

Capital, Life-cycle and Revenue impact of Feasibility Study Report

Date: 4th November 2014

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Purpose of the Feasibility Study

As agreed with the Workstream it is important to emphasise that the Feasibility Study used an illustrative theoretical example of an Emergency Care Centre to test and model a range of estates issues associated with different site scenarios for an Emergency Care Centre.

This example was needed to provide a view on the differences between sites to inform short listing of options. It did not indicate any preference for any option, it did not set out a definite view of what services should be in an Emergency Care Centre; nor where it should be located; nor what other services should be located with it.

The work to develop a long list of options and, evaluate those options and develop a shortlist is a separate Workstream of the FutureFit Programme.

1.0 Introduction

The Feasibility Study Workstream was established with a view to determining the feasibility of developing a single Emergency Centre on one of three possible sites:

- Royal Shrewsbury Hospital Site (RSH);
- Princess Royal Hospital, Telford Site (PRH);
- As yet to be defined “greenfield” site.

This work is intended to inform and support decisions to be taken by the Programme in relation to the Options to be developed for detailed appraisal as part of the proposed Outline Business Case and Public Consultation.

To achieve this required definition of the functional content of the Emergency Centre and associated capacity requirements (number of beds, theatres, diagnostics etc.). As a full service and capacity brief has yet to be developed by the Programme, the Feasibility Study work utilised the outputs from the Clinical Design Workstream and Modelling of future activity levels for Shrewsbury and Telford Hospitals to determine a best estimate for the functional content and scale of the Emergency Centre.

The Workstream was established and held its first meeting on 4th June 2014, and a series of meetings have been held to consider each of the main elements in undertaking such a piece of work:

- The Clinical and Activity Brief;
- Determining and developing the Scenarios to be reviewed;
- The Capital Costs of delivering the Scenarios;
- Assessing the Affordability of the Scenarios and undertaking Sensitivity Testing.

During the course of this work the Workstream decided that the initial brief (i.e. to only consider the impact of the Emergency centre component of the plans) was not as helpful as it could be, and therefore the brief was expanded to include the other Acute Hospital components (Planned Care and all Acute Hospital Beds).

At the Feasibility Study Workstream meeting held on 15th July 2014 the following Scenarios were confirmed:

- Scenario 1: Emergency and Planned Care Centre at Royal Shrewsbury Hospital (RSH);
- Scenario 2: Emergency and Planned Care Centre at Princess Royal Hospital (PRH);
- Scenario 3: Emergency and Planned Care Centre at Greenfield Site;

- Scenario 4: Emergency Centre at Greenfield Site with Planned Care Centre at PRH;
- Scenario 5: Emergency Centre at Greenfield Site with Planned Care Centre at RSH.

It was agreed that Outpatient and non-acute Cancer services should be excluded and that the provision of Consultant-led Obstetrics on the same site would be dealt with as a variant.

Subsequently at the meeting held on 29th July 2014 the way in which those Scenarios could be delivered in physical terms was agreed (Scenario Planning paper version 2; dated 25th July 2014).

Draft Capital Costs were considered in a report to the Workstream meeting held on 12th August 2014, and were subsequently updated to reflect discussions at that meeting.

A Feasibility Study report was produced dated 9th September reflecting those decisions and providing Capital Costs and consideration of the issue of affordability in relation to the capital charge consequences of the levels of investment.

Subsequent to acceptance of that report, the Programme sought further work to explore two additional Scenarios:

- Scenario 6: Emergency Centre at Royal Shrewsbury Hospital (RSH) and Planned Care Centre at PRH with options with and without Obstetrics at RSH;
- Scenario 7: Emergency Centre at Princess Royal Hospital (PRH) and Planned Care Centre at RSH.

The specification of additional work also sought to expand the financial analysis from Section 4 onwards, to consider:

- The differing Life-cycle implications of the Scenarios assessed over a 25 – 30 year period;
- An assessment of the potential space cost implications of the Scenarios;
- Additional comparative analysis to assist in the overall assessment of the affordability of the Programme both to Commissioners and the Trusts;
- Inclusion of the impact under Scenario 0 (Do Nothing) by way of comparator.

This draft report on the Capital, Life-cycle and Revenue impact of the Feasibility Study sets out the results of this further brief to the team.

2.0 The Clinical and Activity Brief

2.1 Emergency Centre

Access will be via ambulance or urgent care centre – no walk-in.

2.1.1 Functional Content

- Emergency Department/majors unit
- Radiology – 2 CTs, 1 MRI, small ultrasound
- Pathology – hot lab for blood sciences and microbiology
- Blood bank
- Pharmacy
- Assessment unit – 0 day LOS

2.1.2 Co-locate

- Urgent Care Centre (UCC) including Urgent Paediatric Assessment Centre (UPAC)
- High acuity unit – 3 & 7 day LOS
 - Surgery – complex (20% of planned)
 - Trauma
 - Medicine
- Theatres
- Critical Care Unit
- Paediatrics
- Acute Oncology/Cancer (not planned care)
- Mental Health Assessment Unit/RAID

2.2 Urgent Care Centre with Emergency

There will be a number of these centres and they will be located in key geographic areas/sites but one is required to be co-located with the Emergency Centre, at which ever site.

2.2.1 Functional Content

Each Urgent Care Centre will require the following facilities but the one co-located with the Emergency Centre may be able to share access to some of these with the emergency facilities. E.g. radiology

- See and treat/minors unit
- Urgent Paediatric Assessment Centre (UPAC)
- Radiology – plain film, ultrasound
- Pathology – simple bloods/point of care
- Observation unit <6 hours stay for paediatrics <12 hours stay for adults
- Pharmacy
- Consulting rooms

2.2.2 Additional facilities to support localities

The Urgent Care Centres based in each locality including those at PRH and RSH will require access to additional facilities beyond those identified in the functional content in order to support the communities in which they are based. This is not included as part of this work stream.

2.3 Planned Care

Development of a Diagnostic and Treatment Centre, which **could** be co-located with the Emergency Centre for workforce and equipment reasons but must operate independently from it and the high acuity unit. The DTC will undertake 80% of planned surgery.

2.3.1 Functional Content

- Theatres
- Radiology – 1 CT, 2 MRIs, ultrasound (major base if shared with UCC)
- Pathology – blood science lab
- Beds to support planned surgery
- Radiotherapy and Chemotherapy
- Consulting rooms

2.3.2 Co-locate

- No clinical co-location absolutely required, but advantages for equipment and staffing if on the same site. This will therefore be considered within the Scenarios

2.4 Other Services

- Consultant led Obstetrics is currently co-located with Paediatrics but for the purposes of this work stream, its future location is as yet undetermined and so it has been included as a possible variant to the options
- Radiotherapy is predominantly a planned service and due to the specific facility and equipment requirements it is not proposed to relocate this service

2.5 CSU modelling

The Feasibility Study was based on the CSU activity modelling released in May 2014, which does not take into account the application and impact of the clinical model on future activity.

The CSU modelling of future activity levels provides two demographic scenarios:

- Moderate improvement in age specific health status
- No improvement in age specific health status

For the purpose of the Feasibility Workstream the moderate improvement scenario at 85% occupancy was used, as follows:

Table 1: Bed and Activity Figures

	Current (2012/13)	Moderate (2018/19)
Total bed numbers (adult at 85% occupancy)	747	773
Elective bed days	64,068	+8.6%
Emergency bed days	257,087	-9.8%
Maternity & other bed days	37,407	-1.9%
A&E attendances	108,331	+2.1%

It was recognised that this will be superseded by on-going clinical modelling, which will incorporate the revised clinical model, but the current figures were felt to be robust enough for the purposes of the Feasibility Study.

2.6 Capacity requirements

The capacity requirements as derived from the calculations above, are detailed in the table below as amended following validation of the calculations:

Table 2: Forecast Bed Requirements

	Adult (ex maternity)	Revised capacity Adults	Paediatric (ex neonates)	Revised capacity Paeds
Emergency Centre	Assessment beds	-	Assessment beds	-
	High acuity beds	168	High acuity beds	26
	General acute beds	460	General acute beds	16
	Total	628	Total	42
Elective Centre	Day case beds - Medicine	0	Day case beds	4
	Day case beds - Surgery	40		
	Short stay beds – Medicine	8	Short stay beds	2
	Short stay beds - Surgery	36		
	Total	84	Total	6
Total Beds		712		48

The revised total bed number of 760 beds excludes maternity and neonates. The newly built Paediatric facility is 44 beds and this has therefore been used to scale any new build facility rather than the 48 identified above (which reduces the total bed number required to be delivered to 756).

3.0 The Scenarios

3.1 Scenario Assumptions

The following assumptions have been made, both within the Feasibility Study and this additional work, in the first step to developing the scenarios:

Table 3: Scenario Assumptions

Scenario 1 RSH Emergency Centre & Elective Centre	Scenario 2 PRH Emergency Centre & Elective Centre	Scenario 3 Greenfield site Emergency & Elective Centre	Scenario 4 Greenfield Emergency PRH Elective	Scenario 5 Greenfield Emergency RSH Elective	Scenario 6 RSH Emergency Centre PRH Elective Centre	Scenario 7 PRH Emergency Centre RSH Elective Centre
New build A&E, Urgent Care & Assessment Additional 12 Critical Care beds New build Paediatrics (44 beds) Existing beds 465* (inc CCU, DCU) New build 191* beds Extension to Treatment Centre - 44 short stay beds/4 theatres/3 procedure rooms New build Radiology - 2 CT/2 MRI New build Maternity	New build A&E, Urgent Care & Assessment Additional 12 Critical Care beds Existing beds 354* (inc CCU, DCU, Paeds) New build 390* beds New build Radiology – 2 CT/2MRI New build 7 theatres/3 procedure rooms	New build all facilities 712* beds (inc CCU beds) A&E, Urgent Care & Assessment 15 theatres/7 procedure rooms Paediatric Unit (44 beds) Clinical Support departments Non clinical support	New build Emergency Centre – 628* beds Re-model rehabilitation unit and outpatients as Planned Care Centre – 84 beds/8 theatres/3 procedures	New build Emergency Centre – 628* beds Extend/re-model RSH Diagnostic and Treatment Centre – 84 beds/8 theatres/3 procedures	New build A&E, Urgent Care & Assessment Additional 12 Critical Care beds New build Paediatrics (44 beds) Existing beds 425* (inc CCU) New build 191* beds New build Radiology - 2 CT/2 MRI Re-model rehabilitation unit and outpatients at PRH as Planned Care Centre – 84 beds/8 theatres/3 procedures	New build A&E, Urgent Care & Assessment Additional 12 Critical Care beds Existing beds 314* (inc CCU, Paeds) New build 346* beds New build Radiology – 2 CT/2MRI New build 7 theatres/3 procedure rooms Extend/re-model RSH Diagnostic and Treatment Centre – 84 beds/8 theatres/3 procedures
756 beds	756 beds	756 beds	756 beds	756 beds	756 beds	756 beds

** bed numbers exclude maternity and neonates

3.2 Scenario Sizing

There remains significant detail to be prepared, not least, understanding the proposed models of care, however for the purpose of the Feasibility Study and this additional work, the following broad approach has been adopted to specific elements of the scenarios to provide a consistent platform on which to compare the scenarios:

- The projected activity for the emergency centre is circa 110,000 attendances per annum. The recently approved emergency centre at Wolverhampton has a projected workload of 115,000 attendances and therefore its accommodation schedule has been used to determine the overall size
- The Women & Children's unit at PRH has recently opened and therefore since it was designed as a county facility it has been replicated in the non-PRH Scenarios

The following data has been used in all scenarios:

Emergency Centre & Urgent Care Centre

Waiting & reception	275 sq.m.
Paeds area	180 sq.m.
Triage	56 sq.m.
Minors	229 sq.m.
Majors	279 sq.m.
Resus	166 sq.m.
Radiology	374 sq.m.
Support	300 sq.m.
CDU	352 sq.m.
Outpatient clinic	253 sq.m.
Paed assessment	240 sq.m.
Staff accommodation	416 sq.m.
Total	3,120 sq.m. Net Departmental Area / 4,628 sq.m. Gross
Departmental Area	

Women & Children's Centre

Inpatient Accommodation

Antenatal	921 sq.m.
Postnatal	711 sq.m.
Neonates	930 sq.m.
Paed assessment	295 sq.m.
Paed ward	1030 sq.m.
Paed oncology	208 sq.m.
Gynae	1,030 sq.m.

Outpatients

Epau	>>
Paeds	424 sq.m.

Treatment & diagnostic

Delivery	778 sq.m.
Theatre	387 sq.m.
Gynae assessment	????

Support

Office & seminar	336 sq.m.
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Total 7,050 sq.m. Net Departmental Area

Note: The above information has not been confirmed through survey data.

