as being in poor condition and requiring replacement.
- 2No. Lift cars are dated with their refurbishment allowed for.

4.9.2 Function, Quality & Space

- All floors noted as overcrowded, including Medical Records to Level 0, OPD and entrance to Level 1 and Admin to Level 2.

4.10 Block RSH32 – Pharmacy (Aseptic Unit)

4.10.1 Condition

- Aseptic AHU and control panel are beyond their expected life and require replacement.

4.11 Block RSH33 – WD31, WD32, Fertility & EPAS

4.11.1 Condition

- Significant flat roof upgrade and replacement required with localised failures present.
- Original aluminium windows and doors are in excess of forty years and are difficult to operate and no longer open as intended.

- Internal finishes are dated with significant investment required to generally improve the condition of flooring, ceilings and to redecorate.
- Sanitary areas are not to expected standards with costs allocated to refurbish public & staff WCs.
- AHUs are beyond their expected life and require replacement with costs for associated ductwork alterations also included.

4.11.2 Function, Quality & Space

- It is not possible to provide adequate bed spacing within the current ward curtilage, without reducing overall bed numbers. Costs have been allocated under the condition facet.
- Ward 32 has been reported as having a lack of WC and shower facilities with costs allocated to install adequate facilities.
- Fertility treatment & laboratory areas are below recommended size, with the reconfiguration of the area recommended.
- Reported issue with clean air supply to Fertility laboratories with costs to replace AHUs included within the condition facet.
- Majority of areas are overcrowded with additional space required to accommodate needs.

4.12 Block RSH34 – Catering

4.12.1 Condition

- Significant flat roof upgrade and replacement required with localised failures present, North lights also in poor condition with their replacement required as part of roof works.
- Original aluminium windows and doors are in excess of forty years and are difficult to operate and no longer open as intended.
- Internal finishes are dated with significant investment required to generally improve the condition of flooring, ceilings and to redecorate.
- Subsidence beneath quarry tiled floor to Wash-Up and Trayed Meals Areas notable with further investigation required.
- Sanitary areas are not to expected standards with costs allocate to refurbish public & staff WCs.
- Internal doors are dated and do not confirm to current standards.
- Reported issues relating to sub-surface drainage with restricted access due to ACMs, repairs understood to be costly and time consuming.
- 4No external Weathrite chillers are approaching the end of their expected life and as such their upgrade and replacement has been allowed for.

4.12.2 Function, Quality & Space

- Kitchen staff currently have no break out area provided, with it recommended that suitable facilities are provided.
- The block is considered to be under-used with excessive space being present to the Main Kitchen and associated staff areas.

4.13 Block RSH35 – X-Ray

4.13.1 Condition

- Significant flat roof upgrade and replacement required with localised failures present.
- Original aluminium windows are in excess of forty years and are difficult to operate and no longer open as intended.
- Sanitary areas are not to expected standards with costs allocated to refurbish public & staff WCs.

4.13.2 Function, Quality & Space

- Waiting areas & changing cubicles do not meet current standards.
- Department is overcrowded with a lack of clinical, office and storage space being available.

4.14 Block RSH36 – A&E

4.14.1 Condition

- Significant flat roof upgrade and replacement required with localised failures present.
- Original aluminium windows are in excess of forty years and are difficult to operate and no longer open as intended.
- Internal finishes are dated with significant investment required to generally improve the condition of flooring, ceilings and to redecorate.
- Sanitary areas are not to expected standards with costs allocated to refurbish public & staff WCs.
- Internal doors are dated and do not confirm to current standards.

4.14.2 Function, Quality & Space

- Staff commentary suggests that at peak times the existing accident and emergency department is undersized and cannot cope with current levels of demand. The layout does not in any way conform to the requirements of HBN 15-01. Further feasibility studies are required including detailed use over time studies to identify exact demands and a cost has been included within the functional suitability section for new build accommodation.

Note: Allow further cost of £9m for newbuild A + E to conform to HBN 15-01.

4.15 Block RSH37 – Head & Neck

4.15.1 Condition

- Significant flat roof upgrade and replacement required with localised failures present.
- Original aluminium windows are in excess of forty years and are difficult to operate and no longer open as intended.
- Theatres 10 & 11 are dated with a number of elements falling below HBN 26, costs allocated for their complete upgrade and refurbishment.
- The roof top AHU is considered to be beyond its expected life with its complete replacement required.

4.15.2 Function, Quality & Space

- It is not possible to provide adequate bed spacing within the current ward curtilage, without reducing overall bed numbers. Costs have been allocated under the condition facet.

4.16 Block RSH38 – I.T.U.

4.16.1 Condition

- Original aluminium windows are in excess of forty years and are difficult to operate and no longer open as intended.
- Internal finishes are dated with significant investment required to generally improve the condition of flooring, ceilings and to redecorate.
- Sanitary areas are not to expected standards with costs allocated to refurbish public & staff WCs.

4.16.2 Statutory

- Sluice room does not conform to current standards and requires upgrading and refurbishment.

4.16.3 Function, Quality & Space

- It is not possible to provide adequate bed spacing within the current ward curtilage, without reducing overall bed numbers. Costs have been allocated under the condition facet.
- No patient WC/Shower & kitchen is currently provided, with the recommendation that suitable facilities are provided.
- Ventilation has been reported as being very poor with works to re-design and improve the current system recommended.
- Storage issues have been reported with the unit considered to be generally undersized.

4.17 Block RSH39 – Stores

4.17.1 Condition

- Significant flat roof upgrade and replacement required with localised failures present.
- Original aluminium windows are in excess of forty years and are difficult to operate and no longer open as intended.
- Roller shutters to loading bay are dated and have been subject to sustained impact damage, their upgrading and replacement is required.
- Numerous walls have been subject to impact damage with increased wall protection recommended.

4.17.2 Function, Quality & Space

- Reported that a significant amount of space is used for archive material that could be more efficiently stored off-site freeing up space for day to day equipment.

4.18 Block RSH40 – Sterile Services (SSD)

4.18.1 Condition

- Significant flat roof upgrade and replacement required to raised store with localised failures present.
- Original aluminium windows to roof level are in excess of forty years and are difficult to operate and no longer open as intended.
- Internal finishes are dated with significant investment required to generally improve the condition of flooring, ceilings and to redecorate.
- AHU is not in operation with a cost for its re-instatement included.
- Steam pipework supplying the non-operational autoclaves requires removal / replacement depending on future use.

4.18.2 Statutory

- Area is considered to be in a poor condition with numerous elements failing HBN 13, a cost for the area to be refurbished conforming to current standards has been included.

4.18.3 Function, Quality & Space

- Area is part used for storage with the remaining areas vacant, recommended that a review be carried out to make best use of space.

4.19 Block RSH41 – Theatres

4.19.1 Condition

- Original aluminium windows to roof level are in excess of forty years and are difficult to operate and no longer open as intended.
- Theatres 1 & 4 are dated with a number of elements falling below HBN 26, costs allocated for their complete upgrade and refurbishment.
- Internal finishes are dated with significant investment required to generally improve the condition of flooring, ceilings and to redecorate.
- Sanitary areas are not to expected standards with costs allocated to refurbish staff WCs and changing areas.

4.19.2 Function, Quality & Space

- HDU - It is not possible to provide adequate bed spacing within the current ward curtilage, without reducing overall bed numbers. Costs have been allocated under the condition facet.
- HDU - No domestic cupboard available with its provision required.

4.20 Block RSH42 – Ward Block

4.20.1 Condition

- The seals to the external concrete cladding panels are reported to have started to fail with their inspection and replacement been allowed for.
- The main aluminium automatic entrance door to the block is reported as being in poor condition and requiring replacement.
- Internal finishes are dated with significant investment required to generally improve the condition of flooring, ceilings and to redecorate.
- Sanitary areas are not to expected standards with costs allocated to refurbish public & staff WCs.
- Bedside lights throughout the wards are dated and unsuitable with their upgrading and replacement allowed for.

4.20.2 Statutory

- A Dunham Bush refrigeration chiller containing R22 gas was noted to the main plant room, this has since been reported as obsolete and not in use, however it is a statutory requirement to ensure the chiller has been decommissioned and good practice for the complete plant to be disposed.
- Hot water reported as being too hot to Ward 28 on Level 5 with possible scalding risk to dementia patients.

- LST covers to radiators inconsistent with risk areas.

4.20.3 Function, Quality & Space

- It is not possible to provide adequate bed spacing within the current ward curtilage, without reducing overall bed numbers. Costs have been allocated under the condition facet.
- Reports of poor ventilation to the wards throughout the block.
- No drugs room present to the CCU (Ward 24) on Level 3.
- Level 4 Ward 26 (Amputees) Sanitary provision not fit for use by patients with reconfiguring of areas to fit use recommended.
- Reports of limited office and storage space to the wards throughout the block.
- Reports of blocked circulation routes to wards restricting movement of beds carrying patients to appointments.
- No relative rooms available to certain wards.

4.21 Block RSH43 – Estates Dept.

4.21.1 All Facets

- Building requires general modernising including upgrading of WC facilities and refurbishment of offices however is in generally reasonable order given the block's usage.

4.22 Block RSH44 – Faculty of Health (Under part refurbishment)

4.22.1 Condition

- Glazed roof lights located to the pitched roof are dated and in deteriorating condition with their replacement required.
- Aluminium windows are dated and unsuitable with rust visible to numerous frames.

4.22.2 Function, Quality & Space

- Noted as being underused, however refurbishment works are currently being undertaken.

4.23 Block RSH45 – Radiotherapy & Chemo.

4.23.1 Condition

- External Airdale chiller to Cobolt plant room is beyond its expected life with replacement required.
- Changing Cubicles to Level 1 are dated and unsuitable with their upgrading and replacement required.

4.23.2 Function, Quality & Space

- It is not possible to provide adequate bed spacing within the current ward curtilage, without reducing overall bed numbers. Costs have been allocated under the condition facet.

4.24 Block RSH46 – Mytton Oak Centre

4.24.1 Condition

- Assisted WCs & Bathrooms to the South and East wings are dated and unsuitable with their upgrading and refurbishment required.

4.24.2 Function, Quality & Space

- Noted as under-used with many of the rooms not occupied.

4.25 Block RSH47 – Renal Unit

4.25.1 Condition

- Bedside lights throughout are dated and unsuitable with their upgrading and replacement allowed for.

4.26 Block RSH48 – Phlebotomy / ShropDoc (Elizabeth House)

4.26.1 Function, Quality & Space

- Noted as being overcrowded with large volumes of patients at certain times.
- Reception and waiting room noted as being poorly situated with access and privacy issues.

4.27 Block RSH49 – Ward Block Extension

4.27.1 Function, Quality & Space

- It is not possible to provide adequate bed spacing within the current ward curtilage, without reducing overall bed numbers. Costs have been allocated under the condition facet.

4.28 Block RSH50 – Treatment Centre

4.28.1 All facets

- No significant defects noted.

4.29 Block RSH51 – Hamar Centre

4.29.1 Condition

- Sanitary areas are not to expected standards with costs allocate to refurbish public & staff WCs.
- Kitchen units are dated and require replacement.

4.30 Block RSH52 – Hummingbird Centre

4.30.1 All facets

- No significant defects noted.

4.31 Block RSH54 – Learning Centre

4.31.1 All facets

- No significant defects noted.

4.32 Block RSH55 – Daisy Chain Nursery

4.32.1 Condition

- The rubber play surface to the external playground is subsiding along the building edge with its re-instatement required.

4.32.2 Statutory

- Boiler has been noted as being excessively hot with additional ventilation required.

4.33 Block RSH56 – Cancer Treatment Centre

4.33.1 All facets

- No significant defects noted.

5.00 Disabled Access Audit

5.00.1 Site Wide Comments

- Signage is inconsistent throughout the site with its review and upgrading recommended. Allow £50,000 per annum.
- Accessible parking is provided to key areas and is clearly marked.
- Key building entrances are via suitable automatic doors that provide 24 hour access.
- Receptions are varied in their suitability, with the lack of provision of split height desks and hearing loops being the two main issues.
- Circulation routes are generally considered to be of a suitable width and provide clear definition between floor, walls and ceilings.
- Lifts are dated and as such do not conform to current guidelines relating to accessibility. Costs included within condition survey.
- Accessible WCs are varied in their location and suitability with recommendations to increase their number and refurbish those that do not provide suitable accessibility.
- Access to and around the restaurant is poor including the servery and pay counters, with various recommendations being made.
- Accessible changing facilities to departments like X-Ray are not provided and are recommended to be installed.

5. APPENDIX

Methodology

Physical Condition

Each element is given a condition Grade A, B, C, CX, D or DX. If the item has a remaining life of less than five years it is also given a cost to either repair or replace the item.

A = Good. Performing as intended and operating efficiently.

B = Satisfactory. Performing as intended but exhibiting minor deterioration.

B(C) = Items currently condition B but will fall to condition C within 5 year period.

C = Poor. Exhibiting major defects and/or not operating as intended.

D = Bad. Life expired and/or serious risk of imminent failure.

X = Added to C or D if item cannot be repaired and must be replaced.

NHS EstateCODE Risk Assessment Matrix

SCORE RANGE		RISK RANKING	
1-6		LOW	
7-10		MODERATE	
11-16		SIGNIFICANT	
17-25		HIGH	

Rating		PROBABILITY OF FAILURE				
Failure descriptors		1	2	3	4	5
		RARE	UNLIKELY	POSSIBLE	LIKELY	CERTAIN
		None or minimal remedial action required and/or new/recent upgrades. Estimated time to failure may be circa > 10 yrs	Normal wear and tear. Sound, operationally safe and exhibits only minor deterioration. Estimated time to failure may be circa < 10 yrs	Reasonable physical damage/deterioration. Reassignment of life may be acceptable based on technical tests or residual robustness. Estimated time to failure may be circa < five yrs	Major physical damage/deterioration. Failure apparent/assessed as imminent or unacceptable built environment. Not appropriate to reassign life. Estimated time to failure may be circa < one yr	Failure occurred. Unacceptable built environment. Not appropriate to reassign life. Estimated time to failure may be circa < six months

SEVERITY		Health & safety	Environment	Business	Operational/ building/ engineering element	Fire/statutory Complies with mandatory fire safety requirements and statutory safety legislation.	Fire/statutory Complies with mandatory fire safety requirements and statutory safety legislation with minor deviations of a non-serious nature	Fire/statutory Known contravention of one or more requirements – which falls short of "B".	Fire/statutory Dangerously below "B"	Fire/statutory Dangerously below "B"	
Rating	Descriptor										
POTENTIAL CONSEQUENCES	1	INSIGNIFICANT	No injury/breach of guidance/ procedures	No or minimal impact breach of guidance/ procedures.	Unlikely cause of complaint. Litigation remote. Minimal reputation loss/ limited awareness within organisation.	Minimal or no impact. Minimal or no disruption.	1	2	3	4	5
	2	MINOR	Minor injury/ill health (first aid or self-treatment). Breach of legal requirement.	Breach of legal requirement.	Possible complaint. Litigation unlikely. Loss of reputation (widespread internal awareness).	Localised impact. Disruption to normal services.	2	4	6	8	10
	3	MODERATE	Moderate injury/ill health statutory obligations. Improvement notice issued.	Single breach of legal requirement. Improvement notice issued.	Possible complaint. Possible litigation. Loss of reputation. National paper reporting.	Moderate impact. Moderate disruption to normal services.	3	6	9	12	15
	4	MAJOR	Major/significant injury or long-term incapacity/disability. Prohibition notice issued.	Multiple breach of legal requirement. Prohibition notice issued.	Litigation expected. Loss of reputation. National reporting.	Major/significant impact. Severe disruption to normal services.	4	8	12	16	20
	5	CATASTROPHIC	Fatality and/or permanent incapacity/disability. Prosecution.	Multiple breach of legal requirement. Prosecution.	Litigation certain. National adverse publicity.	Critical impact. Service closure.	5	10	15	20	25

Formula used to calculate the Risk Adjusted Backlog is as follows:

$$\text{Risk-adjusted backlog (£)} = \frac{\text{Non-critical backlog}}{\text{Remaining life of building/block}} + \text{Safety-critical backlog}$$

Functional Suitability

Reviews: Internal Space Relationships, Support Facilities & Location

Category	Comment
A	Very satisfactory, no change needed.
B	Satisfactory, minor change needed.
C	Not satisfactory, major change needed.
D	Unacceptable in its present condition.

Space Utilisation

The review identifies:

E = Empty

U = Under-Used

F = Fully Used

O = Over-Used

Quality

Reviews: Amenity, Comfort Engineering & Design Appearance

Category	Comment
A	A facility of excellent quality.
B	A facility requiring general maintenance investment only.
C	A less than acceptable facility requiring capital investment.
D	A very poor facility requiring major capital investment or replacement.

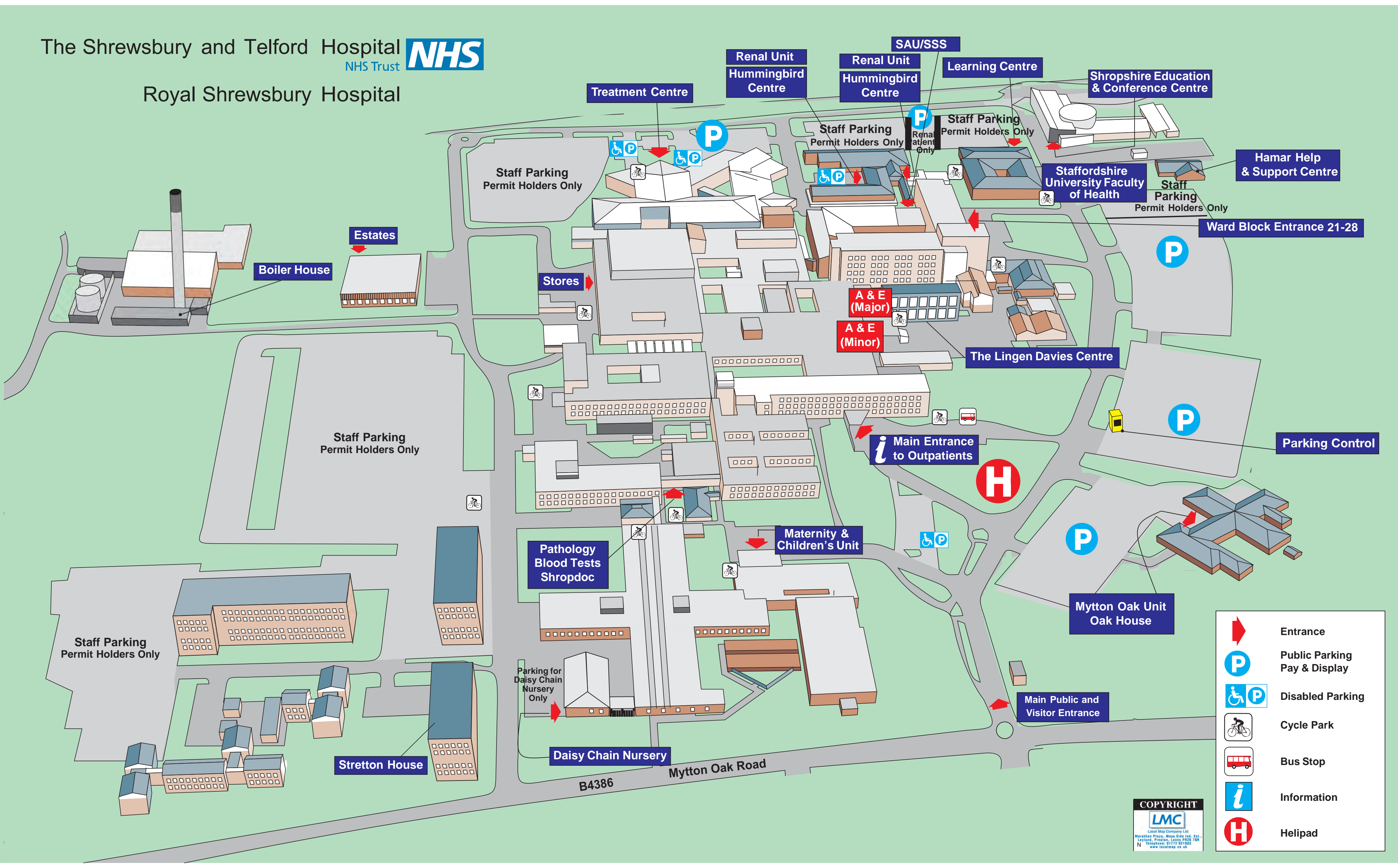
Statutory Compliance

Reviews: Asbestos, Health & Safety, Fire Safety, Disabled Access, Legionella Control and various other aspects.

Category	Comment
A	Complies with all relevant standards and relevant guidance.
B	Action required to comply with relevant guidance and statutory requirements.
C	Building with known contravention of one or more standards.
D	Building areas which are dangerously below 'B'.

APPENDIX 1d - RSH EXISTING SITE PLAN

The Shrewsbury and Telford Hospital
NHS Trust
Royal Shrewsbury Hospital



- Entrance
- Public Parking Pay & Display
- Disabled Parking
- Cycle Park
- Bus Stop
- Information
- Helipad

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APPENDIX 1e- PRH EXISTING SITE PLAN

The Shrewsbury and Telford Hospital NHS Trust
The Princess Royal Hospital



APPENDIX 2a – Health economy’s health service need against TDA health service need criteria

APPENDIX 2a – Health economy’s health service need against TDA health service need criteria

Criteria	Relevant Measure	Identified/Addressed
1) Need for improved strategic fit	Meets the strategic needs of locality	Strategic case for change and models of care developed with partners, the public and stakeholders
	Improves the quality of service relationships and departmental links	Integrated partnership working is key to the future emergency/urgent care service model Co-location of specialties promotes efficiencies and smooth pathways Co-location of specialties promotes efficiencies and smooth pathways
	Realises the benefits of interdependence	
	Introduces flexibility to cope with changes in demand	Capacity designed to respond to growth and demographic change, including shifts from acute to community provision
2) Need to meet national, regional and local policy imperatives	Promotes new models of care	New models of care proposed within: Acute and episodic care Long term conditions/frailty Planned Care Partnership working integral to patient pathways
	Enables a shift to primary care (where appropriate)	
	Is sufficiently flexible/robust to cope with future changes in patterns of service delivery	
	Enables better integration of services	
	Delivers long term service commitments, including maximum waiting times	Split of unscheduled and scheduled care supports delivery of national waiting time targets
3) Need for better access to services	Reduces travelling time by public and private transport for patients, staff and visitors	Provision of Urgent Care Centres for non-life threatening urgent care Services delivered in rural and urban locations Planned care services delivered locally
	Improves equality of access	
	Has a greater responsiveness to patients’ health needs, including patient choice	
4) Need for improved clinical quality of services	Prevents quality of services deteriorating	Addresses challenges with split site provision for emergency and critical care Clinical teams have required numbers of staff Outcomes are improved out of co-location of consolidated emergency services Partnership approach supports knowledge and skills transfer between acute and community staff
	Addresses clinical problems in the service	
	Provides better health outcomes for patients	
	Facilitates improvements in clinical practice	
	Facilitates better configurations of service extending to whole health economy	Whole system approach to addressing current challenges with proposed improvements in acute and community services

Criteria	Relevant Measure	Identified/Addressed
5) Need for development of existing services and/or provision of new services	Develops or provides services as required by commissioners	Addresses challenges with split site provision for emergency and critical care
	Protects the provision of existing services	Clinical teams have required numbers of staff Outcomes are improved out of co-location of consolidated emergency services Supports the provision of care closer to home where clinically appropriate
6) To meet training, teaching and research needs	Makes it easier to recruit and retain staff	Addresses challenges with split site provision for emergency and critical care
	Contributes to clinical advance	Clinical teams have required numbers of staff Morale is improved within existing teams as service challenges are resolved
7) For improved environmental quality of services	To address backlog maintenance requirements and improve the quality of the estate	Backlog maintenance will continue to be an issue in some options as the use of existing estate is required however
	To improve functional suitability and site lay-out	New/refurbished facilities in all options will improve functional suitability
8) To make more effective use of resources	To improve productivity and make better use of cash, human and estate resources	Clinical teams have required numbers of staff
9) Other To address acute service workforce challenges	Consolidates teams around patient and service needs	Addresses challenges with split site provision for emergency and critical care
	Makes it easier to recruit and retain staff	Clinical teams have required numbers of staff
	Promotes partnership working across organisations and clinical 'boundaries'	Outcomes are improved out of co-location of consolidated emergency services

APPENDIX 2b – Urban Urgent Care Centre draft service outline

APPENDIX 2b – Urban Urgent Care Centre draft service outline

The Shrewsbury and Telford Hospital NHS Trust

Urban Urgent Care (UCC) - Service Outline DRAFT

What is an Urban Urgent Care Centre?

In 2014/15 over 115,000 patients arrived at the Shrewsbury and Telford Hospital A&E departments believing they needed immediate access to health care. The majority of these patients (about 75,000) were not in need of life saving intervention and therefore could be more appropriately seen in an Urgent Care Centre.

The Urban Urgent Care Centres within the local health system would provide safe and effective care for patients requiring urgent but not life or limb threatening emergency care. The Urban UCC's would provide assessment, monitoring and treatment for patients and ensure that patients are cared for by the right person, in the right care setting and in a timely manner. This is based on national and local guidance and in particular:

- Transferring Urgent and Emergency Care Services in England, NHS England, August 2015
- Commissioning Standards Integrated Urgent Care, NHS England, September 2015

How many Urban UCC's would there be?

There would be two Urban Urgent Care Centres (UCC); one at the Royal Shrewsbury Hospital and one at the Princess Royal Hospital in Telford. They would be easy to access and visible to patients, with drop off points outside, similar to the current A&Es.

How would the Urban UCC's link to other services?

The UCCs provided at the Royal Shrewsbury Hospital (RSH) and the Princess Royal Hospital (PRH) would work in partnership with the Emergency Department (ED), Rural Urgent Care Centres, Primary Care Providers and the Ambulance Service to ensure that patients are seen and treated in the right place and by the right people. Teams and individuals working within these services would follow agreed processes and pathways and work to common standards and protocols.

For patients accessing the Urban UCC, their care and ongoing treatment (if required) would appear seamless in terms of 'who does what' i.e. if they walk-in to the Urban UCC but require care within the Emergency Department, they would be transferred without delay.

When would the Urban UCC's be open?

The Urban UCCs would be open 24 hours a day, 7 days a week, 365 days a year.

What sorts of patients could go to the Urban UCC's?

The Urban UCC's would treat patients of all ages that require an urgent healthcare intervention that is not life or limb threatening and cannot be treated within a primary care setting (by a GP or Pharmacist). The sorts of things that the Urban UCC's would expect patients to arrive with would be (this is not an exhaustive list) :

- Simple fractures
- Cuts and bruises
- Moderate respiratory complaints
- Some abdominal and chest pain
- Other minor injuries
- Simple eye complaints

How would patients know where to go?

Where the UCC and ED are on the same site:

From the public's perspective, patients would walk into the department through a single door and be triaged by a clinician promptly upon their arrival. If the patient can be seen in the UCC they would be asked to register and begin their pathway of care. Should the triaging clinician believe that the patient requires emergency care the patient would be escorted directly to the Emergency Department without delay.

Where the UCC is not on the same site as the ED:

Patients would walk into the department and be triaged by a clinician promptly upon their arrival. If the patient can be seen in the UCC they would be asked to register and begin their pathway of care. Should the triaging clinician believe that the patient requires emergency care an ambulance would be arranged for the prompt transfer of patients. Experienced clinicians would care for the patient until the ambulance arrives.

How would patients get to the UCC ?

Patients cannot contact the UCC by telephone or make appointments to see the Clinicians. Patients can arrive at the UCC as a 'walk-in' or via Ambulance.

What would happen to those patients that couldn't be seen in the Urban UCC?

For some patients the Urban UCC would not be the most appropriate place for them to be treated as their condition/injury is not severe enough for the UCC. In these cases the patient would be advised to speak to the Navigator within the UCC who could sign post the patient to a more appropriate professional such as a Pharmacist, GP or Practice Nurse. If the patient was not registered with a GP practice or is unable to make an appointment the Navigator could support them with this/ make an appointment directly. The UCC would ensure that all patients leaving the department have been directed to the most appropriate service to meet their needs.

Who would look after the patients?

The workforce within the UCCs would be made up of the following:

- Advanced Clinical Practitioner
- Emergency Nurse Practitioner
- GP
- Clinical Triager/Streamer
- Navigator
- Support staff
- Administrator/receptionist
- Therapists

The team would also have access to specialist clinicians within the hospital for advice and support.

What would the Urban Urgent Care Centre look like?

The UCC would provide a number of clinical assessment and treatment areas, including consultation and quiet rooms. Rooms would be sound proofed to ensure patient confidentiality and dignity is maintained. The environment would be designed to meet the needs of all patients including children and patients with mental health needs.

How would patients be treated? *Please refer to appendix a*

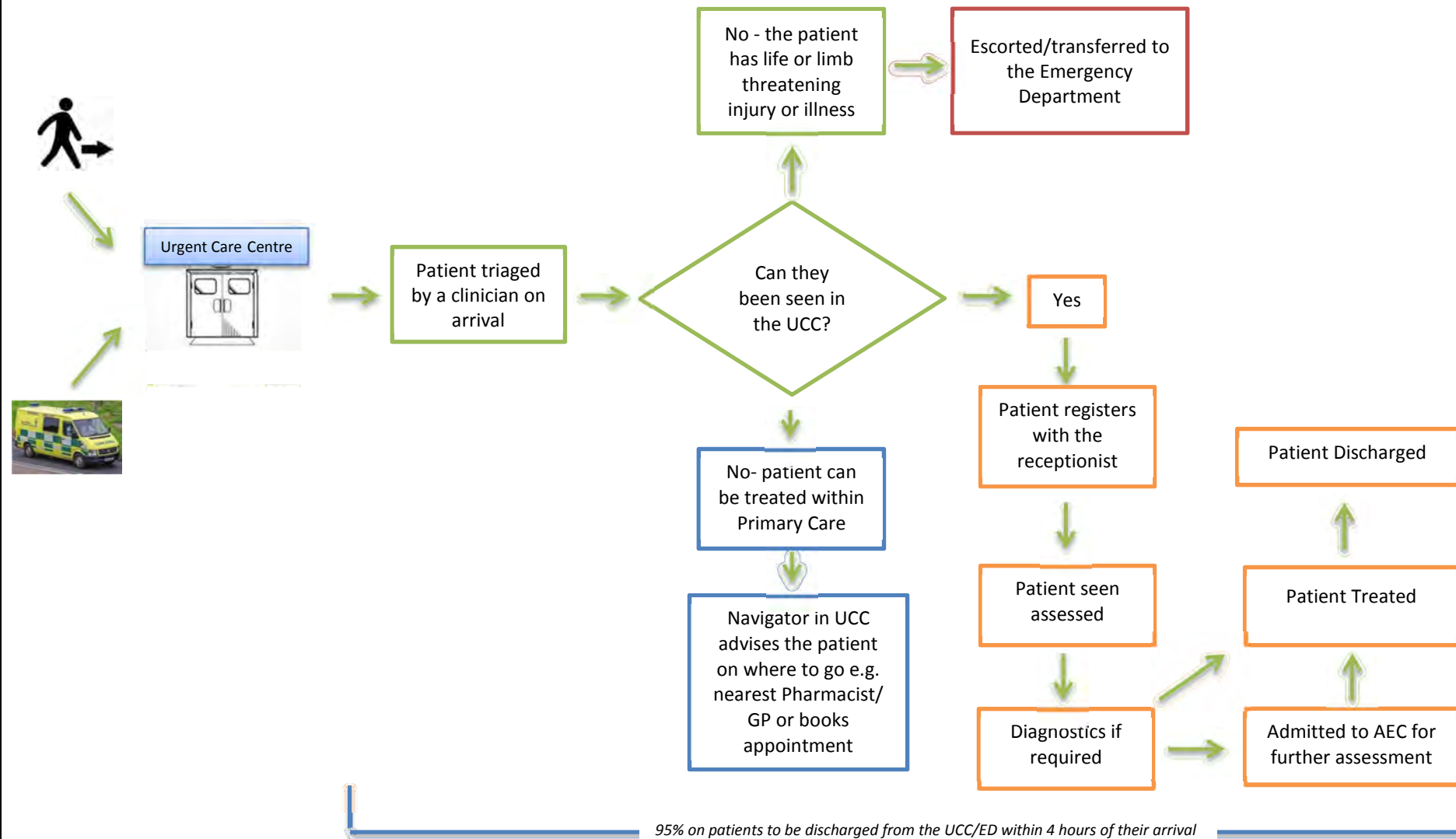
Patients would be assessed and/or treated by a member of staff with the skills to care for their condition/injury. Based on the outcome patients would be discharged

home with advice and/or follow-up care or referred for further assessment and/or treatment to the Ambulatory Emergency Care (AEC) Unit or the Children's Assessment Unit (CAU). The clinical team within the UCC, may call on the ED team or other teams within the Trust for advice/support at any time.

The UCC would be able to access a full range of diagnostics, such as x-ray, blood tests and ultra-sound within the hospital. This would help the clinicians decide what treatment is best for the patient.

Pharmacy can be accessed by patients on site in hours (9am-5pm Monday - Friday). Out of hours, stock within the UCC would be issued for patients requiring immediate medication.

Appendix a – proposed patient pathway



APPENDIX 2c – CSU Activity Modelling Process

Appendix 2c – CSU Activity Modelling Process

2.4 Activity and Capacity Modelling

The Central Midlands Commissioning Support Unit (CSU) was commissioned to support the health economy in Shropshire and Telford to develop a range of models to estimate future activity levels in the local health economy as part of the Future Fit Programme. The activity modelling was planned in sequential stages as follows:

Future Fit Phase 1b: Initial Acute and Community Hospital Activity Models – To estimate the impact of demographic change, traditional commissioner activity avoidance and provider efficiency strategies on acute and community hospital activity;

Future Fit Phase 2: Effects of new models of care – Building on the initial models, to estimate the consequences of more radical redesign proposals generated by the three clinical redesign workstreams: acute and episodic, planned care and long term conditions and frailty;

Future Fit Phase 3: Option appraisals – Building on the models above, to estimate the likely activity levels at various sites under consideration.

To date, Phases 1 and 2 of the activity modelling have been completed, and are reflected within this SOC.

The **Phase 1 modelling**, undertaken between November 2013 and May 2014, estimated the levels of activity that Shropshire and Telford acute hospitals and the Shropshire community hospitals might be expected to manage in 2018/19 taking into account demographic change (two scenarios were considered and are explored further later in the SOC), a range of commissioner activity avoidance schemes and provider efficiency schemes.

The phase 1 activity models were produced by the CSU's Strategy Unit, supported by a reference group of clinical and managerial representatives from the local CCGs and provider trusts. The reference group – the Activity and Capacity subgroup of the Future Fit Programme Board – met on 7 occasions between November 2013 and February 2014 to define the scope of the model, agree the model components and set the model's change parameters. The Phase 1 modelling approach is summarised in Figure 1:

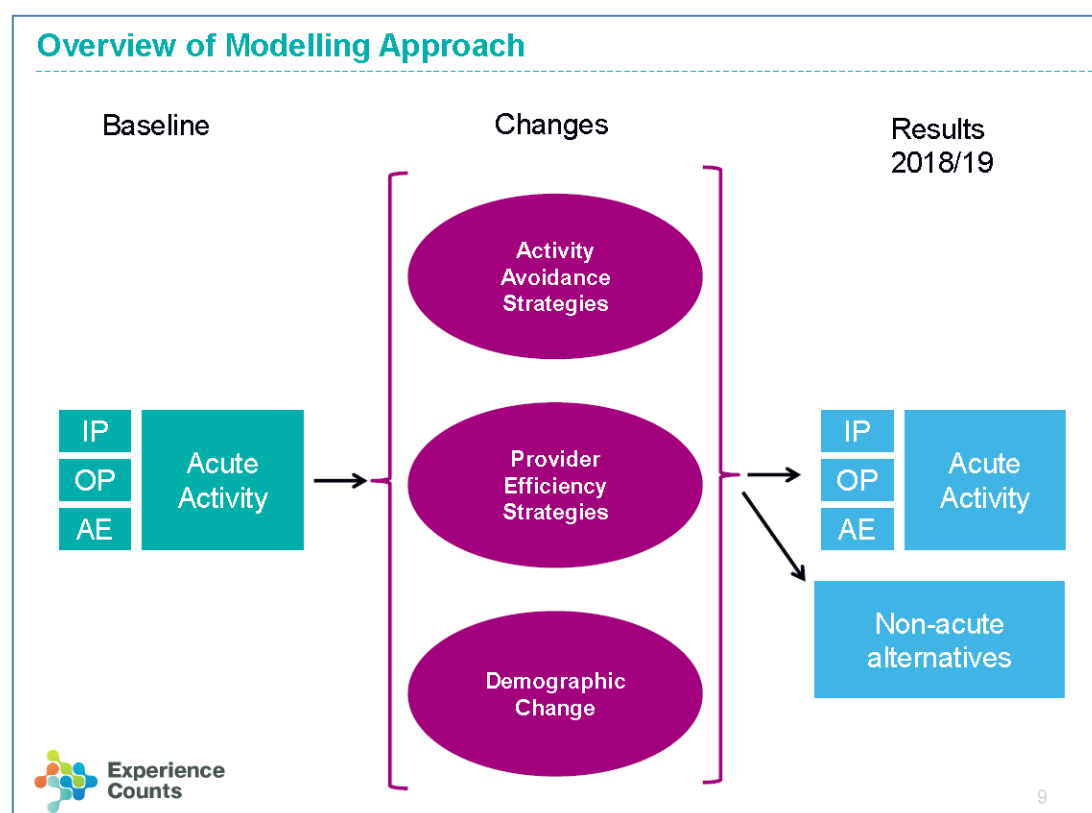


Figure 1: Phase 1 Modelling Approach

Three aspects of **demographic change** were considered;

Changes in population size were derived from the Office for National Statistics (ONS) sub-national population projections;

Changes in population age profile were also be derived from ONS sub-national population projections;

Changes in age-specific population health status may offset some of the aging population effect as the population's age-specific health status improves. The reference group considered trends in life-expectancy and disability free life expectancy as a means of making judgments about whether there will be an expansion or compression of morbidity at the end of life. The reference group requested that two scenarios were modelled:

1. No change in disability free life expectancy over the 5 year period covered by the model. In this scenario no changes are applied to age specific utilisation rates;
2. An increase in disability free life expectancy, but at half the rate than has been experienced nationally over the past decade or so. In this scenario, age specific utilisation rates are altered by 1 year over the 5 year period, such that an average 91 year old in 2018 has the health status, and associated utilisation rates of a 90 year old in the baseline year.

A range of commissioner activity avoidance strategies was analysed and considered. These subsets of acute activity commonly form the basis of commissioner Quality,

Innovation, Productivity and Prevention (QIPP) plans. The reference group reviewed materials comparing activity of these types at Shrewsbury and Telford Hospital NHS Trust with other trusts in the West Midlands, encompassing activity trends, comparative rates of change and detailed diagnostic breakdowns. Based on this contextual information and knowledge of planned or potential QIPP schemes, the group set their expectation for activity of this type to change over the next 5 years across the following activity categories:

- Conditions amenable to ambulatory care;
- Medicines-related admissions;
- Self-harm related admissions;
- Falls related admissions;
- Vaccine-preventable admissions;
- Alcohol-related admissions;
- Smoking-related admissions;
- Obesity-related admissions;
- End of life care;
- Medically unexplained symptoms;
- Zero day stays with no procedure;
- Cancelled operations;
- Procedures of limited clinical value;
- Frail elderly – step-up admissions;
- Psychiatric liaison in A&E;
- Readmissions;
- GP referral management;
- New to follow-up outpatient ratios;
- Consultant-to-consultant outpatient referrals;
- Outpatient procedures;
- Patients who left A&E without being treated;
- Low-cost A&E attendances referred to GP or discharged;
- Frequent A&E attenders.

The **provider efficiency strategies** considered are commonly the focus of provider Cost Improvement Plans (CIPs) and in both elective care and urgent care and aim to reduce the bed usage for admitted patients or the resource impact of outpatient and A&E activity. The reference group set out their expectations for changes in the following areas in the next 5 years:

Increased use of day surgery;
Enhanced recovery;
Excess bed days;
Ambulatory emergency care;
Stroke early supported discharge;
Psychiatric liaison for inpatients;
Pre-operative length of stay;
Frail elderly stepdown care;
A&E attendance duration;
A&E number of investigations.

The outputs of the first phase of activity modelling were summarised in two documents;

Modelling Future Activity Levels Shrewsbury & Telford Hospital NHS Trust, published in May 2014;

Modelling Future Community Hospital Provision in Shropshire and Telford, published in February 2014.

Figure 2: Headline changes in acute activity, resource and costs between 2012/13 and 2018/19 shows the headline changes in acute activity, resource use and costs between the baseline year 2012/13 and 2018/19, under the two demographic scenarios.

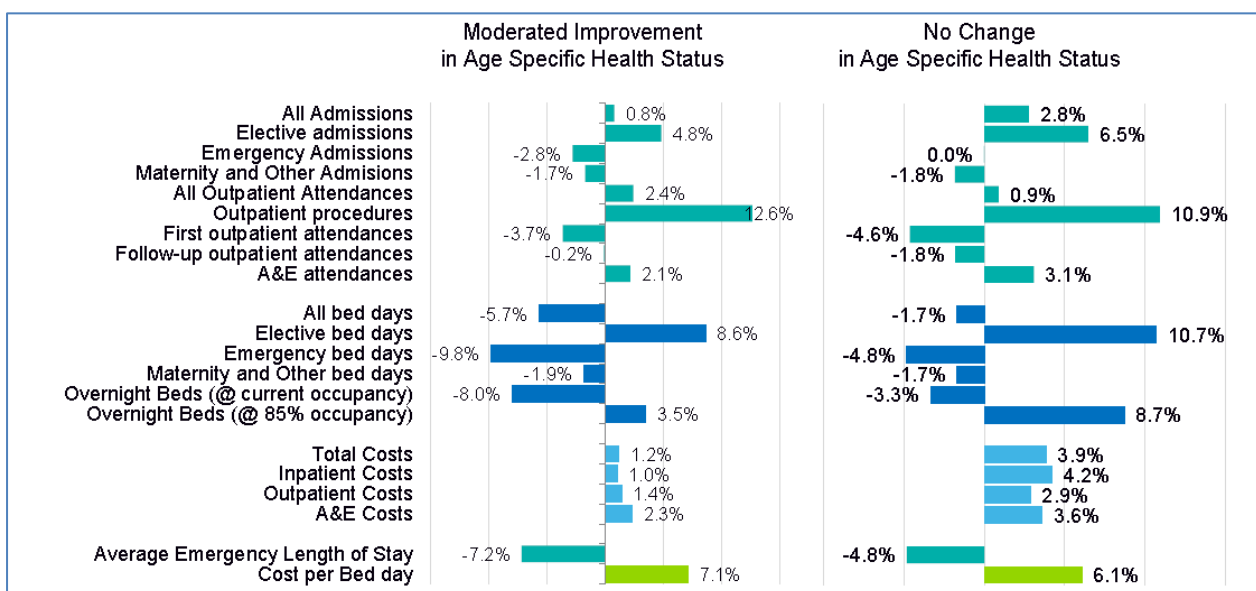


Figure 2: Headline changes in acute activity, resource and costs between 2012/13 and 2018/19

The **Phase 2 modelling** was undertaken between June and December 2014 to assess the activity consequences of the Future Fit Clinical Model. The outputs were summarised in the document:

Modelling the Activity Implications of the Future Fit Clinical Model, published in December 2014.

This Phase 2 modelling built on the initial models to estimate the consequences of more radical redesign proposals generated by the three clinical redesign workstreams: acute and episodic, planned care and long term conditions and frailty.