3.3 Scenario 1 – RSH

In initial reports to the Feasibility Study Workstream, the team formed a view on the parameters for assessing the size and content of the Emergency Centre and showed how it could be delivered on the existing hospital sites. This was subsequently amended to incorporate the additional general acute and planned care elements on the site (i.e. the revised brief) and these amendments are indicated in italics below:

Sequence of the works:

1. Create a new temporary entrance to the retained OPD Suite
2. Construct a 3 storey Emergency Centre
 - a. Decant emergency services into new building
3. Remodel vacated A&E into new outpatient centre
 - a. Relocate outpatient services and demolish old
 - b. *Build extension to Treatment centre to accommodate additional theatres, daycase and short stay beds*
4. Build new Children's unit with pathology on the lower ground floor and critical care on the top
 - a. Relocate pathology and demolish
 - b. Paeds can move later with Women's services
5. Build new obstetric block – as a potential variation to Scenario 1
 - a. Relocate patients
 - b. Demolish vacated women's unit
 - c. *Build new ward block*
 - d. *Construct new car park*

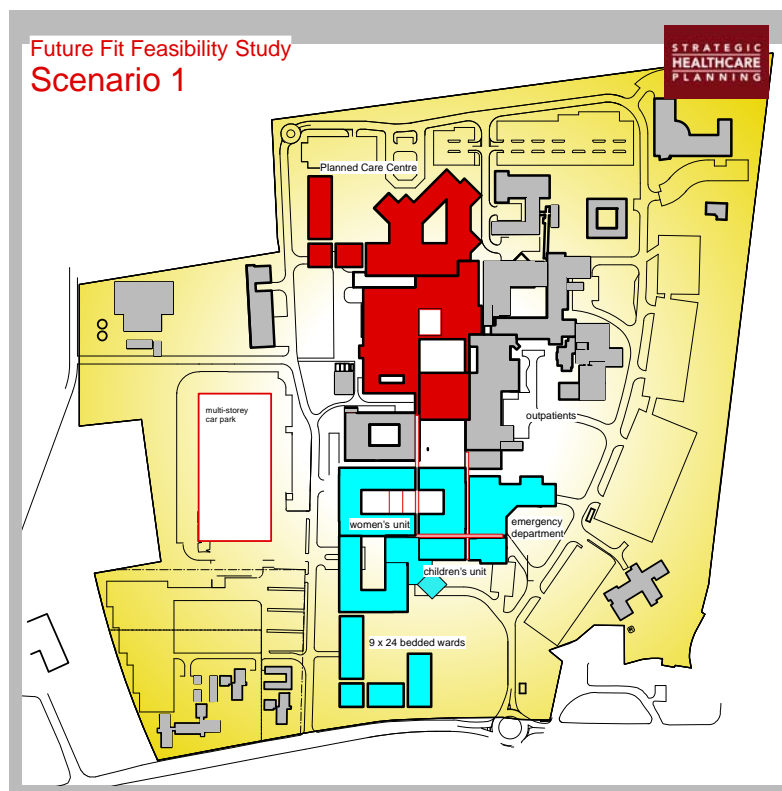
The table below provides an estimate of the scale of building required:

Table 4: Scenario 1 Facility Sizing

Additional Facilities required	Size (net sq.m.)	Comments
Emergency Dept. including urgent care centre	3,120	Benchmark
191 general acute beds (8x 24 bedded wards)	6,000	750 sq.m. per ward 50% singles

Additional Facilities required	Size (net sq.m.)	Comments
12 Critical Care Beds	1,200	600 sq.m. per cluster of 6 beds
Paediatric Unit	3,000	Paediatric element of PRH W&C unit
4 Operating Rooms+ 3 procedure rooms	1,800	HBN 26 adapted
Elective – 44 beds (2 x 24 wards)	1,500	750 sq.m. per ward 50% singles
Radiology + 2 CT/2 MRI	530	HBN 06 adapted
Clinical support	1,886	11% of additional clinical capacity
Non-clinical support		
Obstetrics	5,093	Inclusion at request of Workstream
TOTAL NET SIZE	22,329	Plus car park for say 1,200 cars
Gross Departmental Area (GDA)	33,700	
Gross Internal Area (GIA)	41,450	

The above requirements could be delivered as shown in the following illustration:



3.3.1 Estimated timescale

Design & Tender	1 year
Stage 1	3 months
Stage 2	24 months
Stage 3	12 months
Stage 4	15 months
Stage 5	21 months
Stage 6	30 months
Overall	6 years 6 months

3.4 Scenario 2 – PRH

In initial reports to the Feasibility Study Workstream, the team formed a view on the parameters for assessing the size and content of the Emergency Centre and showed how it could be delivered on the existing hospital sites. This was subsequently amended to incorporate the additional general acute and planned care elements on the site (i.e. the revised brief) and these amendments are indicated in italics below:

Sequence of the works:

- 1 Construction of the new build component of the emergency centre with critical care at first floor
 - a At the same time the existing day case activity to be relocated to elective accommodation elsewhere and the Dental Suite to be relocated
 - b Build the multi-storey car park
 - c Upon completion of the new build relocate the existing A&E service
- 2 Re-model the vacated space to the balance of the Emergency Centre
- 3 Re-model vacated Day Case to adult assessment beds
- 4 *Build new Planned Care Centre with additional general acute beds*

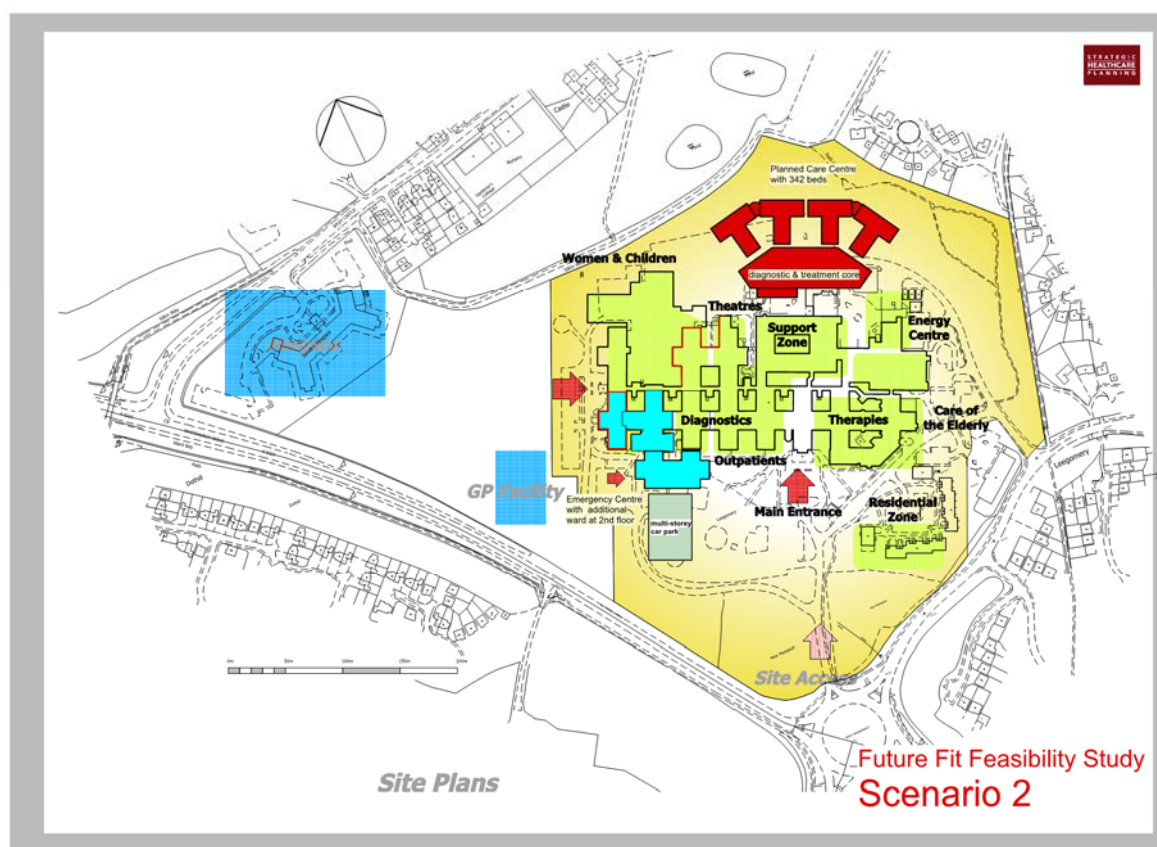
The table below provides an estimate of the scale of building required:

Table 5: Scenario 2 Facility Sizing

Additional Function	Size (net sq.m.)	Comments
Emergency Dept. including urgent care centre	3,120	Benchmark
346 general acute beds (14 x 24 bedded wards)	10,500	750 sq.m. per ward 50% singles
12 Critical Care Beds	1,200	600 sq.m. per cluster of 6 bed
7 Operating Rooms + 3 procedure rooms	2,284	HBN 26
Elective – 44 beds (2 x 24 wards)	1,500	750 sq.m. per ward 50% singles
Radiology + 2 CT/2 MRI	530	HBN 06 adapted
Clinical support	2,105	11% of additional clinical capacity
Non-clinical support		
TOTAL NET SIZE	21,239	Plus car park for say 1,200 cars

Additional Function	Size (net sq.m.)	Comments
Gross Departmental Area (GDA)	29,091	
Gross Internal Area (GIA)	35,800	

The above requirements could be delivered as shown in the following illustration:



3.4.1 Estimated timescale

Design & Tender	1 year
Stage 1	24 months
Stage 2	18 months
Stage 3	incl. in Stage 2
Stage 4	36 months
Overall	5 years 6 months

3.5 Scenario 3 – Greenfield Site – Emergency and Planned Care Centre

The following is the base level of accommodation that includes the Emergency and Planned Care Centres together with service elements that are essential support to them:

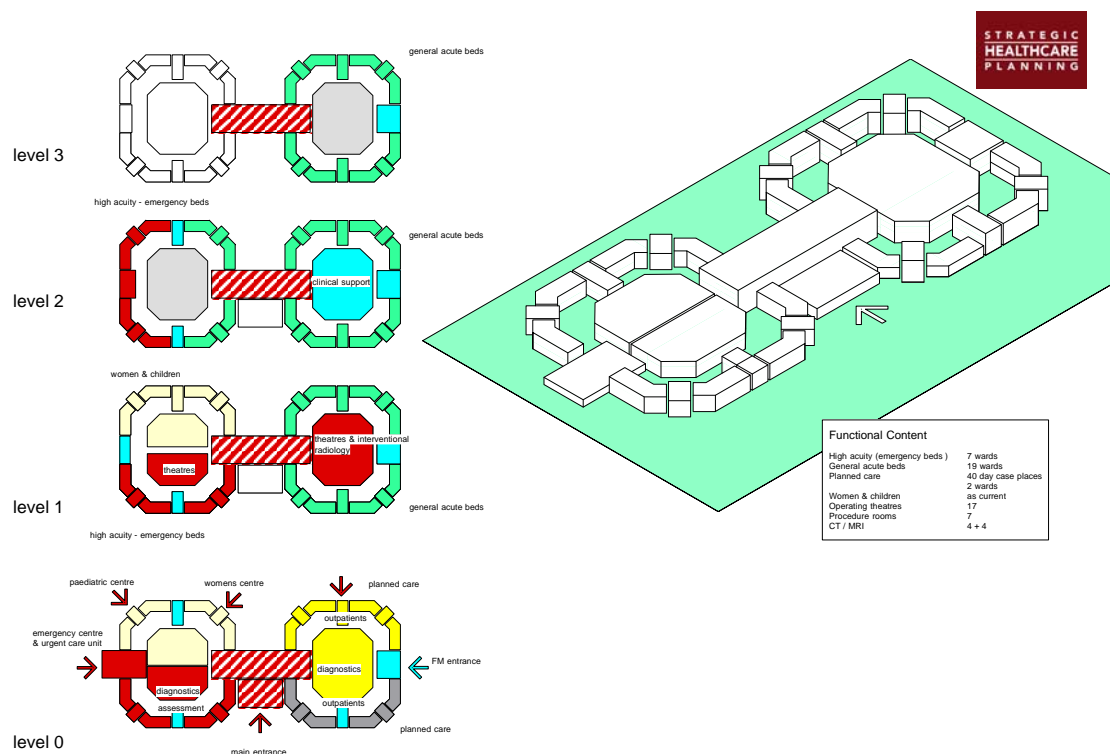
Table 6: Scenario 3 Facility Sizing

Function	Size (net sq.m.)	Comments
Emergency Dept. including urgent care centre	3,120	Benchmark
644 beds (27 x 24 bedded wards)	20,250	750 sq.m. per ward 50% singles
24 critical care beds	2,400	600 sq.m. per cluster of 6 bed
Women & children's centre (44 Paediatric beds)	7,050	Benchmark
15 OR + 7 procedure rooms	3,342	Benchmark
Elective – 44 beds (2 x 24 wards)	1,500	750 sq.m. per ward 50% singles
Radiology	1,800	Assessed benchmark
Pathology	1,200	Urgent and Emergency only – HBN 15 adapted
Pharmacy	960	HBN 14-01 adapted
Clinical administration	1,616	Benchmark
Clinical support	1,729	4% of total clinical capacity
	44,967	
Non-clinical support		
Main entrance suite	682	Benchmark
Mortuary	389	HBN 20
Catering & dining	1,200	Regeneration only – meals provided from elsewhere
SSD	606	HBN 13 3 sterilisers
Staff accommodation	1,231	Benchmark
FM accommodation	1,060	Benchmark
	5,168	
TOTAL NET SIZE	50,135	Plus car park for say 1,200 cars
Gross Departmental Area (GDA)	70,189	

Gross Internal Area (GIA)	86,132	
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In initial work on the Greenfield solution overall scale of building required was derived from benchmark data for recent NHS buildings of a similar type. That initial estimate of the scale of the overall facility (83,687m²) has now been refined by the more detailed work set out above.

The diagram below illustrates how the Emergency Centre and Planned Care Centre could be incorporated on the Greenfield site:



Future Fit Feasibility Study
Scenario 3

3.5.1 Potential Size of Greenfield Site

Identifying a suitable site upon which the Greenfield Scenario can be developed was not within the scope of the Feasibility Study.

Having said that, in order to properly assess the potential costs of such a solution it was necessary to estimate the size of site that would be required.

The size of site required for NHS facilities depends on 3 key factors:

- The scale of buildings required

- The number of floors over which they are delivered
- The extent and type of car parking and landscaping

Whilst the latter two of these will be highly dependent upon the locality and adjacent land uses, standard assumptions have been used to update the calculation of the potential requirement as follows:

Table 7: Greenfield Site Size

Description	Formula	Area: Core Requirements	Notes
Gross Internal Area		86,132	
Courtyards	30%	25,840	
Gross Build Area Required		111,972	
Assumed no. of floors	3		
Gross New Build Footprint Required		37,324	
Existing Gross Footprint Retained		0	
TOTAL footprint (LHF)		37,324	
Car Parking	Assumes 22 m ² per space including road and pavement allowance		
Estate compound site area	2.0	180	
Retail Pharmacy site area	2.0	328	
Public & Staff Car Parking Allocation:	500	11,000	Assumes decked to deliver 1,200 spaces
Sub Total Site Area		48,832	
Landscaping	25%	12,208	
Estates Support	3%	1,465	
Other Roads	15%	7,325	
TOTAL		69,830	Site area required m²
		6.98	Site area required Ha
With 15% Expansion Capability	15%	8.03	Site area required Ha

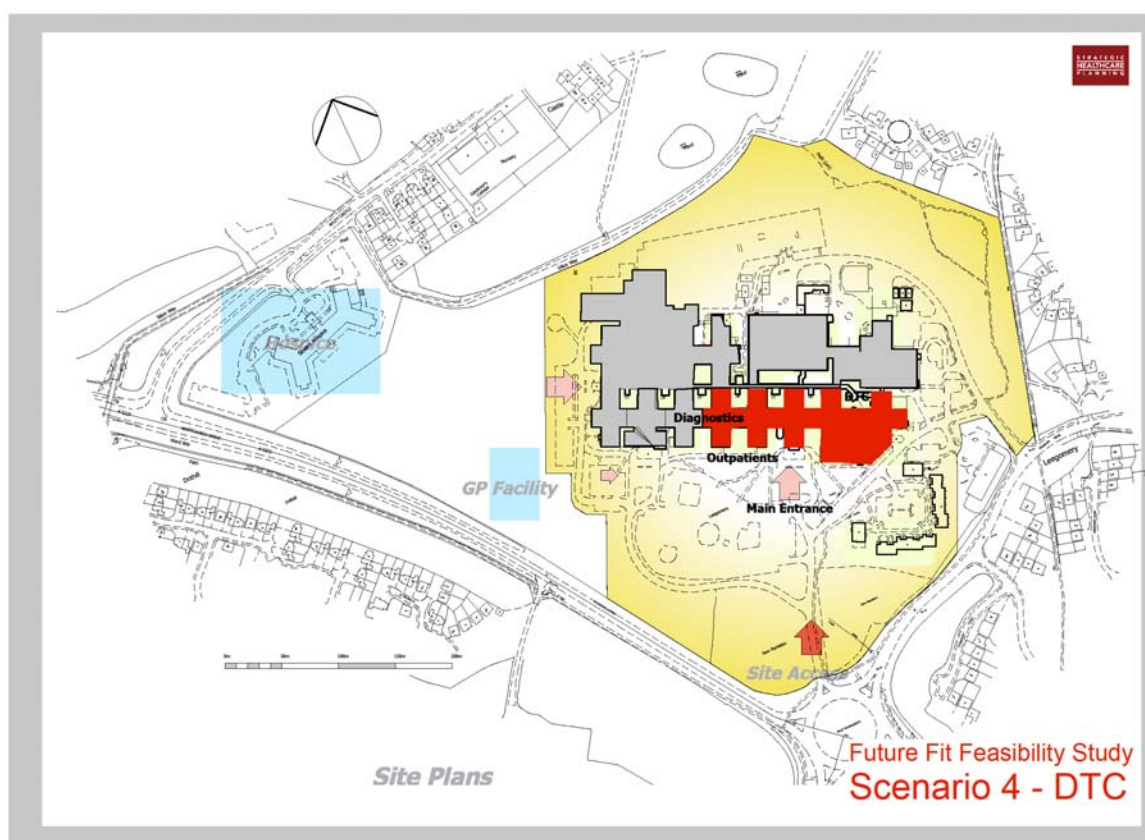
19.8 Acres

3.5.2 Estimated timescale

The estimated timescale for the delivery of this Scenario is much more difficult to assess, as the form of procurement may be different (for example being conducted under HM Treasury PF2 arrangements). That would extend the tender and design stage considerably. In terms of construction, however, the timescale is likely to be of the order of 36 months, assuming a site that is ready for development which does not have onerous site preparation requirements.

3.6 Scenario 4 – Greenfield site with Emergency Centre and Planned Care Centre at PRH

For this scenario, the Planned Care elements have been removed from the Greenfield site and provided at PRH, however functional efficiency will require the PRH site to be re-modelled to deliver this new unit. The remainder of the site will be potentially redundant (depending upon other requirements of the Future Fit Programme out-with the Feasibility Study) as illustrated below:



The table below suggests the impact of removing the Planned Care Centre is to reduce overall area by approximately 8,000 square metres, but with a requirement for significant remodelling at PRH.

Table 8: Scenario 4 Facility Sizing

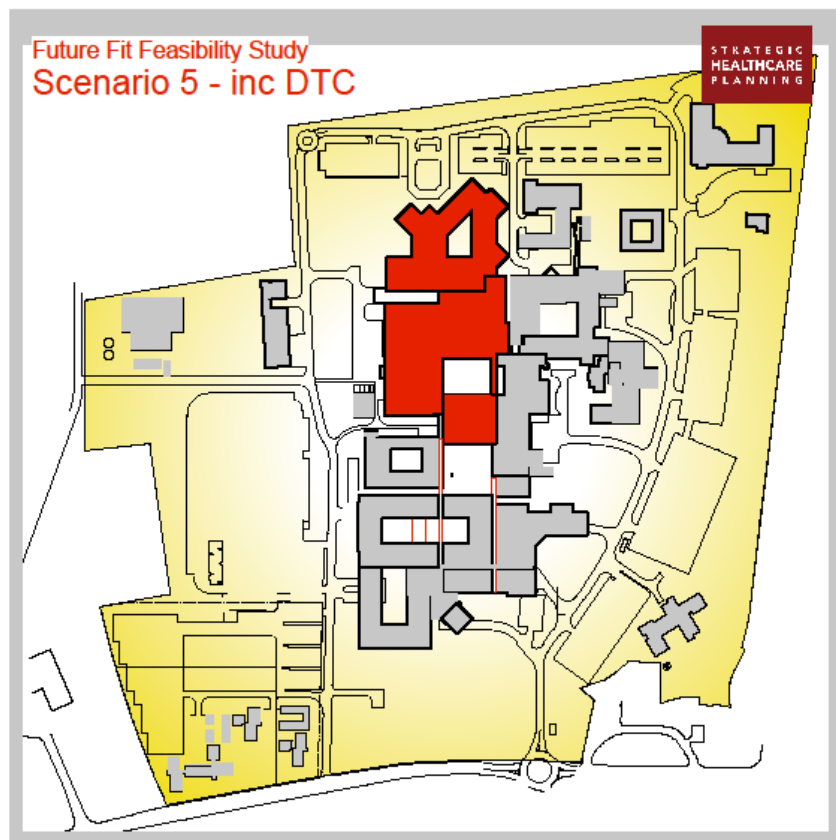
Greenfield site – Emergency and general acute	Size (net sq.m.)	Comments
Emergency Dept. including urgent care centre	3,120	Benchmark
604 beds (25 x 24 bedded wards)	18,750	750 sq.m. per ward 50% singles
24 critical care beds	2,400	600 sq.m. per cluster of 6 bed
Women & children's centre (44 Paediatric beds)	7,050	Benchmark
7 OR + 3 procedure rooms	2,284	HBN 26
Radiology	1,300	Assessed benchmark
Pathology	1,200	Urgent and Emergency only – HBN 15 adapted
Pharmacy	960	HBN 14-01 adapted
Clinical administration	1,616	Benchmark
Clinical support	1,547	4% of total clinical capacity
	40,227	
Non-clinical support		
Main entrance suite	682	Benchmark
Mortuary	389	HBN 20
Catering & dining	1,200	Regeneration only – meals provided from elsewhere
SSD	606	HBN 13 3 sterilisers
Staff accommodation	1,231	Benchmark
FM accommodation	1,060	Benchmark
	5,168	
TOTAL NET SIZE	45,395	Plus car park for say 1,200 cars
Gross Departmental Area (GDA)	63,553	
Gross Internal Area (GIA)	78,170	

3.6.1 Estimated timescale

The timescale for construction of the Greenfield site is unlikely to be significantly different from that envisaged under Scenario 3 (i.e. around 36 months).

3.7 Scenario 5 – Greenfield site with Emergency Centre and Planned Care Centre at RSH

For this scenario, the Planned Care elements have been removed from the Greenfield site and provided at RSH, however functional efficiency will require the RSH site to be re-modelled to deliver this new unit. The remainder of the site will be potentially be redundant (depending upon other requirements of the Future Fit Programme out-with the Feasibility Study) as illustrated below:



The impact of removing the Planned Care Centre is to reduce overall area by approximately 8,000 square metres, but with a requirement for significant re-modelling at RSH. Details of the reduced scale of the Greenfield Facility have already been provided in the table within Section 3.6 above, and the following table sets out the scale of the Planned Care Centre:

Table 9: Planned Care Centre Size

Planned Care Centre	Size (net sq.m.)	Comments
8 Operating Rooms + 3 procedure rooms	2,284	HBN 26
Elective – 84 beds (4 x 24 wards)	3,000	750 sq.m. per ward 50% singles
Radiology + 2 CT/2 MRI	530	HBN 06 adapted
Clinical support	639	11% of additional clinical capacity
Non-clinical support		
TOTAL NET SIZE	6,453	
Gross Departmental Area (GDA)	9,034	
Gross Internal Area (GIA)	11,112	

3.7.1 Estimated timescale

The timescale for construction of the Greenfield site is unlikely to be significantly different from that envisaged under Scenario 3 (i.e. around 36 months).

3.8 Scenario 6 – Emergency Centre at RSH, Planned Care Centre at PRH

This Scenario was not included within the Feasibility Study Report dated 9th September 2014.

3.8.1 Royal Shrewsbury Hospital

Under this Scenario, extensive work would be required on the RSH site to accommodate the requirements of the Emergency Centre and inpatient beds.