The **acute and episodic care model** suggests that 69% of front door urgent care activity incorporating activity current managed in ED, direct GP admissions community hospital step-up admissions, MIU and WIC attendances, Diagnostics, Assessment and Access to Rehabilitation and Treatment (DAART) assessments and GP Out of Hours (OoH) Primary Care Commissioning (PCC) contacts) could be managed at an urgent care centre, with the remaining 31% (circa 68,000 attendances) requiring the emergency centre. 75% of the activity being managed by the urgent care centres will take the form of minor injuries or ailments, 12% as ambulatory emergency care, 8% as frailty management with 5% taking other forms.

The **planned care model** suggests that 67% of the planned care activity in 2018/19 would take place in Local Planned Care Centres, 29% at a Diagnostic and Treatment Centre and 4% in an Emergency Centre. Approximately 35,000 follow-up outpatient attendances managed by the local planned care centres could take place virtually.

Long Term Conditions and Frailty: there were approximately 10,000 emergency admissions associated with either frailty or long term conditions in 2012/13. The phase 1 models suggested these admissions could fall by 8% by 2018/19 largely as a consequence of improvements in primary care management and through better use of community hospitals. The Phase 2 models suggest that a further 24% could be avoided by reducing the prevalence of the key risk factors that give rise to LTCs (e.g. smoking, cholesterol, blood pressure) and through greater integration of community and primary care.

Activity Modelling Results

The results of the activity modelling are summarised in 1. This shows the baseline and projected future activity for each activity type.

Please note that the below activity represents the activity held in the Secondary Uses Service (SUS) and does not directly represent how activity is commissioned.

Activity Type	Activity Baseline 2012/13	Projected 2018/19 Activity
Daycase admissions	46,043	47,640
Elective Inpatient admissions	6,959	7,867
Non-elective Inpatient admissions	40,942	40,111
Maternity admissions	6,666	6,613
Regular Day attenders	26,532	28,337
Outpatient attendances	266,310	258,789
Outpatient procedures	98,878	109,656
A&E / Urgent Care attendances	131,607	134,380
Walk-in Centre attendances	38,611	39,068
DAART attendances	3,525	3,719
Community Hospital Step-up assessments	476	1,588
Direct GP MAU attendances	19,044	18,631
GP Out of Hours contacts	27,314	27,754

Table 1: Activity: Baseline 2012/13 and Projected 2018/19 by activity type

A more detailed breakdown of acute inpatient activity for adults and children by bed group is shown in Table 2.

Bed Group	Activity Baseline 2012/13: Adults	Activity Baseline 2012/13: Children & Adolescents	Projected 2018/19 Activity: Adults	Projected 2018/19 Activity: Children & Adolescents
Short Stay Frailty	1,377		1,494	
Short Stay Medicine	9,774		10,303	
Short Stay Surgery	3,297		3,370	
Acute Medicine	9,227		9,853	
Oncology	496		567	
Acute Surgery	3,782		4,514	
Trauma	2,304		2,392	
Children	4	4,719	4	4,748
Maternity	5,808	181	5,779	168
Neonatology		1,987		1,888
DTC (Elective) Inpatients	2,562		2,998	

Table 2: Acute Inpatient Activity: Baseline and projected 2018/19 by bed group

Note: this table includes overnight stay activity only

The activity modelling process mapped the projected future activity into the main functional units proposed in the Future Fit clinical model. The results of this are summarised in 3.

Functional Unit	EC	DTC	Maternity	UCCs	Local Planned Care - Direct	Local Planned Care - Virtual	Avoided Long Term Conditions activity
Daycase admissions	2,727	36,483			8,430		
Elective Inpatient admissions	3,999	3,868					
Non-elective Inpatient admissions	40,111						
Maternity admissions			6,613				
Regular Day attenders					28,337		
Outpatient attendances		70,288			153,681	34,821	
Outpatient procedures	12,205	19,127			78,325		
A&E / Urgent Care attendances	53,744			79,346			1,291
Walk-in Centre attendances				39,068			
DAART attendances				3,719			
Community Hospital Step-up assessments				1,588			
Direct GP MAU attendances	14,711			3,919			
GP Out of Hours contacts				27,754			

Table 3: Activity: Projected 2018/19 by activity type and main functional unit

Setting	EC	DTC	LPC/UCC
CT scans	12,330	11,343	
MRI scans	2,164	8,118	
Diagnostic ultrasound	7,688	8,099	26,385
Plain film x-ray	48,857	9,255	60,669

Table 4: Diagnostic Imaging Activity: projected activity 2018/19 by setting

Capacity Projections

The detailed activity modelling was used to calculate the capacity requirements for the future. In doing this, the following throughput and utilisation assumptions have been made as shown in Table.

Category	Capacity Modelling Assumption
Inpatient % occupancy*	90%
Daycase turnover rate	1.5
Theatre weeks per year	52
Theatre sessions per week	10
Theatre minutes per session	210
Theatre end utilisation**	80%
Outpatient attendances per room per year: 1 st attendances	2,500
Outpatient attendances per room per year: follow-up attendances	3,500
Outpatient attendances per room per year: outpatient procedures	2,500

Table 5: Throughput and Utilisation assumptions

* 90% inpatient occupancy rate relates to the main medicine and surgery bed pools, with remaining beds calculated at 85% occupancy.

** Theatre end utilisation takes account of multiple factors, including cancelled sessions as well as non-operating time within sessions (due to gaps between patients etc), and logistical scheduling issues

The resulting capacity requirements for the future are summarised in Table 6.

Bed Group	Projected Inpatient Bed Requirements
Short Stay Acute Frailty	9
Short Stay Acute Medicine	33
Short Stay Acute Surgery	18
Acute Medicine	304
Oncology	8
Acute Surgery	79
Trauma	57
Critical Care	30
Children	41
Maternity	51
Neonatology	20
DTC Inpatients	20
Sub-Total Inpatient Beds	670
PAU (Paediatric Assessment Unit)	16
DAART	8
Stepdown sub-acute care to be re-provided in other ways	55
Total Inpatient Beds	749

Table 6: Projected Inpatient Bed Requirements 2018/19

Work has been undertaken to quantify and plan for inpatients that no longer require acute hospital care. This cohort of patients equates to those who are classified by the acute trust as “Fit to Transfer” and it has been agreed that their subsequent care does not need to take place within the Emergency Centre. The EC inpatient bed requirement in Table has accordingly been reduced by 55 beds to reflect this.

Acute bed numbers have been adjusted to reflect an expectation that the models of care developed by the programme would improve assessment and discharge processes and would substantially reduce unnecessary delays in a hospital setting. Typically there will be around 65 patients across the hospital who are deemed “fit for transfer”. These plans assume that this figure would be reduced to 10 patients, recognising it is will not be possible entirely to eliminate delays in this group of patients but setting a challenging standard for delayed transfers of care.

Area	EC	DTC	Maternity	Local Planned Care
Cath Lab	2			
Endoscopy Room	1	5		
Maternity Theatre*			2	
Procedure Room	3	5		5
Theatre*	8	9		4
Cath Lab Stage 1 Recovery	2			
Cath Lab Stage 2/3 Recovery	8			
Endoscopy Stage 1 Recovery	1	5		
Endoscopy Stage 2/3 Recovery	2	10		
Daycase Theatre Stage 1 Recovery		18		8
Daycase Theatre Stage 2 Recovery		36		16
Daycase Theatre / Procedure Room Stage 3 Recovery		30		16

Table 7: Projected Theatre and Procedure Room Requirements 2018/19

* Allowance made for NCEPOD and emergency maternity theatres

Area	EC		DTC		LPC		UCCs
	Adult	Child	Adult	Child	Adult	Child	
General OPD		2	10	3	51	7	
ENT		1			6	1	
Dental		4	5		3	1	
Eyes			11		2		
Dermatology					5		
Oncology			4		2		
Maternity					9		
GP Out of Hours							8

Table 8 Projected Outpatient Consult / Exam Room Requirements 2018/19

APPENDIX 2d – Commissioner activity avoidance strategies



Central Midlands
Commissioning Support Unit

Modelling Future Activity Levels **Shrewsbury & Telford Hospital NHS Trust**

v3

Background

Central Midlands Commissioning Support Unit were commissioned to support the health economy in Shropshire and Telford to develop a range of models to estimate future activity levels in the local health economy as part of the Future Fit Programme.

This document provides the results of the first stage of the activity modelling process in relation to acute hospital services in Shropshire and Telford.

This document should be read in conjunction with the output of a parallel piece of work to estimate future activity levels in community hospitals - *Modelling Future Community Hospital Provision in Shropshire and Telford*.

Future Fit Programme

The objectives of the FutureFit programme are;

- to agree the best model of care for excellent and sustainable acute and community hospital services that meet the needs of the urban and rural communities in Shropshire, Telford and Wrekin, and Mid Wales;
- to prepare all business cases required to support any proposed service and capital infrastructure changes;
- to secure all necessary approvals for any proposed changes; and
- to implement all agreed changes.

Stages of Activity Modelling

Modelling Stage	Scope	Future Fit Phase
Initial Acute and Community Hospital Activity Models	To estimate the impact of demographic change, traditional commissioner activity avoidance and provider efficiency strategies on acute and community hospital activity.	Phase 1b
Effects of new models of care	Building on the initial models, to estimate the consequences of more radical redesign proposals generated by the three clinical redesign workstreams; acute and episodic, planned care and long term conditions and frailty.	Phase 2
Option appraisals	Building on the models above, to estimate the likely activity levels at various sites under consideration.	Phase 3

Initial Acute Activity Modelling – Objectives

To estimate the level of in-patient, out-patient and A&E activity that Shrewsbury and Telford Hospitals Trust might be expected to conduct in 2018/19 and the number of beds that would be required to deliver this.

These inputs, methods and results of the modelling exercise should be understood and agreed by representatives of Shrewsbury and Telford Hospitals Trust and the CCGs that are responsible for commissioning the majority of the activity from the trust.

Process

The Activity and Capacity subgroup of the Future Fit Programme Board acted as the reference group for the modelling exercise.

The group met on 7 occasions between November 2013 and February 2014 to define the scope of the model, agree the model component and set the models change parameters.

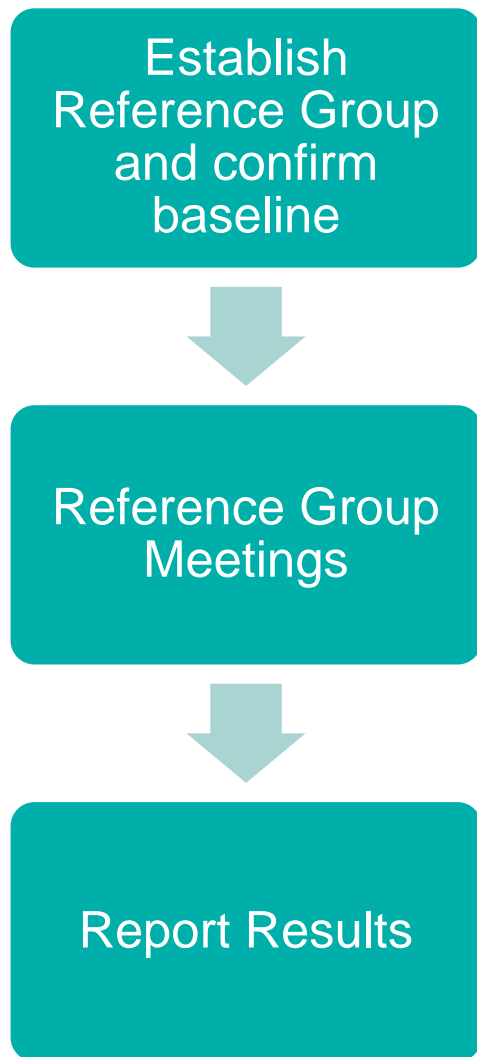
Meeting Dates

- 12th November 2013
- 26th November 2013
- 17th December 2013
- 21st January 2014
- 4th February 2014
- 25th February 2014

Reference Group Members

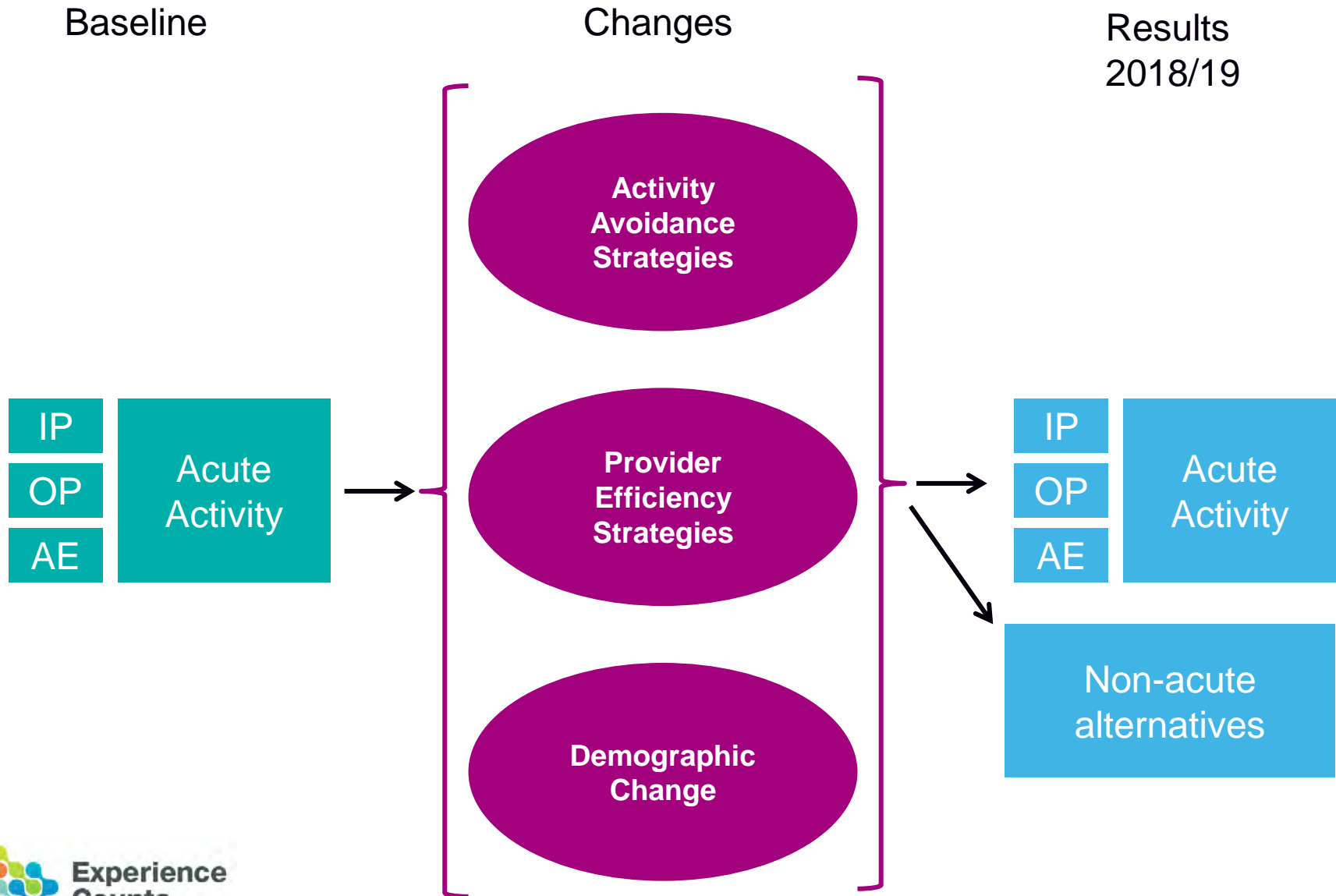
Name	Role	Organisation
Dr James Hudson*	GP Lead	Telford & Wrekin CCG
Mr Mark Cheetham*	Scheduled Care Group Medical Director	Shrewsbury & Telford Hospital NHS Trust
Julie Davies	Director of Strategy & Redesign	Shropshire CCG
Dr Bill Gowans	Vice Chair	Shropshire CCG
Donna McGrath	Chief Finance Officer	Shropshire CCG
Andrew Nash	Chief Finance Officer	Telford & Wrekin CCG
Fran Beck	Executive Lead, Commissioning	Telford & Wrekin CCG
Teresa Smith	Ward Manager, Ludlow Community Hospital	Shropshire Community Health NHS Trust
Julie Thornby	Director of Governance & Strategy	Shropshire Community Health NHS Trust
Dr Emily Peer	Associate Medical Director	Shropshire Community Health NHS Trust
Dr Subramanian Kumaran	Clinical Director	Shrewsbury & Telford Hospital NHS Trust
Dr Kevin Eardley	Unscheduled Care Group Medical Director	Shrewsbury & Telford Hospital NHS Trust
Debbie Vogler	Director of Business & Enterprise	Shrewsbury & Telford Hospital NHS Trust
Mr Andrew Tapp	Women's & Children's Care Group Medical Director	Shrewsbury & Telford Hospital NHS Trust
Jon Cook	Head of Strategic Transformation	Central Midlands CSU
Steven Wyatt	Head of Strategic Analytics	Central Midlands CSU
Jake Parsons	Strategic Analytics Senior Manager	Central Midlands CSU

Process



Workshop	Content
1	Review and confirm objectives and scope Agree conceptual model & model components
2 - 4	Set inpatient parameters
5	Set demographics parameters
6	Set outpatient parameters Set A&E parameters
7	Review initial results Adjust parameters

Overview of Modelling Approach



Demographic Change

Three aspects of demographic were considered;

- **Changes in population size** were derived from ONS sub-national population projections.
- **Changes in population age profile will also be derived from** ONS sub-national population projections. Given that age is a strong predictor of healthcare utilisation, the model will estimate the change in demand attributable to the changing population age profile.
- **Changes in age-specific population health status** may offset some of the aging population effect as the population's age-specific health status improves. The reference group considered trends in life-expectancy and disability free life expectancy as a means of making judgements about whether there will be an expansion or compression of morbidity at the end of life. The reference group requested that two scenarios were modelled;
 1. No change in disability free life expectancy over the 5 year period covered by the model. In this scenario no changes are applied to age specific utilisation rates.
 2. An increase in disability free life expectancy, but at half the rate than has been experienced nationally over the past decade or so. In this scenario, age specific utilisation rates are altered by 1 year over the 5 year period, such that an average 91 year old in 2018 has the health status, and associated utilisation rates of a 90 year old in the baseline year.

Further details can be found in appendix A.

Commissioner activity Avoidance Strategies

These subsets of acute activity commonly form the basis of commissioner QIPP plans. The reference group reviewed materials comparing activity of this types at Shropshire and Telford Hospitals NHS Trust with other trusts in the West Midlands, activity trends, comparative rates of change and detailed diagnostic breakdowns. Based on this contextual information and knowledge of planned or potential QIPP schemes, the group set their expectation for activity of this type to change over the next 5 years.

Inpatients

Ambulatory care sensitive

- Chronic
- Acute

Medicines related

Self Harm related

Falls related

Vaccine preventable

Alcohol related

- Wholly attributable
- Largely attributable
- Somewhat attributable

Smoking related

- Largely attributable
- Somewhat attributable

Obesity related

- Largely attributable
- Somewhat attributable
- Marginally attributable

End of Life Care

Medically unexplained symptoms

Zero Day LoS, no procedure, discharged alive

- Children
- Adults

Cancelled operations

Procedures of limited clinical value

- Relatively ineffective
- Close benefit / harm ratio
- Probably aesthetic
- Cost effective alternative

Frail Elderly – step up

Psychiatric liaison in A&E

Readmissions

Out-patients

GP Referral Management

New to follow-up ratios (LTC)

Consultant to Consultant referrals

OP procedures

A&E

Patient left A&E before being treated

Low cost attendances – referred to GP or discharged

Frequent Attenders

Provider Efficiency Strategies

These subsets of acute activity are commonly the focus of provider CIPs and in both elective care and urgent care and aim to reduce the bed usage for admitted patients or the resource impact of outpatient and A&E activity. The reference group set out their expectations for changes in these areas in the next 5 years.

Inpatients

Increased use of Day Surgery

- Day cases
- Outpatient procedures

Enhanced Recovery

- Colectomy
- Excision of Rectum
- Hip surgery
- Knee surgery
- Bladder surgery
- Prostate surgery
- Hysterectomy

Excess bed days

- Elective
- Emergency

Ambulatory emergency care

- Low potential
- Moderate potential
- High potential
- Greatest potential

Stroke early support discharge

Psychiatric Liaison – In-patients

Pre-Op Length of Stay

Frail elderly – Step Down

Out-patients

A&E

Attendance duration

Number of Investigation

Links between the Inpatient, Outpatient, A&E and Community Hospital Models

Four activity models were created for Future Fit Phase 1b;

- Inpatients
- Outpatients
- A&E
- Community Hospitals

Although these models were constructed separately, the following transfers of activity between the domains covered by the models have been incorporated.

1. Ordinary elective and day case admissions >> outpatient procedures
2. Where certain emergency admissions avoided then associated A&E attendances also removed
3. Emergency admissions of frail older people to acute hospitals >> step-up admissions in community hospitals
4. Reducing length of stay of frail older people in acute hospitals >> step-down admissions to community hospitals

Setting Parameters

The reference group were given the following guidance when setting change parameters in the model:

The parameters should represent the consensus view of the reference group about the extent to which activity of this type could be avoided by 2018 in comparison to the baseline year.

The parameters should be informed by the contextual information supplied at the workshop session, but also their local knowledge of current, planned or potential QIPP or CIP schemes.

Each activity subset should be considered individually.

The agreed parameters should be both challenging and realistic.

Strategy parameters should be independent of demographic change and of each other.

The reference group were asked to consider the effect of traditional commissioner and provider plans and should not consider the potential effect or more radical service changes or site changes.

Agreed Inpatient Strategy Parameters (1)

Admission Avoidance	Agreed parameter
Ambulatory care sensitive acute	Reduce 0 and 1 day LOS admissions for J03 and J06 at Telford by 20%
Ambulatory care sensitive Chronic	No change
Medicines related - Diuretics	No change
Medicines related - benzodiazepine	No change
Medicines related - Anti diabetics	No change
Medicines related - NSAIDS	No change
Self Harm related	No change
Falls related	20% reduction
Vaccine preventable	Remove 15% of total including all 0 LOS episodes
Alcohol related wholly	Switch proportions of day cases and inpatients for F10 and K70
Alcohol related somewhat	Remove 20% of 65+ non elective spells. Convert 50% of these to elective spells
Alcohol related marginal	Apply long term trend
Smoking related largely	Reduce to 0.5% across both sites
Smoking related somewhat	15-20% reduction of short stay R07 episodes
Obesity related -wholly	15% increase
Obesity related somewhat	Base parameter on age specific increases in obesity from foresight report
Obesity related marginal	Base parameter on age specific increases in obesity from foresight report
End of Life Care <2days	20% reduction
End of Life Care 3-14 days	20% reduction
End of Life Care 14+	No change
Medically unexplained symptoms	No change
Zero Day LoS, no procedure, discharged alive - Adults	Defer
Zero Day LoS, no procedure, discharged alive - Children	Defer
Cancelled operations	Maintain at 2.2% until 18/19 when 1% achieved
Procedures of limited clinical value – relatively ineffective	Reduce to 0.6%
Procedures of limited clinical value - potentially Cosmetic	No change
Procedures of limited clinical value close benefit-harm	No change
Procedures of limited clinical value cost effective alternatives	No change

Agreed Inpatient Strategy Parameters (1)

Admission Avoidance	Agreed parameter
Community Hospital Step-Up (frail elderly group 1)	80% reduction at Royal Shrewsbury
Community Hospital Step-Up (frail elderly group 1)	45.5% reduction at Royal Shrewsbury
Psychiatric Liaison - A&E	No change
Readmissions	No change
Length of Stay Reduction	Agreed parameter
BADS mainly Day Case	Move 50% of Q17 DCs at Shrewsbury to OP
BADS mainly OP procedure	No change
BADS mainly Day Case or OP procedure	Move 60 Q18 cases at Shrewsbury from DC to OP
BADS Occasionally Day Case	Increase J18 cases to achieve 80% DC Increase B27 cases to achieve 15% DC Increase M65 cases to achieve 20% DC Increase P23 cases to achieve 12.5% DC
Enhanced recovery - Hips	Down to 5.5 days
Enhanced recovery - Colectomy	Down to 5 days
Enhanced recovery - Excision of rectum	Down to 6.7 days
Enhanced recovery - Knees	Down to 5.2 days
Enhanced recovery - Bladder	No change
Enhanced recovery - Prostate	Down to 2.3 days
Enhanced recovery - Hysterectomy	Down to 2.5 days
Elective Excess bed days	No change
Emergency Excess bed days	No change
Psychiatric Liaison - Inpatient	No change
Stroke Early Supported Discharge	Down to 7 days
Ambulatory emergency care - Low	Achieve Mid Staffs levels 9% 0LOS
Ambulatory emergency care - Moderate	Achieve WAH level 39% 0LOS
Ambulatory emergency care - High	40% 0LOS
Ambulatory emergency care - Very High	Achieve mid staffs levels 27% 0LOS
Pre op LOS	Bring down Telford to 0.9
Community Hospital Step-down	63.8% reduction for 16.9% of cases

Agreed Outpatient and A&E Parameters

A&E	Agreed parameter
Patient attending lives close to A&E	No change
Patient left A&E before being treated	No change
Low cost attendances – referred to GP or discharged	Defer
Frequent Attendees	Not set (additional information required)
Number of Investigations	Remove investigations of the following types to achieve waiting time ambition – haematology, clotting studies, biochemistry, x-ray (plain film)
Length of time from being seen to departure	Achieve 97% < 4 hrs
Emergency ambulance conveyances	Not set

outpatients	Agreed parameter
GP Referred 1st Attendances – Trauma & Orthopaedics	Achieve average
GP Referred 1st Attendances – Cardiology	Telford down to regional average, RSH down to 0.5
GP Referred 1st Attendances – Ophthalmology	Defer
GP Referred 1st Attendances – All Other Specialties (children)	Achieve average
GP Referred 1st Attendances – All Other Medical Specialties	Achieve average plus rate of change
GP Referred 1st Attendances – All Other Surgical Specialties	Not set (additional information required)
New to Follow-Up Ratio – Medical Specialties	Move to 2.5
New to Follow-Up Ratio – Surgical Specialties (General)	No change
New to Follow-Up Ratio – Surgical Specialties (Ophthalmology)	No change
New to Follow-Up Ratio – Surgical Specialties (T&O)	Telford down to regional average
Consultant to Consultant Referrals	Achieve regional average

Links between the Inpatient and A&E Models

The reference group considered a wide range of opportunities to reduce emergency admissions and set parameters to reflect extent to which these opportunities could be realised by 2018/19.

In some cases reductions in emergency admissions could be delivered by changes in decision criteria in A&E, in others cases, admissions could be avoided through upstream interventions or by community based pathway redesign. In these latter cases A&E attendances associated with emergency admission were removed from the A&E model in 2018/19.

Avoided emergency admissions where the associated A&E attendance also assumed to be avoided;

- Ambulatory Care Sensitive (Acute)
- End of Life Care
- Smoking (Wholly and somewhat attributable)
- Alcohol (All those marginally attributable and all aged 65+ in somewhat attributable)
- Vaccine related
- Falls related

Links between the Inpatient and Outpatient Models

The reference group reviewed elective activity which was delivered as ordinary or day case admissions in the baseline year and agreed parameters to reflect the opportunity to manage some of these cases as outpatient procedures.

The cases affected by these assumptions were removed from the inpatient activity model in 2018/19.

HRG specific multipliers were applied to the outpatient activity model to uplift the outpatient procedure activity accordingly.

Links between the Acute and Community Hospital Models

In 2013, the health economy in Shropshire and Telford commissioned the Oak Group to conduct a utilisation audit of a sample of patients in the 2 acute and 4 community hospitals in Shropshire and Telford. The results of this audit were used by the reference group to estimate the level of activity that might be transferred from the acute hospitals to community hospitals. Two activity transfers were considered.

These changes were incorporated into both the acute and community hospital models.

Step-up - avoiding acute admissions of frail older people by admitting these patients instead to community hospitals, where bedded intermediate care, rather than acute care, was required at the point of admission.

Step-down – reducing the length of stay of frail older people in acute hospitals by discharging these patients promptly to community hospitals where the acute phase of their care is complete but the patient required a bedded intermediate care service.

RTT Adjustments

The reference group requested elective and outpatient activity in the baseline year be adjusted to reflect that fact that activity levels in the baseline year were not those that were regarded as appropriate to keep pace recurrently with new referrals into RTT pathways.

In some specialties, activity in the baseline year was thought to be inadequate to keep pace with new referrals, leading to an increase in waiting lists and times.

In other specialties, waiting list initiatives in the baseline year meant that elective and outpatient activity was higher than would be required to keep pace with new referrals.

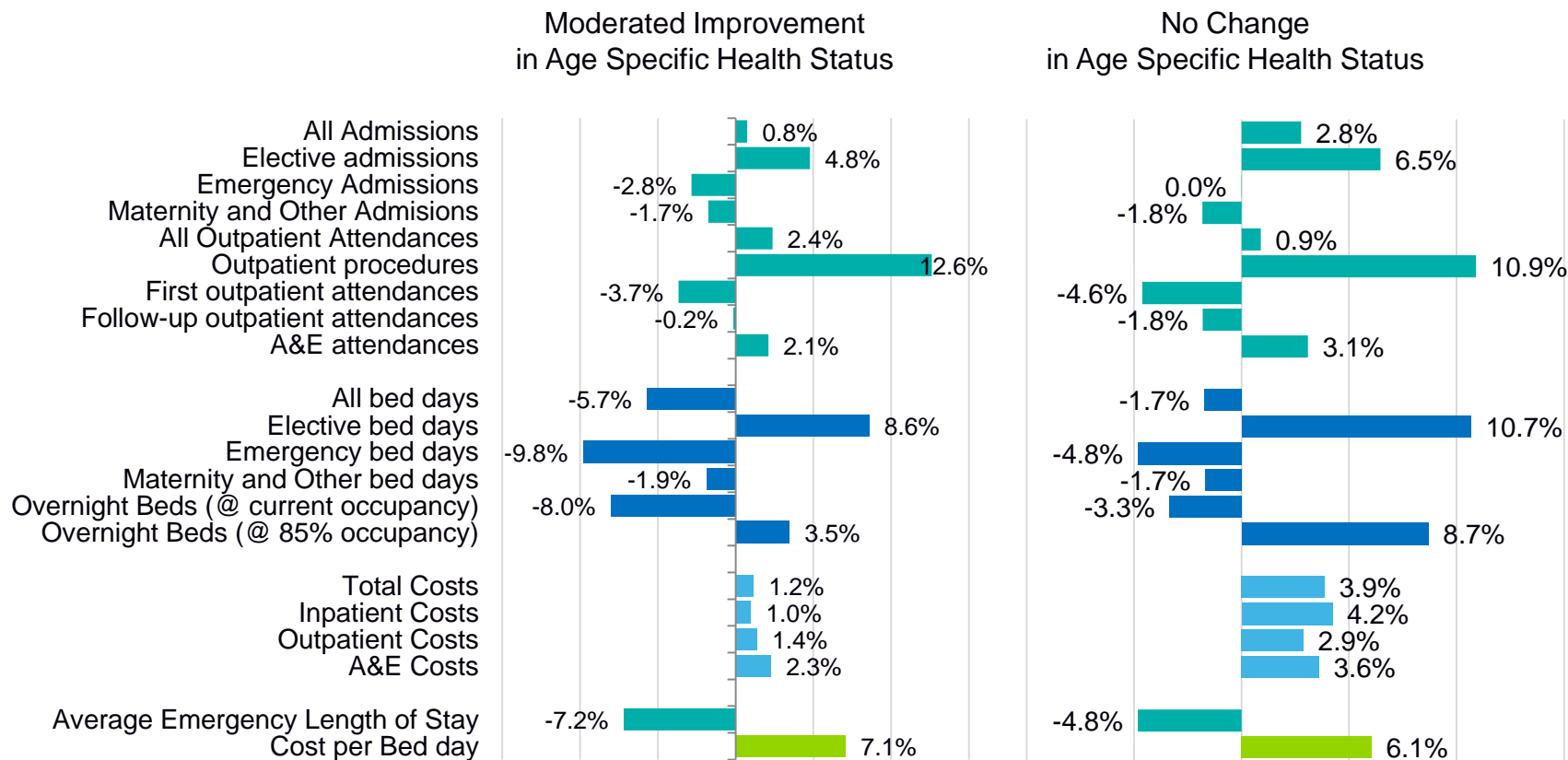
Specialty level adjustments were made to reset elective and outpatient activity levels in the baseline year to those delivered in 2013/14. Activity levels in 2013/14 were thought to reflect recurrent level of demand. (See appendix B for more information).

Non-recurrent activity increases may be required to achieve RTT targets in the next few years, but these are unlikely to persist until 2018/19.

Summary Model Results

Summary Model Results

The following chart shows the headline changes in activity, resource use and costs between the baseline year 2012/13 and 2018/19, under the two demographic scenarios.



Detailed analysis of these model results for these two scenarios are provided in the following sections.

Unless otherwise stated, the following conventions have been followed when compiling the model results,

- activity in 2018/19 has been costed at 2012/13 prices
- bed days include both full and partial beds days – not just overnight stays

APPENDIX 2e – Schedules of Accommodation

SaTH Sustainable Services: Indicative Space Standards

Critical Care Unit - 30 beds

Activity space	HBN size	Quantity	Area	Subtotals	Notes
Entrance & reception					
Reception, 2 positions	9.50	1	9.50		
Waiting Area: 30 places	46.00	1	46.00		
Beverage Bay - without HRB	5.00	1	5.00		
Toilet - Accessible	4.50	2	9.00		
<i>Sub Total</i>				<i>69.50</i>	
Clinical Spaces					
Bedroom & sanitary facilities					
Staff Base (8) with Clean Supplies	30.00	1	30.00		
Isolation Room	26.00	6	156.00		ensuites to be included in OBC planning
Gowning Lobby	6.00	6	36.00		
4 Bed Bay	143.00	6	858.00		
Interview Counselling	9.00	3	27.00		
Assisted Shower / WC / WHB	8.00	2	16.00		
<i>Sub Total</i>				<i>1,123.00</i>	
Support facilities					
Clean Utility with controlled drugs	14.00	3	42.00		
Ice Making Machine Bay	1.50	1	1.50		
Near Patient Testing Room	8.00	2	16.00		
Dirty Utility with macerator	12.00	2	24.00		
Beverage Room / Pantry	12.00	1	12.00		
Store	32.00	4	128.00		bulky consumables, medical gas cylinders, linen, furniture
Store - clinical equipment	24.00	2	48.00		
Decontamination Room - clinical equipment	16.00	1	16.00		
Blood Refrigerator Bay	2.00	1	2.00		
Equipment Bay	2.00	4	8.00		imaging equipment
Equipment Bay	2.00	4	8.00		resus trolley
Domestic Services Room	7.00	2	14.00		
Disposal hold	12.00	2	24.00		
<i>Sub Total</i>				<i>343.50</i>	
Relatives Accommodation					
Relatives Overnight Stay	17.00	1	17.00		
Ensuite - Shower/WC/WHB	4.50	1	4.50		
Sitting Room (7 places)	12.00	1	12.00		

SaTH Sustainable Services: Indicative Space Standards

<i>Sub Total</i>			33.50
Staff Spaces			
Office - Single person	8.00	3	24.00
Office - open plan - Allocated	6.00	29	174.00
Meeting Room (7 places)	16.00	1	16.00
Seminar room 32 place	45.00	1	45.00
Staff Rest (30 place)	30.00	1	30.00
Staff Changing / uniform issue (100 Lockers)	36.50	2	73.00
Staff - Shower	2.50	2	5.00
Staff WC	2.00	8	16.00
			0.00
<i>Sub Total</i>			383.00
Net internal area (NIA)			1,952.50

Note: Circulation & Engineering Allowance to be added.

SaTH Sustainable Services: Indicative Space Standards

Inpatient Ward - 32 Beds, 50% Single Rooms

Activity space	HBN size	Quantity	Area	Subtotals	Notes
Entrance & reception					
Reception (size based on number of places)	5.5	2	11		
Waiting area (size based upon number of places)	1.7	8	13.6		
WC: semi-ambulant	2.5	2	5		
WC: independent wheelchair	4.5	1	4.5		
<i>Sub Total</i>				<i>34.1</i>	
Clinical Spaces					
Bedroom & sanitary facilities					
Single-bed room: adult	19	16	304		P21+ = 23.3 - 24.9m2 (including ensuite)
Shower room: en-suite: chamfered	4.5	16	72		
Multi-bed room: adult: 4 beds	64	4	256		Includes clinical support areas. Could be reduced to 61m2. P21+ = 58.4 - 61.3m2
WC: semi-ambulant	2	3	6		P21+ = 1.9m2
Shower room: assisted	6.5	3	19.5		P21+ = 6.3m2
Bathroom: assisted	15	1	15		
<i>Sub Total</i>				<i>672.5</i>	
Support facilities					
Office/meeting room: 10 places (including 2 workstations)	16	1	16		
Touchdown base	2	8	16		
Treatment room: double sided couch access	16	1	16		
Interview room: 4 places (including 1 wheelchair place)	8	1	8		
Breakout space: patients	6	4	24		
Pantry: ward	12	1	12		option to use regen kitchen
Parking bay: resuscitation equipment	2	1	2		
Parking bay: food trolley	2	1	2		
Parking bay: mobile hoist	2	1	2		
Ward storage allowance	0.75	32	24		0.75 sqm per bed, includes clinical equipment, general store, and linen
Medicine store/preparation room	8	1	8		Alternatively provide 16m2 clean utility in lieu of medicine store & clean supply
Clean supply room allowance (0.34m2 per bed)	0.34	32	10.88		
Dirty utility room: bed pan processing	12	2	24		
Disposal hold allowance (.25m2 per bed)	0.25	32	8		
Cleaners' room	8	1	8		
<i>Sub Total</i>				<i>180.88</i>	

SaTH Sustainable Services: Indicative Space Standards

Staff Spaces				
Staff support				
Locker bay: 12 small lockers	1.5	3	4.5	
WC: ambulant	2	2	4	
Staff rest & mini-kitchen (size based on number of seats)	1.8	3	5.4	
Seminar room: 24 places (including 1 wheelchair place)	32	1	32	to be shared between 2 wards
Communal changing area (size based on number of lockers)	1.4	18	25.2	
	<i>Sub Total</i>		<i>71.1</i>	
Net internal area (NIA)			958.58	

Note: Circulation & Engineering Allowance to be added.

SaTH Sustainable Services: Indicative Space Standards

Emergency & Urgent Care (Emergency & Acute Site)

Activity space	HBN size	Quantity	Area	Subtotals	Notes
Emergency Department					
Ambulance Entrance Facilities					Based on SHP work with COI
Main entrance draught lobby	11.0	1	11		
Store: ambulance equipment	6.0	1	6		
Decontamination room	20.0	1	20		
Store: major incident equipment	6.0	1	6		
Parking bay: 4 accident trolleys & 4 wheelchairs	16.0	1	16		
Ambulance Cleaning Bay	8.0	1	8		
<i>Sub Total</i>				67	
Clinical Zone					
Resuscitation: 8 place	26	8	208		Based on HBN Critical Care room
Staff Base: 4 place (within resus room)	22	1	22		5.5m2 per member of staff
Rapid Assessment & Treatment	10	3	30		cubicles. No HBN equivalent
Majors	16	16	256		allowed for rooms based on HBN treatment room. Could be cubicles instead. Capacity to be reviewed as part of OBC.
Paediatric Majors	16	2	32		
Staff Base: 8 place	44	2	88		5.5m2 per member of staff
<i>Sub Total</i>				636	
Support facilities					
Near patient testing room	8.5	2	17		
Parking bay: mobile X-ray unit	2.0	2	4		
Parking bay: ultrasound unit	1.0	2	2		
Clean Utility	16	3	48		
Dirty Utility	12	2	24		
Linen Store	16	1	16		
Storage Allowance	78	1	78		Assumes 3m2 per patient room
Disposal Hold: 1700 litres	8	1	8		
Cleaners' room	8	2	16		
Store: ready to use medical gas cylinders	9.0	1	9		
Service room: equipment	21.0	1	21		
WC: Assisted	7.5	1	7.5		Assumes most patients supplied with bed pan
<i>Sub Total</i>				250.5	

SaTH Sustainable Services: Indicative Space Standards

Distressed & Bereaved Facilities				
Sitting room with beverage bay: 8 persons	16.0	2	32	
WC & handwash: accessible, wheelchair	4.5	2	9	
Body viewing/bier room	10.0	2	20	need to be assessed as part of OBC as may not be required
<i>Sub Total</i>			<i>61</i>	
Staff Spaces				
Staff support				
Office: 1 person	8	1	8	
Locker bay: 12 small lockers	1.5	5	7.5	
WC: ambulant	2	8	16	
Staff rest & mini-kitchen (size based on number of seats)	1.9	50	95	
Communal changing area (size based on number of lockers)	1.4	60	84	
<i>Sub Total</i>			<i>210.5</i>	
Net internal area (NIA)			1225	

Note: Circulation & Engineering Allowance to be added.

Activity space	HBN size	Quantity	Area	Subtotals	Notes
Urgent Care Department (Emergency & Acute Site)					
Entrance & Public Facilities					
Main entrance draught lobby	11.0	1	11		
Parking bay: 8 wheelchairs	6.0	1	6		
Reception: 3 staff	5.5	3	16.5		
Waiting area (size based on number of places)	2.25	25	56.25		
Waiting play area: 15 children	25.0	1	25		
Refreshment: drinking water dispenser	0.5	1	0.5		
Refreshment: vending machine	3.0	1	3		
WC: semi-ambulant	2.5	4	10		
WC & handwash: accessible, wheelchair	4.5	2	9		
Nappy changing room	5.0	1	5		
Infant feeding room	6.0	1	6		
<i>Sub Total</i>				<i>148.25</i>	
Clinical Zone					
Triage Room	12	2	24		Based on HBN Consulting Room

SaTH Sustainable Services: Indicative Space Standards

Minors: See & Treat	12	6	72	Based on HBN single sided consult/exam room. Could be cubicles
Paeds Minors	12	2	24	Based on HBN single sided consult/exam room. Could be cubicles
Staff Base: 3 place	16.5	2	33	5.5m2 per member of staff
Eye Room	12	1	12	Based on HBN Outpatients ophthalmology room
Plaster Room	16	1	16	
Plaster Store	3	1	3	
Isolation Room	16	1	16	Based on HBN double sided consult/exam room.
Isolation Lobby	5	1	5	
Therapy Assessment Room	16	1	16	Based on HBN double sided consult/exam room.
Equipment Store	12	1	12	
<i>Sub Total</i>			<i>233</i>	
Support facilities				
WC & handwash: accessible, wheelchair	4.5	1	4.5	
Near patient testing room	8.5	1	8.5	
Parking bay: mobile X-ray unit	2.0	1	2	
Parking bay: ultrasound unit	1.0	1	1	
Clean Utility	16	1	16	
Dirty Utility	12	1	12	
Linen Store	6	1	6	
Storage Allowance	39	1	39	Assumes 3m2 per patient room
Disposal Hold: 1700 litres	8	1	8	
Cleaners' room	8	1	8	
Store: ready to use medical gas cylinders	9.0	1	9	
<i>Sub Total</i>			<i>114</i>	
Social care & distressed/disturbed persons				
Interview room: 7 places (including 1 wheelchair place)	12.0	1	12	
WC & handwash: assisted	5.5	1	5.5	
De-escalation room	18.0	1	18	
<i>Sub Total</i>			<i>35.5</i>	
Staff Spaces				
Staff support				
Office: 1 person	8	1	8	
Locker bay: 12 small lockers	1.5	1	1.5	
WC: ambulant	2	2	4	
Staff rest & mini-kitchen (size based on number of seats)	1.9	10	19	

SaTH Sustainable Services: Indicative Space Standards

Communal changing area (size based on number of lockers)	1.4	12	16.8	
<i>Sub Total</i>			49.3	
Net internal area (NIA)			580.05	

Note: Circulation & Engineering Allowance to be added.

Activity space	HBN size	Quantity	Area	Subtotals	Notes
Emergency & Urgent Care (Emergency & Acute Site): Shared					
Staff Support					
Admin, Training & Education					
Office: 1 person	8	1	8		
Office: Open Plan	6	18	108		
Seminar room: 24 places (including 1 wheelchair place)	32	1	32		
Library & Study Room: 5 Persons	20	1	20		
<i>Sub Total</i>				168	
Net internal area (NIA)				168	

SaTH Sustainable Services: Indicative Space Standards

Acute Emergency Care Unit (Emergency & Acute Site)

Activity space	HBN size	Quantity	Area	Subtotals	Notes
Acute Emergency Care Unit (Emergency & Acute Site): Option 4, 17 trolleys					
Entrance & Public Facilities					
Reception: 2 staff	5.5	2	11		
Waiting area (size based on number of places)	2.25	5	11.25		
WC: semi-ambulant	2.5	2	5		
WC & handwash: accessible, wheelchair	4.5	1	4.5		
<i>Sub Total</i>				31.75	
Clinical Zone					
Trollied Area	12	17	204		No HBN Equivalent
Staff Base: 3 place	16.5	3	49.5		5.5m2 per member of staff
<i>Sub Total</i>				253.5	
Support facilities					
WC & handwash: accessible, wheelchair	4.5	2	9		
Parking bay: mobile X-ray unit	2.0	1	2		
Parking bay: ultrasound unit	1.0	1	1		
Clean Utility	16	1	16		
Dirty Utility	12	1	12		
Linen Store	6	1	6		
Disposal Hold: 1700 litres	8	1	8		
Cleaners' room	8	1	8		
<i>Sub Total</i>				62	
Staff Spaces					
Staff support					
Office: 1 person	8	1	8		
Locker bay: 12 small lockers	1.5	1	1.5		
WC: ambulant	2	2	4		
Staff rest & mini-kitchen (size based on number of seats)	1.9	10	19		
Communal changing area (size based on number of lockers)	1.4	12	16.8		
<i>Sub Total</i>				49.3	
Net internal area (NIA)				396.55	

SaTH Sustainable Services: Indicative Space Standards

Urgent Care (Acute & Planned Site)

Activity space	HBN size	Quantity	Area	Subtotals	Notes
Urgent Care Department (Acute & Planned Site)					
Entrance & Public Facilities					
Main entrance draught lobby	11.0	1	11		
Parking bay: 8 wheelchairs	6.0	1	6		
Reception: 3 staff	5.5	3	16.5		
Waiting area (size based on number of places)	2.25	25	56.25		
Waiting play area: 15 children	25.0	1	25		
Refreshment: drinking water dispenser	0.5	1	0.5		
Refreshment: vending machine	3.0	1	3		
WC: semi-ambulant	2.5	4	10		
WC & handwash: accessible, wheelchair	4.5	2	9		
Nappy changing room	5.0	1	5		
Infant feeding room	6.0	1	6		
<i>Sub Total</i>				<i>148.25</i>	
Clinical Zone					
Triage Room	12	1	12		Based on HBN Consulting Room. Capacity to be reviewed as part of OBC as there may be a need for 2 triage rooms.
Minors: See & Treat	12	6	72		Based on HBN single sided consult/exam room. Could be cubicles
Paeds Minors	12	2	24		Based on HBN single sided consult/exam room. Could be cubicles
Staff Base: 3 place	16.5	2	33		5.5m2 per member of staff
Eye Room	12	1	12		Based on HBN Outpatients ophthalmology room
Plaster Room	16	1	16		
Plaster Store	3	1	3		
Isolation Room	16	1	16		Based on HBN double sided consult/exam room.
Isolation Lobby	5	1	5		
Therapy Assessment Room	16	1	16		Based on HBN double sided consult/exam room.
Equipment Store	12	1	12		
<i>Sub Total</i>				<i>221</i>	
Support facilities					
WC & handwash: accessible, wheelchair	4.5	1	4.5		

SaTH Sustainable Services: Indicative Space Standards

Near patient testing room	8.5	1	8.5	
Parking bay: mobile X-ray unit	2.0	1	2	
Parking bay: ultrasound unit	1.0	1	1	
Clean Utility	16	1	16	
Dirty Utility	12	1	12	
Linen Store	6	1	6	
Storage Allowance	39	1	39	Assumes 3m2 per patient room
Disposal Hold: 1700 litres	8	1	8	
Cleaners' room	8	1	8	
Store: ready to use medical gas cylinders	9.0	1	9	
<i>Sub Total</i>			<i>114</i>	
Social care & distressed/disturbed persons				
Interview room: 7 places (including 1 wheelchair place)	12.0	1	12	
WC & handwash: assisted	5.5	1	5.5	
De-escalation room	18.0	1	18	
<i>Sub Total</i>			<i>35.5</i>	
Staff Spaces				
Staff support				
Office: 1 person	8	1	8	
Locker bay: 12 small lockers	1.5	1	1.5	
WC: ambulant	2	2	4	
Staff rest & mini-kitchen (size based on number of seats)	1.9	10	19	
Communal changing area (size based on number of lockers)	1.4	12	16.8	
<i>Sub Total</i>			<i>49.3</i>	
Net internal area (NIA)			568.05	

Note: Circulation & Engineering Allowance to be added.

Activity space	HBN size	Quantity	Area	Subtotals	Notes
Urgent Care (Acute & Planned Site): Shared Staff Support					
Admin, Training & Education					
Office: 1 person	8	1	8		
Office: Open Plan	6	18	108		
Seminar room: 24 places (including 1 wheelchair place)	32	1	32		
Library & Study Room: 5 Persons	20	1	20		
<i>Sub Total</i>				<i>168</i>	

SaTH Sustainable Services: Indicative Space Standards

Net internal area (NIA)	168
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Note: Circulation & Engineering Allowance to be added.

SaTH Sustainable Services: Indicative Space Standards

Acute Emergency Care Unit (Acute & Planned Site)

Activity space	HBN size	Quantity	Area	Subtotals	Notes
Acute Emergency Care Unit (Acute & Planned Site): Option 4, 13 trolleys					
Entrance & Public Facilities					
Reception: 2 staff	5.5	2	11		
Waiting area (size based on number of places)	2.25	5	11.25		
WC: semi-ambulant	2.5	2	5		
WC & handwash: accessible, wheelchair	5.5	1	5.5		
<i>Sub Total</i>				32.75	
Clinical Zone					
Trollied Area	12	13	156		No HBN Equivalent
Staff Base: 3 place	16.5	2	33		5.5m2 per member of staff
<i>Sub Total</i>				189	
Support facilities					
WC & handwash: accessible, wheelchair	5.5	2	11		
Parking bay: mobile X-ray unit	2.0	1	2		
Parking bay: ultrasound unit	1.0	1	1		
Clean Utility	16	1	16		
Dirty Utility	12	1	12		
Linen Store	6	1	6		
Disposal Hold: 1700 litres	8	1	8		
Cleaners' room	8	1	8		
<i>Sub Total</i>				64	
Staff Spaces					
Staff support					
Office: 1 person	8	1	8		
Locker bay: 12 small lockers	1.5	1	1.5		
WC: ambulant	2	2	4		
Staff rest & mini-kitchen (size based on number of seats)	1.9	8	15.2		
Communal changing area (size based on number of lockers)	1.4	12	16.8		
<i>Sub Total</i>				45.5	
Net internal area (NIA)				331.25	

Note: Circulation & Engineering Allowance to be added.

SaTH Sustainable Services: Indicative Space Standards

Exemplar 2 Theatre Suite

capacity is under review as part of the OBC as
additional theatres are unlikely to be required

Activity space	HBN size	Quantity	Area	Subtotals	Notes
Entrance & reception					
Reception (size based on number of places)	5.5	2	11		
Waiting area (size based upon number of places)	1.7	8	13.6		
WC: semi-ambulant	2.5	2	5		
WC: independent wheelchair	4.5	1	4.5		
<i>Sub Total</i>				<i>34.1</i>	
Clinical Spaces					
Operating Theatre Suite Facilities					
Anaesthetic Room	19	2	38		
Scrub-Up & Gowning Room	11	2	22		Option to use shared scrub facility at 16m2
Preparation Room	12	2	24		
Operating Theatre	55	2	110		
Exit parking bay: 1 bed / trolley	12	2	24		
Store: Theatre equipment	1	2	2		
Dirty Utility	12	2	24		
<i>Sub Total</i>				<i>244</i>	
Recovery / PACU					
Recovery Bay - Post Anaesthetic: 1 place	13.5	8	108		4 per theatre*
Staff Base: 2 Staff	11	1	11		
Clean Utility with blood bank	17	1	17		
Dirty Utility: bedpan disposal & urine test	12	1	12		
WC: independent wheelchair	4.5	1	4.5		
Store: Linen	6	1	6		
Parking Bay: resuscitation trolley	1	1	1		
<i>Sub Total</i>				<i>159.5</i>	
Net internal area (NIA)				437.6	

Note: Circulation & Engineering Allowance to be added.

Note: Assumes shared support & staff facilities

Note: Assumes access to shared discharge lounge

* Assumes 4 x Stage 1 recovery per theatre, with no dedicated Stage 2 Recovery - on assumption that inpatients will go back to their wards for Stage 2; daycases recover in DSU

APPENDIX 3a – Draft balance of services

APPENDIX 3a – Draft Balance of Services

Potential Solution - Essential Service Change

The services that are required to be on the emergency site to ensure that services are clinically safe and resolve workforce issues

Emergency and Acute: 59 %

Both sites

Acute and Planned: 41 %

Emergency Department
Critical Care Unit (HDU, ITU)

Inpatients
(427 inpatient beds)
Services listed in 'both sites' box
+
W&C
Children's ward
Maternity wards
Neonates (not in IP beds)
Gynaecology
Acute Stroke Unit
Cardiology
Coronary Care Unit (CCU)
Acute Elderly Care
Urology

(Hot site provision for on-going discussion)

Urgent Care Centre
Children's Assessment Unit (CAU)
Outpatients
Diagnostics
Day Case Renal Unit
Endoscopy
Ambulatory Emergency Care (AEC)

Inpatients
Clinical Decision Unit (CDU)
Short-Stay
Endoscopy
Colorectal Surgery
Orthopaedics
General Surgery
Head & Neck
General Medicine/ Nephrology
Gastroenterology
Respiratory Medicine
Endocrinology
Oncology & Haematology
Planned Discharge
Day Case Cancer Services (to remain as current provision on each site)

(Both site provision for on-going discussion)

DTC
General Surgery
Colorectal
Upper GI
General Medicine
Oral Surgery
ENT
Orthopaedics
Plastic surgery

Inpatients
(302 inpatient beds)
Services listed in 'both sites' box
+
Breast Service
Rehabilitation

(Warm site provision for on-going discussion)

N.B % split is based on IP bed base and excludes Critical Care and Neonatology

APPENDIX 3b – Option identification process

SaTH Sustainable Service Programme: Solution Definition and Evaluation

1 SOLUTION DEFINITION

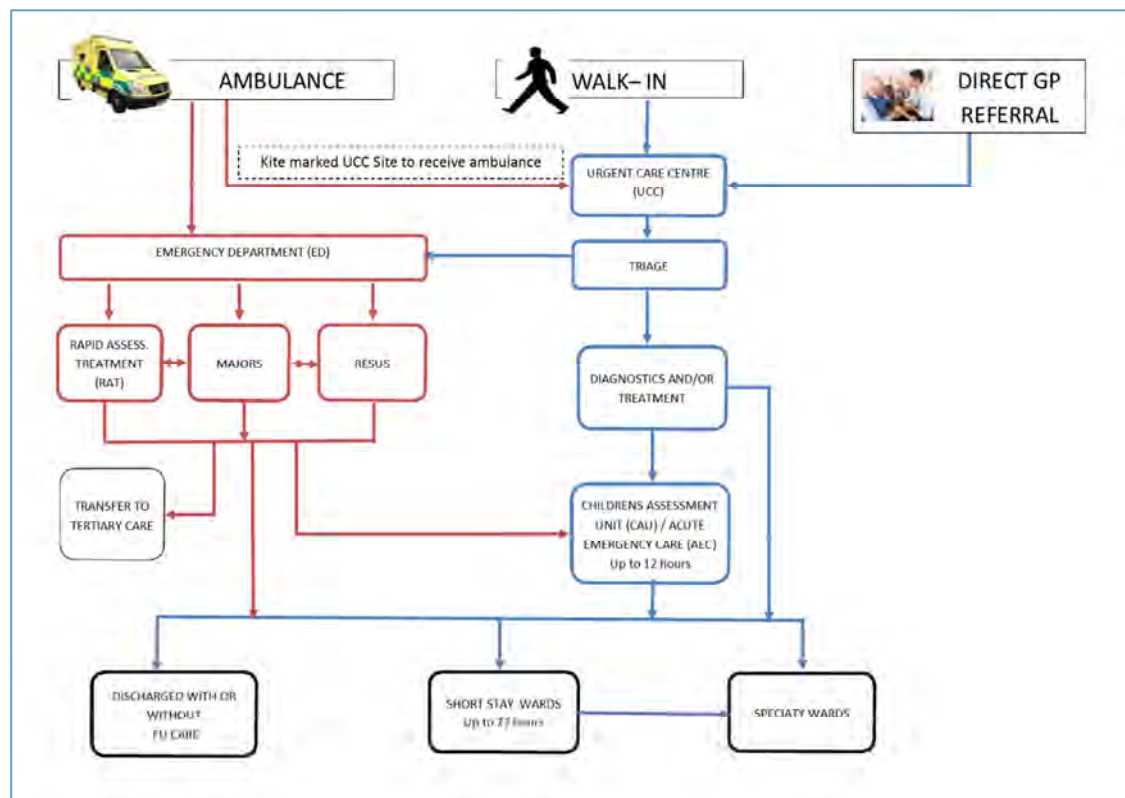
1.1 SERVICE AND FUNCTIONAL REQUIREMENTS

Detailed work has been undertaken to define and quantify the service and capacity requirements as follows:

- Definition of the clinical interdependencies in relation to core emergency and critical care services;
- Projection of future demand / activity levels by applying the scale of change projected by the Future Fit activity model Phases 1 and 2 with the baseline activity updated to reflect 2014/15 activity levels;
- Calculation of bed and theatre capacity requirements based on an agreed set of throughput and utilisation parameters.

To inform assessment of the functional requirements, additional work was then undertaken to map out emergency care pathways:

Figure 1: Emergency care pathways and flows



Careful consideration was given to the functional requirements for the ED and Urgent Care Centres for both “Emergency & Acute” and “Acute & Planned” site variants.

To inform the development of physical solutions for the various options, a set of indicative space standards was developed based on HBN guidance, supplemented where appropriate with other guidance and benchmarking, such as the Repeatable Rooms initiative. The resulting target net departmental areas are summarised below:

Table 1: Summary target space standards

Department	Target Net Departmental Area (m ²)
Critical Care Unit – 30 beds	1,952.50
Inpatient Ward – 32 beds, 50% single rooms	958.58
Emergency Department (Emergency & Acute site)	1,225.00
Urgent Care Centre (Emergency & Acute site)	580.05
ED and UCC shared staff support (Emergency & Acute site)	168.00
Acute Emergency Care Unit (Emergency & Acute site)	396.55
Urgent Care Centre, incl. staff support (Acute & Planned site)	736.05
Acute Emergency Care Unit (Acute & Planned site)	331.25
Theatre Suite (exemplar 2-theatre suite)	437.60

2 SOLUTION EVALUATION

Having established the service and physical solutions for evaluation, an internal structured non-financial evaluation was undertaken. This followed a sequential series of steps in accordance with NHS guidance and good practice as follows:

- Step 1: Selection of evaluation criteria to be used;
- Step 2: Weighting of the criteria to reflect their relative importance;
- Step 3: Evaluation of the solutions and scoring them against the agreed criteria;
- Step 4: Analysis of the results to establish the robustness of the conclusions, and to examine whether changes in either scores or weighting are likely to result in changes to the relative preference for the different solutions.

2.1 STEP 1: CRITERIA SELECTION AND DEFINITION

After careful consideration by the Trust's Core Team and Clinical Working Group, eight evaluation criteria were selected and defined as follows:

Quality - Improving the clinical quality of services

- Providing improved health outcomes for patients
- Ensuring that those services that need to be close together are on the same site
- Facilitating modernisation, improvement and innovation in clinical practice and teaching
- Addressing existing clinical problems

Access - Maximising access to services

- Improving timely access to teams and services for assessment and treatment appropriate to clinical need
- Improving access to senior decision makers
- Reducing waiting times for access to definitive care
- Clarity of access for the most appropriate care for the population served

Environment - Optimising the environmental quality of services

- Improving functional suitability and site lay-out with flexibility to meet peaks in demand
- Creating conditions conducive to modern, effective clinical care (privacy and dignity, safeguarding, noise etc.)
- Creating conditions conducive to modern, effective working practices (ambience, specific environments)
- Creating safe and appropriate environments specific to use (section 136 Mental Health; bereavement facilities; paediatrics etc.)

Workforce - Meeting staff recruitment, retention, training, teaching and staff support needs

- Providing an effective, efficient and sustainable workforce that meets service needs
- Creating and enabling roles that offer staff variation, interest and career developing opportunities
- Making it easier to recruit staff
- Making it easier to retain staff

Deliverability - Practicality and timeliness of delivery

- Practicality of delivery of physical and service proposals
- Timescale for implementation
- Impact on services during any construction/change
- Availability of capital and/or attractiveness to external investors/funders

Resources - Making more effective use of resources

- Meeting service needs within available resources
- Making better use of human and estate resources
- Improving productivity

Future-proofing - strategic fit

- Meeting strategic needs of the locality and region for clinical services
- Improving the quality of service relationships and departmental links
- Future expansion or retraction opportunities to cope with changes in demand and changes in the way services are delivered
- Support future service change and potential service reconfiguration

Affordability – Is the option likely to be affordable in the short/medium term

- Maximising clinical and revenue benefit for capital investment
- Delivering a sustainable, stable and efficient workforce
- Actively contribute to improving the Trust's long term financial position

2.2 STEP 2: CRITERIA SELECTION AND WEIGHTINGS

These criteria were then weighted by firstly ranking the criteria in order of relative importance, and then considering the relative differences between the criteria to arrive at the weightings as follows:

Table 2: Criteria weightings

Criteria	Rank	Score	Weight
Clinical Quality of Services	2	95	19%
Maximising Access to Services	5	50	10%
Environmental Quality of Services	7=	30	6%
Workforce – Recruitment, Retention, Training	1	100	20%
Deliverability – Practicality and Timeliness	4	60	12%
Effective use of Resources	6	40	8%
Future-proofing / strategic fit	7=	30	6%
Indicative Affordability	3	90	18%
			100%

The above scoring shows that **Solution 2** (implement without any change/build) and **Solution 3** (implement with change/build to ED, CC Unit and UCC only) scored lower than **Solution 1** (do nothing). Solutions 2 and 3 were viewed by the clinical teams as being impossible to deliver and would actually make the situation worse than if nothing were done.

Alongside Solution 1 (do nothing), **Solution 4** (ED, CC Unit, UCCs and Essential Service change) was therefore concluded to be the only viable option.

2.3 STEP 4: SENSITIVITY ANALYSIS

The results from the evaluation have been subjected to a sensitivity analysis in accordance with good practice.

Firstly, to ensure that all relevant views were appropriately taken into account, attendees who may have had any concerns or disagreements with the consensus scores were invited to communicate these to the Trust's Future Team outside of the workshop.

Next, the impact of applying reverse weights and equal weights was examined, with the following results compared with the original weighted scores:

Table 3: Summary of Solution Evaluation Scores (Reverse Weights)

	Weight	WEIGHTED SCORES						
		1	2 PRH	2 RSH	3 PRH	3 RSH	4 PRH	4 RSH
Workforce	5%	5	5	5	11	11	32	27
Quality	7%	28	14	14	21	21	50	50
Affordability	9%	18	27	9	35	18	71	53
Deliverability	11%	106	32	32	42	32	74	42
Access	16%	64	32	32	48	48	80	80
Resources	17%	34	17	17	34	34	101	84
Future-proofing	18%	0	0	0	18	18	106	88
Environment	18%	35	0	0	18	18	106	71
	100%	290	127	109	227	198	619	495
		3	6	7	4	5	1	2

Table 4: Summary of Solution Evaluation Scores (Equal Weights)

	Weight	WEIGHTED SCORES						
		1	2 PRH	2 RSH	3 PRH	3 RSH	4 PRH	4 RSH
Workforce	13%	13	13	13	25	25	75	63
Quality	13%	50	25	25	38	38	88	88
Affordability	13%	25	38	13	50	25	100	75
Deliverability	13%	125	38	38	50	38	88	50
Access	13%	50	25	25	38	38	63	63
Resources	13%	25	13	13	25	25	75	63
Future-proofing	13%	0	0	0	13	13	75	63
Environment	13%	25	0	0	13	13	75	50
	100 %	313	150	125	250	213	638	513
		3	6	7	4	5	1	2

This suggests that even with reverse weights and equal weights applied; the top 2 preferred solutions remain the same.

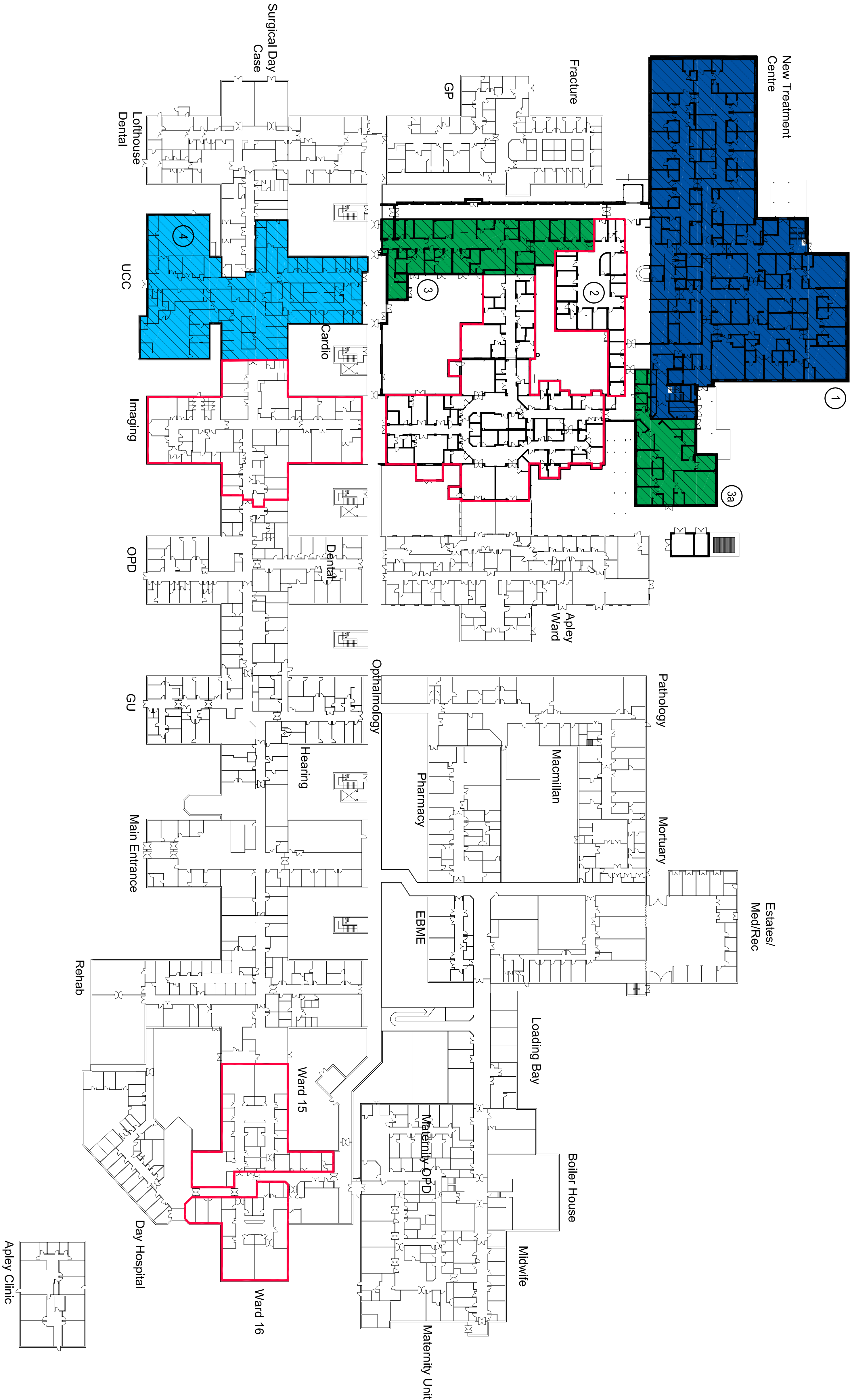
APPENDIX 4a – Block layout plans

Notes

THIS DRAWING READ IN CONJUNCTION WITH :

Key

- New Build
- Refurbished
- Vacant Space
- 1 New Treatment Centre
- 2 Paediatrics Outpatients Ward
- 3a Ward
- 4 UCC



02	Updated for SOC.	08.03.16	KS	AE
01	Updated for SOC.	02.03.16	KS	AE
Rev	Description	Date	Dr by	App by
KW		15.02.16		AE

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project
Sustainable Services
Princess Royal Hospital

drawing
Proposed Potential Solution - Acute and Planned
Level 1

project number	2015_00839_001	scale	1:500	issue status	@A1
drawing number	PRH-ARR-00-ZZ-DR-A-20-121	rev	02	issue status	SOC

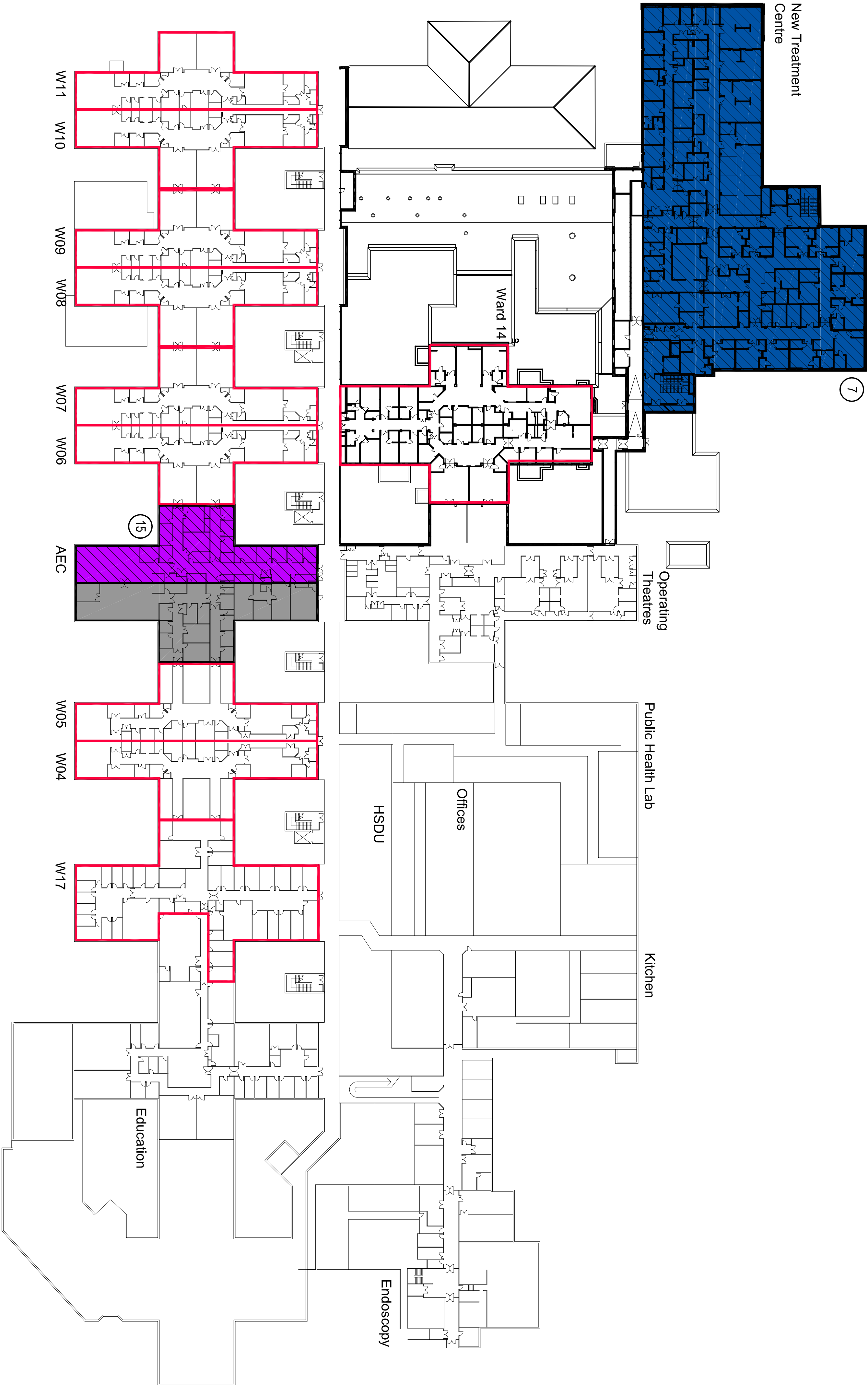
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Notes

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Key

- New Build
- Refurbished
- Vacated Space
- New Treatment Centre
- AEC/Empty



02	Updated for SOC.	08.03.16	KS	AE
01	Updated for SOC.	02.03.16	KS	AE
Rev	Description	Date	Dr by	App by
KW		15.02.16		AE

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drawing
**Proposed Potential Solution - Acute and Planned
Level 2**

project number	1:500	scale	@A1
drawing number	PRH-AHR-00-ZZ-DR-A-20-122	rev	SOC

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- | | |
|----|--|
| 1 | Estates office demolished |
| 2 | Pediatrics OPD |
| 3 | Women's and Children's Atrium/
Self Admin |
| 4 | MLU |
| 5 | Fracture Clinic |
| 6 | Office demolished |
| 7 | Practice Ward |
| 8 | Offices Demolished |
| 9 | AEC |
| 10 | UCC |
| 11 | Emergency Department |
| 12 | Critical Care |
| 13 | Pediatrics Inpatients |
| 14 | Antenatal |
| 15 | Postnatal |
| 16 | Circulation |
| 17 | Circulation |
| 18 | T & O Offices demolished |
| 19 | Atrium/Relax/Support |
| 20 | |

02	Updated for SOC.	07.03.16	
01	Updated for SOC.	02.03.16	
00			

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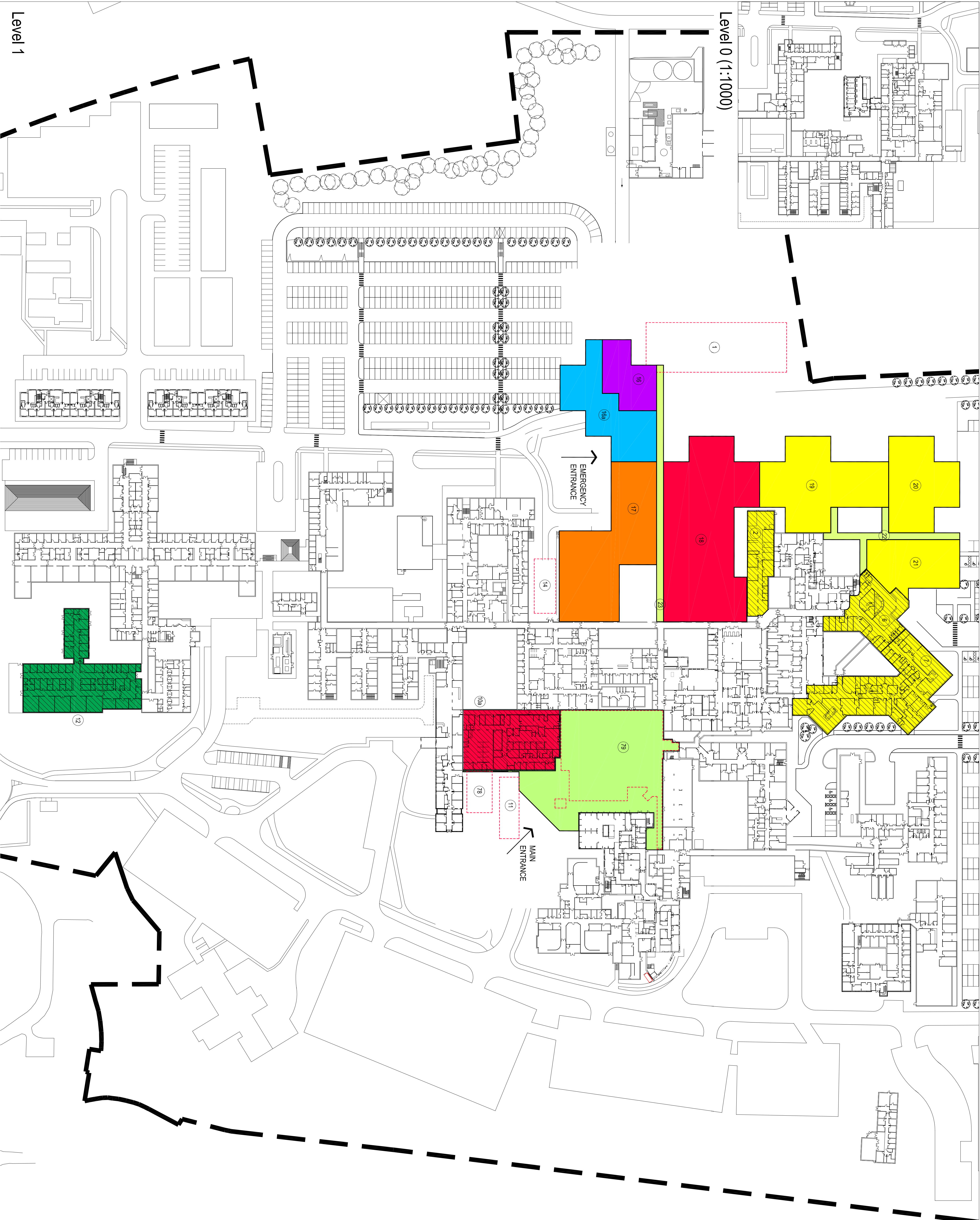
Shrewsbury and Telford NHS Trust

Sustainable Services
Royal Shrewsbury Hospital

Proposed Potential Solution - Emergency & Acute Level 0 and Level 1

project number	scale
2015.00839.001	1:750
streaming number	rev
RRSH-AHR-00-ZZ-DR-A-20-101	02
	issue status
	SOC

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Level 1

APPENDIX 4b – Development Control Plan (DCP)

Notes

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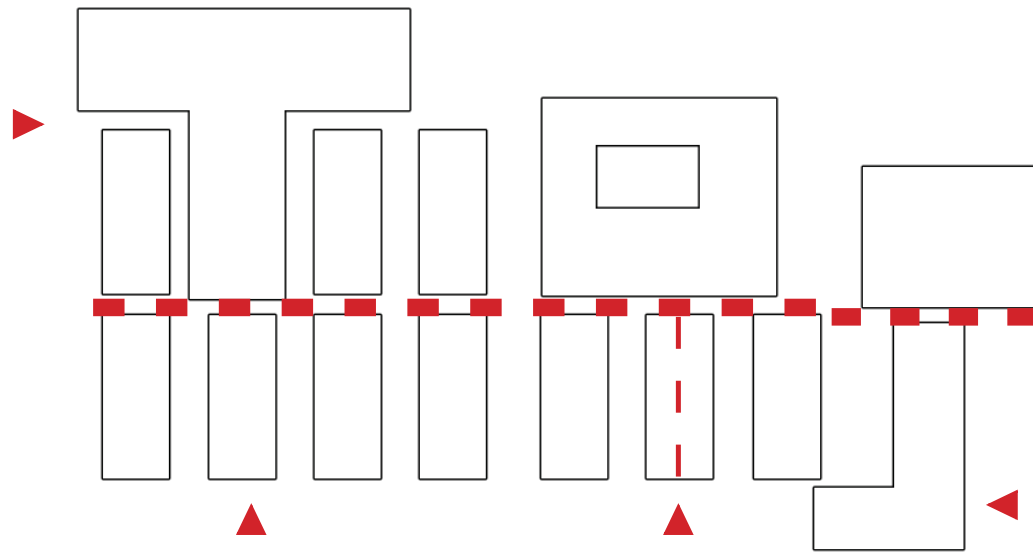


Diagram 1

- Structured circulation East-West axis
- Multiple entrances

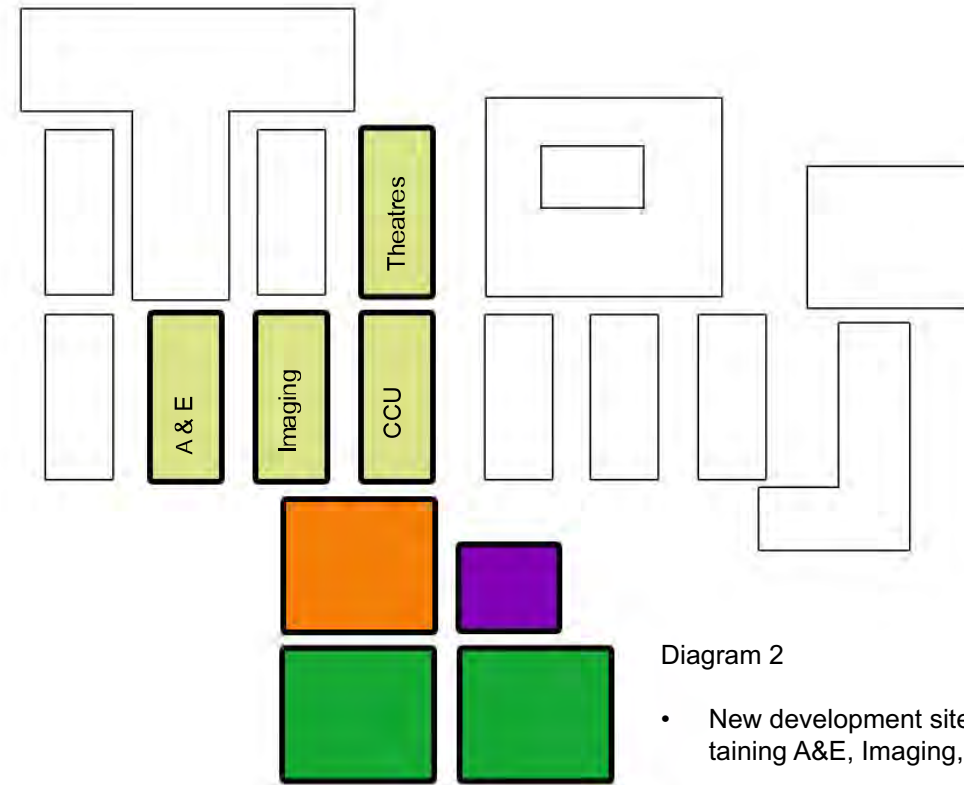


Diagram 2

- New development sited by templates containing A&E, Imaging, Theatres and CCU

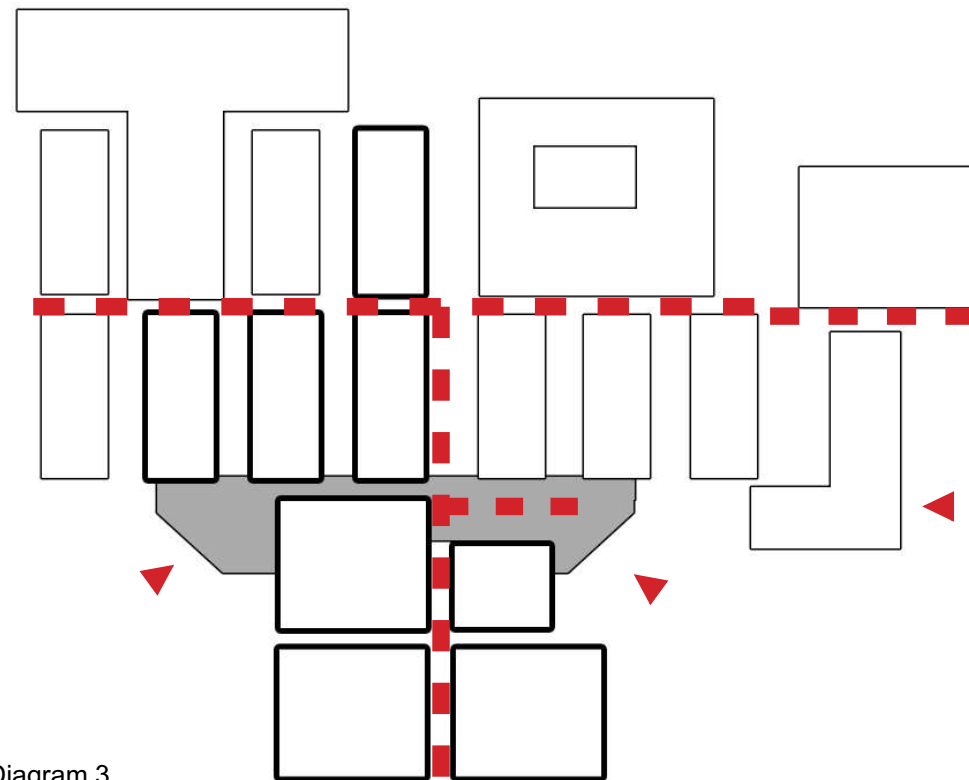


Diagram 3

- Provide rationalised main entrance / commercial opportunities.
- New North/South link to link new development to existing street.
- New entrance to link Emergency Department, UCC and Imaging

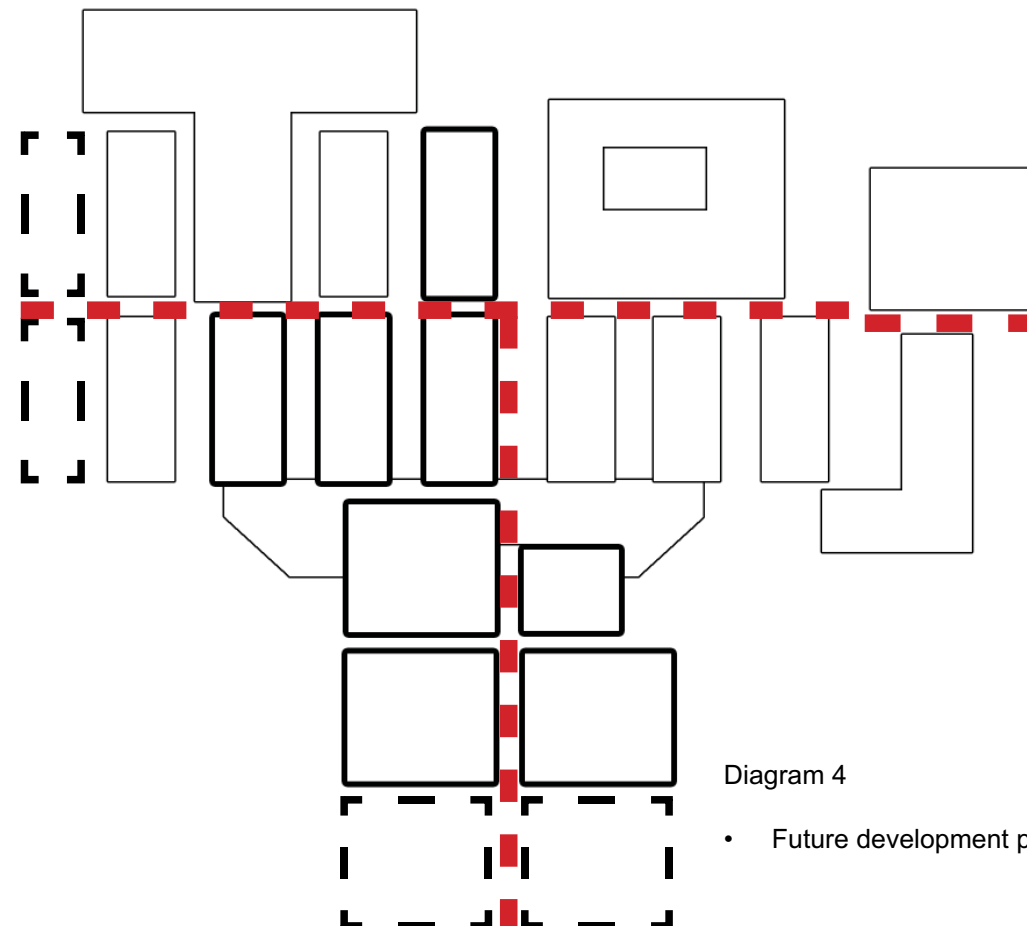


Diagram 4

- Future development possible on two axis



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drawing
**Proposed Potential Solution - Emergency & Acute
DCP Development Diagrams**

project number	scale	
2015.00839.001	NTS	@A3
drawing number	rev	issue status
PRH-AHR-00-90-101	-	SOC