Sequence of the works:

1. Create a new temporary entrance to the retained OPD Suite
2. Construct a 3 storey Emergency Centre
 - a. Decant emergency services into new building
3. Build new Children's unit with pathology on the lower ground floor and critical care on the top
 - a. Relocate pathology and demolish
 - b. Paeds can move later with Women's services
4. Build new ward block
5. Build new obstetric block – as noted earlier in this report, and in accordance with the brief from the Workstream, this is treated as a **potential variation**.
 - a. Relocate patients
 - b. Demolish vacated women's unit
 - c. *Build new ward block*
 - d. *Construct new car park*

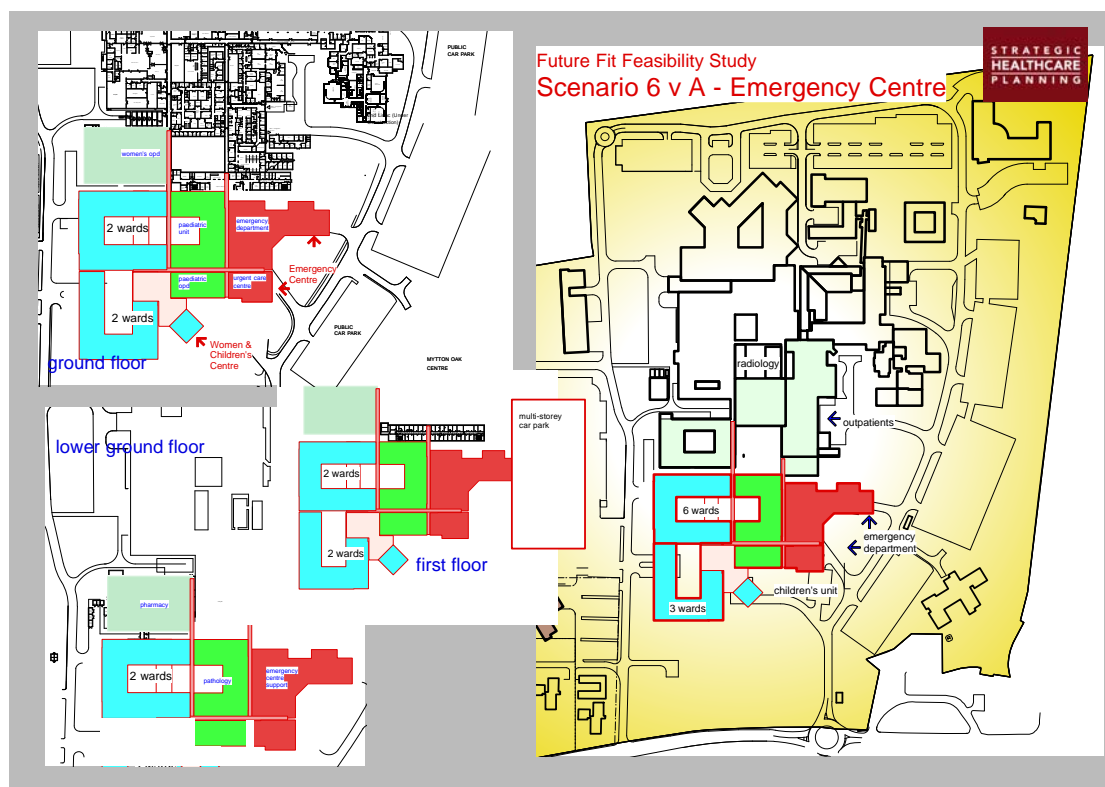
The table below provides an estimate of the scale of building required:

Table 10: Scenario 6 RSH Facility Sizing

Additional Facilities required	Size (net sq.m.)	Comments
Emergency Dept. including urgent care centre	3,120	Benchmark
191 general acute beds (8x 24 bedded wards)	6,000	750 sq.m. per ward 50% singles
12 Critical Care Beds	1,200	600 sq.m. per cluster of 6 bed

Additional Facilities required	Size (net sq.m.)	Comments
Paediatric Unit	3,000	Paediatric element of PRH W&C unit
Clinical support	1,465	11% of additional clinical capacity
Non-clinical support		
TOTAL NET SIZE	14,785	Plus car park for say 1,200 cars
Gross Departmental Area (GDA)	20,699	
Variant - Obstetric block – net size	5,090	

The above requirements could be delivered as shown in the following illustration:



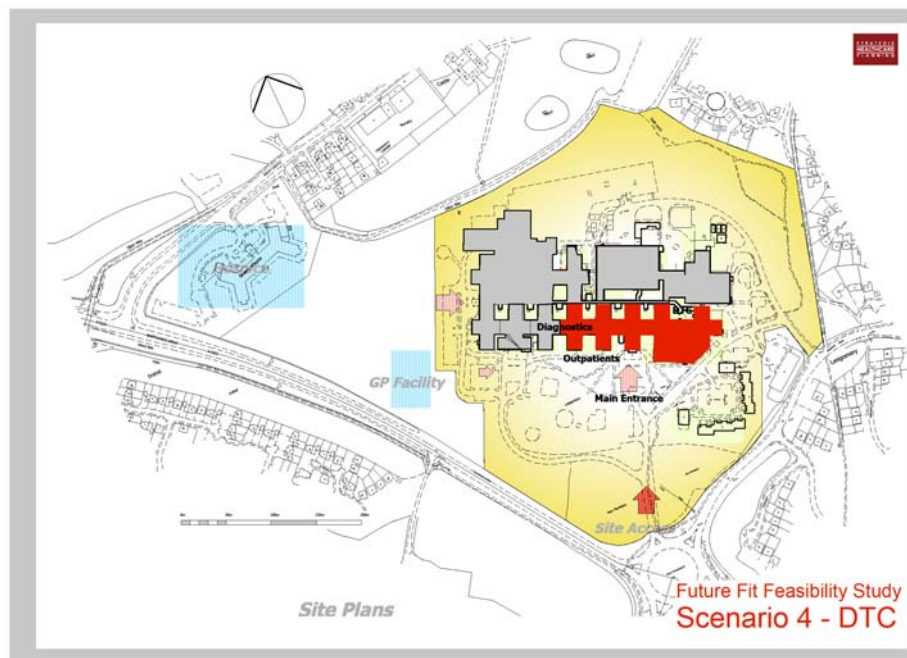
3.8.2 Princess Royal Hospital

Similar to the approach under Scenario 4, the approach here could be to re-model the rehabilitation unit and outpatients as a Planned Care Centre to provide 84 beds/8 theatres/3 procedures. The remainder of the site will be potentially redundant (depending upon other requirements of the Future Fit Programme out-with the Feasibility Study) as illustrated below:

Table 11: Scenario 6 PRH Facility Sizing

Planned Care Centre	Size (net sq.m.)	Comments
8 Operating Rooms + 3 procedure rooms	2,284	HBN 26
Elective – 84 beds (4 x 24 wards)	3,000	750 sq.m. per ward 50% singles
Radiology + 2 CT/2 MRI	530	HBN 06 adapted
Clinical support	639	11% of additional clinical capacity
Non-clinical support		
TOTAL NET SIZE	6,453	
Gross Departmental Area (GDA)	9,034	

The above requirements could be delivered as shown in the following illustration:



It would also be possible to consider utilising the new Women's and Children's Centre to be remodelled to provide the Elective Care Centre. The building is of broadly the right size, but its location (towards the rear of the site) is not ideal in terms of accessibility. There are unlikely to be significant capital cost advantages to such a solution, as extensive remodelling would be required, given the specific functional content requirements. It is suggested that if this Scenario were to be pursued, a detailed study would be undertaken as part of developing the Outline Business Case.

3.8.3 Estimated timescale

Design & Tender	1 year
Stage 1	3 months
Stage 2	24 months
Stage 3	18 months
Stage 4	15 months
Stage 5	21 months
Stage 6	30 months
Overall	6 years 6 months

3.9 Scenario 7 – Emergency Centre at PRH, Planned Care Centre at RSH

This Scenario was not included within the Feasibility Study Report dated 9th September 2014.

3.9.1 Princess Royal Hospital

Under this Scenario, extensive work would be required on the PRH site to deliver the requirements of an Emergency Centre and the associated acute bed provision.

Sequence of the works:

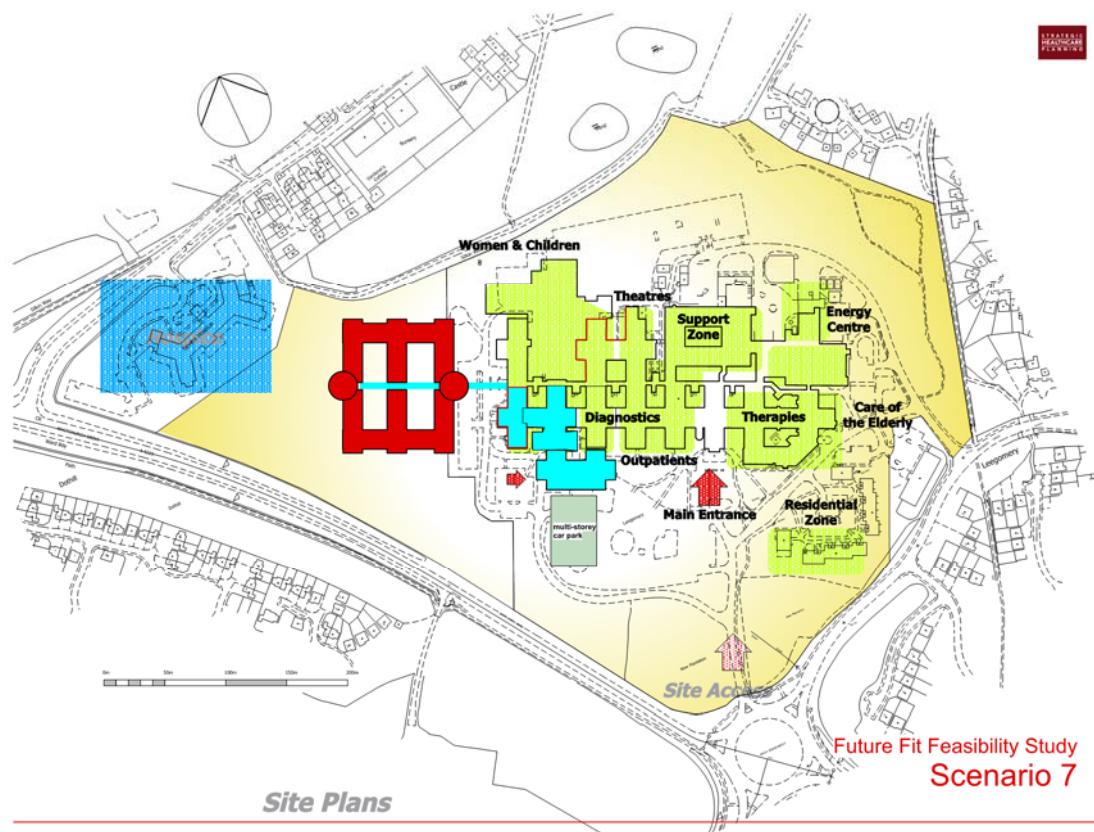
- 1 Construction of the new build component of the emergency centre with critical care at first floor
 - a At the same time the existing day case activity to be relocated to elective accommodation elsewhere and the Dental Suite to be relocated
 - b Build the multi-storey car park
 - c Upon completion of the new build relocate the existing A&E service
- 2 Re-model the vacated space to the balance of the Emergency Centre
- 3 Re-model vacated Day Case to adult assessment beds
- 4 Build new ward block

The table below provides an estimate of the scale of building required:

Table 12: Scenario 7 PRH Facility Sizing

Additional Function	Size (net sq.m.)	Comments
Emergency Dept. including urgent care centre	3,120	Benchmark
346 general acute beds (14 x 24 bedded wards)	10,500	750 sq.m. per ward 50% singles
12 Critical Care Beds	1,200	600 sq.m. per cluster of 6 bed
Clinical support	1,630	11% of additional clinical capacity
Non-clinical support		
TOTAL NET SIZE	16,450	Plus car park for say 1,200 cars
Gross Departmental Area (GDA)	23,030	

The above requirements could be delivered as shown in the following illustration:

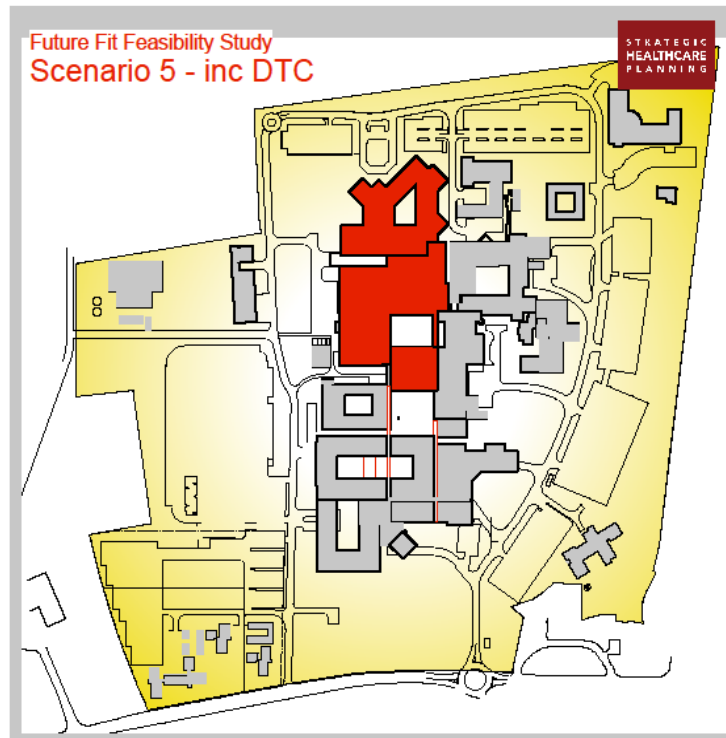


3.9.2 Royal Shrewsbury Hospital

Work would be required to extend/re-model the RSH Diagnostic and Treatment Centre to provide 84 beds/8 theatres/3 procedures. The remainder of the site will be potentially be redundant (depending upon other requirements of the Future Fit Programme out-with the Feasibility Study) as illustrated below:

Table 13: Scenario 7 RSH Facility Sizing

Planned Care Centre	Size (net sq.m.)	Comments
8 Operating Rooms + 3 procedure rooms	2,284	HBN 26
Elective – 84 beds (4 x 24 wards)	3,000	750 sq.m. per ward 50% singles
Radiology + 2 CT/2 MRI	530	HBN 06 adapted
Clinical support	639	11% of additional clinical capacity
Non-clinical support		
TOTAL NET SIZE	6,453	
Gross Departmental Area (GDA)	9,034	



3.9.3 Estimated timescale

Design & Tender	1 year
Stage 1	24 months
Stage 2	18 months
Stage 3	incl. in Stage 2
Stage 4	36 months
Overall	5 years 6 months

4.0 Capital Cost Methodology

A capital cost assessment of each of the Scenarios has been undertaken by Holbrow Brooks LLP based on Departmental Cost Allowances, applied to the proposed physical solutions.