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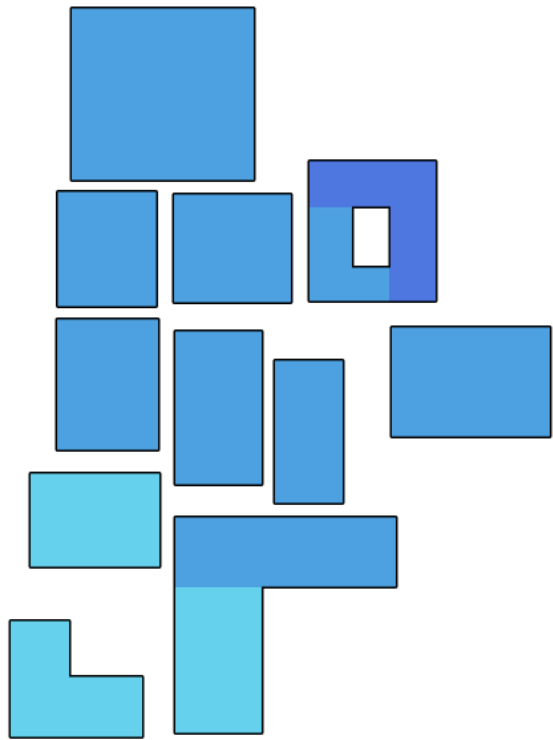


Diagram 1

- Organic cluster of departments
- No clear structure
- Ground level on 3 different levels

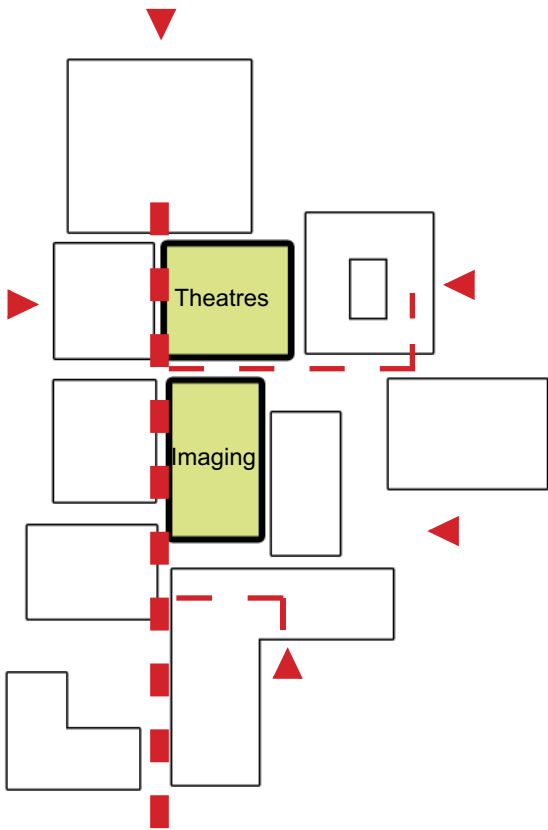


Diagram 2

- North-South street
- Multiple entrances
- No entrances on the street
- Lengthy connections between clinical areas

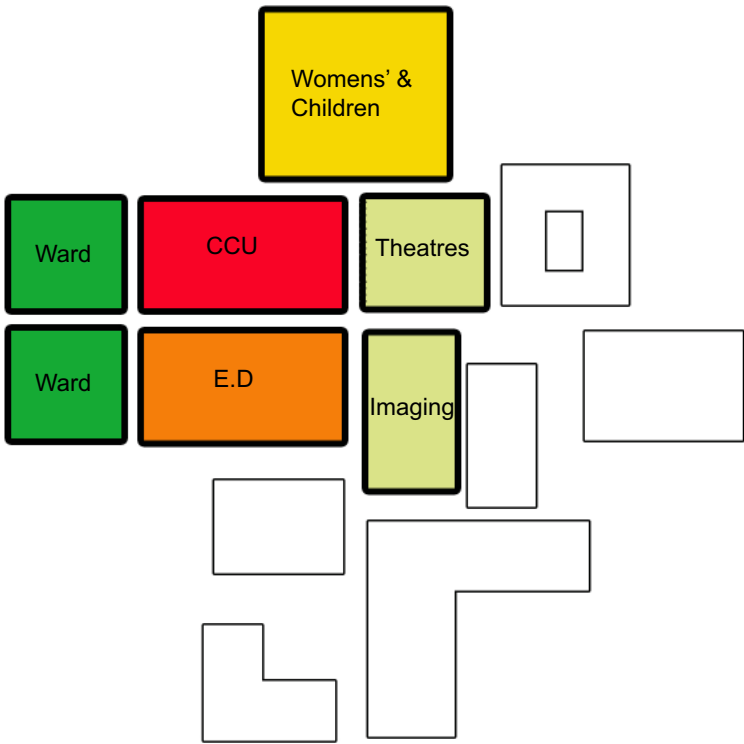


Diagram 3

- New development adjacent to theatres and imaging

Notes

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Rev	Description	Date	Dr by	App by
original by	date created		approved by	
KS	07.03.16		AE	



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2015.00839.001	NTS	@A3
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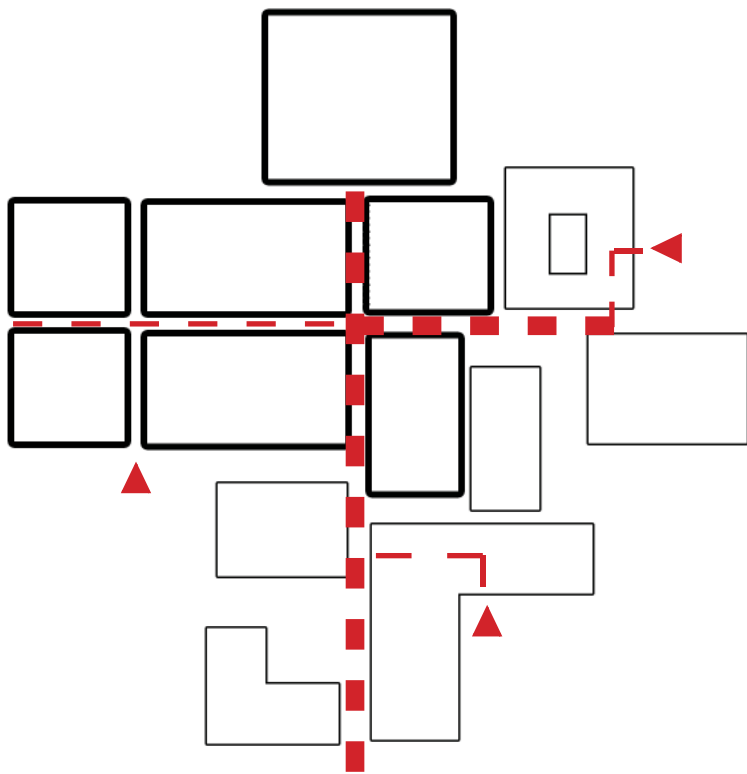


Diagram 4

- Move emergency access

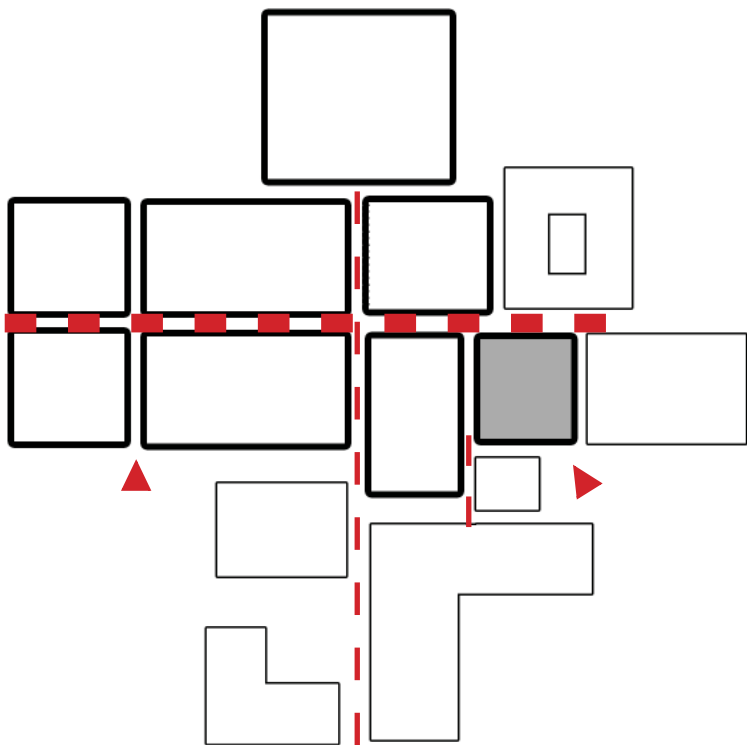


Diagram 5

- Development location prompts re-orientation of street to East-West axis.
- Introduce new main entrance onto street at more direct location.
- All major clinically hot areas linked on one level (Level 1).
- Entrances rationalised.

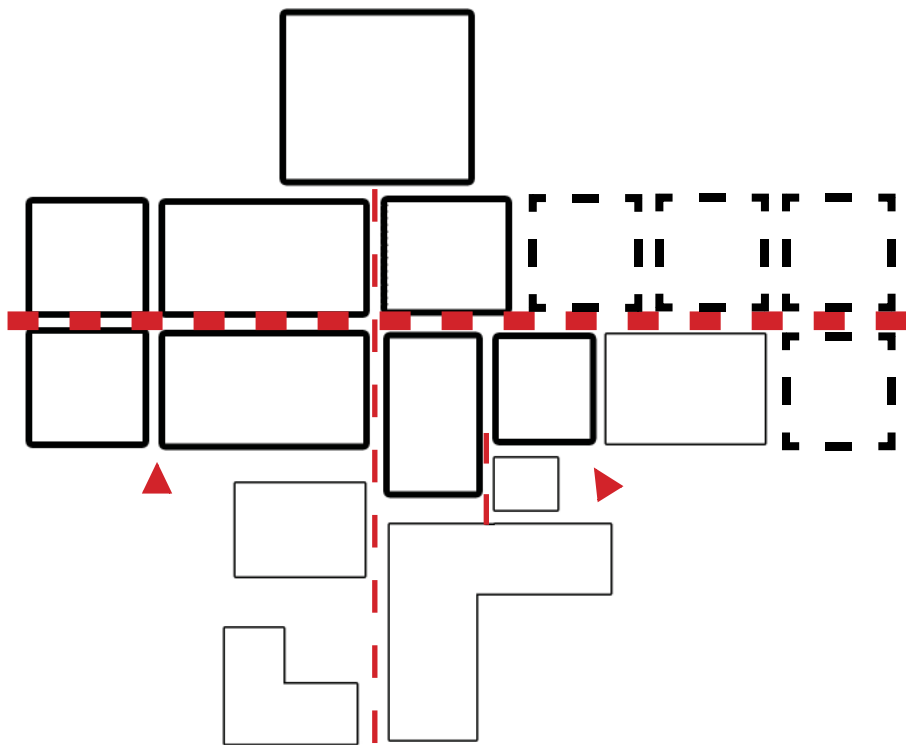


Diagram 6

- Future expansion of east-west axis



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DCP Development Diagrams**

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2015.00839.001	NTS	@A3
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APPENDIX 4c – Site wide impact summary

The Potential Solution: Site-Wide Impact Summary

Sustainable Services Programme-Overall Assumption		Impact of the Potential Solution by Site	
		RSH as Emergency & Acute Site	PRH as Emergency & Acute Site
Clinical Support			
Therapy services	As now, plus therapy assessment space needed in UCC.	1 x Additional consulting room would be required (to be included in UCC plans)	1 x Additional consulting room would be required (to be included in UCC plans)
Clinical administration and Trust HQ	As now, with space utilisation and optimisation relating to site specific service locations. Assume Exec Team remains at RSH.	Allow for relocation of 81 W&C's staff from PRH, plus general small uplift for general office space. W&C's staff to be accommodated in part refurb part new build. Need to review office space provision as part of OBC.	Allow for general small uplift in office space. Assume Executive Team remains at RSH. Need to review office space provision as part of OBC, and also if there is a need for some increased senior management space at PRH.
Imaging	Cath lab - no change. PRH ED site options: Hybrid room for interventional radiology/ Cath lab.	Additional cath lab required if Cardiac is consolidated under the potential solution.	Additional Cath lab required and interventional radiology would be required which can be provided in a hybrid room
Pathology	With colocation of ED and Obs, only 1 blood sciences service would be required. On the ED site an extension of the central lab would be required due to increased activity in urgent / ED Haematology and biochem in line with bed increases.	Target area for new facility is 2,340m2 (approx 20% increase on current). Current area is 2,200m2 over 2 floors, therefore allow additional 140m2.	Target area for new facility is 2,340m2 (approx 20% increase on current). Current area is 1,700m2 over 2 floors, therefore allow additional 640m2.
Mortuary / PM	RSH - has sufficient capacity at 89 following recent extension. PRH - has 34 spaces and would need additional capacity in all cases and in line with bed increases.	Maintain Existing as recently remodelled	Increase capacity to 55 bodies and 3 PM tables. Equates to approximately 427m2 plus 24m2 for Paeds= 451m2. Existing is 235m2, therefore allow refurbishment plus 230m2 new build. Capacity to be reviewed at OBC stage- required capacity could be 60. Unit requires bariatric facilities and 2 No viewing rooms.
Pharmacy	Aseptic services to remain at RSH and transport solutions to be maintained if need be. If bed base increase on either site there would be a need for additional capacity in pharmacy in line with the bed increase.	20% increase on the ED site along with improved utilisation and efficiencies. Assume located in refurbished Cardio support/ staff gym (which will be relocated to vacant ITU).	20% increase on the ED site along with improved utilisation and efficiencies. Assume additional 110m2 of new build.
EBME	As shown:	<ul style="list-style-type: none">• Increase in Bed store Capacity required to cover the increase in ward capacity• RO System within ITU will need replumbing to the appropriate area within new ITU, including the Pex Distribution loop, 100% redundancy and appropriate drainage for RO water.• Transferral of PRH staff to RSH to undertake the increase in workload. To determine most efficient use of MES Staff to cover equipment maintenance tasks• Cabling and switch transferral for ITU monitoring stations.• Increase in Licencing for central station within A&E to cover extra capacity from RSH transfers, plus transferral of central station and associated infrastructure.• Availability of Maternity Workshop for testing of incubators and other maternity equipment to prevent long distance transferral of these items to minimise risk of damage• Infrastructure capacity for W&C networking items for monitoring systems including CTG monitoring etc.	<ul style="list-style-type: none">• Increase in Bed store Capacity required to cover the increase in ward capacity• Complete RO system to be added to ITU with Pex distribution loop, Drainage and ring main to support dialysis patients, this would need 100% redundancy• Transferral of RSH staff to PRH to undertake the increase in workload.• Cabling and switch transferral for ITU monitoring stations.• Increase in Licencing for central station within A&E to cover extra capacity from RSH transfers• Reconfiguration of MES on-call service to ensure appropriate numbers of staff are available at PRH
Education	No change at RSH. PRH - may need to Reprovide if Education Centre is refurbished for clinical space.	Assume potential solution has no impact	Assume potential solution has no impact
Research	No change to current provision unless impacted upon plans	Assume potential solution has no impact	Assume potential solution has no impact
Medical records	Out of scope but Trust enabling project. Progression of E-solutions.	Out of scope of SSP project	Out of scope of SSP project
RSH W&C zone	FCHS capital scheme for; -MLU -Maternity scan & Outpatients -Antenatal Day Assessment -Children's Outpatients to be included in all options.	Out of scope; however please note that a new MLU and associated accommodation is shown at RSH as part of the SSP work, which is a legacy from the FCHS project. This is separately funded.	Out of scope; however please note that a new MLU and associated accommodation is shown at RSH as part of the SSP work, which is a legacy from the FCHS project. This is separately funded.
Medical illustration	No change	Assume potential solution has no impact	Assume potential solution has no impact

Sustainable Services Programme- Overall Assumption	Impact of the Potential Solution by Site	
	RSH as Emergency & Acute Site	PRH as Emergency & Acute Site

Non-Clinical Support

Estates and infrastructure	As shown:	Refer to separate detailed Estates and Infrastructure impact review (in Appendix 4e)	Refer to separate detailed Estates and Infrastructure impact review (in Appendix 4e)
Staff welfare	no change above and beyond standard ward template or dept.	Assume potential solution has no impact	Assume potential solution has no impact
Spiritual care	as existing unless impacted upon by plans.	Assume potential solution has no impact	Assume potential solution has no impact
Sterile services	Off-site service - localised storage only	Assume potential solution has no impact	Assume potential solution has no impact
Cleaning and Linen	Off-site service - localised storage only	<ul style="list-style-type: none">• No significant impact other than staffing levels increase at RSH (additional staffing required in relocated W&C Unit)• 7 day linen service to be introduced for ED and Critical Care services• Consider high level cleaning in new design• New Linen Room, Domestic Stores and machine charging area to be provided in an area accessible to the hospital. Access for linen deliveries to be considered when locating• Decontamination area to be provided on new Loading Bay area (unless MES including?)• Ambulance Linen Cupboard needed in ED• Decant pressure of W&C move	<ul style="list-style-type: none">• staffing levels increase at PRH• 7 day linen service to be introduced for ED and Critical Care services• Consider high level cleaning in design of new build• Linen Store for Ambulance Service required• Loading Bay will need to increase in size to accommodate a bigger receipt and distribution area, Linen Room, Charging area and stores
Catering	Appropriate provision to be made - maintain existing where possible unless impacted upon by plans.	<ul style="list-style-type: none">• Some changes to patient meal numbers• Kitchen, dining Room and Coffee City re-provided (request Caffè Bistro created in new ED entrance)• Delivered meal service would need to be put in place prior to build to ease operational and relocation issues• Extra regen trolleys and supporting equipment required• Opportunity for commercial development to be considered e.g. WHSmith/Boots	<ul style="list-style-type: none">• Additional Hostesses needed unless self -serve• Electrical infrastructure to be reviewed to accommodate additional trolleys• Additional freezer space required• Request position and opportunity to create a Caffè Bistro outlet in the new ED development• Commercial fridges must be included in any patient kitchens to ensure food temperatures maintained• Extra regen trolleys and supporting equipment required• Larger receipt/distribution area required on Loading Bay• Opportunity exists to review the introduction of commercial outlets such as WHSmith/ Boots?
Portering and Logistics Services	TBC in Jan 16 workshop.	<ul style="list-style-type: none">• Helipad on MSCP will impact on patient transfer (distance/weather) and will create fire/safety issues requiring additional staffing and risk• Additional staff to support ED/CCS and extra beds especially if night flights introduced by Air Ambulance?• New Loading Bay needs to be accessible from the Hospital as looking to discontinue use of vans.• New Loading Bay needs to be big enough to accommodate waste handling area including Waste Yard, bed and equipment storage• Porters Lodge will be relocated as part of new Loading Bay area• Will there be additional car parking directly outside A&E for Emergency short stay parking and disabled users?• MSCP will need to be built prior to building work commencing• Access/Egress for servicing to new units to be considered plus a service lift and adequate waste cupboards and storage• Traffic flow onto and off site due to loss of circular road system? ambulance activity to be considered as part of this change along with safe pedestrian walk ways etc• Access from helipad to ED to be reviewed.• Changes to existing Car Parking Contract with CPPlus to be negotiated• Newly provide Waste area will need to accommodate compactors and recycling facilities• Decant pressure of W&C move	<ul style="list-style-type: none">• Additional staff to support ED/CCS/extra beds especially if night flights introduced by Air Ambulance?• Loading Bay will need to increase in size to accommodate a larger waste area, receipt and charging area• Relocation of porters lodge to provide a bigger room for additional staff?• Additional car parking directly outside A&E for Emergency short stay parking and disabled users?• MSCP will need to be built prior to building work commencing• Access/Egress for servicing to new units to be considered plus a service lift and adequate waste cupboards and storage• Traffic flow onto and off site due to proximity of roundabout and in relation to increased ambulance activity to be considered. Safe pedestrian walk ways etc.• Access from helipad to ED to be reviewed.• Changes to existing Car Parking Contract with CPPlus to be negotiated
Telecoms		<ul style="list-style-type: none">• Slight increase in staffing/Review night cover risk• Slight increase in lines to site and minor relocation of assets between site• Review BCP• Mobile coverage solution installed in PRH W&C Unit to be replicated at RSH W&C Unit when relocated• Number allocation	<ul style="list-style-type: none">• Slight increase in staffing/Review night cover risk• Slight increase in lines to site and minor relocation of assets between site• Review BCP• Number allocation could pose some issues• Red phone system will need to be extended
Staff residences	Out of scope	Out of scope of SSP project	Out of scope of SSP project
Creche	out of scope	Assume potential solution has no impact. Access to creche to be reviewed in light of location for potential solution.	Assume potential solution has no impact
Security	Appropriate provision to be made	Security lodge will need to be reprovided if new RSH entrance goes ahead.	
Car parking	Appropriate provision to be made	Review of car parking required at OBC stage. Initial assessment at SOC stage has shown need to reprovide spaces which are displaced by the new build works; plus (say) 100 additional spaces at the ED site. This is assumed to be in a new multi-storey car park.	Review of car parking required at OBC stage. Initial assessment at SOC stage has shown need to reprovide spaces which are displaced by the new build works; plus (say) 100 additional spaces at the ED site. This is assumed to be in a new multi-storey car park.
Café & Retail	Opportunities within new build areas to generate income.	New feature entrances are proposed to be created at both the ED and the non-ED site as part of the SSP work, which will create opportunities for café, retail etc	New feature entrances are proposed to be created at both the ED and the non-ED site as part of the SSP work, which will create opportunities for café, retail etc
IT	Development of IT infrastructure to support new models of care.	tbc at OBC stage	tbc at OBC stage

APPENDIX 4d – Site wide estates impact

SaTH Sustainable Services Programme
Site-Wide Estates Impact of the Potential Solution

SERVICES	RSH as the Emergency and Acute Site
Heating	<ul style="list-style-type: none">* Construction is over the existing subterranean duct (contains steam main etc).* Existing boiler capacity inadequate to serve additional load.* Existing boilers and CHP are on contract with EnerG for approx another 6 years.* Connecting new build to existing boilers would not achieve BREEAM rating.* Existing CHP unit - site's heat baseload utilises the entire output. (see attached data sheet tab). Consider additional CHP unit.* There is a desire to de-steam the site when contract expires.* Existing steam main is c40 years old and susceptible to periodic failures.* See attached schedule of incoming services for info on gas main(s). Meter is adjacent to boilerhouse
	Currently served by 1 gas boiler and 1 CHP/waste heat boiler each providing steam. MTHW is taken from the CHP to heat DHWS calorifiers backed up by steam. A third boiler is not operational due to corrosion of tubes.
	Site winter load is met by 2 operational boilers but if 1 boiler or CHP is off line capacity is inadequate
	Backlog allowance includes a replacement boiler for resilience
	An additional boiler is required to satisfy the load of the new development rated at 1.2MW Include reconfiguration of boiler house to accommodate new plant (may duplicate cost allowances included in backlog)
	Additional CHP unit matchd to base load of the new building - 120kWe May be an extension of the EnerG contract
	Boiler plant is old inefficient and in poor condition, upgrades included in backlog maintenance schedule
	Replace steam main and condensate return in new service duct to carry additional load
	Additional Boiler to be installed as there is no spare capacity or resilience. New plant rooms should be sited above new modules.
	Ventilation plant will be located above departmental areas and included in the departmental costs
	Additional steam to LTHW heating calorifiers to be provided within the new development 3 @ 50% ie 3 @ 600kW each
Cooling/Ventilation	<ul style="list-style-type: none">* Consider using (existing) chilled water system for cooling, rather than separate electric chillers.
	Chiller plant will be included within the departmental ventilation costs and it is anticipated will be an extension of the existing system
	Additional cost allowance should be included for additional adsorption chiller capacity to provide a heat load for CHP in summer to achieve a low carbon solution. Chiller rating 1200kW
	Additional cooling / Ventilation to be installed as there is no spare capacity in existing system,(this may have an impact on the electric infrastructure i.e. loadings on existing circuits)
DHWC/CWS	<ul style="list-style-type: none">* Incoming water supply may need upgrading - presently 80mm incomer, located under old maternity (Cophorne Building) Replace with 2 new incoming 100mm mains (from separate network connections if possible) to feed central storage tanks

SERVICES	PRH as the Emergency and Acute Site
Heating	<ul style="list-style-type: none">* Boiler capacity will need checking.* Distribution mains' capacity will need checking.* Existing boilers are on contract with MCL until Jan 2017.* Desire to de-steam when contract expires.* Connecting new build to existing boilers would not achieve BREEAM rating.* Gas incomer is at rear of site. See attached schedule for info on incoming services. Gas meter at max capacity.
	An additional boiler is required to satisfy the load of the new development rated at 1.6MW Include reconfiguration of boiler house to accommodate new plant (may duplicate cost allowances included in backlog)
	Additional 164kWe CHP unit matchd to base load of the new building. May be an extension of the existing contract
	Boiler plant upgrades included in backlog maintenance schedule
	Enhance steam main and condensate return in new service duct to carry additional load and creat a ring main configuration
	Increase heating plate packs to cope with extra load plus resilience, steam/LTHW pipe to be made to a ring to give resilience and access to carry out maintenance without major impact to service.
	Additional steam to LTHW heating calorifiers (plate heat exchangers)to be provided within the new development matched to the load requirements of the new building.
	Interconnect heating mains to existing to provide resilience
Cooling/Ventilation	<ul style="list-style-type: none">* Consider absorption chiling as lead system, linked to CHP rather than electric chilling (which should be as back-up.
	Chiller plant will be included within the departmental ventilation costs and it is anticipated will be an extension of the existing system
	Additional cost allowance should be included for additional adsorption chiller capaacity to provide a heat load for CHP in summer to achieve a low carbon solution.
	Replace aged AHU to meet extra demand and current HTMs increase Abo chillier to meet BREEAM and replace inefficient DX units increase size of electric chillers for resilience and for back up to Abo during period of peak summer heat waves
	It is asume remedial works to ventilation and cooling systems are covered by the backlog allowance
DHWC/CWS	<ul style="list-style-type: none">* Incoming water supply may need upgrading (80mm - see attached tab for info on incoming services).* Storage lagoons may be inadequate for any extension.* Need to confirm booster set capacity.
	Replace with 2 new incoming 100mm mains (from separate network connections if possible) to feed central storage tanks

SaTH Sustainable Services Programme

Site-Wide Estates Impact of the Potential Solution

SERVICES	RSH as the Emergency and Acute Site
	Water storage lagoons and booster station are located under maternity. Need to check capacity and suitability. Replace existing tanks with duplicate above ground GRP external tanks to meet water regulations. 2 tanks each 54m3 stored capacity
	Add cold water booster set comprising multiple pumps and pipework distribution to serve mains supplies to existing high level tanks and direct to new development
	New DHW generators to be installed siting in plant rooms above respective Pods. A new Large diameter Pipe connection would have to be made to the incoming mains.
	Additional steam to domestic HW calorifiers comprising duty, support and standby calorifiers each rated at 50% to be provided within the new development
Drainage	Existing drainage to be relocated because of the siting of the new build pods.. Existing drains to be upgraded to cope with the increase in flow. (drainage survey to be carried out)
Medical Gases	Additional Vacuum Plants would need to be installed. There is spare capacity for Medical Air plants from the treatment Centre.. Assessment to be carried out. (Whilst it is believed there is spare capacity in the medical air system it is unlikely to be adequate given the likely increase in usage of medical air) Any remedial works to existing medical gas systems will be included in the backlog figures
	Include a second liquid oxygen VIE installation to provide a second independent source of supply in a separate location to the present installation
	Extend oxygen distribution to serve new development and create a ring distribution to comply with HTM 02
	It is not anticipated that additional nitrous oxide will be required in the new development
	Include additional medical compressed air plant comprising multiple compressors
	It is not anticipated that surigal air plant will be required to serve the new development
	Include additional medical vacuum plant to serve the new development
	Include medical gas manifold room including oxygen & medical air manifolds to HTM 02
Pneumatic tube	Additional stations required. Zone 4 very busy. Aerocom Uk to advise.
	The existing pneumatic tube system should be extended to include additional terminals
Incoming electrical Supply LV/HV	* See attached schedule for info on incoming electrical service. * Proximity of generators to the new buildings; may need relocating. * Existing CHP unit (600 kW _e) - site's electrical baseload utilises the entire output. Consider additional CHP unit.
	Replace HV/LV switchgear to meet new load demand and meet HTM 06-02
	Increase capacity of incoming elecrical supply including new main intake switchgear to 3000kVA

SERVICES	PRH as the Emergency and Acute Site
	Replace existing tanks with duplicate above ground GRP external tanks to meet water regulations. 2 tanks each 54m3 stored capacity
	Add new cold water booster set comprising multiple pumps and pipework distribution to serve mains supplies to existing high level tanks and direct to new development
Drainage	Replace old corroded pipe work to prevent blockages separate foul waste from shower waste where poss. to prevent foul waste over spilling in shower cubicle
	It is assumed remedial works to drainage is covered by the backlog allowance
	Divert existing drains from beneath the footprint of the new development
Medical Gases	Upgrade all med gas services to meet new demand give resilience and ring services for ease of access for maintenances and minimize disruption to services
	Include a second liquid oxygen VIE installation to provide a second independent source of supply in a separate location to the present installation - assume VIE leased
	Extend oxygen distribution to serve new development and create a ring distribution to comply with HTM 02
	It is not anticipated that additional nitrous oxide will be required in the new development
	Include additional medical compressed air plant comprising multiple compressors (this plant could be co-located with existing plant or located within and dedicated to the new building)
	Extend medical air distribution to new development or interconnect new dedicated plant to existing to provide resilience)
	It is not anticipated that surigal air plant will be required to serve the new development
	Include additional medical vacuum plant to serve the new development (this plant could be co-located with existing plant or located within and dedicated to the new building)
	Extend medical vacuum distribution to new development or interconnect new dedicated plant to existing to provide resilience)
	Include medical gas manifold room including oxygen & medical air manifolds to HTM 02
Pneumatic tube	Replace existing 160 mm with 110 system (It must be noted that the replacement of the 160 tube with a 110 tube is not as a result of the new development or a backlog issue but must be included to ensure consistency across the site whilst avoiding installing an inappropriate system in the new development)
	Extend pneumatic tube system to serve departments within the new development including XX No. terminals

SaTH Sustainable Services Programme

Site-Wide Estates Impact of the Potential Solution

SERVICES	RSH as the Emergency and Acute Site
	Install additional sub-station dedicated to new development including duty/standby transformers rated at 1 MVA
Back up generator UPS/IPS	* Note proximity of generators.
	Generator House to be relocated along with bulk oil tanks. Generator capacity (2 x 1250 + 600 = 3100 Kva). Max logged recordings 600amps / 750 Kva. Nb. Generators are available to back up Broad crown set @ old Maternity if required. Recommend load recordings taken on existing transformers Catering,Gynae, + treatment Center to determine spare capacity.
	Relocate existing generators to clear site of new development including oil storage tanks
	Install an additional 2 No. generators each rated at 600kVAVA to provide 100% support at N+1 to the new development. Enhance oil storage capacity to include new generators
	It is assumed that any enhancements to existing generator provision will be covered by the backlog allowances
Fire alarms	Additional out stations required to existing Static Systems (925 system)
	Fire alarm and detection will be included in the departmental allowances.
	Include upgrade to the central alarm panel & network to accommodate the additional zones
Security Systems	Door access system required.
	Include card access system within the new development
	Include intruder alarms to ground floor day only spaces - (very limited)
	Include CCTV to internal circulation areas and external access, building perimeter and car park areas
	Include staff attack system to ED & OPD areas
BMS	* Existing BMS (Seachange) on contract with EnerG for approx another 6 years. * BMS 'head-end' is in existing Estates building
	A new BMS outstation will be required on any new build. This would be tagged on to the existing front end and graphics would also need to be updated.
Asbestos	A pre-demolition survey would need to be carry out would refurbishing or tagging on any new build on to existing.
Car parking/Roadways	Additional car parking to be made available due to the loss of existing. Considerations to be made to its locality, on site, off site or multilevel. Road ways to be diverted around new build, possibly to avoid building over exiting ducts.
	Street lighting + carpaking lighting to be reconfigured
	Install external lighting to all new roadways, access routes and carpark areas

SERVICES	PRH as the Emergency and Acute Site
Incoming electrical Supply LV/HV	* See attached schedule for info on incoming electrical service. * Existing CHP unit (600 kWe) - site's electrical baseload utilises the entire output. Consider additional CHP unit.
	Replace HV/LV switchgear to meet new load demand and meet HTM 06-02
	Increase capacity of incoming elecrical supply including new main intake switchgear to 2500kVA
	Install additional sub-station dedicated to new development including duty/standby transformers rated at 1 MVA
Back up generator UPS/IPS	Generators will only supply essential supply need to upgrade to supply N+1 (note oil tanks will also need to be increased to maintain running time to 100hrs?) fit UPS/IPS to cat 5 equipment/areas
	Install an additional 2 No. generators each rated at 1 MVA to provide 100% support at N+1 to the new development. Enhance oil storage capacity to include new generators
	It is assumed that any enhancements to existing generator provision will be covered by the backlog allowances
Fire alarms	Capture fire compartment back log to refurb areas consider more door hold magnets where access & egress of trolleys & beds
	Include upgrade to the central alarm panel & network to accommodate the additional zones
	Fire alarm and detection will be included in the departmental allowances.
	Include upgrade to the central alarm panel & network to accommodate the additional zones
Security Systems	Extend cameras & door locking system to vulnerable areas
	Include card access system within the new development
	Include intruder alarms to ground floor day only spaces - very limited
	Include CCTV to internal circulation areas and external access, building perimeter and car park areas
	Include staff attack system to ED & OPD areas

SaTH Sustainable Services Programme

Site-Wide Estates Impact of the Potential Solution

SERVICES	RSH as the Emergency and Acute Site
Ducts	Ducts to be refurbished M & E services repaired / replaced to ensure continuity of supplies to Hospital / Departments Options 4-9
	Main service duct from energy centre to main hospital building is beneath the footprint of the new development and will need to be replaced including all services. Assumed to be included in backlog allowance
	Secondary service duct to the south of the site is in poor condition and requires replacement. This is not as a result of the new development and whilst resilience would be improved by the reinstatement of ring mains it is a preference but not essential. Assumed to be included in backlog allowance
Estates office/Workshop	To be re-sited to suit either remote or integral. Option 4 - 9
Loading Bay	To be re-sited to a move suitable position. Consideration to be made which side of the hospital this needs to be built. As operation / service entrances calls would change.Option 4-9
MES	<div><div>· Increase in Bed store Capacity required to cover the increase in ward capacity</div><div>· RO System within ITU will need replumbing to the appropriate area within new ITU, including the Pex Distribution loop, 100% redundancy and appropriate drainage for RO water.</div><div>· Transferral of PRH staff to RSH to undertake the increase in workload. To determine most efficient use of MES Staff to cover equipment maintenance tasks</div><div>· Cabling and switch transferral for ITU monitoring stations.</div><div>· Increase in Licencing for central station within A&E to cover extra capacity from RSH transfers, plus transferral of central station and associated infrastructure.</div><div>· Availability of Maternity Workshop for testing of incubators and other maternity equipment to prevent long distance transferral of these items to minimise risk of damage</div><div>Infrastructure capacity for W&C networking items for monitoring systems including CTG monitoring etc.</div></div>
IT/data	IT/Data networks within departmental areas will be covered by the departmental allowances
	New hub rooms with active equipment will be required in each departmental area
	It is assumed a new enhanced data centre will be required to support the existing facility including expansion of the existing unit
Other	Water firing main to be considered
hydrant main	Extend external hydrant main including additional hydrants
IPS/UPS	IPS/UPS to critical care areas - assumed included in departmental costs?

SERVICES	PRH as the Emergency and Acute Site
BMS	* Existing BMS is a Trend system. Any new BMS must be Trend and be integrated with existing. It must include for head-end upgrade to graphics etc. Plant rooms should each include BMS display panel.
	Replace old actuators and hard ware tie system to Telephone switchboard so that switch can be remote Assumed to be included in backlog allowance
	A new BMS would be included in the new development and included in the plant costs.Include on cost to upgrade front end & graphics
Car parking/Roadways	Although there is in the scheme, planned for a multi-storey car park considerations need to be given for disable parking and ambulance parking for both WHA and WML services plus drop off for taxis and the public. Road and parking in staff side also needs improving and increasing to meet new demands. More safer means of getting across car park into the building Bus route and buses passing via main entrance?
Ducts	N/A (only duct work is from pump house to boiler house)
Estates office/Workshop	Due to increase of loading bay and post /mail room moving from the main entrance consideration need to be given to move estates away from prime spot of delivery are and loading bay. Etsates may also need to increase in size to cope with extra stock items and larger workforce
Loading Bay	Increase size of loading bay and stores to accommodate extra deliveries and demand, reorganise waste and hazardous waste using estates compound and stores have poters move to estates and mail room so services post are taken away from the front end of the hospital
Other	<div><div>*Nurse call system old and obsolete so cannot be added but needs to be replaced with Static Codem system.</div><div>It is asumed replacement nurse all system is included in the backlog allowance</div><div>*R/O unit water treatment plant also need replacing</div><div>It is assumed the replacement of the RO unit is included in the backlog allowance</div><div>*Asbestos although not big issue as RSH but there is low level ACM that needs to be removed in pipe work under cloak and roof soffits so small amount of sums needs to be set a side</div><div>Asbetos surveys & clearance assumed to be included elsewhere?</div><div>*Window frames old and obsolete single panel will not meet Breeam</div><div>Window upgrades assumed to be covered in building works</div><div>*Refurbishment wards need Emergency light upgrade to P4 to meet fire regs (1 lux min)</div><div>Included in refurbishment allowance</div><div>*All containment at full capacity especially ELV system (IT trunking)</div></div>

SaTH Sustainable Services Programme

Site-Wide Estates Impact of the Potential Solution

SERVICES	RSH as the Emergency and Acute Site
Photovoltaic panels	Photovoltaic panels to reduce carbon emissions to match base electrical load

SERVICES	PRH as the Emergency and Acute Site
	New containment assumed to be included in refurbishment allowance
Helipad	Currently helipad has just being refurbished with night lights but consideration for how patient is transferred along Helipad to ED (may need better lighting smoother road surface better traffic control)
	Include in external building works?
Medical Records	May need more room to contain extra med records possible add another level to existing portacabin
Decontamination/ Queensway	<p>need to turn off AHU for servicing hence maybe we purchase more spare instruments during the shut downs periods or in event of machines in annual service testing or breakdowns</p> <p>Med gas : no impact just reorder spare bottles</p> <p>Generator: No impact (may need bigger storage tank)</p> <p>BMS : No impact (however currently BMS is obsolete hence needs upgrading)</p> <p>Others If we don't run on 24/7 we would need to extend building to allow for new washers and sterilizers build new clean rooms and prep room increase size of loading bay</p> <p>As stated earlier they should be no impact to which ever site is hot only impact is when theatre list increase regardless of which site this is from and in this case I believe it could be covered with extended hours however it is best to consult with manager of Queensway Duncan Brown who will have a much better understanding of workloads and demands and possible with theatre managers</p> <p>Consideration may be needed for extra storage area for extra trolley loads stock and chemicals drums estates spares as no doubt pressures will be greater to maintain extra work demands</p>
MES	<ul style="list-style-type: none">· Increase in Bed store Capacity required to cover the increase in ward capacity· Complete RO system to be added to ITU with Pex distribution loop, Drainage and ring main to support dialysis patients, this would need 100% redundancy· Transferral of RSH staff to PRH to undertake the increase in workload.· Cabling and switch transferral for ITU monitoring stations.· Increase in Licencing for central station within A&E to cover extra capacity from RSH transfers· Reconfiguration of MES on-call service to ensure appropriate numbers of staff are available at PRH
IT/data	IT/Data networks within departmental areas will be covered by the departmental allowances
	New hub rooms with active equipment will be required in each departmental area
	It is assumed a new enhanced data centre will be required to support the existing facility including expansion of the existing unit
Others	
hydrant main	Extend external hydrant main including additional hydrants
IPS/UPS	IPS/UPS to critical care areas - assumed included in departmental costs?
Photovoltaic panels	Photovoltaic panels to reduce carbon emissions to match base electrical load

APPENDIX 4e – Trust IT Strategy

Shrewsbury and Telford Hospitals NHS Trust

IM&T Strategy 2012 - 2017

Executive Overview

14th August 2012

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1. Executive Summary

Following a widespread consultation programme with key stakeholders, the high level information needs of clinicians, managers, patients and public have been identified and an analysis performed to highlight how the innovative use of IM&T will support the Trust's clinical strategy for the development of health services.

This report examines the strategic ambitions of the Trust both as a provider of patient care and as a business. A future vision is outlined, which, if approved by the Trust Board, will provide the target for work plans in information management and technology at Shrewsbury and Telford Hospital NHS Trust over a five year period commencing September 2012.

1.1. The Vision for IM&T

The vision statement describes how the Trust will create a 'Digital Hospital Environment', that will use technology to support agile working, eliminate paper, provide a secure clinical environment and empower patients to support their own healthcare. The key components of this vision are:

- **IM&T Infrastructure** – Achieving a solid foundation for clinical and business systems.
- **Electronic Care Record** – The existing set of clinical applications will be integrated together, using a connect-all strategy, to deliver a single, unified clinical system that supports agile ways of working. This in turn will deliver a paper-free environment, enterprise-wide scheduling that minimises patient time in the trust, and maximises clinician usage, and will build an environment that delivers the right information, to the right person, at the right time.
- **Knowledge Management** – There is a need to make better use of information, both about the patients under care, and also about how the organisation itself is operating. This information is a valuable asset that is not currently being fully utilised. The information team, led by a Chief Information Officer, will develop the knowledge to allow the trust to know itself, and to drive the right processes to deliver benefits.
- **Process Improvement** – The Trust faces complex healthcare, funding and legislative processes that require careful management to ensure that systems, (both technical and personal), behave exactly as expected. These processes must be understood and managed to deliver the right solution to identified problems.

The Trust is experiencing significant drivers for change, and IM&T will be an essential enabler to support extensive integration of clinical and corporate services and the achievement of associated qualitative and productivity-based performance improvement across the organisation.

1.2. Next Steps

The Board is asked to approve this strategy and endorse the following actions as early priorities:

- Review the options for infrastructure delivery, as there is potential for savings in excess of £1m per year, (based on the Channel 3 predictive model). These savings will be verified by the production of a Strategic Outline Case for infrastructure sourcing options;
- Commission an OBC for the next stage of Electronic Care Record delivery;

The Finance Director is currently planning the appointment of a Chief Information Officer to lead the 'knowledge management' initiative. There are some 'quick wins' that may be delivered early including delivery of correspondence services and VitalPAC integration. These quick wins should be considered as part of the OBC for the next stage of the ECR development.

2. Introduction

The Shrewsbury and Telford Hospital NHS Trust was formed in October 2003 following the merger of two previous Trusts (Princess Royal Hospital NHS Trust and Royal Shrewsbury Hospitals NHS Trust).

We are the main provider of acute hospital care for almost 500,000 people from Shropshire, Telford & Wrekin and mid Wales. Patients come to us from Telford, Shrewsbury, Ludlow, Oswestry, Bridgnorth, Whitchurch, Newtown and Welshpool in Powys.

The Trust manages two hospital sites:

- Royal Shrewsbury Hospital (RSH).
- Princess Royal Hospital (PRH).

The Trust is currently preparing to apply for Foundation Trust status and has recently re-configured the organisation into eleven autonomous clinical centres, as shown below:



Through a series of interviews with key senior managers and clinicians, together with reference to a number of Trust strategic reports and plans, the high level strategic information needs of clinicians, managers, patients and public have been identified and this has enabled a future vision to be presented in which excellent healthcare provision is supported and enabled through the innovative use of IM&T.

3. Strategic Context

The Trust's stated vision is expressed as follows:

'We will embody in our hospitals all the principles, values and the sense of service that created the NHS by providing consistently good safe care in a friendly, listening and informative way, as and when people need and want it and always with dignity and respect.'

Analysis of the situation suggests a challenging future environment dominated by global recession, an increasingly ageing population and rising healthcare demand.

On the positive side there are opportunities provided by the new technologies that can help us do more with less. The national ICT Strategy makes clear that government departments should 'do more with less' and deliver 'whole systems change through collaborative innovation'.

The national vision places the patient at the centre. Patients are generally interested in their healthcare. New remote monitoring facilities, connected by improved networks, can help them contribute to the efficient use of healthcare staff and facilities at a time and place that is efficient for all concerned.

The Department of Health has now officially dismantled the National Programme for IT (NPfIT). Also the supplementary procurement route known as the Additional Supply Capability and Capacity (ASCC) will shortly close. No central funding for IT is on the horizon. Under the localism agenda, Trusts are expected to make their own way and fall back on their own funding resources.

Equity & Excellence: Liberating the NHS (June 2010) sets out reforms that will free NHS organisations from direct Government control, coupled with an increased responsibility to be locally accountable for the quality of services provided and the efficient use of public money.

Liberating the NHS: An Information Revolution (November 2010) supports this and describes an environment in which people have the information they need to stay healthy, to take decisions about and exercise more control of their care; and to make the right choices for themselves and their families. There will be greater openness, transparency and comparability of information and a focus on data collected real time, with the patient, as a bi-product of patient care, not as an administrative 'add-on'.

The NHS Outcomes Framework 2012/13 describes the changes made since the first edition of the framework was published in December 2010. The initial framework set out the outcomes that the NHS Commissioning Board will be held to account for delivering, with corresponding indicators. It formed part of the drive to move the NHS away from centrally driven process targets. The framework is updated annually, to provide a national overview of what the NHS will aim for when improving patient outcomes. The updated framework renews the focus on improving patient results. The NHS will be measured against a number of areas including whether a patient's treatment was successful, whether they were looked after well by NHS staff and whether they recovered quickly after treatment.

Government IM&T Policy is clear. Public Service Infrastructure and technology services will be moved to shared/commercial and Cloud provision. The savings from consolidation of Data Centres alone will deliver £300m per annum. There is an overarching target of £3.2bn operational efficiency from the Governments £16bn per annum expenditure on IM&T.

4. Stakeholder Requirements

This section summarises feedback received from stakeholders about the future use of information and IT to support the delivery of excellent healthcare and improved efficiency. The information requirements of each stakeholder group are identified and a brief analysis of the current situation is presented alongside opportunities for the future.

4.1. Patient and the Public Want:

- Access to their health record and help in understanding it.
- A window on what the hospital has planned for them and their condition.
- An opportunity to comment on their health record and contribute to its accuracy
- Easy access to information about the hospital services and evidence of capability to deal with the conditions that trouble them in a way that suits them.
- Confidence that the hospital will treat them and information about them with due care.

4.2. Clinicians Want:

- Smarter access to what they know is in their clinical systems (including summary access to patient histories; easier login)
- Small changes to improve their efficiency (clinical alerts and notices in the right place; “top 10” work lists)
- Guidance and help with the introduction of scheduling and monitoring capability that exists (SemaHelix bed management and VitalPAC)
- Device availability with options and without queues as well as immediate response to fix times.
- To communicate clinical decisions to all relevant parties inside and outside the hospital and to understand what other providers know about their patients.
- To influence the demand for their time in a way that is sensitive to patients needs using targeted advice and guidance systems.

4.3. Managers/Decision Makers Want:

- Guidance and help in understanding what data is collected, what it means and how it can help to manage the patient process.
- Time to understand systems and promote wider, more consistent take up across the business.
- Flexibility and availability of informatics to solve their next problem, now.
- More timely and accurate ways to predict and monitor spend.
- More timely and accurate ways to predict, monitor and influence levels of patient activity.
- Clinicians to collect sufficient quality outcome data to support quality and outcome based commissioning.

5. IM&T Vision

The vision for Shrewsbury & Telford NHS Trust is of a digital healthcare environment that will extend beyond the boundaries of our hospitals and enable accurate and timely information in support of decision-making for excellent patient care and a productive, streamlined support infrastructure.

5.1. The Patient Experience

The patient experience will be enhanced by patient-centred systems with sophisticated enterprise-wide scheduling such that the patient's visit to the hospital will be as short as possible. To achieve this, appointments for consultations, interventions and tests must be scheduled together, with prerequisite activities undertaken first, time given for the patient to move between different parts of the hospital or wider health system and avoiding conflicts. Choice will be given to patients so they can select convenient times and locations for them. This will include being supported, monitored and treated at home where clinically appropriate.

Patients will have easy access to hospital information including their own health care records to enable them to check and correct the information held and view information about their condition and treatment. This will include access to a summary health record, to enable them to interact with those caring for them including requesting changes to their bookings and receiving appointment reminders by SMS, voice mail, or email. Options for providing this service may include online access via a secure Internet portal, access via Digital TV and patient-held smart cards.

General information about the Trust's clinical performance will also be easily available to patients, in order to give confidence and evidence of the Trust's capability.

5.2. The Trust Perspective

From the Trust's perspective, efficient scheduling of resources such as beds, clinics, rooms, theatres, equipment and staff will ensure that expensive resources are utilised in the most efficient way. Tracking systems, utilising RFID technology and making use of the hospital-wide wireless network, will ensure that progress through the patient journey can be monitored and delays minimised.

The patient's record will be held electronically, with the majority of it made up from information collected through the clinical process in dedicated clinical systems and brought together in the Trust-wide Electronic Clinical Record (ECR) system. This will enable all relevant clinical data to be viewed in multiple locations simultaneously if required, including non-hospital locations.

5.3. Paperless working

The Trust wishes to create a virtually paper-free hospital environment. To achieve this, in the interim, existing legacy paper records will be scanned "on demand" as they are requested from off-site storage and added to the ECR. Archived records may be scanned and held electronically or stored in off-site libraries depending on the business case. The generation of new paper records will be discouraged, but can be scanned and added to the record where necessary.

5.4. Communications with Stakeholders

Communication with GPs will be electronic as far as possible including referral letters, discharge summaries, requests and results, giving improved accuracy of information and greatly improved timeliness of information.

Clinicians will be supported by holistic patient information provided at the point of care to enable timely and clinically safe decision-making. This will include patient history, results and investigations

including PACS images and clinical correspondence presented in a single look and feel solution or portal. Video conferencing facilities will be used for teaching, and to bring together multi-disciplinary teams across the entire district.

Over time, the concept of shared clinical systems will be explored to support the delivery of seamless clinical care between primary and secondary care.

5.5. Decision Support

Decision-support will be implemented within Order Communications systems to encourage clinicians to make requests which are cost-effective, avoid duplication and are in line with clinical best practice. Rules will also ensure that results are viewed and acknowledged within agreed timescales, with a built-in escalation route.

5.6. Prescribing

Full electronic prescribing is a medium term ambition for the Trust. In the interim, the existing prescribing solution (eScripts) will be fully utilised to provide benefits to clinical staff

5.7. Mobile / Remote Technology

All locations from which services are delivered will have equal access to hospital systems. Mobile technology will be deployed where this improves timeliness, patient safety and efficiency. This may include handheld devices to allow doctors to view results and nurses to input patient observations, for example, and computers mounted on trolleys to facilitate ward rounds with PACS image viewing and point of care order communications and prescribing. In addition, it is the intention of the trust to allow users to use their own devices on the trust network to access clinical information (BYOD).

In the medium term, the Trust may choose to introduce more near-patient testing and these devices, along with VitalPac and other modern medical equipment, will be able to interface directly into the patient's electronic record. Telemetry systems will allow nurses and doctors to monitor patients remotely and react to alerts. Other devices, such as pressure pads and motion sensors in beds and rooms, can be used to alert healthcare professionals to movements of vulnerable patients so they can assist them and hence avoid falls.

The Trust's investment in wireless networking facilitates the use of RFID technologies, allowing the tracking of patients through the hospital. With additional investment, this technology can be used to update systems to improve data quality in areas such as A&E and Theatres where tracking of locations and timings is essential to ensure waiting time targets are met and scarce resources are used efficiently. RFID tags can also be used to assist positive patient identification with screens automatically updated with patient details in theatre for example, or screen displays tailored to an appropriate view as a clinician wearing a tag steps forward for example.

Telehealth will allow patients greater choice and flexibility in how and where they engage with the trust, as well as enabling the collection of more, and better, clinical information to inform clinical care.

5.8. Back Office

The Trust's back office processes will be as streamlined as much as possible and will minimise the use of paper. This will be achieved through the use of document workflow, passing forms electronically around the Trust for authorisation, and systems such as e-rostering and e-requisitioning. Stock control will be managed electronically and enhanced by the use of bar-coding and/or RFID tracking.

5.9. Correspondence

The rollout of electronic correspondence services, which can send all external correspondence electronically will improve the efficiency, quality and timeliness of all correspondence. This will also provide market value in making the Trust a preferred partner of local primary care clinicians.

5.10. Management Information and Reporting

Management information will be produced as a by-product of clinical and operational processes. It will be supported through a centralised data warehouse, fed from operational systems with information presented to users in the form of standard reports and dashboards through a self-service portal. Analysis will include forecasts predicted from past trends of historic data. Operations centres will be supported through real-time tracking information and predictive information displayed on large screens. Information will be considered as an asset of the trust, and managed appropriately, with information asset owners responsible for guiding the trust in the best possible use of the organisation's information.

5.11. In Summary

There are clearly a number of implications resulting from the above narrative which will impact the Trust in a several areas. Key amongst these are:

- A sound IM&T infrastructure platform will be needed to support the enhanced use of technology for clinical and business decision-making;
- new ways of working will need to be adopted to optimise use of the new technology. This in turn requires an appropriate level of investment, in both time and money.

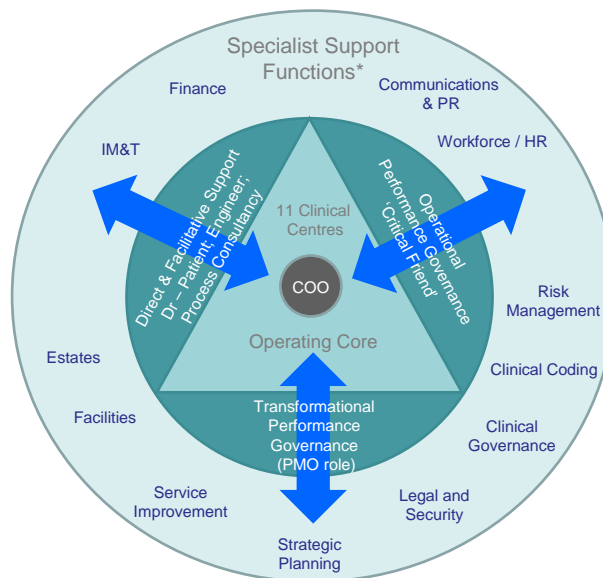
Some tactical decisions that have already been taken must be reviewed in light of strategic decisions outlined in this report. Future tactical requests for IM&T developments will need to be judged on the basis of whether they are consistent with the aims of this strategy. Other Trust-wide, strategic choices will need to recognise the impact that these vision statements will create – e.g. PAS and EPR related decisions and the need to ensure full integration with systems supporting these statements.

6. Current Status of IM&T

6.1. Organisation and Management

IM&T is currently managed as a specialist support function and it will engage with the Clinical Centres in three key operating models, as illustrated in the diagram below:

- direct, facilitative e.g. support according to Service Level Agreement
- advice, guidance, challenge e.g. business case or risk assessment support
- transformational, innovative and enabling *e.g. new system development.*



* Examples only shown

Although there is an information management team within the IT group, this is an area that is recognised as needing further focus to deliver benefits to the business. In particular, the current Foundation Trust application process identified the lack of an information department.

The Director of Finance is currently finalising the case for appointing a Chief Information Officer to ensure that, not only the information needs of the Trust continue to be met, but the quality, timeliness and overall integrity of information improves, in accordance with the IM&T strategic vision.

There are numerous processes in place to manage IM&T projects, however these need revisiting to ensure that they adequately capture requirements, and deliver the expected benefits, in the wake of the restructuring to clinical centres.

6.2. Service Management

Services are managed through two helpdesks, one for each hospital site. The support function is supported equally by the clinical centres, proportional to the size of the clinical centre. Currently, the service management function is not using the ITIL industry standard process. This contributes to the observation that the trust is excellent at introducing innovative solutions, but finds it difficult to maintain these into business as usual.

6.3. Clinical Systems

There are six key clinical systems which form the core components of the ECR :

- PAS (Patient Administration System)
- Radiology (RIS) & Picture Archiving & Communication System (PACS)
- Pathology
- Pharmacy
- Order Communications (pathology only)
- VitalPac bedside monitoring

There are also approximately 130 other clinical systems that are utilised around the trust for a variety of clinical and administrative needs. Systems have been procured based on a 'best-of-breed' approach, where systems are generally single-purpose, and focussed to a particular discipline or task. There is limited connectivity between systems (for example, results reporting from Pathology) which must be improved to deliver the benefits of the ECR.

Short-term improvements that have already been identified include integrating radiology results reporting into more clinical applications, and the production of electronic discharge summaries.

6.4. Infrastructure

Servers, networking equipment, storage, desk-top and mobile device hardware are largely dependable. However; the stock is ageing and requires an increasing, (and increasingly scarce), capital provision to replenish it, or an appraisal of alternative sourcing options to decrease the capital provision, in order to deliver the benefits of mobile working, and increase the usage of the clinical systems.

Computer rooms are inadequate in terms of space, air-cooling, fire and power protection. There are key issues here not least of which is the location of the existing rooms which make fire protection a non-trivial task.

The hospital computer network is 'patchy' in its coverage. Some areas are well serviced whilst, expansion of applications into other areas is compromised. Our plan is to increase coverage, accommodate voice traffic, introduce a management system (automation), increase the bandwidth (number of devices able to use it concurrently) and allow for asset tracking.

6.5. Summary of Key Gaps

- Information management is perceived by senior management to be weak;
- Processes for capturing user requirements (and for managing projects) need to be reviewed following the clinical service restructure;
- IM&T Service management needs to be strengthened;
- There is limited connectivity between systems;
- Infrastructure stock is aging and in need of further investment;
- Computer rooms have inadequate cooling, fire and power protection;
- The communications network coverage is patchy

7. IM&T Work Programme

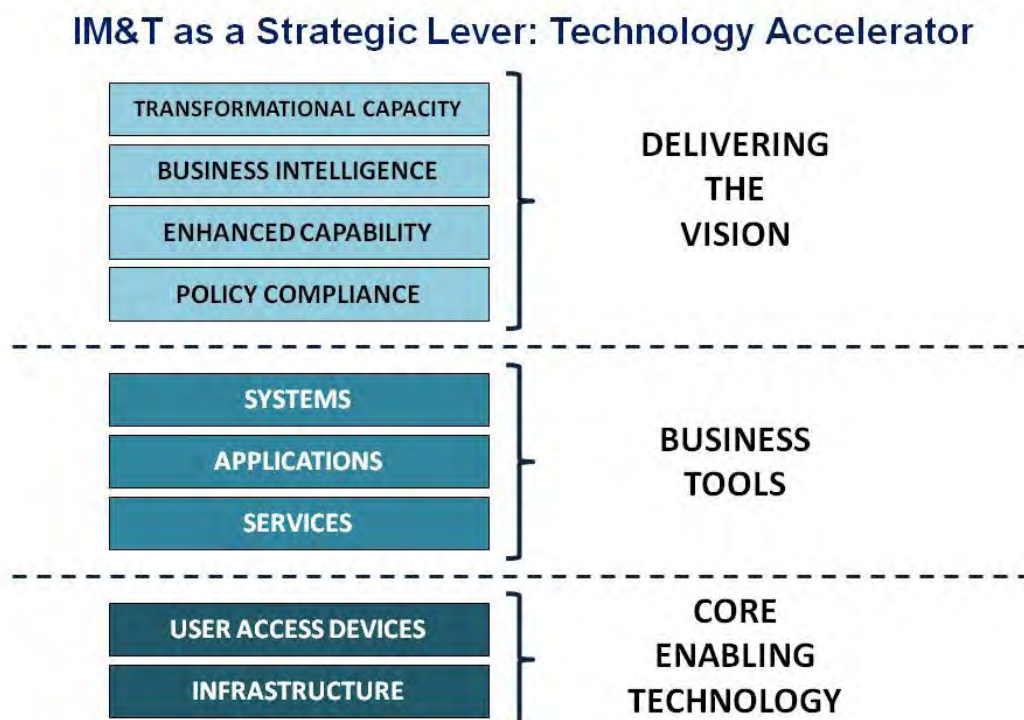
A flexible, forward-thinking but achievable IM&T work programme will be a key enabler for the Trust's ambition to attain Foundation Trust status and realise its strategic direction.

7.1. Guiding Principles

The guiding principles of the work programme follow these key steps:

- Create a sound infrastructure base on which to run high quality clinical applications
- Deliver the Electronic Clinical Record
- Improve the knowledge management and business management processes

In order to deliver the vision, all of these areas must be delivered. In some areas, these high-level end-points have further requirements that are needed first.



The process of delivering the vision can be seen as an incremental one. The foundation to delivery is the necessary improvements to the core technology – both the server and network infrastructure, and also the end-user devices that clinicians, patients and managers will use to access the system and the information within the system.

Building on the foundation of the infrastructure is the development of the tools used by the business. These tools are both clinical, leading to the development of the ECR, and also managerial, supporting the production and usage of information.

Once the technology and tools are in place, the processes and people are developed to make the best possible use of the tools and the technology to deliver the benefits to the business. This will require developing processes to inform how projects and programmes are delivered, as well as

ensuring that the information about the business is collected, shared, and acted upon in the best possible manner.

Each of these areas, infrastructure, systems and processes, must be developed with an aligned vision, to build towards a programme of work, which can deliver the vision of a flexible, secure and knowledgeable IM&T function that is able to support the Trust vision.

7.2. Programme of Work

Covering a period of five years, we have split the work required into manageable components, which can be delivered, and will move the organisation forwards. Firstly, focussing on what we need to deliver today, and then getting ready for tomorrow's challenges, before delivering the components that will move the organisation to delivery of the vision.

7.2.1. Stabilisation

- ***Evaluate options for delivery of infrastructure***

Multiple options are available for the delivery of technology to the organisation. These must be evaluated to ensure that the trust are choosing the best possible option for delivery to the business:

- The resilience solution for the trust servers should be considered;
- network wireless delivery across the estate should be assessed and surveyed;
- the current approach to refreshing end-user devices should be re-visited, and there needs to be re-evaluation of the strategy for what devices are the most appropriate for the multiple different users of trust IT services

- ***Implement electronic correspondence services***

Delivering paper correspondence electronically is a key first step to a paperless clinical record, with added benefits for cost saving, improved perception of the trust to external partners, and timely delivery of information that forms part of national targets

- ***Begin work on Electronic Care Record delivery***

The first step on the path to a connected, best-of-breed ECR will be to integrate the six core clinical applications, to begin delivering the benefits of the ECR, and to engage clinical stakeholders through the delivery of those benefits

7.2.2. Improvement

- ***Continue delivery of the Electronic care Record***

Integrate all clinical systems ('Connect-All') to build on the work of the previous package to further deliver the clinical benefits of the ECR. In addition, all components of the ECR will have a single sign-on, which will mean that users only log in to the system once. A system for electronic scanning of paper notes will be implemented as part of the ECR to reduce the use of paper within the trust

- ***Develop a personal device policy***

Ensure that users can bring in their own devices to use the trust services. This will save the Trust money; build clinical and patient engagement with IT, and also with the clinical record.

- ***Enhance the network infrastructure***

Build on the network deliveries in the previous phase to allow secure use of the network by patients and other non-trust personnel

- ***Improve Management Reporting***

Knowledge management capability will be developed to create information asset owners who will be able to build a view of how the trust is operating, and report this as necessary. This management reporting will form a key part of the programme management and delivery cycle, ensuring that knowledge management is a key part of system delivery and change

- ***Back-office improvements***

The back-office administrative function will target automation of common and repetitive tasks, and improved processes to ensure that access to systems is a core part of the HR and administrative function. In addition, targeted data cleansing will improve the information available for management reporting

7.2.3. Enhancement

- ***Deliver the full ECR***

The final stage of the ECR will be delivered through a clinical portal which allows access to all of the components of the ECR. This will also be able to be published to patients, who can contribute to their health record directly, and through the implementation of telehealth monitoring. An electronic prescribing system will also be integrated into the ECR, to fulfil the clinical needs of the system

- ***Management reporting KPIs***

Management reporting will deliver a dashboard that will report on all necessary key performance indicators. This will enable managers, clinicians and patients to have access to all necessary information to deliver at their best, as well as enabling processes to minimise key national targets, such as patient re-admission

- ***Improve the enterprise view of scheduling***

The enterprise will be able to gain a unified view of the scheduling requirements of the patient, and how these fit into the organisation, to minimise both the patient's time in the process, and maximise the organisation's ability to work with as many patients as possible

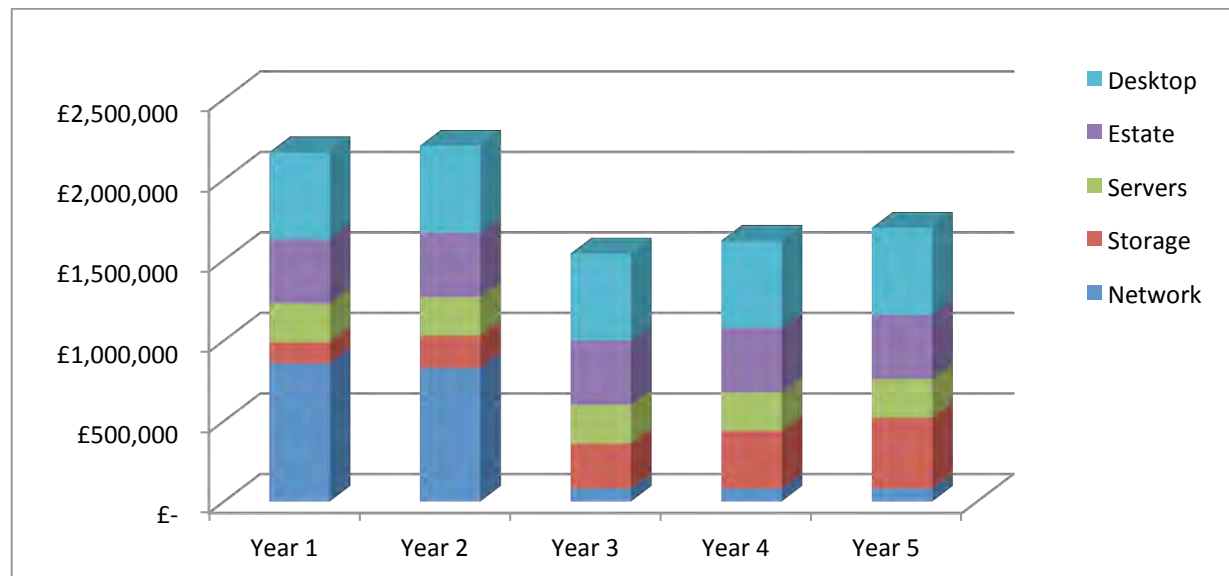
7.3. Delivery Plan & Timetable

The figures below for the delivery plan were supplied by the head of IT and have not been fully validated as part of this strategy, due to the time constraints of the process.

The delivery plan is presented in three parts, aligned to the guiding principles detailed in section 7.1. These are the infrastructure improvements, the delivery of the ECR and the process transformation to deliver knowledge management. A cost summary is included in Section 7.4.

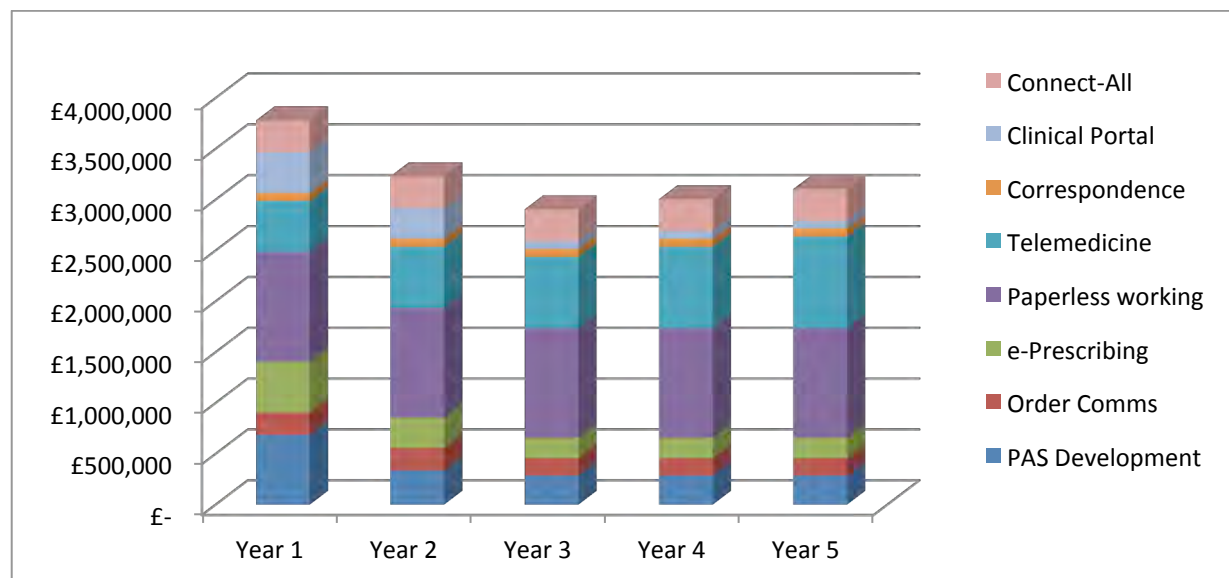
7.3.1. Infrastructure

The infrastructure elements include the improvements to the network, the physical estate used by the infrastructure, the servers and desktop hardware, and the storage solution.



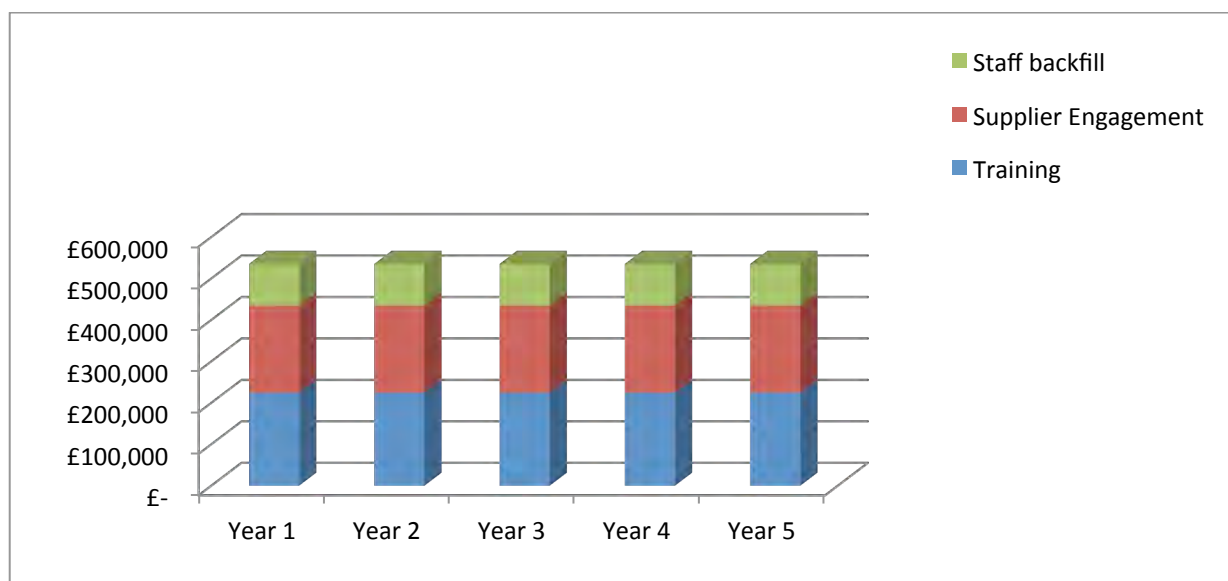
7.3.2. Electronic Care Record

The ECR elements include development of the SemaHelix PAS, such as national spine integration (PDS) and daycase planner; the integration of existing disparate systems to form the ECR, and portal to provide a single view; enhanced order communications and the development of telemedicine, e-Prescribing and electronic correspondence, as well as the move to a paperless hospital.



7.3.3. Change Management

Change management to support the improvements in knowledge management involves training of staff in the new process and procedure, supplier engagement in the new ways of working, and necessary staff backfill to allow the training to take place.



7.3.4. Cost Summary

It is important to note that the Board is not being asked to sanction all the spending referenced in this plan, merely to agree to the general strategic direction being proposed. Separate Outline Business Cases (OBC's) will be written for all the major areas of spend and agreement of these will be the triggers for committing the investment.

IM&T Work Programme 2012 - 2016

	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Infrastructure						
Network	860,000	830,000	80,000	80,000	80,000	£ 1,930,000
Storage	130,000	200,000	280,000	360,000	440,000	£ 1,410,000
Servers	240,000	240,000	240,000	240,000	240,000	£ 1,200,000
Estate	400,000	400,000	400,000	400,000	400,000	£ 2,000,000
Desktop	540,000	540,000	540,000	540,000	540,000	£ 2,700,000
Sub-Total	2,170,000	2,210,000	1,540,000	1,620,000	1,700,000	£ 9,240,000
ECR						
PAS Development	690,000	340,000	290,000	290,000	290,000	£ 1,900,000
Order Comms	220,000	220,000	170,000	170,000	170,000	£ 950,000
e-Prescribing	500,000	300,000	200,000	200,000	200,000	£ 1,400,000
Paperless working	1,080,000	1,080,000	1,080,000	1,080,000	1,080,000	£ 5,400,000
Telemedicine	500,000	600,000	700,000	800,000	900,000	£ 3,500,000
Correspondence	80,000	80,000	80,000	80,000	80,000	£ 400,000
Clinical Portal	400,000	300,000	75,000	75,000	75,000	£ 925,000
Connect-All	310,000	310,000	310,000	310,000	310,000	£ 1,550,000
Sub-Total	3,780,000	3,230,000	2,905,000	3,005,000	3,105,000	£ 16,025,000
Change Management						
Training	225,000	225,000	225,000	225,000	225,000	£ 1,125,000
Supplier Engagement	210,000	210,000	210,000	210,000	210,000	£ 1,050,000
Staff backfill	100,000	100,000	100,000	100,000	100,000	£ 500,000
Sub-Total	535,000	535,000	535,000	535,000	535,000	£ 2,675,000
Total	£ 6,485,000	£ 5,975,000	£ 4,980,000	£ 5,160,000	£ 5,340,000	£ 27,940,000

7.3.5. Outline Timetable

The following table shows a possible order of projects and timescales. This is dependent on the availability of finances to support the activities and may require short-term, additional external support.

The first section highlights developments needed in IM&T infrastructure. The Trust is advised to commission a Strategic Outline Case to assess infrastructure-sourcing options, as other forms of infrastructure management may be more cost-effective than the current, in-house approach, (see next Section 7.4).

IM&T Work Programme Timetable

	Year 1				Year 2				Year 3				Year 4				Year 5			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Infrastructure																				
Networks		Wi Fi with RFID Tracking								Portal & Integration										
		BYOD												Mobile Working						
Storage																				
Servers																				
Estate																				
Desktop																				
ECR																				
PAS Development																				
Order Comms																				
e-Prescribing																				
Paperless working																				
Telemedicine																				
Correspondence																				
Change Management																				
Training																				

7.4. Options Evaluation

The Head of IM&T has recommended the selected option for ECR architecture involving development of the SemaHelix patient management system, with best of breed systems interfaced for specialist departmental areas. Supporting options may involve a portal to bring together the enterprise architecture and integration which will ensure best of breed components are successfully integrated without creating a huge increase in IM&T management overhead.

For many of the programme items above, particularly those in the infrastructure workstream, there are multiple options for delivery which need to be evaluated. These range from delivery by the in-house IT team, to full outsourcing of the work package, and hybrid approaches. It is beyond the

scope of this strategy to perform a full options evaluation, but this should be considered as part of any business cases moving forward.

The case for assessing infrastructure service delivery is strong. Indeed, all NHS Trusts throughout the UK are considering infrastructure sourcing options. There is an opportunity to attain better quality services, at significantly reduced cost and in parallel, introduce innovation to support the strategic objectives of the Trust.

Guidance and direction from the Department of Health QIPP (Quality, Innovation, Productivity and Prevention) back-office work-stream and the NHS Confederation Trust Network Review group is clear. The Quality and Innovation available through the marketplace surpasses that which can be developed internally and savings of between 25% to 40%, recurring/cash releasing are projected nationally, (Audit Commission).

Locally, there is potential for savings in excess of £1m per year, (based on a Channel 3 predictive model, which has been derived from experience of conducting similar studies in similar NHS Trust). These savings will be verified by the production of a Strategic Outline Case for infrastructure sourcing options.

7.5. Conclusions & Recommendations

The Trust is already heavily dependent on its IM&T infrastructure, which is partly due to its geographical catchment and partly due to changes in the way the Trust wishes to interact with patients. The Trust's reliance on its infrastructure is being exacerbated by more initiatives to achieve a closer relationship with patients, and therefore a need exists to ensure that infrastructure is sourced appropriately. There is evidence (from other NHS organisations) that formal assessment of infrastructure sourcing options can be viewed as a QIPP initiative to transform the Trust, with a cost effective service that will simultaneously raise service quality.

The Board is asked to approve this strategy and proceed with the development of a business case for the work programme outlined. The following actions should be considered as early priorities:

- 1) **Further explore infrastructure sourcing options** through the development of a Strategic Outline Case (SOC) that will confirm the potential for cost savings; allow the case to be affirmed, (strategically, commercially, financially, managerially and economically) and ensure that the strategic direction is achievable;
- 2) **Commission an OBC** for the next stage of Electronic Care Record delivery.

Some 'quick wins' may be delivered early and these include delivery of correspondence services and VitalPAC integration. These quick wins should be considered as part of the OBC for the next stage of the ECR development.

APPENDIX 4f – Trust IT vision presentation (draft)

The Shrewsbury and Telford Hospital Sustainable Services Programme. A vision for IT – a time for change

The Sustainable Services Programme for Shropshire's Acute hospitals aims to re-engineer our buildings, our workforce and our working practices in order to put the right number of clinicians in the right place for our patients. This change is set against a backdrop of having to ensure all our clinical units are of sufficient size to remain viable, that they can recruit and retain staff to safe levels, that clinical units are proximal to those with which they have the closest working relationship and that for the future our hospital can provide what our population feel is great health care, within our means.

The government in its Five Year Forward View saw the five years leading up to 2020 as being transformational for the NHS. The challenge is one of making changes that demonstrably make a positive difference to health outcomes, that are affordable or require only moderate investment and that together contribute to a reduction in operating costs for the NHS of 20% over that time.

The Five Year Forward View and the subsequent strategic document from the NHS Information Board, Personalised Health and Care 2020 both put great emphasis on using Information Technology to help optimise processes, bring patients and their clinicians closer together and make it easier for patients to take a more engaged and involved role in their healthcare management, before and after hospital.

Our SSP programme will be the catalyst that drives better, more improved, more focused use of IT. In this way IT will not be making do and mending but will be integrated with a movement that is truly all encompassing and transformational for our patients, our workforce, our population and our future.

This document describes what the IT will look like and why it will be necessary.

Creating the vision for IT - What do patients, clinicians and managers want?

		
Book and change appointments online. Plan for an appointment or operation with confidence that it will not be rearranged	appropriate information across health and social care at my fingertips.	information to support best and most current use of assets and resources
check information on my medication; report side effects and order and pay for prescriptions	capture information electronically and share with other professionals	help in managing the cultural change to a paper-free organisation
nominate a member of my family to access my information and act on my behalf	receive automatic notifications and alerts to help me make the right decisions and manage my workload	collaboration tools to help me work together with colleagues across our health economy and beyond
interact with doctors and the hospital via video, email and online chat, wherever we are	use technology to transfer orders and actions between care settings	help in my new role to manage my new information assets. I want to understand business continuity.
keep in touch with family and my studies online, while I am away	use cohort intelligence to improve my knowledge base and help me make best use of resources	IT that is available, all the time, anywhere it is needed.
	mobile me	

Satisfying national drivers and priorities

	Five year forward view				
	Improving health and well-being, care and quality, funding and efficiency				
Personalised Health and Care 2020 NHS Information Board setting strategy with CQC, NHS TDA, Public Health England, Third Sector and Local government agencies	2016	2017	2018	2019	2020
	Patients with online access to GP records				
	Patients have digital access to all their health records				
	Records will be interactive. All individuals will be able to record their own comments and preferences				
	CQC will regulate the quality of record keeping				
	NHS kite-marks for 'trusted' smartphone apps that help patients access services. NHS GP verification of health apps.				
	Abolish paper in the emergency department				
	Adopt SNOMED standard clinical terminology across systems and documents				
	A paper free NHS				
	Patients have free Wifi in NHS buildings				

Building our IT strategy

- remain focused on three themes

- Collaboration
 - Help and guidance from NHS bodies including the Health and Social Care Information Centre [HSCIC](#)
 - Standards and priority setting by the NHS Information Board [NIB](#)
 - Working together with our health partners in the LHE via the [Digital IT Forum](#) as we build a Digital Roadmap of work-streams that are interconnected, interdependent and that together have a positive impact on health, wellbeing, care, quality, funding and efficiency.
- Integration
 - The number of systems, the number of stake-holders, the accelerated time-frames, the funding constraints, the agreement on risk make the challenge too big for a one size fits all plan.
 - Simon Stevens NHS CEO comments that “neither can we let 1000 flowers bloom – there must be horses for courses.”
 - The challenge must be directed at making best use of systems by integration, harnessing the agility of small and medium enterprises [SME's](#) and using standards of data and workflow to make systems talk.
- Safety
 - Electronic will replace paper. The volume of data that supports the best, in-time decision making is simply too great now for it to be any other way. It is safer to have access to the right information. This means that systems must be supported by resilient technology. It must be [available](#), of high [integrity](#) and [confidential](#) only to those with a need to know. Safety begins with sound design, structured development, testing and training.

We are up there with the best – in some areas



Healthcare systems innovation

-Make more room for exciting innovation

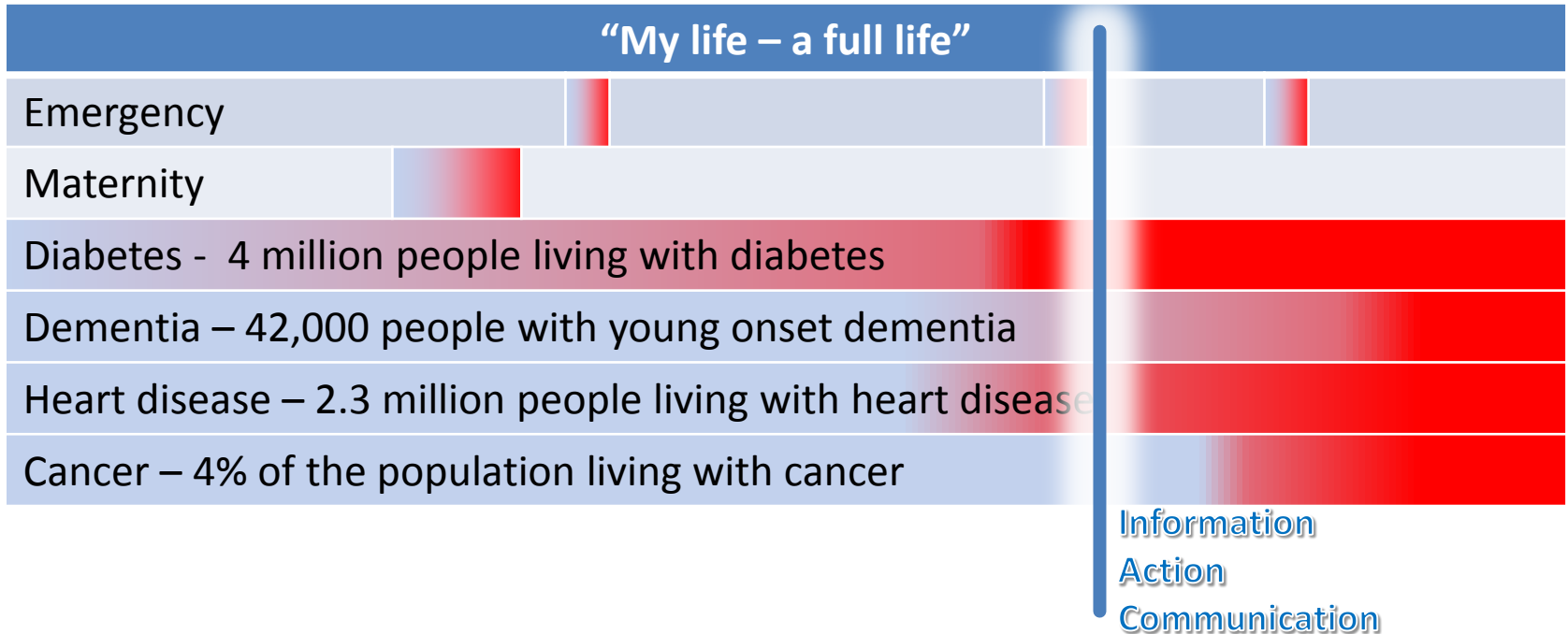
- Mobile working
 - Make use of 3&4G networks and smart id badges to support lone workers.
 - Wearable Telemedicine for continuing support for patients post-discharge. In 2014, 150,000 people had not received adequate support after leaving hospital. 15% of >75's readmitted within 30 days. Re-admissions within 30 days cost the NHS £2.2bn
 - The user may be anywhere. The relevant information may be anywhere.
- Pharmacy
 - Support for hospital and community pharmacies. Help patients better manage discharge medication. Build on the research programmes of Liverpool JM University and Royal Liverpool and Broadgreen UH
- GS1 – just-in-time stock control, re-ordering and tracking
 - Hospitals (Leeds, Derby) are now adopting the global data standard bar-coding for stock control from procurement to bedside.
 - Evidence of 60% reduction in stock-holding. 99.9% stock availability. 46% reduction in order-processing staff.
 - The NHS has some catching up to do. 10-15 years behind efficient retail chains.
- Cancer services support
 - Cancer care accounts for 10% of our activity now. 4% of UK citizens are living with cancer now. This will increase to 6% by 2030. 1000 new diagnoses a day. Survival rates are increasing. Demand for treatment is increasing.
 - Out of hospital shared-care data platforms will become more important. This will require agreement on access rights, contribution from patients, clinicians and carers and integration with a range of hospital and community information systems.
 - Living with cancer will become a partnership between clinical team and patients, helped by shared data.
- Collaboration tools
 - Video conferencing across sites and across care settings across networks that can support this.
 - Document sharing and co-authoring/ editing/ approving – improves bid response times and quality.