The costing has been undertaken in accordance with guidance from the Department of Health in relation to the costing of capital schemes, using standard data given the level of detail available as part of the Feasibility Study and the brief for this additional piece of work.

A summary of the key data assumptions is shown in Table 14 below, and brief details are provided about the basis for each of the assumptions underneath the table.

Table 14: Capital Cost Data Summary

Data	Scenario 0 Do Nothing	Scenario 1 RSH Emergency Centre & Elective Centre	Scenario 2 PRH Emergency Centre & Elective Centre	Scenario 3 Greenfield site Emergency & Elective Centre	Scenario 4 Greenfield Emergency PRH Elective	Scenario 5 Greenfield Emergency RSH Elective	Scenario 6 RSH Emergency Centre PRH Elective Centre	Scenario 7 PRH Emergency Centre RSH Elective Centre
Gross Departmental Area (GDA) (m ²)	N/A	33,785 m ²	29,091 m ²	70,189 m ²	72,587 m ²	72,587 m ²	36,859 m ²	32,066 m ²
Start on Site	N/A	Phased from Q3 2015	Phased from Q3 2015	Q3 2016	Q3 2016	Q3 2016	Phased from Q3 2015	Phased from Q3 2015
Cost Index at Reporting Level	N/A	173	173	173	173	173	173	173
Cost Index at Start on Site	N/A	247 Average	212 Average	220	220	220	212 Average	212 Average
Cost Index at Q3 2014	N/A	200	200	200	200	200	200	200
Equipment Index Current	N/A	144	144	144	144	144	144	144

Data	Scenario 0 Do Nothing	Scenario 1 RSH Emergency Centre & Elective Centre	Scenario 2 PRH Emergency Centre & Elective Centre	Scenario 3 Greenfield site Emergency & Elective Centre	Scenario 4 Greenfield Emergency PRH Elective	Scenario 5 Greenfield Emergency RSH Elective	Scenario 6 RSH Emergency Centre PRH Elective Centre	Scenario 7 PRH Emergency Centre RSH Elective Centre
Equipment Index Outturn	N/A	173 Average	164 Average	169	169	169	172 Average	161 Average
On-Cost %	N/A	90%	80%	90%	80%	85%	85%	85%
Fees %	N/A	15%	15%	15%	15%	15%	15%	15%
Planning Contingency %	N/A	6%	6%	6%	6%	6%	6%	6%
Optimism Bias %	N/A	29%	23%	27%	27%	27%	29%	29%
Proportion of (20%) VAT assumed to be recoverable	N/A	(10%)	(10%)	(5%)	(5%)	(5%)	(10%)	(10%)

The following additional commentary is provided on each of the above assumptions:

- Gross Departmental Areas: As shown in Section 3.0 above;
- Start on Site dates: As shown in Section 3.0 above;
- Cost Indices: The Cost Index at Reporting Level is defined by the Department of Health to provide a consistent means of comparison between different projects. It is worthy of note that the Index level of 173 is now somewhat historic, as that level of prices was reached at the end of 2010. At “today’s prices” (i.e. 3rd Quarter 2014) the published index level of 200 (some 16% higher), reflecting inflation in capital construction prices since that time. The Department of Health recommends the use of the BIS Index from the Building Cost Information Service forecasts produced by the Royal Institute of Chartered Surveyors is used to forecast likely inflation in capital costs above the reported index level, and the relevant index level is shown for the different start on site dates:

- Scenario 1 is phased over 6.5 years with construction commencing in the third quarter 2015 and the final 5th phase commencing in the third quarter of 2020. Actual indices per phase are utilised for the cost calculations with the average identified in the table being used merely for presentation purposes;
 - Scenario 2 commences on site as Scenario 1 in the third quarter of 2015 but is only over 3 phases with the final phase in the timeline commencing on site in the third quarter of 2017. As with scenario 1 actual indices per phase are utilised for the cost calculations with the average identified in the table being used merely for presentation purposes;
 - Scenarios 3, 4 and 5 are all new build and whilst commencing on site a year later in the third quarter of 2016 they are not phased and can therefore complete on site more quickly;
 - Scenarios 6 and 7 are similar in timescale to Scenarios 1 and 2 respectively, as work on the two sites can be accomplished in parallel.
- Equipment Index: Formal data is no longer published in respect of base equipment costs. Base costs used are therefore those last published which were at an index of 100 uplifted to a baseline index of 144 i.e. a timeline consistent with the works cost. These Indices are again projected forward to anticipate the likely index at the time of purchase in order to generate a cost inclusive of inflation. The equipment inflation indices are calculated to coincide with completion of the works on site when most equipment will be physically purchased. Actual indices are utilised per phase for the cost calculations with the average identified in the table being used merely for presentation purposes and to represent the phasing of delivery;
- On-Costs: At the early stages of costing where there is little detail developed in order to more accurately calculate on-costs the percentage addition is a professional judgement of the cost adviser based on previous schemes generally across the NHS are where possible more specifically to the sites being considered;
- Scenario 1 has been set at 90% to reflect previous levels on previous schemes and to reflect the relative age of the site its buildings at infrastructure. The level also reflects the increased number of phases and therefore that the on-cost components may themselves be “phases within phases”;
 - Scenario 2 has been set at 80% to reflect the relative difference with Scenario 1 anticipated to reflect that the site is newer, has not been developed piecemeal, is likely to have less infrastructure issues and is being delivered over fewer phases and time;
 - Scenarios 3 is completely new build on a site yet to be identified. The level of 90% is therefore purely an assessment at this stage. There is an element of overlap with land purchase for example:
 - A sloping site may be cheaper to purchase but is more expensive to develop;
 - Is the cost of remediating the site for major demolitions and contamination part of the on-costs and non-works cost or is it part of the land purchase;
 - Scenario 4 is as Scenario 3 new build but also places Planned Care at Princess Royal in refurbished accommodation, refurbishment attracts a lower on-cost and the reduction to 80% reflects this component;
 - Scenario 5 is as Scenario 4 but with planned Care at Royal Shrewsbury. The on-costs have risen to 85% to reflect the relative difficulty of refurbishment at Shrewsbury relative to Telford in Scenario 4;

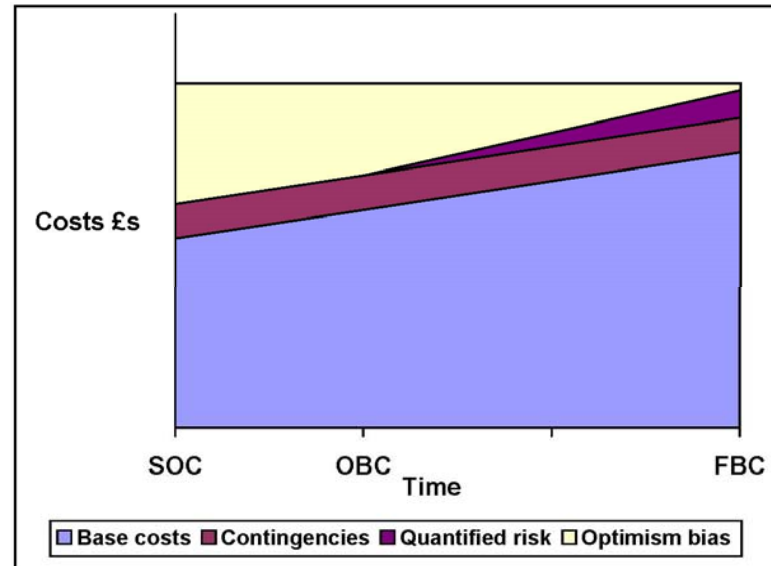
- Scenarios 6 and 7 have 85% on-costs, reflecting the balance of work between the two existing sites.
- Planning Contingencies: These have been incorporated at 6% across all options. This is a generally accepted norm for this element at this development stage of a project;
- Optimism Bias: This has been calculated utilising HM Treasury's and Department of Health standard template and the percentage additions reflect the relative nature of each project. There are a number of factors for consideration in the overall calculation however the following general points explain the relative differences:
 - Scenarios 1, 6 and 7 are highest at 29% principally because they are over 4 years in duration, where all other options are under 4 years, and it also has more than 4 phases where other scenarios do not;
 - Scenario 2 is lower than Scenario 1 at 23% principally for the two factors identified above i.e. it will be complete in less than 4 years and in less than 4 phases;
 - Scenarios 3, 4 and 5 have been considered to be the same at 27%, as the impact of the PCC on different sites is not a significant factor. Differences are that they will be delivered in under 4 years, in a single phase and be wholly new build. These factors would have put it at lower than Scenario 2 however other factors took it back up such as the impact on medical equipment and IT infrastructure. The other significant factor taking it back up was the mitigation component of Optimism Bias and with there being no identified site the level of mitigation was deemed to be less than known sites.
- VAT Recovery: VAT recovery is potentially recoverable to an extent on all construction projects and is generally related to the amount of maintenance work incorporated within a project but can also be recoverable against some elements of a new build project. The level of 10% for Scenarios 1, 2, 6 and 7 reflects the higher level of refurbishment whereas Scenarios 3, 4 and 5 have far less refurbishment. This element can also be influenced by the procurement route ultimately selected.

Overall, this is seen as a prudent approach given the level of detail available for this stage of work.

It is also worth noting the general principles behind the inclusion of Optimism Bias.

Research undertaken by HM Treasury has shown that initial forecasts of the capital cost of public sector schemes has historically been too optimistic (i.e. costs have risen as projects develop, sometimes very significantly). To counter this, the guidance included in HM Treasury's Green Book advises the inclusion of "Optimism Bias" from the early stages of the project. The Department of Health have also produced guidance on the levels of Optimism Bias to be applied to projects depending upon the nature of the project.

The overall aim of this approach is to seek to ensure that the forecast level of capital costs is maintained throughout the project life, and the following graphic illustrates the way in which the different cost components change over the life of the project:



Finally, it is important to note that capital cost comparisons with figures reported in other contexts are fraught with difficulties, not only in terms of the scale and functional content of what is delivered, but also in relation to what is included within the cost envelope (for example, including or excluding Equipment and VAT), and the timescales upon which they have been prepared (i.e. the level of inflation represented within the figures).

5.0 Capital Costs

5.1 Costs at BIS Index 173

Details of the capital costs are provided in a separate *Capital Cost Annex* to this report, and at reporting index level 173 are summarised in Table 15 below.