Healthcare systems innovation

- it is happening across the NHS

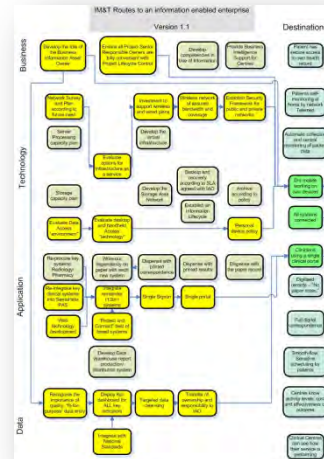
- Clinical access to images
 - Vendor Neutral Archiving can bring images from a range of systems, suppliers and modalities into a format to allow them to be easily accessed and viewed by common means.
- Integration
 - Telematics in fleet cars to ensure optimum call-response times and to manage assets more efficiently and responsibly
- Roaming profiles
 - As access to a computer becomes more important along with identification of the user; roaming profiles and follow-me desktop will have to be considered.
- Electronic noting, e-forms and workflow tools
 - Digital pens
 - Digital forms, paper-free or bar-coded for ease of integration with the electronic records. Embedded into workflow.
- Big data analysis
 - Analysis of NHS prescription patterns for statins established that £27m a month was spent on the more expensive proprietary statins with evidence that all drugs in the class are equally safe and effective.
 - Allows us to invest and position out-of-hospital services in the most appropriate way e.g. E&N Herts Homefirst programme as alternative to Hospital ED admission

Produce the right systems for the new challenges to healthcare



- A population living longer means that doctors will have to treat more patients presenting with multiple co-morbidities.
- Doctors must have access to important relevant information.
- Patients and advocates must make meaningful use of that information to help ease the burden on doctors – patients can become healthcare partners.
- Systems must provide access to data AND knowledge-based expert intelligence based on that data – for both patients and carers.
- Information must travel across conditions, across multiple carers and across organisations – it must move beyond paper.

Putting all this into a roadmap for SaTH systems and infrastructure



Principles

1. Pursue user engagement for the full life cycle – relentlessly
2. Embrace best of breed – make the best of systems we have and bring early benefits
3. Bring in new systems that users want and that enhance our portfolio
4. Replace systems only when users categorically state they are not fit for purpose
5. Understand the nature of each process re-design (VMI-it)
6. Integrate like mad
7. Make IT resilient, safe, available.

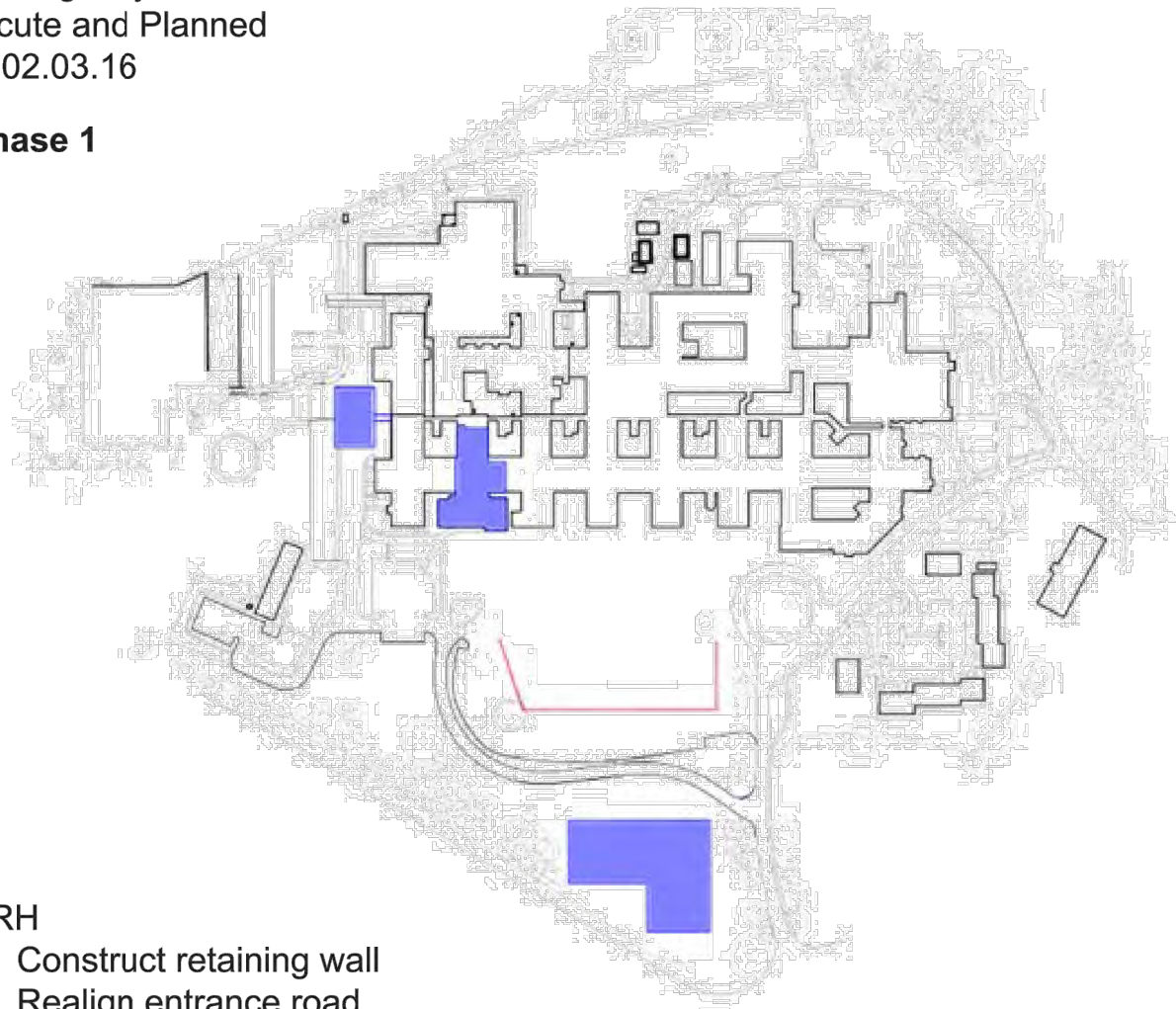
APPENDIX 4g – Phasing plans

Notes

THIS DRAWING READ IN CONJUNCTION WITH :

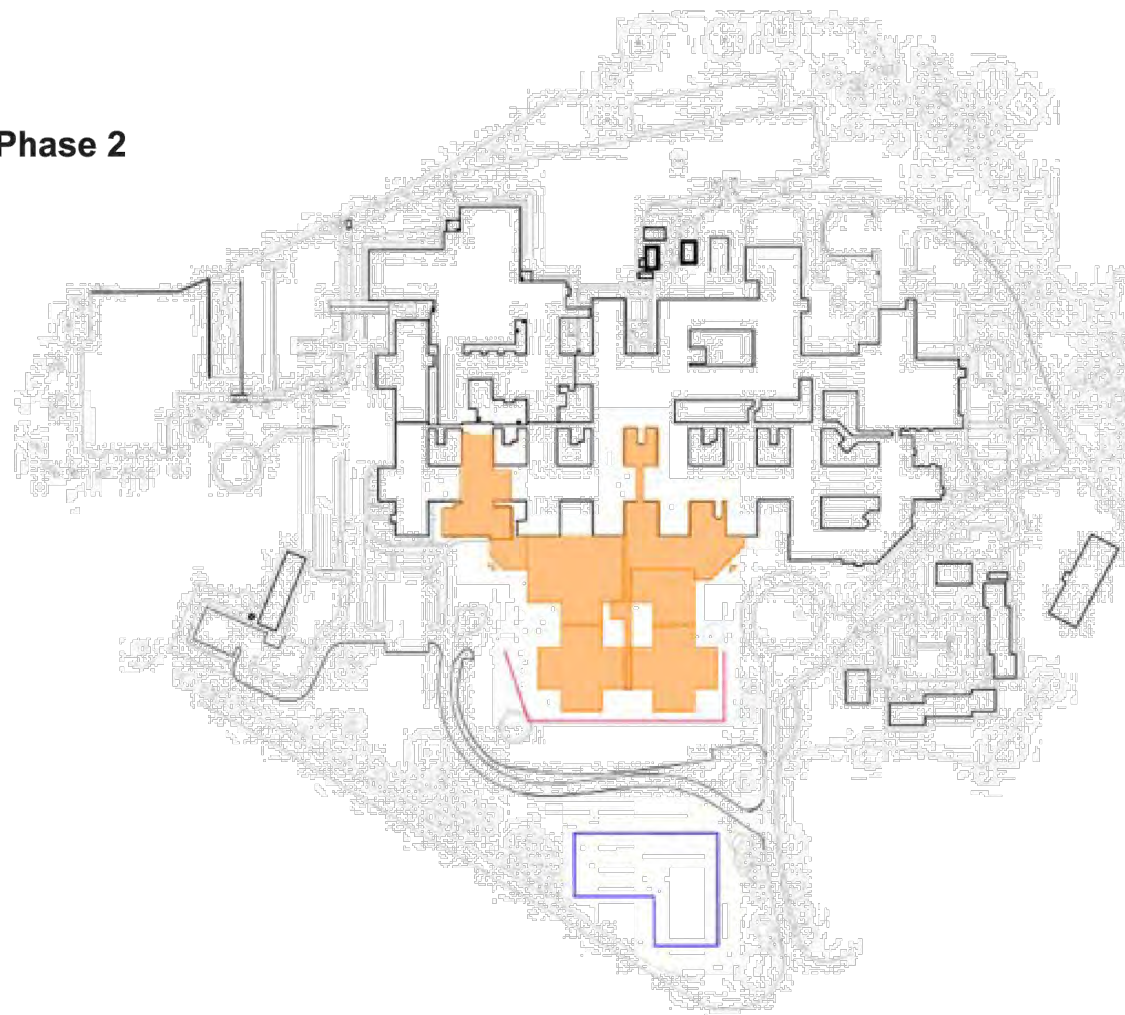
PRH Emergency and Acute
RSH Acute and Planned
Rev05 02.03.16

Phase 1



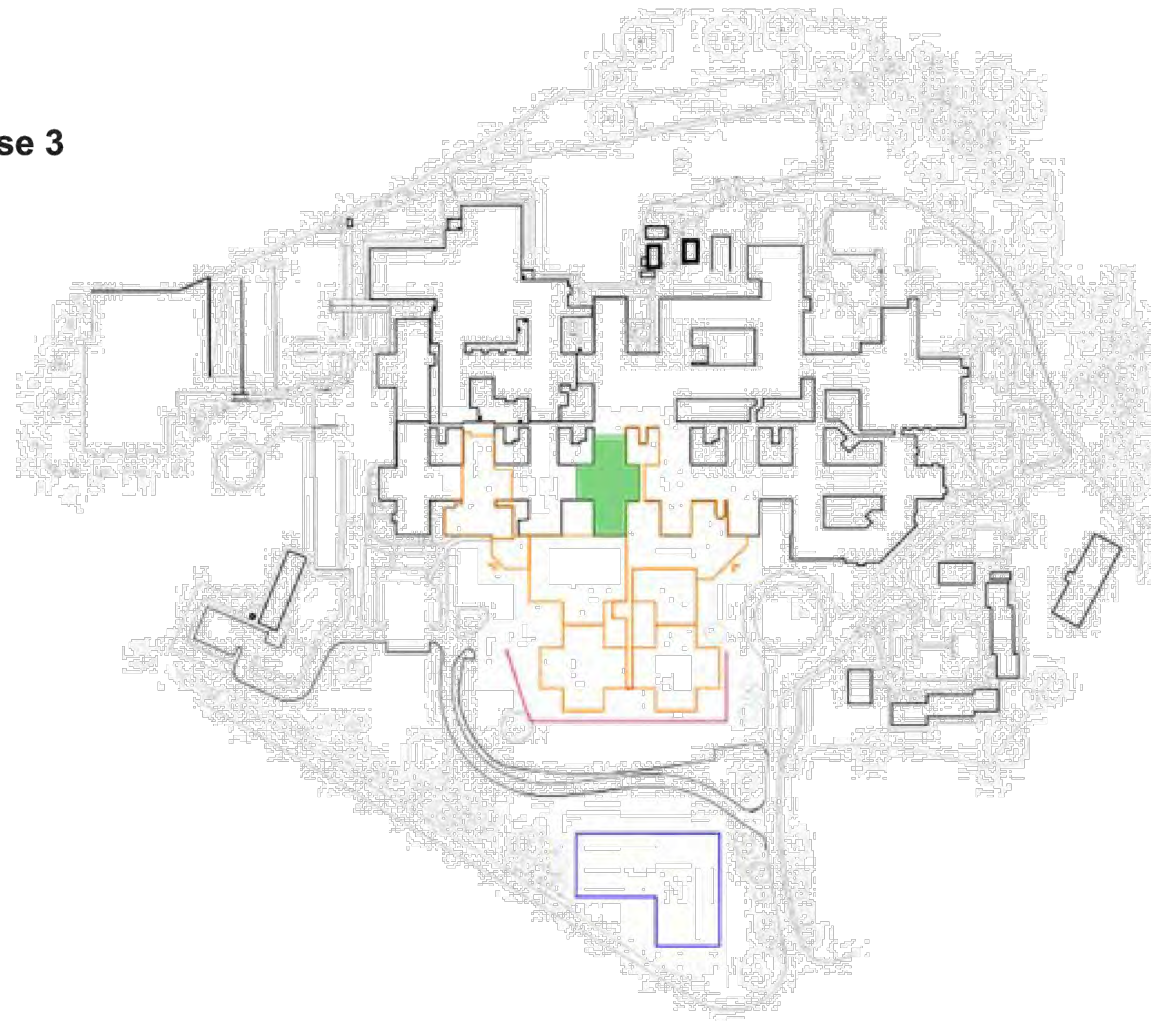
- PRH
- Construct retaining wall
 - Realign entrance road
 - Temporary Car Park/ Park and Ride
 - Build multi-storey car park
 - Temporary A&E at end of street
 - Refurb A&E as UCC

Phase 2



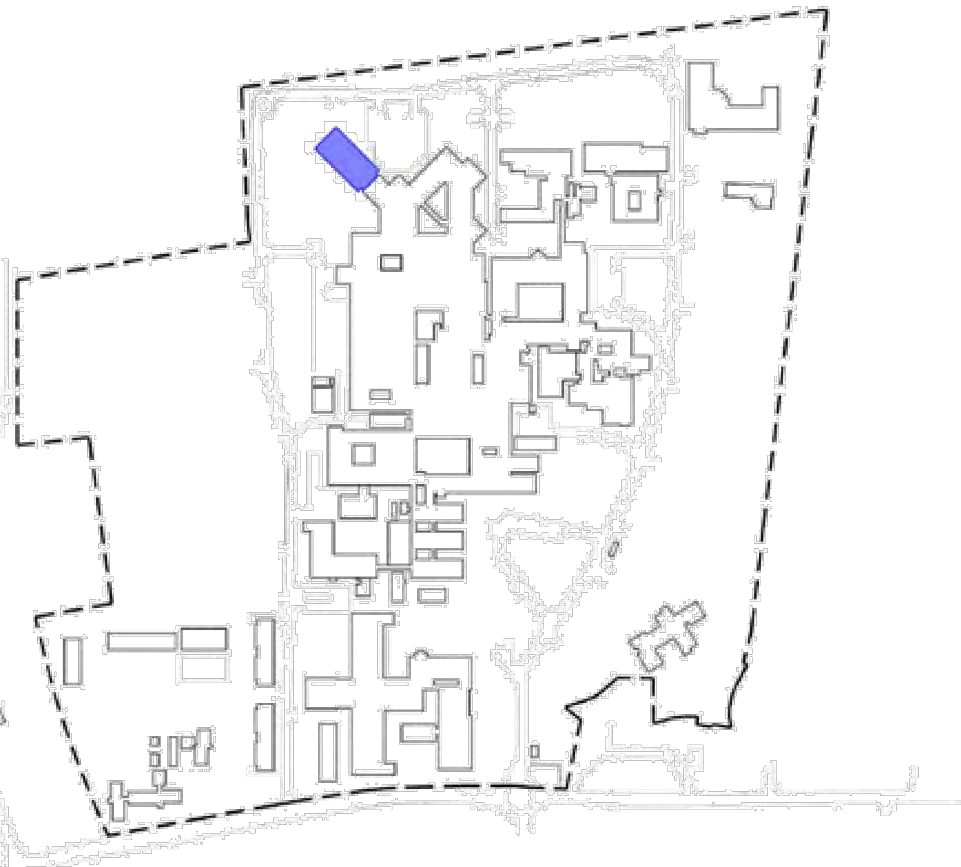
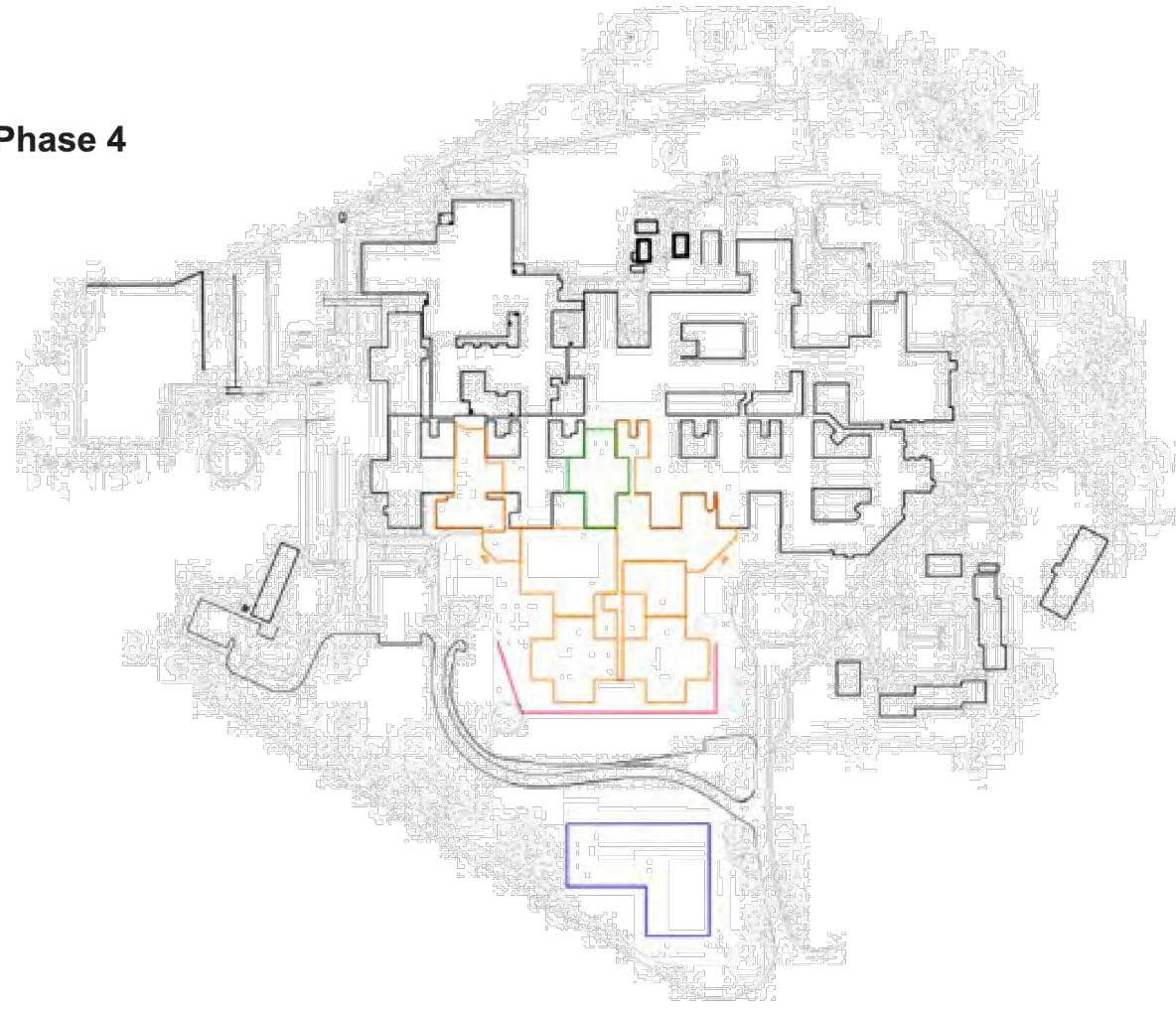
- PRH
- Build new ED/CCU/AEC and wards
 - New UCC Operational

Phase 3



- PRH
- Refurb existing Critical Care Unit

Phase 4



- RSH
- Build new MLU/POPD adjacent to Treatment Centre



- RSH
- Demolish ShropDoc
 - Provide temporary A&E in its place



- RSH
- Demolish part of H+N
 - Refurbish existing A&E as UCC/AEC



- RSH
- Build new entrance



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client
Shrewsbury and Telford NHS Trust

project
Sustainable Services
Princess Royal Hospital

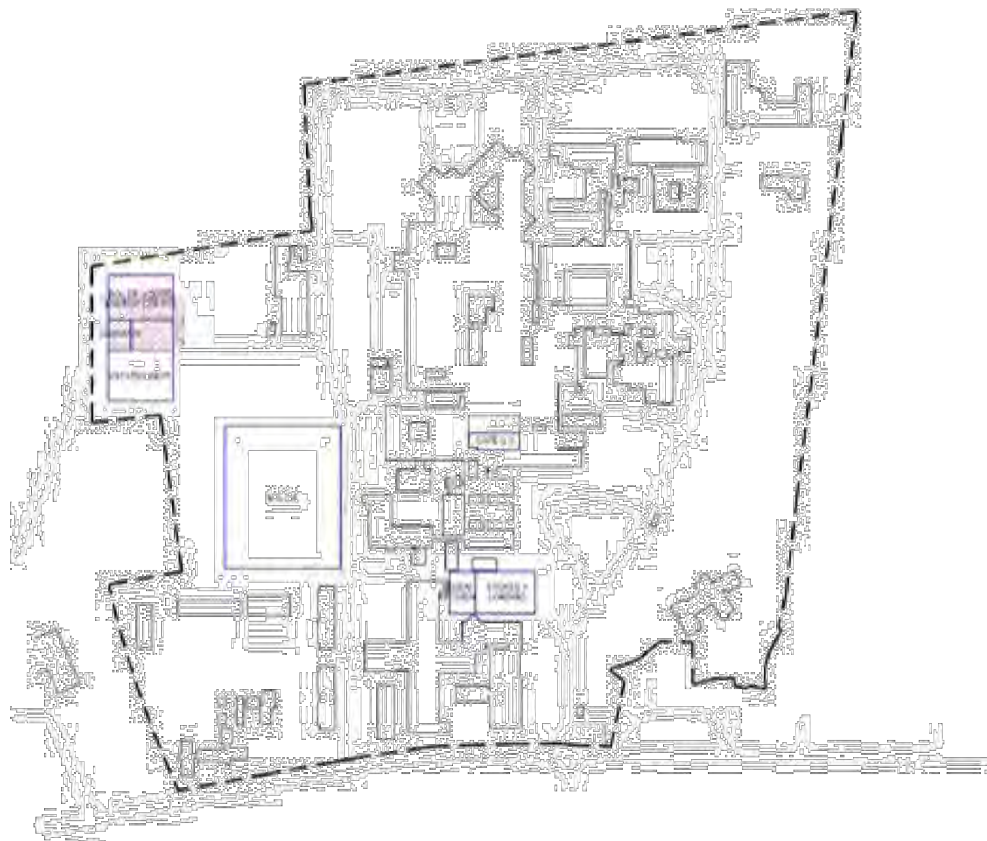
drawing
Proposed Potential Solution - Emergency & Acute
Phasing Diagrams

project number	2015_00839_001	scale	NTS	@A1
drawing number	PRH-AHR-00-02-DR-A-20-010	rev	01	issue status SOC

This drawing is to be read in conjunction with all related drawings. All dimensions must be checked and verified on site before commencing any work or producing shop drawings. The originator should be notified immediately of any discrepancy. This drawing is copyright and remains the property of AHR.

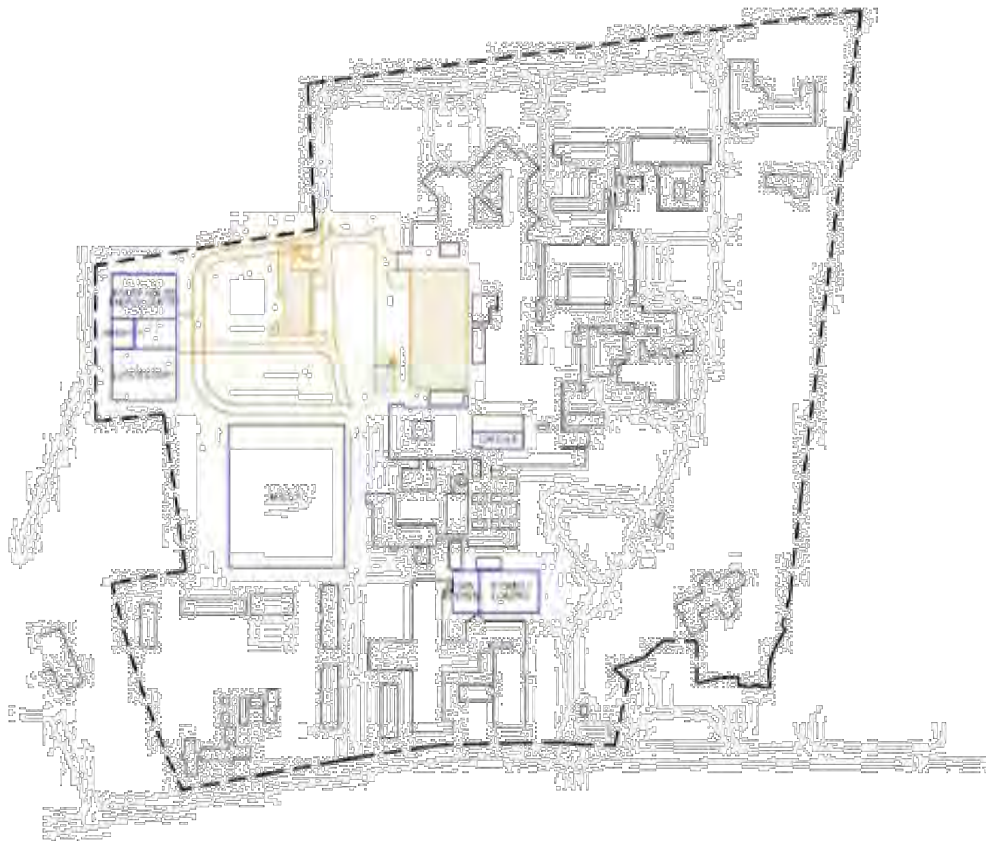
RSH Emergency and Acute
PRH Acute and Planned
Rev05 02.03.16

Phase 1



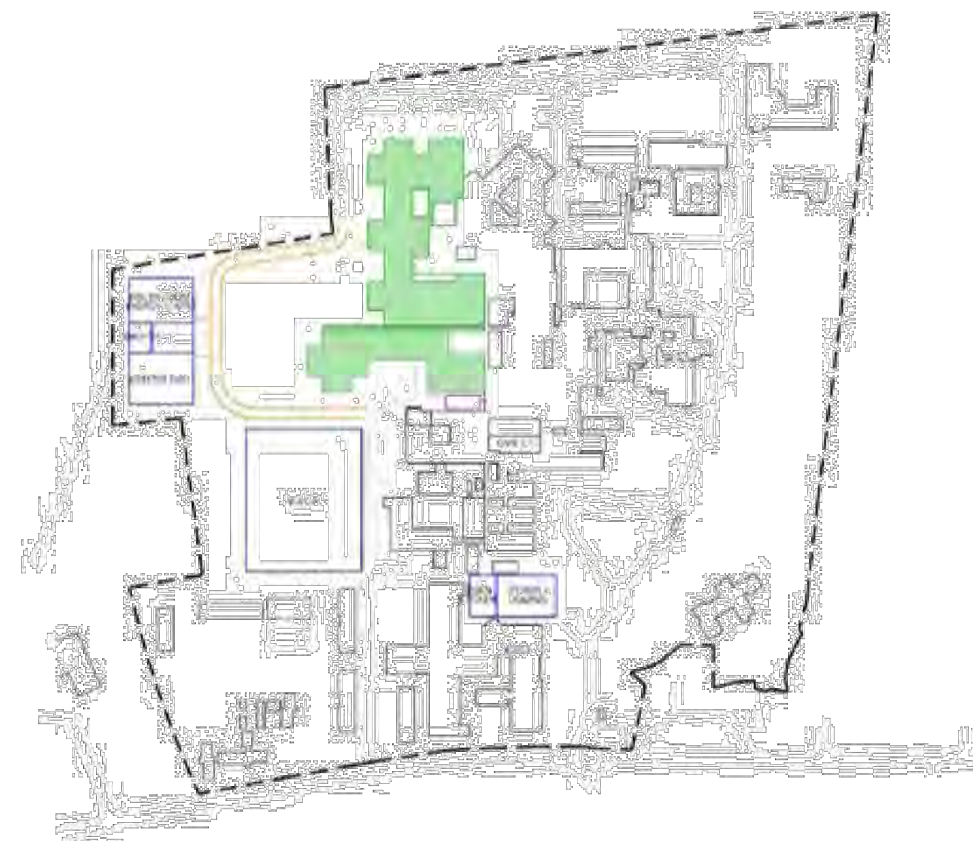
- RSH
- Construct new stores & loading bay
 - Construct new regen kitchen
 - Provide new catering offer (Cafe/ Bistro)
 - Reconfigure and expand Energy Centre
 - Provide Temporary staff parking/ Park & Ride
 - Construct new multi storey car park

Phase 2



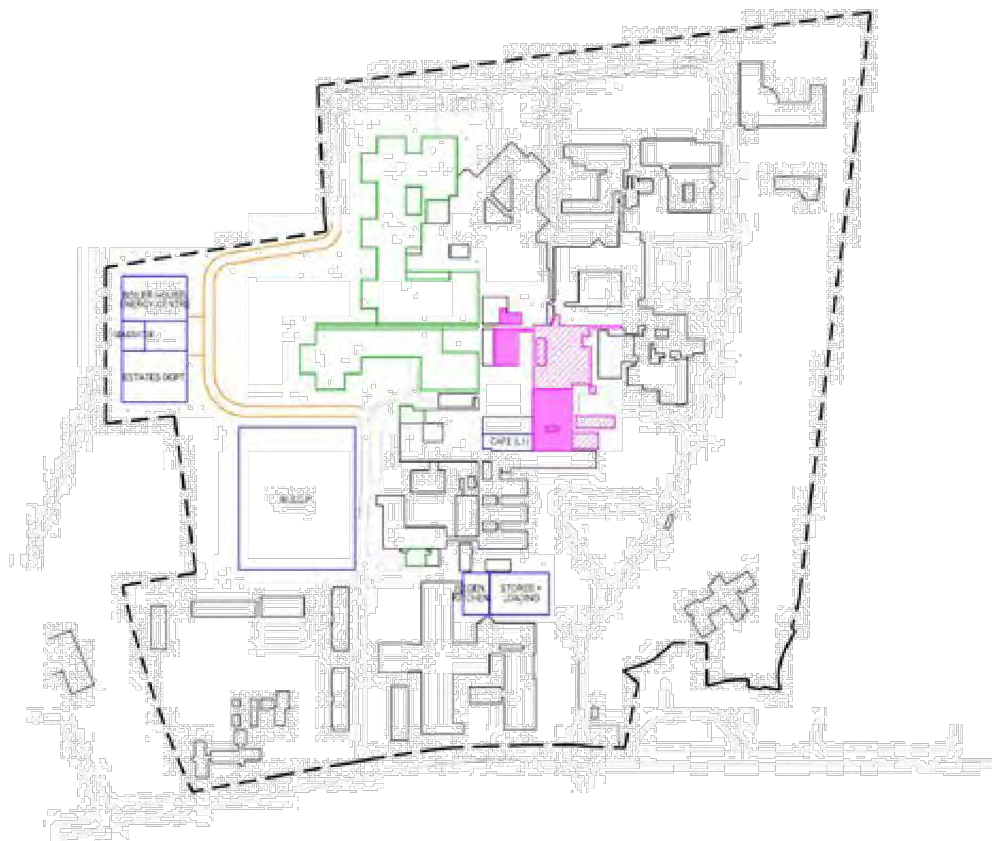
- RSH
- Demolish existing catering, stores and loading bay
 - Demolish Generator
 - Demolish Estates Building
 - Divert Service Road

Phase 3



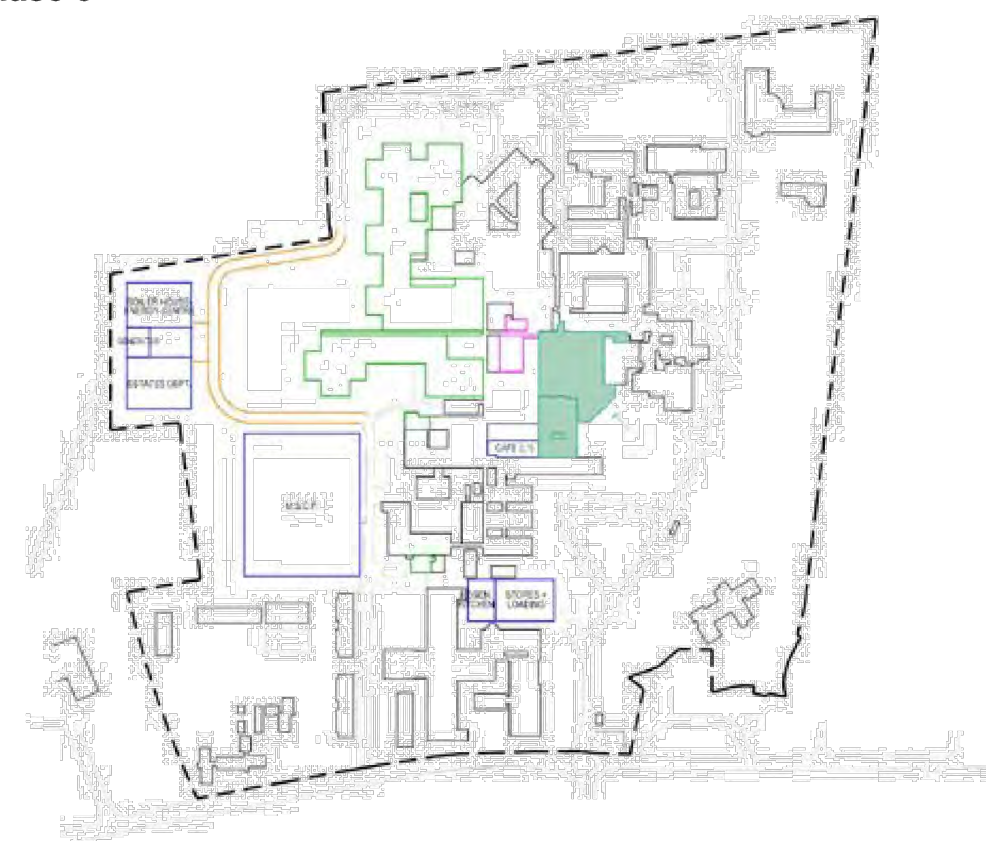
- RSH
- Build new ED/CCU/UCC/AEC
 - Build new Women's and Children's Unit

Phase 4



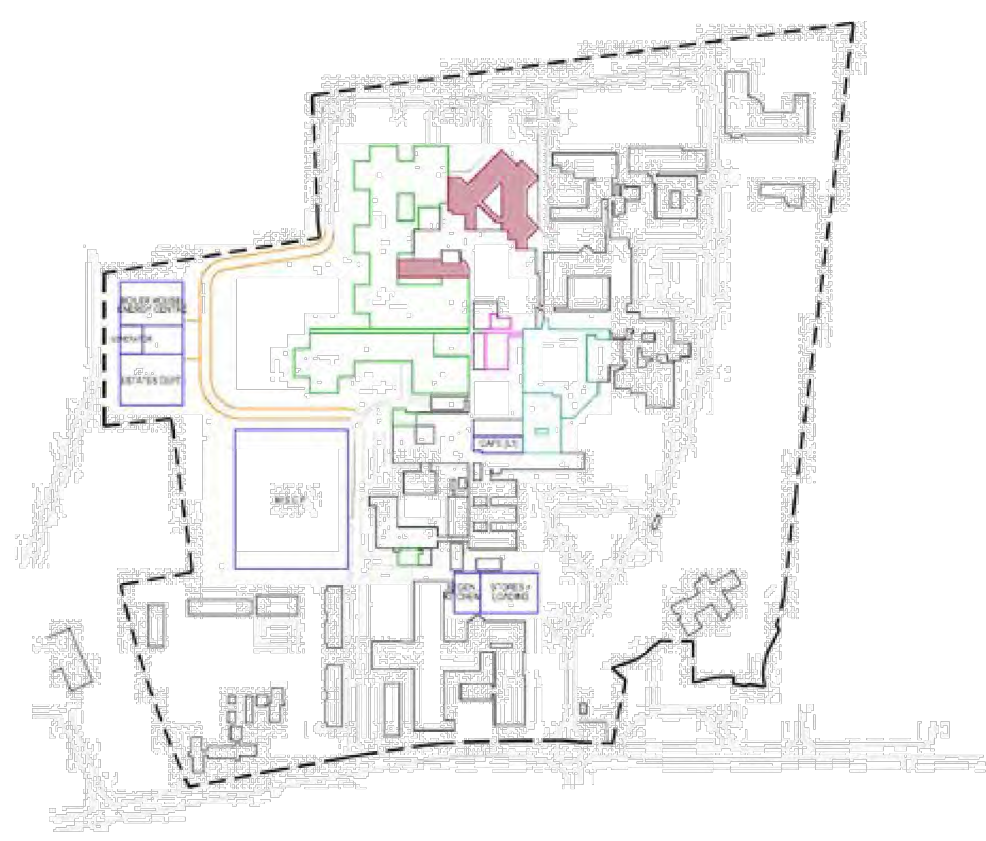
- RSH
- Open new Women's and Children's Unit
 - Transfer A&E to new ED
 - Transfer ICU and HDU to new Critical Care
 - Vacate A&E, and ITU/HDU
 - Demolish Shropdoc and Head & Neck

Phase 5



- RSH
- Reconfigure Fracture Clinic
 - Construct new Main Entrance

Phase 6



- RSH
- Move treatment centre to PRH
 - Refurbish existing Treatment Centre for MLU/POPD/Admin

PRH

- Vacate Women's and Children's

PRH

- Refurbish existing Women's and Children's as new Treatment Centre

PRH

- Refurbish A&E to UCC
- Temporary UCC



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client
Shrewsbury and Telford NHS Trust

project
Sustainable Services
Royal Shrewsbury Hospital

drawing
Proposed Potential Solution - Emergency & Acute
Phasing Plan

project number	2015_00839_001	scale	NTS	@A1
drawing number	RSH-AHR-00-02-DR-A-20-010	rev	01	issue status SOC

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APPENDIX 5a – Optimism bias calculations

OPTIMISM BIAS: CONTRIBUTORY FACTORS AND MITIGATION

Contributory Factor to Upper Bound	% Factor Contributes	Stage	Mitigation Factor	% After Mitigation
Progress with Planning Approval	4%	SOC	Opened discussion with planning authority, some engagement	4%
		OBC	Outline consent in place, with any Planning Conditions and requirements for Section 106 or similar agreements established, including any specific requirements of e.g. Environmental Agency	
		FBC	Full Consent in place. Judicial Review period passed	
Other Regulatory	4%	SOC	Degree of sign off from Fire Authority, HSE, transport authority, local government etc	4%
		OBC		
		FBC		
Depth of surveying of site/ground information	3%	SOC	Desktop study undertaken of own site	3%
		OBC	Investigations undertaken, historical records examined	
		FBC	Full survey of conditions, site services and topographics	
Detail of design	4%	SOC	Concept/masterplan/DCP	4%
		OBC	1:500s agreed and selected 1:200s	
		FBC	All 1:200s in place, key 1:50s (depends on procurement route)	
Innovative project/design	3%	SOC	Yes/No	1%
		OBC		
		FBC		
Design complexity	4%	SOC	This might include complex M&E solutions (requires further development)	2%
		OBC		
		FBC		
Likely variations from Standard Contract	2%	SOC	No contract chosen	2%
		OBC	Yes/No with measurement of scale variations	
		FBC		
Design Team capabilities	3%	SOC	Previous relevant experience of individuals involved. Capacity	0%
		OBC		
		FBC		
Contractor's capabilities	2%	SOC	Previous relevant experience of individuals involved. Capacity. Track record of delivery	1%
		OBC		
		FBC		
Contractor involvement	2%	SOC	Buildability. Opportunity to influence design	1%
		OBC		
		FBC		
Client capability and capacity	6%	SOC	Degree of team in place with relevant experience	4%
		OBC	Full team in place for procurement	
		FBC	Robust implementation plan in place	
Robustness of Output Specification	25%	SOC	Definition of scope and extent of services. Degree of outstanding decisions	15%
		OBC		
		FBC		

Involvement of Stakeholders, including Public and Patient Involvement	5%	SOC	Scope of stakeholders to be involved. Plan in place to engage	5%
		OBC	Implementation of Plan	
		FBC	Involvement demonstrated	
Agreement to Output Specification by stakeholders	5%	SOC	Letters of support from clinicians, Trade Unions, staff groups, patient representatives/groups	5%
		OBC		
		FBC		
New service or traditional	3%	SOC	Assessment of how innovative/new service model is at national/regional/local level. Has this ever been tried before?	2%
		OBC		
		FBC		
Local community consent	3%	SOC	Consideration of traffic noise/existence of protestors or pressure groups Not tested	2%
		OBC		
		FBC		
Stable policy environment	20%	SOC	Degree to which new policy/standards are applicable depending upon which stage is reached	15%
		OBC		
		FBC		
Likely competition in the market for the project	2%	SOC	Degree project has been marketed	0%
		OBC	Evidence of market interest	
		FBC	Mitigated	
TOTAL	100%			70%

Note: Across all contributory factors, mitigation would be expected to be greater the greater the extent of risk quantification and risk management (including the extent to which it is captured in contingencies)

OPTIMISM BIAS - UPPER BOUND CALCULATION

Lowest & Upper Bound
 Mid %
 Upper %
 Actual % Upper Bound for this project

13%
40%
76%
31%

Build complexity			
<i>Choose 1 category</i>			
<i>Length of Build</i>	< 2 years	0.50%	0.50%
	2 to 4 years	1.00%	
	Over 4 years	4.00%	
<i>Choose 1 category</i>			
<i>Number of phases</i>	1 or 2 phases	0.50%	0.50%
	3 or 4 phases	2.00%	
	More than 4 Phases	5.00%	
<i>Choose 1 category</i>			
<i>Number of sites involved (i.e. before and after change)</i>	Single site	2.00%	
	2 sites	2.00%	2.00%
	More than 2 sites	5.00%	
Location			
<i>Green field</i>	New build	3%	
	<i>Brown field</i> New build	8%	
<i>Existing site</i>	New build	5%	
		or	
	Less than 15% refurb	6%	
	15% - 50% refurb	10%	10.00%
	Over 50% refurb	15%	
Scope of scheme			
<i>Choose 1 category</i>			
<i>Facilities Management</i>	Hard FM only	0.00%	0.00%
	TUPE whole service	2.00%	
	RoE whole service	2.00%	
<i>Choose 1 category</i>			
<i>Equipment</i>	Group 1&2 only	0.50%	0.50%
	Major medical equipment	1.50%	
	All equipment included	5.00%	
<i>Choose 1 category</i>			
<i>IT</i>	No IT implications	0.00%	
	Infrastructure	1.50%	1.50%
	Infrastructure & systems	5.00%	

<i>Choose more than 1 category if applicable</i>			
External stakeholders	Local NHS economy (e.g. DGH)	1.00%	1.00%
	Wider NHS economy (e.g. teaching DGH)	2.00%	
	NHS/Universities/Private/Vol sector	5.00%	
Service changes			
Stable environment, i.e. no change to service		5%	
Identified changes not quantified		10%	10%
Longer time frame service changes		20%	
Gateway			
<i>Choose 1 category</i>			
RPA Score	Low	0%	
	Medium	5%	5%
	High	10%	
		TOTAL	31.000%