Table 15: Capital Cost Summary at BIS 173

Capital Cost	Scenario 0 Do Nothing	Scenario 1 RSH Emergency Centre & Elective Centre	Scenario 2 PRH Emergency Centre & Elective Centre	Scenario 3 Greenfield site Emergency & Elective Centre	Scenario 4 Greenfield Emergency PRH Elective	Scenario 5 Greenfield Emergency RSH Elective	Scenario 6 RSH Emergency Centre PRH Elective Centre	Scenario 7 PRH Emergency Centre RSH Elective Centre
	£,000s	£,000s	£,000s	£,000s	£,000s	£,000s	£,000s	£,000s
Works & On-Costs	0	109,743	98,752	238,061	224,696	230,938	112,813	103,488
Fees	0	16,461	14,813	35,709	33,704	34,641	16,922	15,523
Non-Works	0	5,600	600	0	0	0	5,600	3,333
Land	0	0	0	16,000	16,000	16,000	0	0
Equipment	0	21,611	13,417	41,075	44,845	44,845	22,168	15,092
Contingencies	0	9,205	7,655	19,851	19,155	19,585	9,450	8,246
Optimism Bias	0	46,509	31,537	95,179	91,842	93,907	47,749	41,665
VAT	0	33,604	26,534	75,573	73,116	74,714	34,494	29,914
Total at Index 173	0	242,733	193,308	521,447	503,358	514,630	249,196	217,262
£ Cost per GDA m2	0	£7,185	£6,645	£7,429	£6,935	£7,090	£6,761	£6,775

The following notes explain the broad basis of costing used, in accordance with guidance published by the Department of Health:

- **Works & On-Costs:** These costs reflect the relative areas per Scenario, the specific function and relative costs, whether the function is new build or refurbishment and the relative level of on-costs as explained in Table 14;
- **Fees:** These have been set at a constant 15% across all options with 15% being an accepted norm for fees. As the scheme proceeds this element will vary in as much as it may fall to circa 12% in a more traditional procurement route by rise to circa 18% in say a Procure21+ route;
- **Non Works Cost and Land Purchase:**
 - Scenarios 1, 6, and to a lesser extent Scenario 7 reflect a high level of demolition to existing structures across the various phases and the potential for contamination in those buildings with asbestos. The existing Maternity building at RSH is known to be particularly problematic as the actual structure cannot be determined and therefore the demolition methodology which also impacts on the asbestos removal methodology. The maternity building is also known to have within its split level structure large water tanks that serve the rest of the site and it has been assumed these will need to be replaced in order for the Maternity site to be reutilised in whatever format;
 - Scenario 2 reflects a far lower level of cost relating to minor demolition works and some assumed decants;
 - Scenarios 3, 4 and 5 include for land purchase and associated site remediation. These are currently assumed as no site has yet been identified, and the split between Non Works Cost and Land Purchase will vary dependent upon the nature of the site once identified.
- **Equipment:** Equipment costs have been calculated as explained in relation to Table 14. Those costs have then been assessed for a notional level of transfer for refurbishment elements of the Scenarios, and as 100% new purchases for all new build elements:
 - Scenario 1 is higher than Scenario 2 as it is firstly 14% larger by area but it also has a higher intensity of functionality relative to equipment costs i.e. more areas that attract higher equipment costs.
 - Scenario 3 reflects a position of a new build hospital. Equipment has therefore been costed as 100% new. As an option it is also twice the size of Scenario 1 by area.
 - Scenarios 4 and 5 are higher than Scenario 3 reflecting that the Scenarios are circa 2,500 m² larger than Scenario 3, given the provision of the Planned Care Centre on one of the existing sites;
 - Scenarios 6 and 7 are similar in scale to Scenarios 1 and 2 respectively, and hence in terms of the equipping requirement.
- **Contingencies:** This element is a constant of 6% as previously identified;
- **Optimism Bias:** See explanation under Table 14;
- **VAT:** VAT is charged at the prevailing rate of 20% and incorporates a level of VAT recovery as identified under Table 14.

5.2 Forecast Outturn Costs

Forecast outturn costs are based on the latest *BIS PUBSEC Tender Price Index of Public Sector Building, Non-Housing* guidance in line with BCIS NHS Newsletter 14-3 of July 2014 to ensure consistency with the Feasibility Study Report dated 9th September 2014. This provided forecasts for starts up to Q1 2016 and showed a marked increase compared to previous guidance, with annual building cost inflation at circa 5%.

Since most Scenarios have starts on site after Q1 2016, the BCIS Tender Price Index has been applied thereafter, with annual building cost inflation maintained at approximately 5%.

Inflation on equipment is assumed at 3% per annum.

Table 16 below provides a summary of the forecast outturn costs, together with a comparison with costs at:

- Q3 2014 BIS Index of 200;
- “Current” levels based on outturn cash flows, discounted by annual GDP deflator of 2.5% to derive costs at 2014/15 which would be used within an economic appraisal of the Scenarios and to assess potential capital charges impact.

Table 16: Capital Cost Summary at Forecast Outturn and Current Levels

Capital Cost	Scenario 0 Do Nothing	Scenario 1 RSH Emergency Centre & Elective Centre	Scenario 2 PRH Emergency Centre & Elective Centre	Scenario 3 Greenfield site Emergency & Elective Centre	Scenario 4 Greenfield Emergency PRH Elective	Scenario 5 Greenfield Emergency RSH Elective	Scenario 6 RSH Emergency Centre PRH Elective Centre	Scenario 7 PRH Emergency Centre RSH Elective Centre
	£,000s	£,000s	£,000s	£,000s	£,000s	£,000s	£,000s	£,000s
Forecast Outturn	0	339,020	235,032	656,652	633,056	647,389	331,835	287,876
Costs at Index 200 Q3 2014	0	276,398	220,966	594,836	573,189	586,220	283,760	248,224

Capital Cost	Scenario 0 Do Nothing	Scenario 1 RSH Emergency Centre & Elective Centre	Scenario 2 PRH Emergency Centre & Elective Centre	Scenario 3 Greenfield site Emergency & Elective Centre	Scenario 4 Greenfield Emergency PRH Elective	Scenario 5 Greenfield Emergency RSH Elective	Scenario 6 RSH Emergency Centre PRH Elective Centre	Scenario 7 PRH Emergency Centre RSH Elective Centre
Costs at discounted “Current” levels	0	297,545	222,111	600,945	579,063	592,210	305,465	261,084
“Current” equivalent index	N/A	217	201	202	202	202	213	210

It is worthy of note that a further BCIS NHS Newsletter has just been published (No. 14-4 of September 2014). This shows a further forecast increase in inflation, which would further increase out-turn costs by 1.0% - 1.5%. Detailed figures are available on this basis if necessary.

6.0 Capital Charges

6.1 Capital Charges from Investment

The first stage of assessment of the implications of the various Scenarios is a simple desktop assessment of the capital charges that would arise on the capital costs presented on the following assumptions:

- Capital costs at “Current” levels as shown in Table 16;
- All capital spend would “add value”, and therefore capital charges are directly related to capital spend;
- Land is not depreciated as it is assumed to retain its value;
- Works and related costs depreciated over 38 years;
- Equipment depreciated over 10 years;
- A 3.5% rate of return on capital is assumed.

Table 17: Indicative “New” Capital Charges

Capital Charges	Scenario 0 Do Nothing	Scenario 1 RSH Emergency Centre & Elective Centre	Scenario 2 PRH Emergency Centre & Elective Centre	Scenario 3 Greenfield site Emergency & Elective Centre	Scenario 4 Greenfield Emergency PRH Elective	Scenario 5 Greenfield Emergency RSH Elective	Scenario 6 RSH Emergency Centre PRH Elective Centre	Scenario 7 PRH Emergency Centre RSH Elective Centre
	£,000s	£,000s	£,000s	£,000s	£,000s	£,000s	£,000s	£,000s
Land	0	0	0	1,087	1,087	1,087	0	0
Buildings	0	16,028	12,310	30,753	29,027	29,833	16,121	14,343
Total: Land & Buildings	0	16,028	12,310	31,840	30,114	30,920	16,121	14,343

Capital Charges	Scenario 0 Do Nothing	Scenario 1 RSH Emergency Centre & Elective Centre	Scenario 2 PRH Emergency Centre & Elective Centre	Scenario 3 Greenfield site Emergency & Elective Centre	Scenario 4 Greenfield Emergency PRH Elective	Scenario 5 Greenfield Emergency RSH Elective	Scenario 6 RSH Emergency Centre PRH Elective Centre	Scenario 7 PRH Emergency Centre RSH Elective Centre
Equipment	0	4,879	2,881	9,225	10,071	10,071	5,743	3,667
Total Capital Charge	0	20,907	15,191	41,065	40,185	40,992	21,865	18,010

The average asset lives (38 years for Works and 10 years for Equipment) are based on experience of a range of projects over many years.

6.2 Existing Asset Information

Information has been provided by the finance department of Shrewsbury and Telford Hospital NHS Trust (SaTH) on the existing asset base of the Trust. This is summarised below:

Table 18: Existing Land and Buildings

	Princess Royal Hospital (PRH)	Royal Shrewsbury Hospital (RSH)	Total
Gross Internal Area (m ²)	37,165	59,975	97,140
Average Remaining Life (years)	25.1	21.2	22.7
Net Book Value (at 1 st April 2014):	£,000's	£,000's	£,000's

	Princess Royal Hospital (PRH)	Royal Shrewsbury Hospital (RSH)	Total
Land	11,488	15,205	26,693
Buildings	47,573	63,804	111,377
Total Net Book Value	59,061	79,009	138,070
Backlog Maintenance (at 1 st April 2014)	4,174	15,120	19,294
Capital Charges (2014/15):			
Land	402	532	934
Building	3,528	5,186	8,714
Total Capital Charges	3,930	5,718	9,648
Other Space Costs (2014/15):			
Estates Maintenance	533	925	1,458
Energy and Utilities	1,714	3,338	5,052
Rates	670	822	1,492
Total Other Space Costs	2,847	5,085	8,002

It is noted that the Floor Area (and hence Value, Capital Charges and Other Space Costs) of the Princess Royal Hospital does not currently reflect the recently opened Women's and Children's Unit. Consequently adjustments have been made to reflect this "new asset" in making judgements on the changes in Capital Charges and in Section 7.0 relating to Life-cycle and Backlog Costs and in Section 8.0 in relation to other space costs.

6.3 Changes in Capital Charges

In order to assess the implications under the various Scenarios it is necessary to consider the extent to which existing capital charges are capable of being “saved” as a consequence of no longer using the facilities for their current purpose. It is important to note that this assessment is solely to ensure that direct comparisons can be made between the Scenarios, i.e. it relates to considering the use of facilities for the package of services included within the Feasibility Study, and makes no judgement about whether or not the residual facilities will be required for other purposes.

For Scenarios 1, 2 and 3 this is a simple matter as either (or both in the case of Scenario 3) of the existing sites will no longer be required for the delivery of the services included within the Feasibility Study. For Scenarios 4, 5, 6 and 7 an assessment has been made of the proportion of the existing floor area that will remain in use for the Planned Care Centre, and that proportion has been used to forecast the percentage of capital charges that would be “saved”. The following proportions have therefore been applied to each Scenario:

Table 19: Savings in Capital Charges on Existing Assets

Capital Charges Savings	Scenario 0 Do Nothing	Scenario 1 RSH Emergency Centre & Elective Centre	Scenario 2 PRH Emergency Centre & Elective Centre	Scenario 3 Greenfield site Emergency & Elective Centre	Scenario 4 Greenfield Emergency PRH Elective	Scenario 5 Greenfield Emergency RSH Elective	Scenario 6 RSH Emergency Centre PRH Elective Centre	Scenario 7 PRH Emergency Centre RSH Elective Centre
Princess Royal Hospital	0%	100%	0%	100%	76%	100%	76%	0%
Royal Shrewsbury Hospital	0%	0%	100%	100%	100%	81%	0%	81%

Where work is being undertaken to refurbish existing facilities (at differing levels under all Scenarios except Scenario 3), a second judgement is required in relation to how that impacts on the current Capital Charge of that facility. Given the level of refurbishment being undertaken, it has been assumed that this would give rise to a Capital Charge for those elements of the facility “as new”.

For a more detailed and accurate assessment it will be necessary to undertake a block by block analysis of the function of each part of the existing facilities to determine which elements will need to be retained under each option. This has not been undertaken as part of this work.

This results in the following potential change in capital charges for Land and Buildings:

Table 20: Net Increase in Land & Building Capital Charges

Capital Charges	Scenario 0 Do Nothing	Scenario 1 RSH Emergency Centre & Elective Centre	Scenario 2 PRH Emergency Centre & Elective Centre	Scenario 3 Greenfield site Emergency & Elective Centre	Scenario 4 Greenfield Emergency PRH Elective	Scenario 5 Greenfield Emergency RSH Elective	Scenario 6 RSH Emergency Centre PRH Elective Centre	Scenario 7 PRH Emergency Centre RSH Elective Centre
	£,000s	£,000s	£,000s	£,000s	£,000s	£,000s	£,000s	£,000s
New Land & Buildings Capital Charges	0	16,028	12,310	31,840	30,114	30,920	16,121	14,343
Potential reduction in Existing Capital Charges	0	(6,891)	(6,375)	(11,219)	(11,727)	(11,975)	(6,969)	(6,934)
Potential Net Increase in Capital Charges	0	9,137	5,936	20,621	18,387	18,945	9,142	7,409

As noted above, no judgement has been made about whether the “unused” facilities will be used for alternative purposes as part of the Future Fit Programme or vacated and released, as those considerations are out-with the remit for this report. It is therefore vital to be cautious in considering the “potential net” increases within each of the Scenarios rather than the “gross” position.

7.0 Life-Cycle and Backlog Costs

Under the different Scenarios, differing proportions of the facilities will be operating in “New”, “Refurbished” or “Retained” condition. In order to establish the overall floor area for each option, space currently occupied for “Other Acute Services” on the RSH and PRH sites has also been included, based on assessment of requirements for Outpatients, Renal, Cancer Services and Office/Support:

Table 21: Space Analysis of Scenarios

Floor Areas (GIA m ²)	Scenario 0 Do Nothing	Scenario 1 RSH Emergency Centre & Elective Centre	Scenario 2 PRH Emergency Centre & Elective Centre	Scenario 3 Greenfield site Emergency & Elective Centre	Scenario 4 Greenfield Emergency PRH Elective	Scenario 5 Greenfield Emergency RSH Elective	Scenario 6 RSH Emergency Centre PRH Elective Centre	Scenario 7 PRH Emergency Centre RSH Elective Centre
New	0	37,558	31,760	86,332	78,170	78,170	34,225	25,513
Refurbished	0	3,998	4,022	0	11,112	11,112	11,112	13,929
Retained	0	40,763	42,743	0	0	0	44,761	43,948
Sub-Total m ²	0	82,319	78,525	86,332	89,282	89,282	90,098	83,390
Other Acute Services:								
RSH	50,375	5,000	5,000	5,000	5,000	5,000	5,000	5,000
PRH	46,765	5,000	5,000	5,000	5,000	5,000	5,000	5,000
Sub-Total m ²	97,140	10,000	10,000	10,000	10,000	10,000	10,000	10,000
Overall Floor Area m ²	97,140	92,319	88,525	96,332	99,282	99,282	100,098	93,390

Consequently, the impact on the future Lifecycle costs over the next 25 – 30 years also need to be considered alongside the initial Capital Costs to deliver the Scenarios.

An assessment has therefore been undertaken to consider the differential impact that these “future” costs will have using the following methodology:

- For New elements and Refurbished facilities (equivalent to new in terms of expected life) the lifecycle cost driver under each Scenario is based on the value of the initial Works and Fees, including Contingencies, Optimism Bias and VAT;
 - The cost impact assessment is based on standard component element lives (between 5 years and 60 years), expressed as a proportion of initial building and engineering costs;
 - Under each Scenario, cyclical “refurbishment” is assumed to be some 8.5% more expensive than the initial capital costs, as a result of the need to decant and the higher on-costs attributable to refurbishment work;
 - In addition, an allowance has been included for annual spends on irregular maintenance based on an average cost of £5 per m²;
 - 60% of new build costs relate to building fabric, with the remaining 40% relating to engineering plant.
- For retained elements, a similar methodology has been adopted, but in order to establish the cost impact, the following assumptions have been made:
 - The cost driver under each Scenario for the retained elements is in line with those applied to respective New/Refurbished facilities on a cost per m² basis, and this has been applied to the full area to be retained under each Scenario;
 - In the absence of detailed block by block data, an average weighted remaining life has been established for retained facilities under each Scenario;
 - The lifecycle profile over a standard full 60-year period is not “straight line”, and the lifecycle spends attributed to retained elements over the 25-year period considered reflect the (varying) current average remaining lives under each Scenario. Thus, for example, whilst all new elements are based on the lifecycle spend profile for Years 1 to 25 (of the full 60), the retained elements under Scenario 1 (which have an assessed average weighted remaining life of 24 years), lifecycle costs reflect the spend profile for Years 36 to 60.
- Under Scenario 0, Do Nothing, the lifecycle costs are assessed on the same basis as above, rather than reflecting the Trust’s existing capital investment plans.

This results in the following range of costs (including the initial capital investment in new and refurbished facilities):

Table 22: Overall Investment in Land & Buildings

Longer Term Capital Costs	Scenario 0 Do Nothing	Scenario 1 RSH Emergency Centre & Elective Centre	Scenario 2 PRH Emergency Centre & Elective Centre	Scenario 3 Greenfield site Emergency & Elective Centre	Scenario 4 Greenfield Emergency PRH Elective	Scenario 5 Greenfield Emergency RSH Elective	Scenario 6 RSH Emergency Centre PRH Elective Centre	Scenario 7 PRH Emergency Centre RSH Elective Centre
	£,000s	£,000s	£,000s	£,000s	£,000s	£,000s	£,000s	£,000s
Initial Capital Investment	0	297,545	222,111	600,945	579,063	592,210	305,465	261,084
Life-cycle & Backlog:								
Years 1 - 5	107,475	45,891	12,052	1,642	1,699	1,699	47,587	22,440
Years 6 – 10	25,794	11,216	25,575	4,157	4,082	4,145	11,697	53,061
Years 11 – 15	68,676	37,423	13,059	27,375	25,997	26,668	38,740	25,943
Years 16 - 20	5,373	11,358	188,710	20,169	19,195	19,678	11,794	369,625
Years 21 - 25	479,127	211,142	35,931	84,220	79,650	81,812	218,301	73,975
Costs of Land and Buildings over 25 years	686,445	614,575	499,438	738,508	709,686	726,212	633,584	806,128

It is important to note that given the age of some of the existing estate, total replacement of some existing facilities that are retained “as is” under the different Scenarios is required within the 25 year period, and this leads to the significant expenditure required in the 16 – 25 year period in relation to each of the Scenarios that retain large areas of the existing estate (i.e. Scenarios 1, 2, 6 and 7).

Detailed information is available on the calculations behind the above figures if required.

8.0 Other Space Costs

The current Other Space Costs shown in Table 18 are just over £8m and represent 2014/15 budgets for the Maintenance, Energy and Utilities and Rates for the existing total GIA of 97,140m² (excluding both the new Women's Centre at PRH and off site facilities).

The assessment of costs in the future is based on the following assumptions:

- Existing Costs, reflecting the current GIA and assets in their current state/age would effectively be "saved". PRH costs equate to £78 per m² currently, and £85 per m² for RSH;
- In the absence of more detailed cost data, FM costs have been assessed at a current benchmark rate of £85 per m² which is in line with the current average for RSH.

On this basis, since there is a significant space saving under each Scenario, a corresponding Other Space Costs saving is forecast as shown in the Table below.

Table 23: Forecast Impact on Other Space Costs

Other Space Costs	Scenario 0 Do Nothing	Scenario 1 RSH Emergency Centre & Elective Centre	Scenario 2 PRH Emergency Centre & Elective Centre	Scenario 3 Greenfield site Emergency & Elective Centre	Scenario 4 Greenfield Emergency PRH Elective	Scenario 5 Greenfield Emergency RSH Elective	Scenario 6 RSH Emergency Centre PRH Elective Centre	Scenario 7 PRH Emergency Centre RSH Elective Centre
	£,000s	£,000s	£,000s	£,000s	£,000s	£,000s	£,000s	£,000s
Existing (Saved)	0	(8,002)	(8,002)	(8,002)	(8,002)	(8,002)	(8,002)	(8,002)
Forecast	0	6,997	6,675	7,338	7,589	7,589	7,658	7,088
Net Saving	0	(1,005)	(1,327)	(664)	(413)	(413)	(344)	(914)

As with the assessment of potential capital charge savings against existing budgets, it is important to reflect that the above savings are based only on the services considered as part of this Report. No account is taken of the cost of space required to deliver other aspects of the Future Fit Programme beyond the estimated 10,000 m² allowed for “other acute services”.

9.0 Sensitivity

9.1 Works Costs

Based on our experience of other similar projects, the average Works cost figures (for example under Scenario 3 a figure of £2,764 per m² of Gross Internal Area) are at the higher end of the range of what might be anticipated. This arises from the fact that detailed Schedules of Accommodation are not yet available, and therefore standard Departmental Costs have been applied. It is possible that once more refined schedules are available that this may reduce the “average unit rate” (as more specific sub-departmental costs can be applied).

Consequently a potential reduction in unit rates of 10% (consistent with the average seen on other projects) is being assessed within this Sensitivity.

Detail is not available from the current scope of this Report to determine whether such a level of savings could be made for the Future Fit Programme Scenarios, but if the costs could be reduced by such an amount it would have the following impact on the capital costs at Out-turn levels:

Table 24: Works Cost Sensitivity

Capital Cost	Scenario 0 Do Nothing	Scenario 1 RSH Emergency Centre & Elective Centre	Scenario 2 PRH Emergency Centre & Elective Centre	Scenario 3 Greenfield site Emergency & Elective Centre	Scenario 4 Greenfield Emergency PRH Elective	Scenario 5 Greenfield Emergency RSH Elective	Scenario 6 RSH Emergency Centre PRH Elective Centre	Scenario 7 PRH Emergency Centre RSH Elective Centre
Baseline Capital Costs at Forecast Outturn	£,000s 0	£,000s 339,020	£,000s 235,032	£,000s 656,652	£,000s 633,056	£,000s 647,389	£,000s 331,835	£,000s 281,876

Capital Cost	Scenario 0 Do Nothing	Scenario 1 RSH Emergency Centre & Elective Centre	Scenario 2 PRH Emergency Centre & Elective Centre	Scenario 3 Greenfield site Emergency & Elective Centre	Scenario 4 Greenfield Emergency PRH Elective	Scenario 5 Greenfield Emergency RSH Elective	Scenario 6 RSH Emergency Centre PRH Elective Centre	Scenario 7 PRH Emergency Centre RSH Elective Centre
Sensitivity Capital Costs at Forecast Outturn	0	309,713	213,336	600,275	579,843	592,669	303,289	256,353
Net Reduction in Capital Costs	0	(29,307)	(21,696)	(56,377)	(53,313)	(54,690)	(28,546)	(25,523)

There would be commensurate savings in the additional capital charges arising from the planned investments, as follows:

Table 25: Capital Charges Sensitivity

Capital Charges Land & Buildings	Scenario 0 Do Nothing	Scenario 1 RSH Emergency Centre & Elective Centre	Scenario 2 PRH Emergency Centre & Elective Centre	Scenario 3 Greenfield site Emergency & Elective Centre	Scenario 4 Greenfield Emergency PRH Elective	Scenario 5 Greenfield Emergency RSH Elective	Scenario 6 RSH Emergency Centre PRH Elective Centre	Scenario 7 PRH Emergency Centre RSH Elective Centre
	£,000s	£,000s	£,000s	£,000s	£,000s	£,000s	£,000s	£,000s
Adjusted	0	14,448	11,048	28,669	27,121	27,844	14,538	12,910
Baseline Forecast	0	16,028	12,310	31,840	30,114	30,920	16,121	14,343
Net Reduction	0	(1,580)	(1,262)	(3,171)	(2,994)	(3,076)	(1,583)	(1,433)

9.2 Equipment

As noted in Section 5.0 above, Equipment Costs have currently been estimated on the basis of a nominal transfer of existing assets for those elements of refurbishment work, and on the basis of 100% new purchase in relation to New Build elements. This is a significant, but differential, part of the overall capital costs.

A detailed exercise would need to be undertaken to assess the extent to which further transfer of equipment would be possible, that would require the following work to be undertaken:

- A detailed list of furniture and equipment for all of the proposed facilities;
- An assessment of the extent to which existing equipment could be transferred;
- Costing of the remaining furniture and equipment to be procured.

This level of work is not within the remit of this Report, nor would it be sensible to undertake such an extensive piece of work at this stage of the project.

As an alternative, and to provide the range of potential impacts, a simple exercise has been undertaken to exclude any Furniture and Equipment from the capital costs, and compare these to the forecasts made in Section 5.0 above. This shows (taking into account the impact of removing the direct cost of equipment on Contingencies, Optimism Bias, VAT and Inflation) the following range of costs at Out-turn levels:

Table 26: Equipment Cost Sensitivity

Capital Cost	Scenario 0 Do Nothing	Scenario 1 RSH Emergency Centre & Elective Centre	Scenario 2 PRH Emergency Centre & Elective Centre	Scenario 3 Greenfield site Emergency & Elective Centre	Scenario 4 Greenfield Emergency PRH Elective	Scenario 5 Greenfield Emergency RSH Elective	Scenario 6 RSH Emergency Centre PRH Elective Centre	Scenario 7 PRH Emergency Centre RSH Elective Centre
	£,000s	£,000s	£,000s	£,000s	£,000s	£,000s	£,000s	£,000s
Baseline Capital Costs at Forecast Outturn	0	339,020	235,032	656,652	633,056	647,389	331,835	281,876
Sensitivity Capital Costs at Forecast Outturn	0	297,273	211,526	579,342	548,650	562,983	289,921	254,713
Net Reduction in Capital Costs	0	(41,747)	(23,506)	(77,310)	(84,406)	(84,406)	(42,544)	(27,163)

9.3 Obstetric Services

As set out in Section 2.4 of this Report, the Feasibility Workstream sought Variant Scenarios in relation to the potential co-location of Obstetric Services.

Given the definition of the various Scenarios, the “baseline position” is as follows:

Table 27: Baseline Assumption on Obstetric Services

Obstetrics	Scenario 0 Do Nothing	Scenario 1 RSH Emergency Centre & Elective Centre	Scenario 2 PRH Emergency Centre & Elective Centre	Scenario 3 Greenfield site Emergency & Elective Centre	Scenario 4 Greenfield Emergency PRH Elective	Scenario 5 Greenfield Emergency RSH Elective	Scenario 6 RSH Emergency Centre PRH Elective Centre	Scenario 7 PRH Emergency Centre RSH Elective Centre
Location	No change	Included in proposed development at RSH (and hence within proposed capital costs)	Already “on-site”, no change necessary	No provision on Greenfield site, remains at PRH	No provision on Greenfield site, remains at PRH	No provision on Greenfield site, remains at PRH	Included in proposed development at RSH (and hence within proposed capital costs)	Already “on-site”, no change necessary

Based on this, two Variant Scenarios require consideration to fulfil the brief from the Feasibility Workstream:

- The impact on Scenarios 1 and 6 if Obstetrics is not included within the development on RSH (but remains isolated at PRH);
- The impact on the Greenfield Scenarios (Scenarios 3, 4 and 5) of including additional capacity to deliver Obstetric Services under those Scenarios.