CONTRIBUTION FACTORS AND MITIGATION	70%
UPPER BOUND CALCULATION	31%
TOTAL FACTOR TO APPLY TO ESTIMATE	22%

OPTIMISM BIAS: CONTRIBUTORY FACTORS AND MITIGATION

Contributory Factor to Upper Bound	% Factor Contributes	Stage	Mitigation Factor	% After Mitigation
Progress with Planning Approval	4%	SOC	Opened discussion with planning authority, some engagement	
		OBC	Outline consent in place, with any Planning Conditions and requirements for Section 106 or similar agreements established, including any specific requirements of e.g. Environmental Agency	4%
		FBC	Full Consent in place. Judicial Review period passed	
Other Regulatory	4%	SOC	Degree of sign off from Fire Authority, HSE, transport authority, local government etc	4%
		OBC		
		FBC		
Depth of surveying of site/ground information	3%	SOC	Desktop study undertaken of own site	3%
		OBC	Investigations undertaken, historical records examined	
		FBC	Full survey of conditions, site services and topographics	
Detail of design	4%	SOC	Concept/masterplan/DCP	4%
		OBC	1:500s agreed and selected 1:200s	
		FBC	All 1:200s in place, key 1:50s (depends on procurement route)	
Innovative project/design	3%	SOC	Yes/No	1%
		OBC		
		FBC		
Design complexity	4%	SOC	This might include complex M&E solutions (requires further development)	2%
		OBC		
		FBC		
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		OBC	Yes/No with measurement of scale variations	
		FBC		
Design Team capabilities	3%	SOC	Previous relevant experience of individuals involved. Capacity	0%
		OBC		
		FBC		
Contractor's capabilities	2%	SOC	Previous relevant experience of individuals involved. Capacity. Track record of delivery	1%
		OBC		
		FBC		
Contractor involvement	2%	SOC	Buildability. Opportunity to influence design	1%
		OBC		
		FBC		
Client capability and capacity	6%	SOC	Degree of team in place with relevant experience	4%
		OBC	Full team in place for procurement	
		FBC	Robust implementation plan in place	
Robustness of Output Specification	25%	SOC	Definition of scope and extent of services. Degree of outstanding decisions	15%
		OBC		
		FBC		

Involvement of Stakeholders, including Public and Patient Involvement	5%	SOC	Scope of stakeholders to be involved. Plan in place to engage	5%
		OBC	Implementation of Plan	
		FBC	Involvement demonstrated	
Agreement to Output Specification by stakeholders	5%	SOC	Letters of support from clinicians, Trade Unions, staff groups, patient representatives/groups	5%
		OBC		
		FBC		
New service or traditional	3%	SOC	Assessment of how innovative/new service model is at national/regional/local level. Has this ever been tried before?	2%
		OBC		
		FBC		
Local community consent	3%	SOC	Consideration of traffic noise/existence of protestors or pressure groups	2%
		OBC		
		FBC		
Stable policy environment	20%	SOC	Degree to which new policy/standards are applicable depending upon which stage is reached	15%
		OBC		
		FBC		
Likely competition in the market for the project	2%	SOC	Degree project has been marketed	0%
		OBC	Evidence of market interest	
		FBC	Mitigated	
TOTAL	100%			70%

Note: Across all contributory factors, mitigation would be expected to be greater the greater the extent of risk quantification and risk management (including the extent to which it is captured in contingencies)

OPTIMISM BIAS - UPPER BOUND CALCULATION

Lowest & Upper Bound
 Mid %
 Upper %
 Actual % Upper Bound for this project

13%
40%
76%
33%

Build complexity			
<i>Choose 1 category</i>			
<i>Length of Build</i>	< 2 years	0.50%	
	2 to 4 years	1.00%	1.00%
	Over 4 years	4.00%	
<i>Choose 1 category</i>			
<i>Number of phases</i>	1 or 2 phases	0.50%	
	3 or 4 phases	2.00%	2.00%
	More than 4 Phases	5.00%	
<i>Choose 1 category</i>			
<i>Number of sites involved (i.e. before and after change)</i>	Single site	2.00%	
	2 sites	2.00%	2.00%
	More than 2 sites	5.00%	
Location			
<i>Green field</i>	New build	3%	
	<i>Brown field</i> New build	8%	
<i>Existing site</i>	New build	5%	
		or	
	Less than 15% refurb	6%	
	15% - 50% refurb	10%	10.00%
	Over 50% refurb	15%	
Scope of scheme			
<i>Choose 1 category</i>			
<i>Facilities Management</i>	Hard FM only	0.00%	0.00%
	TUPE whole service	2.00%	
	RoE whole service	2.00%	
<i>Choose 1 category</i>			
<i>Equipment</i>	Group 1&2 only	0.50%	0.50%
	Major medical equipment	1.50%	
	All equipment included	5.00%	
<i>Choose 1 category</i>			
<i>IT</i>	No IT implications	0.00%	
	Infrastructure	1.50%	1.50%
	Infrastructure & systems	5.00%	

<i>Choose more than 1 category if applicable</i>			
External stakeholders	Local NHS economy (e.g. DGH)	1.00%	1.00%
	Wider NHS economy (e.g. teaching DGH)	2.00%	
	NHS/Universities/Private/Vol sector	5.00%	
Service changes			
Stable environment, i.e. no change to service		5%	
Identified changes not quantified		10%	10%
Longer time frame service changes		20%	
Gateway			
<i>Choose 1 category</i>			
RPA Score	Low	0%	
	Medium	5%	5%
	High	10%	
TOTAL		33.000%	

CONTRIBUTION FACTORS AND MITIGATION	70%
UPPER BOUND CALCULATION	33%
TOTAL FACTOR TO APPLY TO ESTIMATE	23%

APPENDIX 5b – OB Forms

COST FORM OB1

TRUST: The Shrewsbury and Telford Hospital NHS Trust

SCHEME: Sustainable Services Programme
Emergency and Acute Site at PRH Potential Solution

CAPITAL COSTS: Summary

		Cost £	V.A.T. (at 20%) £	Cost incl V.A.T £
1	Department Costs (from Form OB2)	39,835,096	7,967,019	47,802,115
2	On Costs (a) (from Form OB3)	6,915,500	1,383,100	8,298,600
3	Work Cost Total (1+2) at PUBSEC 195	46,750,596	9,350,119	56,100,715
4	Provisional location adjustment Shropshire	-796,702	-159,340	-956,042
5	Sub-Total (3+4)	45,953,894	9,190,779	55,144,673
6	Fees (c) (from Form OB4)	7,670,800	(d) xxxxxxxxxxxxx	7,670,800
7	Non-Works Costs (e)	0 300,000	0 60,000	0 360,000
8	Equipment Cost (from OB2)	6,516,400	1,303,280	7,819,680
9A	Planning contingencies 10%	5,113,800	1,022,760	6,136,560
9B	Optimism Bias 22%	15,562,676	3,112,535	18,675,211
10	TOTAL (for approval purposes)(5+6+7+8+9a+9b)	81,117,570	14,689,354	95,806,924
11	Inflation Adjustments PUBSEC 195 to PUBSEC 217	5,184,542	1,036,908	6,221,450
12	FORECAST OUTTURN BUSINESS CASE	86,302,112	15,726,262	102,028,374

Cash Flow
YEAR

EFL
SOURCE
OTHER
GOVERNMENT

PRIVATE

£
TOTAL

Total	0	0	0

This form completed by: RIDER HUNT
Telephone No: 0161 834 8922
Address: 12 Tenterden Street, Bury, BL0 0EG
Date: 02.03.16

COST FORM OB2

TRUST: The Shrewsbury and Telford Hospital NHS Trust

SCHEME: Sustainable Services Programme
Emergency and Acute Site at PRH Potential Solution

CAPITAL COSTS: Departmental

FUNCTIONAL CONTENT	FUNCTION UNIT/SPACE REQUIREMENTS	COST /M2 £	COST ALLOWANCE £	EQUIPMENT COST £
New building works at PRH			24,159,880	
Work to existing buildings at PRH			3,258,000	
New building works at RSH			3,952,000	
Work to existing buildings at RSH			3,971,000	
Adjust for inflation to PUBSEC 195 reporting level			4,494,216	
			39,835,096	
Less abatement for transferred equipment if applicable (0.%) (4)				
Departmental Costs and Equipment Costs to Summary (Form OB1)		£	39,835,096	6,516,400

COST FORM OB3

TRUST: The Shrewsbury and Telford Hospital NHS Trust

SCHEME: Sustainable Services Programme
Emergency and Acute Site at PRH Potential Solution

CAPITAL COSTS: On-Costs

	Estimated Cost (exc. VAT)	Percentage of Departmental Cost
£		
1. Communications		
a. New Bridge Link at 1st Floor Level	82,500	
b. New hospital street	936,000	
c. Vertical circulation	675,000	2,013,500
d. Lifts	320,000	5.05%
2. "External" Building Works		
a. Drainage	1,750,000	
b. Roads, paths, parking	675,000	
c. Site layout, walls, fencing, gates	327,000	
d. Builders work for engineering services outside buildings	2,752,000	6.91%
3. "External" Engineering Works		
a. Steam, condensate, heating, hot water and gas supply mains		
b. Cold water mains and storage		
c. Electricity mains, stand-by generating plant		
d. Calorifiers and associated plant		
e. Miscellaneous Services (connections)	0	0.00%
4. Auxiliary Buildings	0	0.00%
5. Other on-costs and abnormals		
a. Building		
i) Abnormal Foundations	1,500,000	
ii) Work to Existing Building	200,000	
iii) Service diversions	250,000	
v) Drop off and entrance canopies	200,000	
	2,150,000	5.40%
Total On-Costs to Summary OB1	6,915,500	

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Date: 02.03.16

COST FORM OB4

TRUST The Shrewsbury and Telford Hospital NHS Trust

SCHEME Sustainable Services Programme
Emergency and Acute Site at PRH Potential Solution

CAPITAL COSTS: Fees and Non-works costs

	£	Percentage of Works Cost %
1. Fees (including "in-house" resource costs)		
a. Architects		}
b. Structural Engineers		}
c. Mechanical Engineers		}
d. Electrical Engineers		}
e. Quantity Surveyors		}
f. Project Management		}
g. Project Sponsorship		}
h. Legal Fees		}
i. Site Supervision		}
j. Others (specify)		}
Design fees at 15%	7,670,800	
Total Fees to Summary (OB1)	£ 7,670,800	19.3%

£		
2. Non-Works Costs		
a. Land purchase costs and associated legal fees		
b. Land receipts)	
c. Statutory and Local Authority charges)	
d. Building Regulations and Planning Fees)	300,000
e. Other (specify) e.g. decanting costs)	
Non-Works Costs to Summary (OB1)	£	<u>300,000</u>

Notes:

** Delete as appropriate*

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Date 02.03.16

PRH Emergency and Acute**WORKS COSTS**

				£	£
<u>Area No</u>	<u>New Building Works (Based on DOH HPCGs)</u>				
1	AEC (HBN 22)	722 m2 @	£2,280 / m2	1,646,160	
2-3	Ward (HBN 04-01)	2,588 m2 @	£2,040 / m2	5,279,520	
4	ED (HBN 22)	1,786 m2 @	£2,140 / m2	3,822,040	
7	Main Entrance / Circulation	2,108 m2 @	£1,700 / m2	3,583,600	
11	Critical Care (HBN 57 Supercost)	1,784 m2 @	£2,840 / m2	5,066,560	
	Allowance for Main Plant Rooms	2,000 m2 @	£2,280 / m2	4,560,000	
	Adjustment for single storey buildings	5,050 m2 @	£40 / m2	<u>202,000</u>	24,159,880
<u>Works To Existing Buildings</u>					
5	A+E to Urgent Care Centre Medium Refurbishment	1,155 m2 @	£1,500 / m2	1,732,500	
12	Medium Refurbishment of Critical Care	1,017 m2 @	£1,500 / m2	<u>1,525,500</u>	<u>3,258,000</u>
					27,417,880
	Adjust for inflation from PUBSEC 173 to PUBSEC 195 reporting level				<u>3,486,667</u>
					30,904,547
	Adjust for location factor 0.98 Shropshire as BCIS 26/01/2016				<u>-618,091</u>
					30,286,456
<u>Site Wide Implications (current prices)</u>					
	New Bridge Link at 1st Floor Level	55 m2 @	£1,500 / m2	82,500	
	Drop off and Entrance Canopies	2 nr	£100,000	200,000	
	New Multi Storey Car Park			<u>Excluded</u>	282,500
<u>External Works</u>					
	Re-alignment of Entrance Road	item		500,000	
	Hard Landscaping	3,500 m2 @	£50 / m2	175,000	
	Soft Landscaping	10,700 m2 @	£10 / m2	107,000	
	Retaining Wall 4m high	150 m2 @	£800 / m	120,000	
	Allowance for Planting	item		50,000	
	Allowance for Street Furniture	item		50,000	
	Allowance for Building Drainage	item		<u>250,000</u>	1,252,000
Carried Forward					<u>31,820,956</u>

The Shrewsbury and Telford Hospital NHS Trust - Sustainable Services Programme

PRH Emergency and Acute

WORKS COSTS Continued

£	£
Brought Forward	31,820,956

Communications

New Build Hospital Street as AHR Schedule	624 m2 @	£1,500 / m2	936,000	
Vertical Circulation (say)	450 m2 @	£1,500 / m2	675,000	
Lifts	4 NO	£80,000 each	<u>320,000</u>	1,931,000

Undefined Allowances / Provisional Sums

Poor ground conditions	1,500,000	
Additional drainage, external works and external services	1,500,000	
Allowance for service and drainage, diversions and connections	250,000	
Connections / breakthroughs to existing buildings	<u>200,000</u>	3,450,000
		37,201,956
Adjust to current prices from PUBSEC 195 - 217		4,197,144
		<u>41,399,100</u>
TOTAL WORKS COST EXCLUDING VAT		41,399,100

TRUST COSTS

Fees at 15% of Works Cost- as HPCGs	6,209,900	
Non-works costs, including planning fees (allowance based on "typical" building)	200,000	
Equipment (say 15% of departmental costs) as HPCGs	5,055,500	
Planning Contingencies (10% of Works Cost)	<u>4,139,900</u>	15,605,300
TOTAL CAPITAL COST EXCLUDING VAT		57,004,400
Add Optimism Bias - 22% of Capital Cost		12,540,968
		<u>69,545,368</u>
TOTAL CAPITAL COST INCL OPTIMISM BIAS/EXCL VAT		69,545,368
VALUE ADDED TAX - 20%		13,909,100
		<u>83,454,468</u>
Potential VAT Recovery		
Less: Fees (100% recovery assumed)	1,242,000	
Extensions (no recovery assumed)	0	
Refurbishment (no recovery assumed)	<u>0</u>	<u>-1,242,000</u>

PRH HOT SITE OPTION 4 TOTAL PROJECT ESTIMATE	£	<u><u>82,212,468</u></u>
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NOTES:

- Costs are at CURRENT LEVELS and EXCLUDE INFLATION
- Costs EXCLUDE ALL SITE ABNORMALS, SITE INFRASTRUCTURE UPGRADES and REPAIRS
- For full set of notes, clarifications, and basis of costs refer to attached Notes Sheet

<u>Summary</u>		
WORKS COST (EXCL VAT)	£	41,399,000
TOTAL CAPITAL (EXCL VAT)	£	57,004,000
TOTAL CAPITAL (INCL OPTIMISM BIAS AND EXCL VAT)	£	69,545,000
TOTAL CAPITAL (INCL VAT)	£	83,454,000
TOTAL CAPITAL (INCL VAT AND POTENTIAL RECOVERY)	£	82,212,000

RSH Acute and Planned**WORKS COSTS**

<u>Area No</u>	<u>Work to Existing Buildings</u>		£	£
3	Convert short stay to UCC Medium Refurbishment	850 m2 @ £1,500 / m2	1,275,000	
4	Convert Escalation to UCC Medium Refurbishment	290 m2 @ £1,500 / m2	435,000	
5	Convert A+E into UCC Medium Refurbishment	660 m2 @ £1,500 / m2	990,000	
9	Ward to Training Ward Refresh	1,349 m2 @ £500 / m2	674,500	
11	Fracture Clinic to UCC Medium Refurbishment	390 m2 @ £1,500 / m2	585,000	
6	Demolition Offices	230 m2 @ £50 / m2	11,500	
<u>New Building Works</u>				
11a	POPD/ANC/PANDA (HBN 09-02)	800 m2 @ £2,470 / m2	1,976,000	
15 (a)	MLU (HBN 09-02)	800 m2 @ £2,470 / m2	<u>1,976,000</u>	<u>7,923,000</u>
Adjust for inflation from PUBSEC 173 to PUBSEC 195 reporting level				<u>1,007,549</u>
				8,930,549
Adjust for location factor 0.98 Shropshire as BCIS 26/01/2016				<u>-178,611</u>
				8,751,938
Adjust to current prices from PUBSEC 195 - 217				<u>987,398</u>
TOTAL WORKS COST EXCLUDING VAT				9,739,336

TRUST COSTS

Fees at 15% of Works Cost- as HPCGs	1,460,900	
Non-works costs, including planning fees (allowance based on "typical" building)	100,000	
Equipment (say 15% of departmental costs) as HPCGs	1,460,900	
Planning Contingencies (10% of Works Cost)	<u>973,900</u>	<u>3,995,700</u>
TOTAL CAPITAL COST EXCLUDING VAT		13,735,036
Add Optimism Bias - 22% of Capital Cost		<u>3,021,708</u>
TOTAL CAPITAL COST INCL OPTIMISM BIAS/EXCL VAT		16,756,744

Carried Forward 16,756,744

The Shrewsbury and Telford Hospital NHS Trust - Sustainable Services Programme

RSH Acute and Planned

	£	£
Brought Forward		16,756,744
VALUE ADDED TAX - 20%		<u>3,351,300</u>
		20,108,044
Potential VAT Recovery		
Less: Fees (100% recovery assumed)	292,200	
Extensions (no recovery assumed)	0	
Refurbishment (no recovery assumed)	<u>0</u>	<u>-292,200</u>
RHS WARM SITE OPTION 4 TOTAL PROJECT ESTIMATE	£	<u><u>19,815,844</u></u>

NOTES:

- Costs are at CURRENT LEVELS and EXCLUDE INFLATION
- Costs EXCLUDE ALL SITE ABNORMALS, SITE INFRASTRUCTURE UPGRADES and REPAIRS
- For full set of notes, clarifications, and basis of costs refer to attached Notes Sheet

Summary

WORKS COST (EXCL VAT)	£ 8,752,000
TOTAL CAPITAL (EXCL VAT)	£ 13,735,000
TOTAL CAPITAL (INCL OPTIMISM BIAS AND EXCL VAT)	£ 16,757,000
TOTAL CAPITAL (INCL VAT)	£ 20,108,000
TOTAL CAPITAL (INCL VAT AND POTENTIAL RECOVERY)	£ 19,816,000

COST FORM OB1

TRUST: The Shrewsbury and Telford Hospital NHS Trust

SCHEME: Sustainable Services Programme
Emergency and Acute Site at RSH Potential Solution

CAPITAL COSTS: Summary

		Cost £	V.A.T. (at 20%) £	Cost incl V.A.T £
1	Department Costs (from Form OB2)	71,970,668	14,394,134	86,364,801
2	On Costs (a) (from Form OB3)	16,592,490	3,318,498	19,910,988
3	Work Cost Total (1+2) at PUBSEC 195	88,563,158	17,712,632	106,275,789
4	Provisional location adjustment Shropshire	-1,439,413	-287,883	-1,727,296
5	Sub-Total (3+4)	87,123,744	17,424,749	104,548,493
6	Fees (c) (from Form OB4)	14,542,900	(d) xxxxxxxxxxxxx	14,542,900
7	Non-Works Costs (e)	0 300,000	0 60,000	0 360,000
8	Equipment Cost (from OB2)	12,813,200	2,562,640	15,375,840
9A	Planning contingencies 10%	9,695,300	1,939,060	11,634,360
9B	Optimism Bias 23%	30,890,033	6,178,007	37,068,039
10	TOTAL (for approval purposes)(5+6+7+8+9a+9b)	155,365,177	28,164,455	183,529,632
11	Inflation Adjustments PUBSEC 195 to PUBSEC 217	9,829,346	1,965,869	11,795,215
12	FORECAST OUTTURN BUSINESS CASE	165,194,522	30,130,324	195,324,847

Cash Flow
YEAR

EFL
SOURCE
OTHER
GOVERNMENT

PRIVATE

£
TOTAL

Total	0	0	0

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COST FORM OB2

TRUST: The Shrewsbury and Telford Hospital NHS Trust

SCHEME: Sustainable Services Programme
Emergency and Acute Site at RSH Potential Solution

CAPITAL COSTS: Departmental

FUNCTIONAL CONTENT	FUNCTION UNIT/SPACE REQUIREMENTS	COST /M2 £	COST ALLOWANCE £	EQUIPMENT COST £
New building works at RSH			45,172,900	
Work to existing buildings at RSH			6,396,600	
New building works at PRH			0	
Work to existing buildings at PRH			12,281,400	
Adjust for inflation to PUBSEC 195 reporting level			8,119,768	
			71,970,668	
Less abatement for transferred equipment if applicable (0.%) (4)				
Departmental Costs and Equipment Costs to Summary (Form OB1)		£	71,970,668	12,813,200

COST FORM OB3

TRUST: The Shrewsbury and Telford Hospital NHS Trust

SCHEME: Sustainable Services Programme
Emergency and Acute Site at RSH Potential Solution

CAPITAL COSTS: On-Costs

	Estimated Cost (exc. VAT)	Percentage of Departmental Cost
£		
1. Communications		
a. Replacement buildings	6,030,000	
b. New hospital street	1,263,000	
c. Vertical circulation	900,000	8,433,000
d. Lifts	240,000	11.72%
2. "External" Building Works		
a. Drainage	3,000,000	
b. Roads, paths, parking	806,550	
c. Site layout, walls, fencing, gates	364,940	
d. Builders work for engineering services outside buildings	4,171,490	5.80%
3. "External" Engineering Works		
a. Steam, condensate, heating, hot water and gas supply mains		
b. Cold water mains and storage		
c. Electricity mains, stand-by generating plant		
d. Removal of underground tanks	100,000	
e. Removal of generator	10,000	110,000
4. Auxiliary Buildings		0.15%
a. Demolition	700,000	700,000
5. Other on-costs and abnormals		
a. Building		
i) Abnormal Foundations	2,000,000	
ii) Work to Existing Building	250,000	
iii) Service diversions	500,000	
v) Drop off and entrance canopies	200,000	
vi) Underground walkway duct	228,000	
	3,178,000	4.42%
Total On-Costs to Summary OB1	16,592,490	

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Date: 02.03.16

COST FORM OB4

TRUST The Shrewsbury and Telford Hospital NHS Trust

SCHEME Sustainable Services Programme
Emergency and Acute Site at RSH Potential Solution

CAPITAL COSTS: Fees and Non-works costs

	£	Percentage of Works Cost %
1. Fees (including "in-house" resource costs)		
a. Architects		}
b. Structural Engineers		}
c. Mechanical Engineers		}
d. Electrical Engineers		}
e. Quantity Surveyors		}
f. Project Management		}
g. Project Sponsorship		}
h. Legal Fees		}
i. Site Supervision		}
j. Others (specify)		}
Design fees at 15%	14,542,900	
Total Fees to Summary (OB1)	£ 14,542,900	20.2%

£		
2. Non-Works Costs		
a. Land purchase costs and associated legal fees		
b. Land receipts)	
c. Statutory and Local Authority charges)	
d. Building Regulations and Planning Fees)	300,000
e. Other (specify) e.g. decanting costs)	
Non-Works Costs to Summary (OB1)	£	<u>300,000</u>

Notes:

** Delete as appropriate*

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Date 02.03.16

RSH Emergency and Acute

WORKS COSTS

				£	£
Area No	New Building Works (Based on DOH HPCGs)				
16	AEC (HBN 22)	578 m2 @	£2,140 / m2	1,236,920	
16a	UCC (HBN 12)	1,050 m2 @	£2,040 / m2	2,142,000	
17	ED (HBN 22)	1,786 m2 @	£2,140 / m2	3,822,040	
18	Critical Care (HBN 57 Supercost)	2,741 m2 @	£2,840 / m2	7,784,440	
19	Paediatrics In (HBN 09-02)	1,580 m2 @	£2,470 / m2	3,902,600	
20	Antenatal (HBN 09-02)	1,072 m2 @	£2,470 / m2	2,647,840	
21	Post natal (HBN 09-02)	857 m2 @	£2,470 / m2	2,116,790	
24	Neo natal (HBN 09-02)	1,072 m2 @	£2,470 / m2	2,647,840	
24a	Obs. Theatre (HBN 09-02)	508 m2 @	£2,470 / m2	1,254,760	
25	Delivery Suite (HBN 09-02)	1,027 m2 @	£2,470 / m2	2,536,690	
	Main Entrance / Circulation	2,575 m2 @	£1,700 / m2	4,377,500	
	Allowance for Main Plant Rooms	4,300 m2 @	£2,400 / m2	10,320,000	
	Adjustment for single storey buildings	9,587 m2 @	£40 / m2	383,480	45,172,900
<u>Works To Existing Buildings</u>					
2	Convert stores to Paediatrics OPD Heavy refurbishment	584 m2 @	£1,900 / m2	1,109,600	
6	Refurb Atrium/Staff Admin Light refurbishment	685 m2 @	£900 / m2	616,500	
7	Convert existing ward to MLU Medium Refurbishment	1,423 m2 @	£1,500 / m2	2,134,500	
8	HDU Empty no work	119 m2 @	/ m2	0	
9	ITU Empty no work	394 m2 @	/ m2	0	
10	Part A+E converted to Imaging Medium Refurbishment	1,103 m2 @	£1,500 / m2	1,654,500	
12	Existing ward into practice ward Refresh	1,293 m2 @	£500 / m2	646,500	
13	Wards Empty no work	4,079 m2 @	/ m2	0	
15	Refresh Staff/Admin	470 m2 @	£500 / m2	235,000	6,396,600
					51,569,500
	Adjust for inflation from PUBSEC 173 to PUBSEC 195 reporting level				6,557,971
					58,127,471
	Adjust for location factor 0.98 Shropshire as BCIS 26/01/2016				-1,162,549
					56,964,922
				Carried Forward	56,964,922

The Shrewsbury and Telford Hospital NHS Trust - Sustainable Services Programme

RSH Emergency and Acute

WORKS COSTS Continued

£

£

Brought Forward

56,964,922

Site Wide Implications (current prices)

Replacement Buildings

Emergency Generator and Boiler House Extensions	221 m2 @	£2,000 / m2	442,000	
Reprovided Stores and Loading Bay	1,600 m2 @	£1,000 / m2	1,600,000	
Reprovided Estates Department	1,300 m2 @	£1,700 / m2	2,210,000	
New Regen Kitchen	460 m2 @	£2,300 / m2	1,058,000	
Reprovided Catering	400 m2 @	£1,800 / m2	720,000	
Drop off and entrance canopy	2 nr	£100,000	200,000	
New Multi Storey Car Park			Excluded	
Extra for rooftop helipad			<u>Excluded</u>	6,230,000

External Works

Perimeter road diversion	315 m2 @	£1,500 / m	472,500	
Hard Landscaping	6,681 m2 @	£50 / m2	334,050	
Soft Landscaping	15,294 m2 @	£10 / m2	152,940	
Retaining Wall 3.5 high	160 m2 @	£700 / m	112,000	
New Underground walkway Duct	190 m2 @	£1,200 / m	228,000	
Allowance for Planting	item		50,000	
Allowance for Street Furniture	item		50,000	
Allowance for Building Drainage	item		500,000	
Allowance for Removing Underground Tanks	item		100,000	
Allowance for Decommissioning and Removing Emergency Generator	item		10,000	
Allowance for Demolition of Existing Buildings circa 4000 m2 as indicated on AHR schedule and Main Entrance Plan			<u>700,000</u>	2,709,490

Communications

New Build Hospital Street as AHR Schedule	842 m2 @	£1,500 / m2	1,263,000	
Vertical Circulation (say)	600 m2 @	£1,500 / m2	900,000	
Lifts	3 NO	£80,000 each	<u>240,000</u>	2,403,000

Carried Forward

68,307,412

The Shrewsbury and Telford Hospital NHS Trust - Sustainable Services Programme

RSH Emergency and Acute

WORKS COSTS Continued

Undefined Allowances / Provisional Sums

	£	£
	Brought Forward	68,307,412
Poor ground conditions	2,000,000	
Additional drainage, external works and external services	2,500,000	
Allowance for service and drainage, diversions and connections	500,000	
Connections / breakthroughs to existing buildings	<u>250,000</u>	<u>5,250,000</u>
		73,557,412
Adjust to current prices from PUBSEC 195 - 217		<u>8,298,785</u>
	TOTAL WORKS COST EXCLUDING VAT	81,856,197

TRUST COSTS

Fees at 15% of Works Cost- as HPCGs	12,278,400	
Non-works costs, including planning fees (allowance based on "typical" building)	200,000	
Equipment (say 15% of departmental costs) as HPCGs	10,548,700	
Planning Contingencies (10% of Works Cost)	<u>8,185,600</u>	<u>31,212,700</u>
	TOTAL CAPITAL COST EXCLUDING VAT	113,068,897
Add Optimism Bias - 23% of Capital Cost		<u>26,005,846</u>
	TOTAL CAPITAL COST INCL OPTIMISM BIAS/EXCL VAT	139,074,743
VALUE ADDED TAX - 20%		<u>27,814,900</u>
		166,889,643
Potential VAT Recovery		
Less: Fees (100% recovery assumed)	2,455,700	
Extensions (no recovery assumed)	0	
Refurbishment (no recovery assumed)	<u>0</u>	<u>-2,455,700</u>
	RSH HOT SITE OPTION 4 TOTAL PROJECT ESTIMATE	£ 164,433,943

NOTES:

- Costs are at CURRENT LEVELS and EXCLUDE INFLATION
- Costs EXCLUDE ALL SITE ABNORMALS, SITE INFRASTRUCTURE UPGRADES and REPAIRS
- For full set of notes, clarifications, and basis of costs refer to attached Notes Sheet

Summary

WORKS COST (EXCL VAT)	£	81,856,000
TOTAL CAPITAL (EXCL VAT)	£	113,069,000
TOTAL CAPITAL (INCL OPTIMISM BIAS AND EXCL VAT)	£	139,075,000
TOTAL CAPITAL (INCL VAT)	£	166,890,000
TOTAL CAPITAL (INCL VAT AND POTENTIAL RECOVERY)	£	164,434,000

PRH Acute and Planned

WORKS COSTS

Area No	Work to Existing Buildings		£	£
1	Convert Post natal/Antenatal into new Treatment Centre Light/Medium Refurbishment	2,518 m2 @ £1,200 / m2	3,021,600	
2	Convert Paeds. Outpatients into ward Light/Medium Refurbishment	1,926 m2 @ £1,200 / m2	2,311,200	
3	Paediatric Inpatients to ward - no work	1,417 m2 @ / m2	0	
4	Convert A+E into UCC Medium Refurbishment	1,180 m2 @ £1,500 / m2	1,770,000	
5	Stroke ward - no work	492 m2 @ / m2	0	
6	Stroke ward - no work	365 m2 @ / m2	0	
7	Convert Neo-natal Unit/ Delivery Suite into new Treatment Medium/ Light Refurbishment	2,518 m2 @ £1,200 / m2	3,021,600	
8	Convert ward treatment into ward Light/Medium Refurbishment for 50% of area	535 m2 @ £1,200 / m2	642,000	
9-14	Existing ward - no work	3,000 m2 @ / m2	0	
15	Convert CCU into AEC Medium Refurbishment	1,010 m2 @ £1,500 / m2	1,515,000	
16-18	Existing ward - no work	1,500 m2 @ / m2	0	12,281,400
Adjust for inflation from PUBSEC 173 to PUBSEC 195 reporting level				1,561,797
				13,843,197
Adjust for location factor 0.98 Shropshire as BCIS 26/01/2016				-276,864
				13,566,333
Adjust to current prices from PUBSEC 195 - 217				1,530,561
TOTAL WORKS COST EXCLUDING VAT				15,096,893

Trust Costs

Fees at 15% of Works Cost- as HPCGs	2,264,500	
Non-works costs, including planning fees (allowance based on "typical" building)	100,000	
Equipment (say 15% of departmental costs) as HPCGs	2,264,500	
Planning Contingencies (10% of Works Cost)	1,509,700	6,138,700
TOTAL CAPITAL COST EXCLUDING VAT		21,235,593
Add Optimism Bias - 23% of Capital Cost		4,884,186
TOTAL CAPITAL COST INCL OPTIMISM BIAS/EXCL VAT		26,119,780
Carried Forward		26,119,780

The Shrewsbury and Telford Hospital NHS Trust - Sustainable Services Programme

PRH Acute and Planned

	£	£
Brought Forward		26,119,780
VALUE ADDED TAX - 20%		<u>5,224,000</u>
		31,343,780
Potential VAT Recovery		
Less: Fees (100% recovery assumed)	452,900	
Extensions (no recovery assumed)	0	
Refurbishment (no recovery assumed)	<u>0</u>	<u>-452,900</u>
PRH WARM SITE OPTION 4 TOTAL PROJECT ESTIMATE	£	<u><u>30,890,880</u></u>

NOTES:

- Costs are at CURRENT LEVELS and EXCLUDE INFLATION
- Costs EXCLUDE ALL SITE ABNORMALS, SITE INFRASTRUCTURE UPGRADES and REPAIRS
- For full set of notes, clarifications, and basis of costs refer to attached Notes Sheet

Summary

WORKS COST (EXCL VAT)	£	15,097,000
TOTAL CAPITAL (EXCL VAT)	£	21,236,000
TOTAL CAPITAL (INCL OPTIMISM BIAS AND EXCL VAT)	£	26,120,000
TOTAL CAPITAL (INCL VAT)	£	31,344,000
TOTAL CAPITAL (INCL VAT AND POTENTIAL RECOVERY)	£	30,891,000

APPENDIX 5c – High level cost estimates (for information only)



The Shrewsbury and Telford Hospital NHS Trust

Sustainable Services Programme

PRH Emergency and Acute/RSH Acute and Planned

High Level Cost Estimates

Potential Solution

March 2016

**Rider Hunt Construction Consultants LLP
12 Tenterden Street
Bury
BL9 0EG**

The Shrewsbury and Telford Hospital NHS Trust
Sustainable Services Programme

PRH Hot Site/RSH Warm Site

Summary of Total Project Estimate for Potential Solution

Capital cost of Works at PRH	£82,212,468
Capital cost of works at RSH	£19,815,844
Total Capital Cost of Potential Solution	£102,028,312

Sustainable Services Programme

High Level Cost Estimate

NOTES AND CLARIFICATIONS

The estimated costs have been based on the AHR Schedules of Areas with current revisions for all options and the site wide implication drawings.

The estimates exclude the costs of multi-storey car parks and the helipads at both sites.

As confirmed by AHR the areas scheduled include an allowance for circulation and engineering within the department and Rider Hunt have added an allowance for main plant rooms and communication space between departments.

The rates per m2 are calculated mainly from DoH HPCGs and adjusted accordingly for storey height, location factor and inflation to current prices.

For refurbishment projects, a percentage of the new build rate has been taken based on the type of refurbishment indicated on the schedules.

The costs have been adjusted to current levels (PUBSEC 217) but **NO ALLOWANCE** is included for inflation up to start on site or during the construction period, as no programme information is currently available.

The estimates assume that the existing hospital engineering services infrastructure have the capacity to supply the new extensions and therefore **EXCLUDE** any upgrades (eg boilers, distribution, medical gases, sub-stations, back up generators etc etc), as we are unable to quantify at this stage. All services being connected into are assumed to be in good working order.

The new extensions are increasing the size of the overall hospital buildings at the "hot" site, which may lead to capacity issues with shared support services (eg catering, stores, IT, pathology, offices, mortuary, FM etc). All upgrades, amendments and increased capacity to these items **ARE EXCLUDED**, as we are unable to quantify at this stage.

It is assumed that the buildings are able to be constructed and areas can be refurbished as shown on the plans, and this has not been verified.

The costs assume that sufficient space is available to construct the new buildings/ carry out the refurbishments, suitable and sufficient access is available for construction activity, and there are no unusual or difficult working conditions or restrictions

Allowances for on-costs, abnormals, site specific costs are estimated lump sums based on similar recent projects and must be regarded as very approximate at this stage

An allowance of 15% for fees has been allowed for the project as HPCG guidance

An allowance of 15% for equipment costs has been included as HPCG guidance

The works costs have been adjusted by the location factor for 'Shropshire' as published by BCIS

An allowance has been made for Optimism Bias, based on the attached calculations totalling 22%

Recovery on VAT has been assumed based on fees only as similar schemes. It is suggested the Trust seek specialist advice in order to pursue further recovery.

We have excluded any costs for:

- Hire of temporary buildings, works associated with temporary accommodation, or temporary diagnostics
- Costs for decanting, moves, moving equipment, and items moved off site (eg medical records)
- Contaminated land and remediation
- Asbestos surveys and removal
- Land purchase/Site acquisition
- Exceptionally poor ground conditions (general allowance only for poor ground conditions)
- Legal fees
- Trust internal costs and fees
- Costs associated with establishing a procurement vehicle
- Medical equipment and diagnostic equipment (CT, MRI, Ultrasound etc.) Equipment allowance on HPCG guidance only.
- Energy costs and bringing into use
- Additional or replacement parking
- Additional or replacement offices (unless specifically identified)
- Significant external works
- Backlog maintenance and existing building defects
- Upgrades to shared support services
- Site infrastructure upgrades, repairs, and any additional infrastructure
- Unusual or difficult access or working conditions
- Remodelling of roads or access ways
- Prolongation or lengthened construction programme above a typical duration
- Unusual or restrictive planning conditions

PRH Emergency and Acute**WORKS COSTS**

				£	£
<u>Area No</u>	<u>New Building Works (Based on DOH HPCGs)</u>				
1	AEC (HBN 22)	722 m2 @	£2,280 / m2	1,646,160	
2-3	Ward (HBN 04-01)	2,588 m2 @	£2,040 / m2	5,279,520	
4	ED (HBN 22)	1,786 m2 @	£2,140 / m2	3,822,040	
7	Main Entrance / Circulation	2,108 m2 @	£1,700 / m2	3,583,600	
11	Critical Care (HBN 57 Supercost)	1,784 m2 @	£2,840 / m2	5,066,560	
	Allowance for Main Plant Rooms	2,000 m2 @	£2,280 / m2	4,560,000	
	Adjustment for single storey buildings	5,050 m2 @	£40 / m2	<u>202,000</u>	24,159,880
<u>Works To Existing Buildings</u>					
5	A+E to Urgent Care Centre Medium Refurbishment	1,155 m2 @	£1,500 / m2	1,732,500	
12	Medium Refurbishment of Critical Care	1,017 m2 @	£1,500 / m2	<u>1,525,500</u>	<u>3,258,000</u>
					27,417,880
	Adjust for inflation from PUBSEC 173 to PUBSEC 195 reporting level				<u>3,486,667</u>
					30,904,547
	Adjust for location factor 0.98 Shropshire as BCIS 26/01/2016				<u>-618,091</u>
					30,286,456
<u>Site Wide Implications (current prices)</u>					
	New Bridge Link at 1st Floor Level	55 m2 @	£1,500 / m2	82,500	
	Drop off and Entrance Canopies	2 nr	£100,000	200,000	
	New Multi Storey Car Park			<u>Excluded</u>	282,500
<u>External Works</u>					
	Re-alignment of Entrance Road	item		500,000	
	Hard Landscaping	3,500 m2 @	£50 / m2	175,000	
	Soft Landscaping	10,700 m2 @	£10 / m2	107,000	
	Retaining Wall 4m high	150 m2 @	£800 / m	120,000	
	Allowance for Planting	item		50,000	
	Allowance for Street Furniture	item		50,000	
	Allowance for Building Drainage	item		<u>250,000</u>	1,252,000
Carried Forward					<u>31,820,956</u>

The Shrewsbury and Telford Hospital NHS Trust - Sustainable Services Programme

PRH Emergency and Acute

WORKS COSTS Continued

£	£
Brought Forward	31,820,956

Communications

New Build Hospital Street as AHR Schedule	624 m2 @	£1,500 / m2	936,000	
Vertical Circulation (say)	450 m2 @	£1,500 / m2	675,000	
Lifts	4 NO	£80,000 each	<u>320,000</u>	1,931,000

Undefined Allowances / Provisional Sums

Poor ground conditions	1,500,000	
Additional drainage, external works and external services	1,500,000	
Allowance for service and drainage, diversions and connections	250,000	
Connections / breakthroughs to existing buildings	<u>200,000</u>	3,450,000
		37,201,956
Adjust to current prices from PUBSEC 195 - 217		4,197,144
		<u>41,399,100</u>
TOTAL WORKS COST EXCLUDING VAT		41,399,100

TRUST COSTS

Fees at 15% of Works Cost- as HPCGs	6,209,900	
Non-works costs, including planning fees (allowance based on "typical" building)	200,000	
Equipment (say 15% of departmental costs) as HPCGs	5,055,500	
Planning Contingencies (10% of Works Cost)	<u>4,139,900</u>	15,605,300
TOTAL CAPITAL COST EXCLUDING VAT		57,004,400
Add Optimism Bias - 22% of Capital Cost		12,540,968
		<u>69,545,368</u>
TOTAL CAPITAL COST INCL OPTIMISM BIAS/EXCL VAT		69,545,368
VALUE ADDED TAX - 20%		13,909,100
		<u>83,454,468</u>
Potential VAT Recovery		
Less: Fees (100% recovery assumed)	1,242,000	
Extensions (no recovery assumed)	0	
Refurbishment (no recovery assumed)	<u>0</u>	<u>-1,242,000</u>

PRH EMERGENCY AND ACUTE TOTAL PROJECT ESTIMATE	£	<u><u>82,212,468</u></u>
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NOTES:

- Costs are at CURRENT LEVELS and EXCLUDE INFLATION
- Costs EXCLUDE ALL SITE ABNORMALS, SITE INFRASTRUCTURE UPGRADES and REPAIRS
- For full set of notes, clarifications, and basis of costs refer to attached Notes Sheet

<u>Summary</u>		
WORKS COST (EXCL VAT)	£	41,399,000
TOTAL CAPITAL (EXCL VAT)	£	57,004,000
TOTAL CAPITAL (INCL OPTIMISM BIAS AND EXCL VAT)	£	69,545,000
TOTAL CAPITAL (INCL VAT)	£	83,454,000
TOTAL CAPITAL (INCL VAT AND POTENTIAL RECOVERY)	£	82,212,000

RSH Acute and Planned**WORKS COSTS**

<u>Area No</u>	<u>Work to Existing Buildings</u>		£	£
3	Convert short stay to UCC Medium Refurbishment	850 m2 @ £1,500 / m2	1,275,000	
4	Convert Escalation to UCC Medium Refurbishment	290 m2 @ £1,500 / m2	435,000	
5	Convert A+E into UCC Medium Refurbishment	660 m2 @ £1,500 / m2	990,000	
9	Ward to Training Ward Refresh	1,349 m2 @ £500 / m2	674,500	
11	Fracture Clinic to UCC Medium Refurbishment	390 m2 @ £1,500 / m2	585,000	
6	Demolition Offices	230 m2 @ £50 / m2	11,500	
<u>New Building Works</u>				
11a	POPD/ANC/PANDA (HBN 09-02)	800 m2 @ £2,470 / m2	1,976,000	
15 (a)	MLU (HBN 09-02)	800 m2 @ £2,470 / m2	<u>1,976,000</u>	<u>7,923,000</u>
	Adjust for inflation from PUBSEC 173 to PUBSEC 195 reporting level			<u>1,007,549</u>
				8,930,549
	Adjust for location factor 0.98 Shropshire as BCIS 26/01/2016			<u>-178,611</u>
				8,751,938
	Adjust to current prices from PUBSEC 195 - 217			<u>987,398</u>
	TOTAL WORKS COST EXCLUDING VAT			9,739,336

TRUST COSTS

Fees at 15% of Works Cost- as HPCGs	1,460,900	
Non-works costs, including planning fees (allowance based on "typical" building)	100,000	
Equipment (say 15% of departmental costs) as HPCGs	1,460,900	
Planning Contingencies (10% of Works Cost)	<u>973,900</u>	<u>3,995,700</u>
TOTAL CAPITAL COST EXCLUDING VAT		13,735,036
Add Optimism Bias - 22% of Capital Cost		<u>3,021,708</u>
TOTAL CAPITAL COST INCL OPTIMISM BIAS/EXCL VAT		16,756,744

Carried Forward 16,756,744

The Shrewsbury and Telford Hospital NHS Trust - Sustainable Services Programme

RSH Acute and Planned

	£	£
Brought Forward		16,756,744
VALUE ADDED TAX - 20%		<u>3,351,300</u>
		20,108,044
Potential VAT Recovery		
Less: Fees (100% recovery assumed)	292,200	
Extensions (no recovery assumed)	0	
Refurbishment (no recovery assumed)	<u>0</u>	<u>-292,200</u>
RHS ACUTE AND PLANNED TOTAL PROJECT ESTIMATE	£	<u><u>19,815,844</u></u>

NOTES:

- Costs are at CURRENT LEVELS and EXCLUDE INFLATION
- Costs EXCLUDE ALL SITE ABNORMALS, SITE INFRASTRUCTURE UPGRADES and REPAIRS
- For full set of notes, clarifications, and basis of costs refer to attached Notes Sheet

Summary

WORKS COST (EXCL VAT)	£ 8,752,000
TOTAL CAPITAL (EXCL VAT)	£ 13,735,000
TOTAL CAPITAL (INCL OPTIMISM BIAS AND EXCL VAT)	£ 16,757,000
TOTAL CAPITAL (INCL VAT)	£ 20,108,000
TOTAL CAPITAL (INCL VAT AND POTENTIAL RECOVERY)	£ 19,816,000

OPTIMISM BIAS: CONTRIBUTORY FACTORS AND MITIGATION

Contributory Factor to Upper Bound	% Factor Contributes	Stage	Mitigation Factor	% After Mitigation
Progress with Planning Approval	4%	SOC	Opened discussion with planning authority, some engagement	4%
		OBC	Outline consent in place, with any Planning Conditions and requirements for Section 106 or similar agreements established, including any specific requirements of e.g. Environmental Agency	
		FBC	Full Consent in place. Judicial Review period passed	
Other Regulatory	4%	SOC	Degree of sign off from Fire Authority, HSE, transport authority, local government etc	4%
		OBC		
		FBC		
Depth of surveying of site/ground information	3%	SOC	Desktop study undertaken of own site	3%
		OBC	Investigations undertaken, historical records examined	
		FBC	Full survey of conditions, site services and topographics	
Detail of design	4%	SOC	Concept/masterplan/DCP	4%
		OBC	1:500s agreed and selected 1:200s	
		FBC	All 1:200s in place, key 1:50s (depends on procurement route)	
Innovative project/design	3%	SOC	Yes/No	1%
		OBC		
		FBC		
Design complexity	4%	SOC	This might include complex M&E solutions (requires further development)	2%
		OBC		
		FBC		
Likely variations from Standard Contract	2%	SOC	No contract chosen	2%
		OBC	Yes/No with measurement of scale variations	
		FBC		
Design Team capabilities	3%	SOC	Previous relevant experience of individuals involved. Capacity	0%
		OBC		
		FBC		
Contractor's capabilities	2%	SOC	Previous relevant experience of individuals involved. Capacity. Track record of delivery	1%
		OBC		
		FBC		
Contractor involvement	2%	SOC	Buildability. Opportunity to influence design	1%
		OBC		
		FBC		
Client capability and capacity	6%	SOC	Degree of team in place with relevant experience	4%
		OBC	Full team in place for procurement	
		FBC	Robust implementation plan in place	
Robustness of Output Specification	25%	SOC	Definition of scope and extent of services. Degree of outstanding decisions	15%
		OBC		
		FBC		

Involvement of Stakeholders, including Public and Patient Involvement	5%	SOC	Scope of stakeholders to be involved. Plan in place to engage	5%
		OBC	Implementation of Plan	
		FBC	Involvement demonstrated	
Agreement to Output Specification by stakeholders	5%	SOC	Letters of support from clinicians, Trade Unions, staff groups, patient representatives/groups	5%
		OBC		
		FBC		
New service or traditional	3%	SOC	Assessment of how innovative/new service model is at national/regional/local level. Has this ever been tried before?	2%
		OBC		
		FBC		
Local community consent	3%	SOC	Consideration of traffic noise/existence of protestors or pressure groups	2%
		OBC		
		FBC	Not tested	
Stable policy environment	20%	SOC	Degree to which new policy/standards are applicable depending upon which stage is reached	15%
		OBC		
		FBC		
Likely competition in the market for the project	2%	SOC	Degree project has been marketed	0%
		OBC	Evidence of market interest	
		FBC	Mitigated	
TOTAL	100%			70%

Note: Across all contributory factors, mitigation would be expected to be greater the greater the extent of risk quantification and risk management (including the extent to which it is captured in contingencies)

OPTIMISM BIAS - UPPER BOUND CALCULATION

Lowest & Upper Bound
 Mid %
 Upper %
 Actual % Upper Bound for this project

13%
40%
76%
31%

Build complexity			
<i>Choose 1 category</i>			
Length of Build	< 2 years	0.50%	0.50%
	2 to 4 years	1.00%	
	Over 4 years	4.00%	
<i>Choose 1 category</i>			
Number of phases	1 or 2 phases	0.50%	0.50%
	3 or 4 phases	2.00%	
	More than 4 Phases	5.00%	
<i>Choose 1 category</i>			
Number of sites involved (i.e. before and after change)	Single site	2.00%	
	2 sites	2.00%	2.00%
	More than 2 sites	5.00%	
Location			
Green field	New build	3%	
Brown field	New build	8%	
Existing site	New build	5%	
	Less than 15% refurb	6%	
	15% - 50% refurb	10%	10.00%
	Over 50% refurb	15%	
Scope of scheme			
<i>Choose 1 category</i>			
Facilities Management	Hard FM only	0.00%	0.00%
	TUPE whole service	2.00%	
	RoE whole service	2.00%	
<i>Choose 1 category</i>			
Equipment	Group 1&2 only	0.50%	0.50%
	Major medical equipment	1.50%	
	All equipment included	5.00%	
<i>Choose 1 category</i>			
IT	No IT implications	0.00%	
	Infrastructure	1.50%	1.50%
	Infrastructure & systems	5.00%	

<i>Choose more than 1 category if applicable</i>			
External stakeholders	Local NHS economy (e.g. DGH)	1.00%	1.00%
	Wider NHS economy (e.g. teaching DGH)	2.00%	
	NHS/Universities/Private/Vol sector	5.00%	
Service changes			
Stable environment, i.e. no change to service		5%	
Identified changes not quantified		10%	10%
Longer time frame service changes		20%	
Gateway			
<i>Choose 1 category</i>			
RPA Score	Low	0%	
	Medium	5%	5%
	High	10%	
TOTAL		31.000%	

CONTRIBUTION FACTORS AND MITIGATION	70%
UPPER BOUND CALCULATION	31%
TOTAL FACTOR TO APPLY TO ESTIMATE	22%



The Shrewsbury and Telford Hospital NHS Trust

Sustainable Services Programme

RSH Emergency and Acute/PRH Acute and Planned

High Level Cost Estimates

Potential Solution

March 2016

**Rider Hunt Construction Consultants LLP
12 Tenterden Street
Bury
BL9 0EG**

The Shrewsbury and Telford Hospital NHS Trust
Sustainable Services Programme

RSH Emergency and Acute/PRH Acute and Planned

Summary of Total Project Estimate for Potential Solution

Capital cost of Works at RSH	£164,433,943
Capital cost of works at PRH	£30,890,880
Total Capital Cost of Potential Solution	£195,324,822

Sustainable Services Programme

High Level Cost Estimate

NOTES AND CLARIFICATIONS

The estimated costs have been based on the AHR Schedules of Areas with current revisions for all options and the site wide implication drawings.

The estimates exclude the costs of multi-storey car parks and the helipads at both sites.

As confirmed by AHR the areas scheduled include an allowance for circulation and engineering within the department and Rider Hunt have added an allowance for main plant rooms and communication space between departments.

The rates per m2 are calculated mainly from DoH HPCGs and adjusted accordingly for storey height, location factor and inflation to current prices.

For refurbishment projects, a percentage of the new build rate has been taken based on the type of refurbishment indicated on the schedules.

The costs have been adjusted to current levels (PUBSEC 217) but **NO ALLOWANCE** is included for inflation up to start on site or during the construction period, as no programme information is currently available.

The estimates assume that the existing hospital engineering services infrastructure have the capacity to supply the new extensions and therefore **EXCLUDE** any upgrades (eg boilers, distribution, medical gases, sub-stations, back up generators etc etc), as we are unable to quantify at this stage. All services being connected into are assumed to be in good working order.

The new extensions are increasing the size of the overall hospital buildings at the "hot" site, which may lead to capacity issues with shared support services (eg catering, stores, IT, pathology, offices, mortuary, FM etc). All upgrades, amendments and increased capacity to these items **ARE EXCLUDED**, as we are unable to quantify at this stage.

It is assumed that the buildings are able to be constructed and areas can be refurbished as shown on the plans, and this has not been verified.

The costs assume that sufficient space is available to construct the new buildings/ carry out the refurbishments, suitable and sufficient access is available for construction activity, and there are no unusual or difficult working conditions or restrictions

Allowances for on-costs, abnormals, site specific costs are estimated lump sums based on similar recent projects and must be regarded as very approximate at this stage

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An allowance of 15% for equipment costs has been included as HPCG guidance

The works costs have been adjusted by the location factor for 'Shropshire' as published by BCIS

An allowance has been made for Optimism Bias, based on the attached calculations totalling 23%

Recovery on VAT has been assumed based on fees only as similar schemes. It is suggested the Trust seek specialist advice in order to pursue further recovery.

We have excluded any costs for:

- Hire of temporary buildings, works associated with temporary accommodation, or temporary diagnostics
- Costs for decanting, moves, moving equipment, and items moved off site (eg medical records)
- Contaminated land and remediation
- Asbestos surveys and removal
- Land purchase/Site acquisition
- Exceptionally poor ground conditions (general allowance only for poor ground conditions)
- Legal fees
- Trust internal costs and fees
- Costs associated with establishing a procurement vehicle
- Medical equipment and diagnostic equipment (CT, MRI, Ultrasound etc.) Equipment allowance on HPCG guidance only.
- Energy costs and bringing into use
- Additional or replacement parking
- Additional or replacement offices (unless specifically identified)
- Significant external works
- Backlog maintenance and existing building defects
- Upgrades to shared support services
- Site infrastructure upgrades, repairs, and any additional infrastructure
- Unusual or difficult access or working conditions
- Remodelling of roads or access ways
- Prolongation or lengthened construction programme above a typical duration
- Unusual or restrictive planning conditions

RSH Emergency and Acute

WORKS COSTS

				£	£
Area No	New Building Works (Based on DOH HPCGs)				
16	AEC (HBN 22)	578 m2 @	£2,140 / m2	1,236,920	
16a	UCC (HBN 12)	1,050 m2 @	£2,040 / m2	2,142,000	
17	ED (HBN 22)	1,786 m2 @	£2,140 / m2	3,822,040	
18	Critical Care (HBN 57 Supercost)	2,741 m2 @	£2,840 / m2	7,784,440	
19	Paediatrics In (HBN 09-02)	1,580 m2 @	£2,470 / m2	3,902,600	
20	Antenatal (HBN 09-02)	1,072 m2 @	£2,470 / m2	2,647,840	
21	Post natal (HBN 09-02)	857 m2 @	£2,470 / m2	2,116,790	
24	Neo natal (HBN 09-02)	1,072 m2 @	£2,470 / m2	2,647,840	
24a	Obs. Theatre (HBN 09-02)	508 m2 @	£2,470 / m2	1,254,760	
25	Delivery Suite (HBN 09-02)	1,027 m2 @	£2,470 / m2	2,536,690	
	Main Entrance / Circulation	2,575 m2 @	£1,700 / m2	4,377,500	
	Allowance for Main Plant Rooms	4,300 m2 @	£2,400 / m2	10,320,000	
	Adjustment for single storey buildings	9,587 m2 @	£40 / m2	383,480	45,172,900
<u>Works To Existing Buildings</u>					
2	Convert stores to Paediatrics OPD Heavy refurbishment	584 m2 @	£1,900 / m2	1,109,600	
6	Refurb Atrium/Staff Admin Light refurbishment	685 m2 @	£900 / m2	616,500	
7	Convert existing ward to MLU Medium Refurbishment	1,423 m2 @	£1,500 / m2	2,134,500	
8	HDU Empty no work	119 m2 @	/ m2	0	
9	ITU Empty no work	394 m2 @	/ m2	0	
10	Part A+E converted to Imaging Medium Refurbishment	1,103 m2 @	£1,500 / m2	1,654,500	
12	Existing ward into practice ward Refresh	1,293 m2 @	£500 / m2	646,500	
13	Wards Empty no work	4,079 m2 @	/ m2	0	
15	Refresh Staff/Admin	470 m2 @	£500 / m2	235,000	6,396,600
					51,569,500
	Adjust for inflation from PUBSEC 173 to PUBSEC 195 reporting level				6,557,971
					58,127,471
	Adjust for location factor 0.98 Shropshire as BCIS 26/01/2016				-1,162,549
					56,964,922
				Carried Forward	56,964,922

The Shrewsbury and Telford Hospital NHS Trust - Sustainable Services Programme

RSH Emergency and Acute

WORKS COSTS Continued

£

£

Brought Forward

56,964,922

Site Wide Implications (current prices)

Replacement Buildings

Emergency Generator and Boiler House Extensions	221 m2 @	£2,000 / m2	442,000	
Reprovided Stores and Loading Bay	1,600 m2 @	£1,000 / m2	1,600,000	
Reprovided Estates Department	1,300 m2 @	£1,700 / m2	2,210,000	
New Regen Kitchen	460 m2 @	£2,300 / m2	1,058,000	
Reprovided Catering	400 m2 @	£1,800 / m2	720,000	
Drop off and entrance canopy	2 nr	£100,000	200,000	
New Multi Storey Car Park			Excluded	
Extra for rooftop helipad			<u>Excluded</u>	6,230,000

External Works

Perimeter road diversion	315 m2 @	£1,500 / m	472,500	
Hard Landscaping	6,681 m2 @	£50 / m2	334,050	
Soft Landscaping	15,294 m2 @	£10 / m2	152,940	
Retaining Wall 3.5 high	160 m2 @	£700 / m	112,000	
New Underground walkway Duct	190 m2 @	£1,200 / m	228,000	
Allowance for Planting	item		50,000	
Allowance for Street Furniture	item		50,000	
Allowance for Building Drainage	item		500,000	
Allowance for Removing Underground Tanks	item		100,000	
Allowance for Decommissioning and Removing Emergency Generator	item		10,000	
Allowance for Demolition of Existing Buildings circa 4000 m2 as indicated on AHR schedule and Main Entrance Plan			<u>700,000</u>	2,709,490

Communications

New Build Hospital Street as AHR Schedule	842 m2 @	£1,500 / m2	1,263,000	
Vertical Circulation (say)	600 m2 @	£1,500 / m2	900,000	
Lifts	3 NO	£80,000 each	<u>240,000</u>	2,403,000

Carried Forward

68,307,412

The Shrewsbury and Telford Hospital NHS Trust - Sustainable Services Programme

RSH Emergency and Acute

WORKS COSTS Continued

Undefined Allowances / Provisional Sums

	£	£
Brought Forward		68,307,412
Poor ground conditions	2,000,000	
Additional drainage, external works and external services	2,500,000	
Allowance for service and drainage, diversions and connections	500,000	
Connections / breakthroughs to existing buildings	<u>250,000</u>	<u>5,250,000</u>
		73,557,412
Adjust to current prices from PUBSEC 195 - 217		<u>8,298,785</u>
TOTAL WORKS COST EXCLUDING VAT		81,856,197

TRUST COSTS

Fees at 15% of Works Cost- as HPCGs	12,278,400	
Non-works costs, including planning fees (allowance based on "typical" building)	200,000	
Equipment (say 15% of departmental costs) as HPCGs	10,548,700	
Planning Contingencies (10% of Works Cost)	<u>8,185,600</u>	<u>31,212,700</u>
TOTAL CAPITAL COST EXCLUDING VAT		113,068,897
Add Optimism Bias - 23% of Capital Cost		<u>26,005,846</u>
TOTAL CAPITAL COST INCL OPTIMISM BIAS/EXCL VAT		139,074,743
VALUE ADDED TAX - 20%		<u>27,814,900</u>
		166,889,643
Potential VAT Recovery		
Less: Fees (100% recovery assumed)	2,455,700	
Extensions (no recovery assumed)	0	
Refurbishment (no recovery assumed)	<u>0</u>	<u>-2,455,700</u>
RSH EMERGENCY AND ACUTE TOTAL PROJECT ESTIMATE	£	<u><u>164,433,943</u></u>

NOTES:

- Costs are at CURRENT LEVELS and EXCLUDE INFLATION
- Costs EXCLUDE ALL SITE ABNORMALS, SITE INFRASTRUCTURE UPGRADES and REPAIRS
- For full set of notes, clarifications, and basis of costs refer to attached Notes Sheet

Summary

WORKS COST (EXCL VAT)	£	81,856,000
TOTAL CAPITAL (EXCL VAT)	£	113,069,000
TOTAL CAPITAL (INCL OPTIMISM BIAS AND EXCL VAT)	£	139,075,000
TOTAL CAPITAL (INCL VAT)	£	166,890,000
TOTAL CAPITAL (INCL VAT AND POTENTIAL RECOVERY)	£	164,434,000

PRH Acute and Planned

WORKS COSTS

Area No	Work to Existing Buildings		£	£
1	Convert Post natal/Antenatal into new Treatment Centre Light/Medium Refurbishment	2,518 m2 @ £1,200 / m2	3,021,600	
2	Convert Paeds. Outpatients into ward Light/Medium Refurbishment	1,926 m2 @ £1,200 / m2	2,311,200	
3	Paediatric Inpatients to ward - no work	1,417 m2 @ / m2	0	
4	Convert A+E into UCC Medium Refurbishment	1,180 m2 @ £1,500 / m2	1,770,000	
5	Stroke ward - no work	492 m2 @ / m2	0	
6	Stroke ward - no work	365 m2 @ / m2	0	
7	Convert Neo-natal Unit/ Delivery Suite into new Treatment Medium/ Light Refurbishment	2,518 m2 @ £1,200 / m2	3,021,600	
8	Convert ward treatment into ward Light/Medium Refurbishment for 50% of area	535 m2 @ £1,200 / m2	642,000	
9-14	Existing ward - no work	3,000 m2 @ / m2	0	
15	Convert CCU into AEC Medium Refurbishment	1,010 m2 @ £1,500 / m2	1,515,000	
16-18	Existing ward - no work	1,500 m2 @ / m2	0	12,281,400
Adjust for inflation from PUBSEC 173 to PUBSEC 195 reporting level				1,561,797
				13,843,197
Adjust for location factor 0.98 Shropshire as BCIS 26/01/2016				-276,864
				13,566,333
Adjust to current prices from PUBSEC 195 - 217				1,530,561
TOTAL WORKS COST EXCLUDING VAT				15,096,893

Trust Costs

Fees at 15% of Works Cost- as HPCGs	2,264,500	
Non-works costs, including planning fees (allowance based on "typical" building)	100,000	
Equipment (say 15% of departmental costs) as HPCGs	2,264,500	
Planning Contingencies (10% of Works Cost)	1,509,700	6,138,700
TOTAL CAPITAL COST EXCLUDING VAT		21,235,593
Add Optimism Bias - 23% of Capital Cost		4,884,186
TOTAL CAPITAL COST INCL OPTIMISM BIAS/EXCL VAT		26,119,780
Carried Forward		26,119,780

The Shrewsbury and Telford Hospital NHS Trust - Sustainable Services Programme

PRH Acute and Planned

	£	£
Brought Forward		26,119,780
VALUE ADDED TAX - 20%		<u>5,224,000</u>
		31,343,780
Potential VAT Recovery		
Less: Fees (100% recovery assumed)	452,900	
Extensions (no recovery assumed)	0	
Refurbishment (no recovery assumed)	<u>0</u>	<u>-452,900</u>
PRH ACUTE AND PLANNED TOTAL PROJECT ESTIMATE	£	<u><u>30,890,880</u></u>

NOTES:

- Costs are at CURRENT LEVELS and EXCLUDE INFLATION
- Costs EXCLUDE ALL SITE ABNORMALS, SITE INFRASTRUCTURE UPGRADES and REPAIRS
- For full set of notes, clarifications, and basis of costs refer to attached Notes Sheet

Summary

WORKS COST (EXCL VAT)	£	15,097,000
TOTAL CAPITAL (EXCL VAT)	£	21,236,000
TOTAL CAPITAL (INCL OPTIMISM BIAS AND EXCL VAT)	£	26,120,000
TOTAL CAPITAL (INCL VAT)	£	31,344,000
TOTAL CAPITAL (INCL VAT AND POTENTIAL RECOVERY)	£	30,891,000

OPTIMISM BIAS: CONTRIBUTORY FACTORS AND MITIGATION

Contributory Factor to Upper Bound	% Factor Contributes	Stage	Mitigation Factor	% After Mitigation
Progress with Planning Approval	4%	SOC	Opened discussion with planning authority, some engagement	
		OBC	Outline consent in place, with any Planning Conditions and requirements for Section 106 or similar agreements established, including any specific requirements of e.g. Environmental Agency	4%
		FBC	Full Consent in place. Judicial Review period passed	
Other Regulatory	4%	SOC	Degree of sign off from Fire Authority, HSE, transport authority, local government etc	4%
		OBC		
		FBC		
Depth of surveying of site/ground information	3%	SOC	Desktop study undertaken of own site	3%
		OBC	Investigations undertaken, historical records examined	
		FBC	Full survey of conditions, site services and topographics	
Detail of design	4%	SOC	Concept/masterplan/DCP	4%
		OBC	1:500s agreed and selected 1:200s	
		FBC	All 1:200s in place, key 1:50s (depends on procurement route)	
Innovative project/design	3%	SOC		
		OBC	Yes/No	1%
		FBC		
Design complexity	4%	SOC	This might include complex M&E solutions (requires further development)	2%
		OBC		
		FBC		
Likely variations from Standard Contract	2%	SOC	No contract chosen	2%
		OBC	Yes/No with measurement of scale variations	
		FBC		
Design Team capabilities	3%	SOC	Previous relevant experience of individuals involved. Capacity	0%
		OBC		
		FBC		
Contractor's capabilities	2%	SOC	Previous relevant experience of individuals involved. Capacity. Track record of delivery	1%
		OBC		
		FBC		
Contractor involvement	2%	SOC	Buildability. Opportunity to influence design	1%
		OBC		
		FBC		
Client capability and capacity	6%	SOC	Degree of team in place with relevant experience	4%
		OBC	Full team in place for procurement	
		FBC	Robust implementation plan in place	
Robustness of Output Specification	25%	SOC	Definition of scope and extent of services. Degree of outstanding decisions	15%
		OBC		
		FBC		

Involvement of Stakeholders, including Public and Patient Involvement	5%	SOC	Scope of stakeholders to be involved. Plan in place to engage	5%
		OBC	Implementation of Plan	
		FBC	Involvement demonstrated	
Agreement to Output Specification by stakeholders	5%	SOC	Letters of support from clinicians, Trade Unions, staff groups, patient representatives/groups	5%
		OBC		
		FBC		
New service or traditional	3%	SOC	Assessment of how innovative/new service model is at national/regional/local level. Has this	2%
		OBC	ever been tried before?	
		FBC		
Local community consent	3%	SOC	Consideration of traffic noise/existence of protestors or pressure groups	2%
		OBC		
		FBC	Not tested	
Stable policy environment	20%	SOC	Degree to which new policy/standards are applicable depending upon which stage is reached	15%
		OBC		
		FBC		
Likely competition in the market for the project	2%	SOC	Degree project has been marketed	0%
		OBC	Evidence of market interest	
		FBC	Mitigated	
TOTAL	100%			70%

Note: Across all contributory factors, mitigation would be expected to be greater the greater the extent of risk quantification and risk management (including the extent to which it is captured in contingencies)

OPTIMISM BIAS - UPPER BOUND CALCULATION

Lowest & Upper Bound
Mid %
Upper %
Actual % Upper Bound for this project

13%
40%
76%
33%

Build complexity			
<i>Choose 1 category</i>			
Length of Build	< 2 years	0.50%	
	2 to 4 years	1.00%	1.00%
	Over 4 years	4.00%	
<i>Choose 1 category</i>			
Number of phases	1 or 2 phases	0.50%	
	3 or 4 phases	2.00%	2.00%
	More than 4 Phases	5.00%	
<i>Choose 1 category</i>			
Number of sites involved (i.e. before and after change)	Single site	2.00%	
	2 sites	2.00%	2.00%
	More than 2 sites	5.00%	
Location			
Green field	New build	3%	
Brown field	New build	8%	
Existing site	New build	5%	
	Less than 15% refurb	6%	
	15% - 50% refurb	10%	10.00%
	Over 50% refurb	15%	
Scope of scheme			
<i>Choose 1 category</i>			
Facilities Management	Hard FM only	0.00%	0.00%
	TUPE whole service	2.00%	
	RoE whole service	2.00%	
<i>Choose 1 category</i>			
Equipment	Group 1&2 only	0.50%	0.50%
	Major medical equipment	1.50%	
	All equipment included	5.00%	
<i>Choose 1 category</i>			
IT	No IT implications	0.00%	
	Infrastructure	1.50%	1.50%
	Infrastructure & systems	5.00%	

<i>Choose more than 1 category if applicable</i>			
External stakeholders	Local NHS economy (e.g. DGH)	1.00%	1.00%
	Wider NHS economy (e.g. teaching DGH)	2.00%	
	NHS/Universities/Private/Vol sector	5.00%	
Service changes			
Stable environment, i.e. no change to service		5%	
Identified changes not quantified		10%	10%
Longer time frame service changes		20%	
Gateway			
<i>Choose 1 category</i>			
RPA Score	Low	0%	
	Medium	5%	5%
	High	10%	
TOTAL		33.000%	

CONTRIBUTION FACTORS AND MITIGATION	70%
UPPER BOUND CALCULATION	33%

TOTAL FACTOR TO APPLY TO ESTIMATE	23%
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APPENDIX 6a – Risk Register

APPENDIX 6a – Risk Register

19/02/2016

SaTH Sustainable Services Programme											
RISK REGISTER											
Risk Ref.	Risk Category	Date Raised	Date Revised/ Removed	Risk Description	Risk Owner	Project Impact Score (A)	Likelihood Score (B)	Overall Risk Rating (AxB)	Key Date	Risk Management / Mitigation Strategy	Current Status - progress to date
1	PROJECT DELIVERABILITY	04/01/2016		Lack of clinical engagement in development of the SOC leading to disengagement, disconnect and the work not being clinically led	EB/SB	3	3	9 Green	Feb-16	Approach agreed with Medical and Care Group Directors. Clinical Working Groups established. Attendance at Care Group Boards planned	Good engagement and attendance by senior care group clinical leads. Corporate teams also involved. Wider CWG held in January to involved clinical directors and others On-going work to OBC to be planned
2		04/01/2016		Lack of clarity of roles regarding Sustainable Services Programme and NHS Future Fit resulting in a failure to meet the '4 tests' and Gunning Principle required for all NHS service reconfigurations	SW	4	4	16 Amber	Feb-16	Urgent need to clarify relationship and roles and communicate with stakeholders and the public	Meeting of key leads planned - date tbc
3		04/01/2016		Risk around wider NHS Future Fit progression including perceived divergence from clinical model, lack of GP support and/or because the NHS Future Fit model has not been adequately refreshed (e.g. Community Fit, the rural offer, financial sustainability) leading to CCGs not being able to approve the plans for, and lead on public consultation	NN/AO	5	4	16 Amber	Feb-16	Refreshed messages and mandate through NHS Future Fit Programme for an update to the clinical model required to encompass progress and any changes	Meeting of SROs and Accountable Officers/CEO with communication team to discuss and progress. Outcomes to be fed into meeting of key leads above
4		04/01/2016		Challenging timeframe for delivery and completion of information and detailed work required for the Sustainable Services Programme SOC resulting in an impact with submission timeframes, impact on the programme and/or the impact on other Trust work	NN	3	2	6 Green	Feb-16	Action plan and critical path developed. Key tasks and responsibilities identified. Technical Team commissioned	Work on track. Commissioner and Future Fit team and Board engagement planned. SOC to private session of Trust Board 25 February Feedback from TDA re SOC expectations received
5		04/01/2016		Lack of clinical operational engagement in development of the SOC leading to disengagement and gaps in detail and information	KS	3	3	9 Green	Feb-16	Approach agreed with Care Groups/Corporate Teams. Delivery Group established.	Good engagement and attendance at workshops and meetings to date. Information received as requested. Structures in place. Approach to OBC to be reviewed and amended if required

APPENDIX 6a – Risk Register

SaTH Sustainable Services Programme											
RISK REGISTER											
Risk Ref.	Risk Category	Date Raised	Date Revised/ Removed	Risk Description	Risk Owner	Project Impact Score (A)	Likelihood Score (B)	Overall Risk Rating (AxB)	Key Date	Risk Management / Mitigation Strategy	Current Status - progress to date
6		04/01/2016		Capital costs of the emerging solutions in higher than anticipated leading to concerns around affordability and deliverability	NN	5	2	10 Green	Feb-16	Cost advisors working closely with Architecture and Technical Team. Information to be shared with Trust teams	Draft capital costs received and being worked through. Revenue impact to be mapped
7	GOVERNANCE	04/01/2016		Lack of ownership and/or clarity on decision making processes within the Trust leading to confusion, misinterpretation and/or late changes	NN	3	2	6 Green	Feb-16	Proposed governance and programme structure in place and agreed. Terms of Reference for all meetings and groups in place. Regular updates to be provided to HEC and Trust Board	Programme structure in place. Updates provided to key Trust committees and groups
8	COMMUNICATION AND ENGAGEMENT	04/01/2016		Lack of awareness and understanding of wider staff in Sustainable Services Programme and relationship to NHS Future Fit Programme leading to conflicts with other schemes/projects and the sharing of incorrect information	AO	3	3	9 Amber	Feb-16	As above plus Communication and Engagement plan to be developed	Draft Communication and Engagement Plan developed. Meeting planned with Future Fit communications team and leads to progress

APPENDIX 6b – Project Initiation Document

APPENDIX 6b - Project Initiation Document

Shrewsbury and Telford Hospital NHS Trust

Sustainable Services Programme

Project Initiation Document

Version 0.7 DRAFT

Kate Shaw

16 November 2015

1 Introduction

The purpose of this Project Initiation Document (PID) is to define the scope of the Shrewsbury and Telford Hospital NHS Trust's (SaTH) Sustainable Services Programme¹. It will answer:

- What needs to be achieved?
- Why it is important to achieve it?
- Who will be involved in managing the process and what will their roles and responsibilities be?
- What are the programme management arrangements?
- How and when the project will be undertaken?
- What are the risks related to the programme?
- How much it is likely to cost?
- What is the approvals process?
- How this work is aligned with the Future Fit programme

The PID will also act as a 'base document' against which progress, risks, issues and changes can be assessed.

1.1 Background

The pressing need for change in the way emergency services are delivered is well documented.

The Trust has an urgent workforce challenge, specifically in the recruitment and retention of Consultants in Emergency Medicine, Acute Medicine and Anaesthetics (Interventional and Anaesthetics). This is compounded by challenges in the recruitment of Qualified Nurses, Radiologists, Junior Doctors and support staff.

The Trust's experience from previous service reconfigurations and the experience of other organisations is that recruitment and retention improves when:

- There is a clear clinical strategy for future service delivery
- Clinical services are delivered by single site teams
- Patient outcomes and experience is good
- Facilities are fit for purpose with appropriate furniture and equipment in place
- Training, development and staff facilities are easily accessed

The Trust has a varied estate that directly impacts on the care and experience patients receive. Some services are delivered within new purpose built environments; the Shropshire Women and Children's Centre at PRH and the Lingen Davies Cancer Centre at RSH. Other services however, are delivered in old, cramped and challenging environments; the Critical Care Unit at RSH, Accident and Emergency Departments at both sites and the RSH Ward Block. Whilst staff do their very best to deliver quality care within these areas and the Trust's corporate services (Estates, Facilities, IPC, IT etc.) do their very best to maintain them, the Trust also needs to address its most challenging facilities in recognition of its interdependency with and for its workforce.

¹ Project name to be confirmed

The conclusions of the Future fit Programme Board in October 2015 was to note the outcomes of the process for appraising shortlisted options; and to defer reaching any conclusion about recommending a 'preferred option' to Sponsor Boards, until the Future Fit Programme Board is assured that there is an approvable case for investment.

The Trust remains committed to the on-going work of the Future Fit Programme and its role within it, whilst recognising the need for progression of a solution at pace to the clinical workforce challenges it faces. The Trust now needs to progress the work on developing a revised Strategic Outline Case and Outline Business Cases (one for an emergency centre at PRH and one for an emergency centre at RSH). Public consultation will need to take place during 2016, ideally starting in the summer.

1.2 Programme Objectives and Deliverables

It is critical that the work going forward is clinically led, inclusive and provides the best configuration of services across the Trust's two sites whilst maximising the use of existing infrastructure and estate. The solution needs to be developed and understood in collaboration with patients, staff and the communities served. The objective is to achieve a configuration of services that retains two vibrant hospital sites with services remaining local where ever possible.

The objectives of this phase of the Trust's Sustainable Services Programme are:

- To describe a model or continuum of urgent and emergency healthcare need, focussing on pathways and outcomes
- To identify the workforce and facilities solutions to ensure the Trust's delivery of safe and sustainable services in the short to medium term
- To identify a range of affordable options for the delivery of urgent and emergency healthcare delivery
- To describe the location of services at both RSH and PRH, and their relationship to urgent and emergency care, on a scale of essential to desirable
- To progress these solutions to Strategic Outline Case (SOC) and then Outline Business Case (OBC) for public consultation in 2016
- To ensure the solutions within the OBC/s offer the greatest patient and public benefit and outcome possible by:
 - optimising clinical adjacencies and access to the right clinical team
 - minimising service and workforce complexity
 - delivering to a time and cost efficient programme
 - maximising staff, patient and public involvement
 - maximising the opportunity for alternatives to care in an acute setting to be delivered
- To deliver this in line with Department of Health, National Trust Development Authority and relevant Clinical Body guidance
- To actively and regularly engage with staff at both hospital sites; encouraging involvement, engagement and understanding
- To actively engage with patients and the public across all the communities served on the fragility of the Trust's services and the important focus on pace of change and improving outcomes

1.3 Authority

This phase of the project has been authorised by the Trust's Executive Team following discussion and an agreed way forward by the Trust Board.

2 Project Definition and Scope

2.1 Key Deliverables

The key deliverables for this PID are:

- A clinically agreed set of patient pathways that make sense to patients and the public based on clinical need and the objectives outlined above
- A workforce model that can deliver the agreed pathways; that is sustainable, achievable and affordable
- Estates, Facilities, and IT solutions that deliver appropriate environments for patient care and in which the Trust's clinical and non-clinical staff can work
- A Strategic Outline Case (SOC) and Outline Business Case/s (OBC) that meet Department of Health and National Trust Development Authority standards

2.2 Constraints

The constraints on this project are:

- Time – there is an urgent need to progress with planning for a solution to the Trust's immediate workforce challenges
- Confidence – work will need to be undertaken to communicate and build confidence with staff and the public
- Politics – due to a change in service configuration for the populations served, the potential solution may/will be politically charged
- Finance – there is a limit to the capital available and this will lead to difficult choices and compromise

2.3 Assumptions

The project is predicated on the following assumptions:

- The required clinical, managerial and technical expertise can be released/resourced
- Strategic Outline Case and then Outline Business Case will be completed ahead of public consultation in summer 2016
- The clinical model of one Emergency Department, one Critical Care Unit, associated/interdependent services and networked Urgent Care agreed within the Future Fit Programme is maintained
- A reappraisal of the associated/interdependent services and their adjacencies will be undertaken including inpatient bed numbers
- Key enabling projects will be identified, agreed and progressed during this phase

2.4 Exclusions

Areas that are excluded from this project are:

- Workforce and capital solutions external to SaTH
- Work to address the long term affordability challenges within the health and social care economy
- Wider work which is being addressed by Future Fit (e.g. Community Fit, , Rural Urgent Care Centres)

2.5 Interfaces/Interdependencies

The other projects and pieces of work that interface with this project are:

Internally

- Workforce – creation of new roles
- Improvement – Virginia Mason and Care Group developments
- Cost Improvement Programme
- Business Continuity Plans

Externally

- NHS Future Fit Programme
- Emergency Care Improvement Group
- Urgent and Emergency Care Network
- 7 Day Services
- System Resilience Group
- Clinical Sustainability Group
- Delivery of Commissioning Intentions
- Neighbouring reconfigurations

2.6 External Dependencies

The project is externally dependant on the following:

- Delivery of changes to urgent care provision and long term condition management
- Consistent and robust communications regarding changes to the delivery of healthcare in Shropshire
- Support from Commissioning organisations, National Trust Development Authority and NHS England

2.7 Procurement Options

Options for procurement and the capital required will be explored during the development of the OBC.

2.8 Benefits

The benefits of the project will be identified as part of the development of the OBC. These will include benefits relating to:

- Clinical outcomes for patients
- Retention and recruitment of the Trust's workforce
- Financially sustainable service models within Emergency and Critical Care
- Improvement to clinical and working environments

2.9 Costs

The initial costs for this phase of the project (i.e. to OBC and Public Consultation) are being developed. The costs for the external Technical Team support (Healthcare Planner, Technical Project Manager, Architect, Cost Advisor) to achieve a SOC is estimated to be £200k (exc. VAT). This excludes any required external IT support.

3 Approach and Plan

There are three key stages to this phase of works, all of which require significant clinical involvement and leadership:

- 1) Scoping the urgent/emergency care pathway and potential service model options and defining the service and capital brief
- 2) Progressing this work to the development of an approvable SOC
- 3) Developing the SOC into an approvable OBC

A detailed project plan – the SOC Action Plan is attached at appendix 1. The high level key dates within this plan are tabled below:

What	When/Completed By
Establishment of programme governance, structure, identification of Trust leads and appointment of technical team	October 2015
Understanding of scale of Urgent/Emergency Care continuum – from Emergency Department to Urgent Care Centres	End November 2015 – presentation to Trust Board
Development of the options – workforce and facilities	October 2015 to January 2016
Strategic Outline Case development	October 2015 to February 2016 (Draft SOC to Trust Board January 2016/Final SOC to Trust Board February 2016)
Approved SOC submitted to TDA	February 2016
OBC development	January 2016 to June 2016

A number of project workstreams have been established, including:

- Clinical
- Workforce
- Finance
- IT
- Estates
- Technical

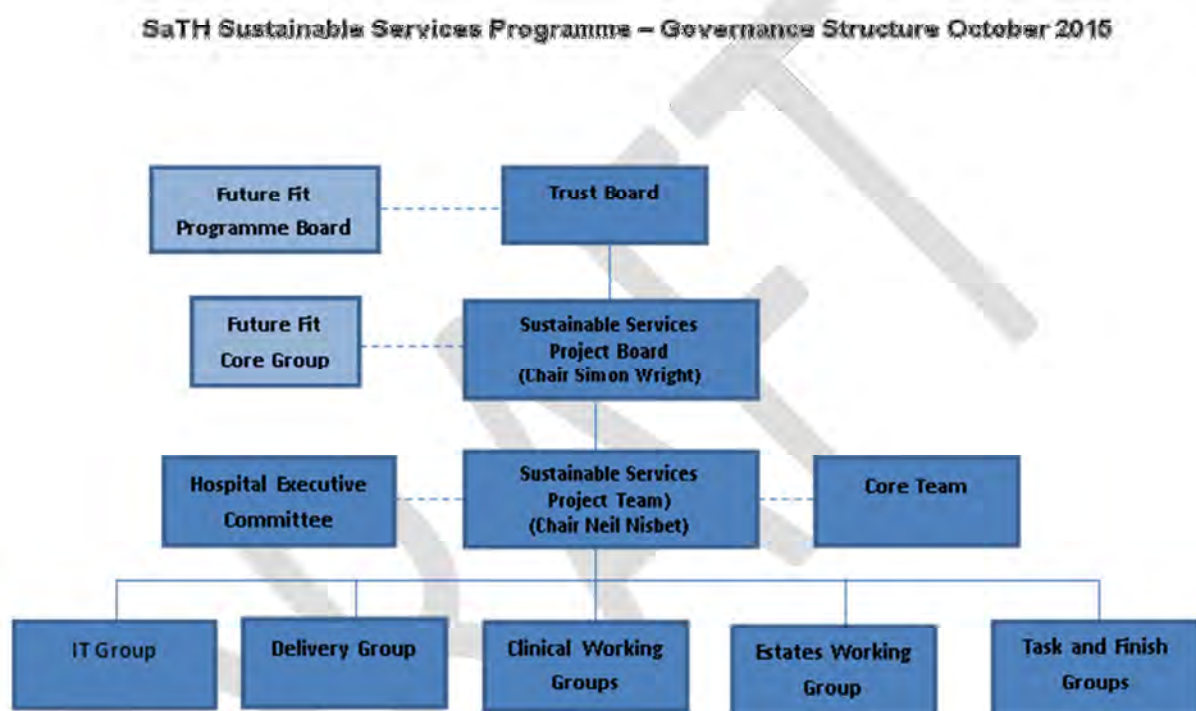
4 Project Organisation Structure

The programme will be delivered by the Trust's Future Team. Lead clinicians will work closely with the Future Team to lead, advise and coordinate the involvement and engagement of others in their clinical area, specialty and Care Group. Lead officers from the Trust's Corporate Services (Workforce, Finance, Communications etc.) will be backfilled to provide specialist input into the Future Team. Additional external technical support will be accessed as and when required.

Coordinated input from the Care Groups and other Corporate Teams will be focussed and progressed through a multi-disciplinary Delivery Group, facilitated by the Future Team.

The Sustainable Services Programme will be overseen by a Project Board comprising Executive and Clinical Leads. This Project Board will also include the Trust's Patient Representatives.

Discussions are on-going in terms of clarity of roles and responsibilities with the Future Fit Programme. Links to the Future Fit Programme will be undertaken by Trust leads that have a defined role within Future Fit and via the reporting structure shown below:



4.1 Senior Responsible Owner

The Senior Responsible Owner for the project is the Chief Executive.

4.2 Project Director

The Project Director for the project is Neil Nisbet, Finance Director.

4.3 Project Manager

The Project Manager for the project is Kate Shaw, Associate Director of Service Transformation.

4.4 Assurance

The process of assurance is to be discussed and agreed.

5 Communication, Engagement and Stakeholders

A full Communication and Engagement Plan will be developed. This will be agreed and signed off by the Project Board.

5.1 Communication method

The key communications channels are:

- Meetings and planning sessions
- Drop-ins/Roadshows
- Focus Groups
- Core Brief, 'Message of the Week', 'The Week'
- Posters, flyers, bulletins
- Trust Intranet and Internet
- Social Media

5.2 Stakeholders

A stakeholder analysis will be undertaken. Key stakeholders are:

- Trust staff
- Patients and the public
- Patient representative groups
- Health Overview and Scrutiny Committee
- Local health and social care partner organisations
- Politicians

6 Risk Management

The risks to delivery of the programme are included in the risk register. Risks will be discussed and the register updated at every Project Board meeting.

DRAFT