Scenarios 1 and 6 include a new Obstetric Unit with a Gross Departmental Area of 7,050m². This would increase with proportional allowances for plant and communications to a Gross Internal Area of approximately 8,670m².

The cost capital differential in comparison to the figures shown in Section 5.1 would be as follows:

Table 28: Capital Cost Change for Obstetrics at BIS 173

Capital Cost Differential	Scenario 0 Do Nothing	Scenario 1 RSH Emergency Centre & Elective Centre	Scenario 2 PRH Emergency Centre & Elective Centre	Scenario 3 Greenfield site Emergency & Elective Centre	Scenario 4 Greenfield Emergency PRH Elective	Scenario 5 Greenfield Emergency RSH Elective	Scenario 6 RSH Emergency Centre PRH Elective Centre	Scenario 7 PRH Emergency Centre RSH Elective Centre
	£,000s	£,000s	£,000s	£,000s	£,000s	£,000s	£,000s	£,000s
Works & On-Costs	0	(17,239)	0	17,239	17,239	17,239	(17,239)	0
Fees	0	(2,586)	0	2,586	2,586	2,586	(2,586)	0
Non-Works	0	0	0	0	0	0	0	0
Land	0	0	0	0	0	0	0	0
Equipment	0	(5,412)	0	5,412	5,412	5,412	(5,412)	0
Contingencies	0	(1,514)	0	1,514	1,514	1,514	(1,514)	0
Optimism Bias	0	(7,651)	0	7,651	7,651	7,651	(7,651)	0
VAT	0	(5,558)	0	5,558	5,558	5,558	(5,558)	0
Total at Index 173	0	(39,960)	0	39,960	39,960	39,960	(39,960)	0
£ Cost per m ²	-	£(5,668)	-	£5,668	£5,668	£5,668	£(5,668)	-

9.4 Proportion of Single Beds

As set out in Section 3.0, each of the Scenarios have been sized based on general bed provision in new build accommodation being provided in wards with 50% single beds and the remainder of beds in 4-bed bays. Thus for each 24 bed ward area there are 12 single beds and 3 4-bed bays.

The minimum level of single beds possible would be 4 single beds (i.e. 16.7% singles, with the remaining beds being made up of 5 4-bed bays).

The acceptability of such an approach from the viewpoint of national standards and patient expectation have not been considered as part of this sensitivity, and this would require careful consideration, but such an approach would reduce the space required in ward areas.

Our assessment is that there would be a reduction of approximately 57m² per ward in the floor area required to deliver such a solution, and hence an overall reduction in the Gross Departmental Area (27 wards) of 1,531m² for the Greenfield solutions (Scenarios 3 – 5). As the level of general beds being provided in new build accommodation on the existing sites is lower (8 Wards in Scenario 1 and 14 Wards in Scenario 2), the potential saving in space is consequently lower:

Table 29: Potential Space Reduction for Reduced Single Bedrooms

Capital Cost Differential	Scenario 0 Do Nothing	Scenario 1 RSH Emergency Centre & Elective Centre	Scenario 2 PRH Emergency Centre & Elective Centre	Scenario 3 Greenfield site Emergency & Elective Centre	Scenario 4 Greenfield Emergency PRH Elective	Scenario 5 Greenfield Emergency RSH Elective	Scenario 6 RSH Emergency Centre PRH Elective Centre	Scenario 7 PRH Emergency Centre RSH Elective Centre
GDA Reduction (m ²)	0	454	794	1,531	1,531	1,531	454	794

The cost capital differential in comparison to the figures shown in Section 5.1 would be as follows:

Table 30: Capital Cost Change for Reduced Single Bedrooms at BIS 173

Capital Cost Differential	Scenario 0 Do Nothing	Scenario 1 RSH Emergency Centre & Elective Centre	Scenario 2 PRH Emergency Centre & Elective Centre	Scenario 3 Greenfield site Emergency & Elective Centre	Scenario 4 Greenfield Emergency PRH Elective	Scenario 5 Greenfield Emergency RSH Elective	Scenario 6 RSH Emergency Centre PRH Elective Centre	Scenario 7 PRH Emergency Centre RSH Elective Centre
	£,000s	£,000s	£,000s	£,000s	£,000s	£,000s	£,000s	£,000s
Works & On-Costs	0	(1,570)	(2,745)	(5,294)	(5,294)	(5,294)	(1,570)	(2,745)
Fees	0	(235)	(412)	(794)	(794)	(794)	(235)	(412)
Non-Works	0	0	0	0	0	0	0	0
Land	0	0	0	0	0	0	0	0
Equipment	0	(104)	(182)	(351)	(351)	(351)	(104)	(182)
Contingencies	0	(115)	(200)	(386)	(386)	(386)	(115)	(200)
Optimism Bias	0	(579)	(825)	(1,852)	(1,852)	(1,852)	(579)	(825)
VAT	0	(433)	(727)	(1,445)	(1,445)	(1,445)	(433)	(727)
Total at Index 173	0	(3,036)	(5,092)	(10,122)	(10,122)	(10,122)	(3,036)	(5,092)
£ Cost per m ²	-	£(6,687)	£(6,412)	£(6,611)	£(6,611)	£(6,611)	£(6,687)	£(6,412)

Note: The modest variation in unit cost per m² arises from the marginal differences in Optimism Bias applied to each Scenario.

10.0 Affordability

10.1 Net Increase in Revenue Expenditure

Judging the overall affordability of the Scenarios is complex, as it requires an understanding of the inter-relationship of the changes in factors other than those which are included within the current analysis, particularly:

- Income arising from the impact of the activity forecasts;
- Expenditure on the delivery of the levels of service being undertaken; and
- Changes in Equipment Capital Charges.

However, an assessment has been made of the net likely impact on revenue expenditure resulting from the following cost elements:

- Potential increase in Land and Building Capital Charges (Section 6.1);
- Potential savings on existing capital charges (Section 6.3);
- Net Saving in Space Costs (Section 8.0);
- Provision for the Space Costs and Capital Charges of Other Acute Services (based on current average FM and Capital Charges costs per m²);
- Estimates of potential savings in operational costs for each Scenario (provided by the Trust), reflecting the avoidance of duplication costs and the achievement of synergies from Care Pathway efficiencies.

As shown in Table 31, taking these factors into account shows a potential range of potential impacts on revenue expenditure, between an annual saving of £4.9m and additional cost of £8.5m, a range of approximately £13.4m.

Table 31: Potential Net Change in Expenditure

Change in Revenue Costs	Scenario 0 Do Nothing	Scenario 1 RSH Emergency Centre & Elective Centre	Scenario 2 PRH Emergency Centre & Elective Centre	Scenario 3 Greenfield site Emergency & Elective Centre	Scenario 4 Greenfield Emergency PRH Elective	Scenario 5 Greenfield Emergency RSH Elective	Scenario 6 RSH Emergency Centre PRH Elective Centre	Scenario 7 PRH Emergency Centre RSH Elective Centre
	£,000s	£,000s	£,000s	£,000s	£,000s	£,000s	£,000s	£,000s
New Land & Buildings Capital Charges	0	16,028	12,310	31,840	30,114	30,920	16,121	14,343
Potential reduction in Existing Capital Charges	0	(6,891)	(6,375)	(11,219)	(11,727)	(11,975)	(6,969)	(6,934)
Net Saving in Space Costs	0	(1,005)	(1,327)	(664)	(413)	(413)	(344)	(914)
Provision for Space Costs & Capital Charges of Other Acute Services	0	2,450	2,450	2,450	2,450	2,450	2,450	2,450
Operational Savings from Clinical Efficiencies	0	(11,951)	(11,951)	(13,951)	(12,951)	(12,951)	(10,951)	(10,951)
Potential Net Increase in Capital Charges	0	(1,369)	(4,893)	8,456	7,473	8,031	307	(2,005)

These net figures would be correspondingly lower if the sensitivity assumption were used in relation to the potential for the works and buildings capital costs to be lower than currently forecast.

No account has been taken in this assessment of the potential impact of changes in patient flows arising from the changing location of services.

10.2 Alternative Approach

An alternative approach would be to assess the level of savings possible from changing the way in which services are delivered (for example through the delivery of single-site services), and using that to calculate the overall level of capital investment that can be afforded:

- Based on the capital costings undertaken within the Feasibility Study and this additional Report, and excluding the requirement for equipment to be included within the assessment, the ratio of capital costs to capital charges ranges between 17 and 18.5 (i.e. for every £1m in capital charges, the associated capital costs (at out-turn levels) are between £17m and £18.5m;
- Therefore, if a judgement were made about the level of capital charges that could be afforded it would be possible to assess the level of capital that would be affordable;
- The second stage of that analysis would be to convert that level of capital cost to the size of facility. The seven Scenarios show a range of capital costs per m² (based on the Gross Departmental Areas) between approximately £7,300 and £8,800 per m². So, for every £8.8m of capital spend, a floor area (GDA) of 1,000m² could be delivered.

Combining the two stages shows a capital charge to space ratio of between 2.11 and 2.41 (that is, for every £1m of capital charges that can be afforded, between 2,110 and 2,410m² of space can be delivered).

This can be shown in tabular form as follows:

Table 32: Capital Cost, Capital Charge and Space Ratios

	Scenario 0 Do Nothing	Scenario 1 RSH Emergency Centre & Elective Centre	Scenario 2 PRH Emergency Centre & Elective Centre	Scenario 3 Greenfield site Emergency & Elective Centre	Scenario 4 Greenfield Emergency PRH Elective	Scenario 5 Greenfield Emergency RSH Elective	Scenario 6 RSH Emergency Centre PRH Elective Centre	Scenario 7 PRH Emergency Centre RSH Elective Centre
Capital Cost to Capital Charge Ratio	N/A	18.547	17.183	18.195	18.219	18.208	17.944	17.759

	Scenario 0 Do Nothing	Scenario 1 RSH Emergency Centre & Elective Centre	Scenario 2 PRH Emergency Centre & Elective Centre	Scenario 3 Greenfield site Emergency & Elective Centre	Scenario 4 Greenfield Emergency PRH Elective	Scenario 5 Greenfield Emergency RSH Elective	Scenario 6 RSH Emergency Centre PRH Elective Centre	Scenario 7 PRH Emergency Centre RSH Elective Centre
Capital Cost per m ²	N/A	£8,799	£7,271	£8,254	£7,559	£7,756	£7,849	£7,943
Space to Capital Charge Ratio	N/A	2.108	2.363	2.204	2.410	2.348	2.286	2.236

As noted above, this assumes the “unit cost” rates within the baseline analysis of capital costs (Section 5.2 above). To the extent that the lower “unit rates” are possible as set out in the Sensitivity Analysis (Section 9.1 above), this would increase to a ratio of between 2.32 and 2.65 (that is, for every £1m of capital charges that can be afforded, between 2,320 and 2,650m² of space can be delivered).

By way of example, if it were judged that savings of £15m could be made from changing the way in which services are delivered, **and** the unit costs for delivering the facilities were reduced as set out in the Sensitivity Analysis (Section 9.1 above), this would permit a development of new facilities of between 34,800m² and 39,750m² Gross Departmental Area. This would equate to between 49.6% and 56.6% of the area defined for Scenario 3.

11.0 Conclusion

This report sets out the results of the additional work undertaken at the request of the Future Fit Programme, following on from the Feasibility Study. It covers:

- The Clinical and Activity Brief for the services;
- The way in which the agreed Scenarios could be developed, both those included within the Feasibility Study and the additional Scenarios now identified within this Report:
 - Scenario 1: Emergency and Planned Care Centre at Royal Shrewsbury Hospital (RSH)
 - Scenario 2: Emergency and Planned Care Centre at Princess Royal Hospital (PRH)
 - Scenario 3: Emergency and Planned Care Centre at Greenfield Site
 - Scenario 4: Emergency Centre at Greenfield Site with Planned Care Centre at PRH
 - Scenario 5: Emergency Centre at Greenfield Site with Planned Care Centre at RSH
 - Scenario 6: Emergency Centre at Royal Shrewsbury Hospital (RSH) and Planned Care Centre at PRH with options with and without Obstetrics at RSH
 - Scenario 7: Emergency Centre at Princess Royal Hospital (PRH) and Planned Care Centre at RSH
- The Capital Costs of delivering the Scenarios;
- The costs of Backlog Maintenance and Life-cycle that would arise over a 25 year period under the different Scenarios;
- The Capital Charges arising from the initial investment, and the potential impact on the existing levels of Capital Charge;
- Other space costs;
- Consideration of agreed Sensitivities on the Capital Costs;
- An assessment of the potential Net Change in Expenditure under each Scenario.

Further details are available in the ***Capital Cost Annex***, and the various graphics illustrating the potential solutions for the Scenarios included within this report are also available separately in electronic form.