

CHAPTER SIX - SCOPE OF THE PROJECT

6.1 Introduction

6.1.1 The current scope of the project has been determined by:

- The strategic context (Chapter 3);
- The case for change (Chapter 4), and;
- The detailed activity and facility modelling which has been undertaken between SOC and OBC.

6.1.2 This chapter also provides a detailed description of how the scope of the project and the capital costs of the project have changed since the approval of the Strategic Outline Case in July 2008.

6.2 Activity Analysis

6.2.1 Trust has undertaken an assessment of planned activity and the impact on bed numbers for the whole Trust between 2009/10 and 2017/2018 – this has now been extended to 2020/21 to align with the Long-Term Financial Plan developed as part of the Trust's application for Foundation Trust status. Some of these beds will be provided by the 3Ts project (see Table 6.1 below). The summary figures are enclosed in Appendix 6A.

Table 6.1 Summary of activity impact on beds

Specialty Group	Current beds	Beds Required at 2020/21	Change in Demand	3T Beds
General, Respiratory and Elderly Medicine	214	251	37	177
Critical Care	17	22	5	28
Clinical Infection Service	13	16	3	24
Haematology/Oncology	17	39	22	45
Major Trauma	0	21	21	
Trauma & Orthopaedics *	61	77	16	
Renal	25	30	5	
Cardiac Services	55	75	20	
Surgery	125	139	14	
Royal Sussex County Hospital (Excl Obs/Paeds/A&E)	527	671	144	274
Neurology	10	24	14	30
Neurosurgery	28	41	13	42
Neuro ITU	6	12	6	15

Hurstwood Park Neurosciences Centre	44	77	33	87
General, Respiratory and Elderly Medicine	116	130	14	
Surgery	29	32	3	
Trauma & Orthopaedics	37	38	1	
Haywards Heath - Princess Royal Hospital (Excl Obs/Paeds/A&E)	182	200	18	0
Total BSUH (Excl Obs/Paeds/A&E)	753	948	195	361
Replacing	261			
Additional Beds	100			
Theoretical excess in bed demand - likely to be addressed through demand management & new bed capacity at PRH	95			

Notes: this assumes 90% occupancy across all beds in the Trust. Obstetrics, Neonatal and A&E beds are not included above (124 beds across the Trust). This also excludes paediatric beds (Royal Alexandra Children's Hospital).

The bed modelling assumptions are to be found in Appendix 6B.

6.3 Service Models and Future Capacity

6.3.1 The narrative below sets out the service models relevant to the 3Ts development and that have informed the activity and capacity planning. This also identifies the changes in service provision that are planned to be part of the scope of the development.

Single Rooms

6.3.2 The 3Ts new build is planned to have an average of 65% single rooms on the main inpatient wards, which equates to 58% overall once critical care and acute assessment beds are included (these are usually excluded from the calculation of single room percentages).

6.3.3 The 3Ts Programme Board has regularly discussed the proportion of single rooms during the planning phase to ensure that it meets the needs and preferences of the current and future generations of patients and reflects extant NHS policy.

6.3.4 Planning has therefore included national guidance; a review of the available research evidence, including from the National Patient Safety Agency¹; advice from the Trust's Infection Management & Control service; site visits to other Trusts (eg. the Hillingdon Hospital single room ward pilot, the Maidstone & Tunbridge Wells Trust's Pembury

¹ *Single Bed versus Multi-Bed Hospital Rooms: The Case for Patient Safety – a Review of the Evidence*, National Patient Safety Agency (2009)

Hospital² development) and advice from NHS South East Coast. The ward designs and proportion of single rooms have been developed in detail with each specialty/clinical team to ensure that they meet the particular needs of each patient group, with internal challenge provided by the Trust's Chief Nurse.

- 6.3.5 Consultation with patients, visitors and carers has highlighted that patient views on single rooms are divided. During the 'flagship room' consultation exercise, 50% of patient and visitors expressed a preference for single rooms, citing privacy and improved infection control as their principal concern. The remainder of the group said that they would prefer to be cared for in multi-bed bays because of fears about social isolation in single rooms.

Figure 6.2 Single Room Analysis – January 2011

Ward	Total Beds	No. of Single Rooms	No. of Multiple Bays (4 Bed Bay)	Comments	Single room accommodation
Neurology Ward	30	14	4	Includes 2 telemetry	47%
Neurosurgery 1	21	9	3		43%
Neurosurgery 2	21	9	3		43%
Medical Ward 1	79	55	6		70%
Medical Ward 2 – Stroke	30	14	4		47%
Medical Ward 3	28	20	2		71%
CIS Ward	24	24	0	Includes 8 negative pressure rooms	100%
Cancer Inpatient	45	37	2	Includes 4 positive pressure rooms + 2 lead lined rooms	82%
TOTAL	278	182	24		65%

Note: excludes critical care beds (ITU, HDU and neurosurgery ITU) and acute assessment beds as these are usually excluded from the single room percentage calculation.

Clinical Infection Service

- 6.3.6 Clinicians have made a strong case for integrating the Infectious Diseases and HIV inpatient and outpatient services into a single Clinical Infection Service. This aims to address the need for more integrated care for patients with HIV and predominantly infectious pathologies. Working in partnership with the respiratory medicine team, it will also address the need to provide facilities for patients with TB who are currently managed on the general medical wards.

² Pembury Hospital Design for Patient Safety, National Patient Safety Agency (2008)

6.3.7 This concept was recommended in 2003 by the House of Lords Science and Technology Select Committee:

- ‘The Academy of Medical Sciences and others raised the idea of developing ‘Infection Centres’. These would be similar to the model used to develop cancer services and should be placed within a geographical area such as that served by a Strategic Health Authority.’
- ‘We support the establishment of Infection Centres as they would provide an excellent opportunity to (a) develop expertise in clinical services and research; (b) improve collaboration between hospital, community and university settings; and (c) provide training of infection specialists and others.’
- ‘We envisage that Infection Centres should be associated with an academic institution and should provide a clinical infection service for adults and children to the local district. In addition they should provide high quality training in order to ensure a supply of sufficient well trained health professionals to meet current and future requirements. Research should be actively encouraged and should span clinical infection (adult and paediatric), microbiology (including infection control), virology, and public health medicine.’³

6.3.8 The integrated unit will provide inpatient accommodation (24 beds, 100% single rooms including eight negatively pressured rooms), treatment facilities (including two negatively pressured treatment rooms) and Outpatients. It will be staffed by an integrated clinical team and will continue to work closely with other Trust specialties, including respiratory medicine.

Clinical Infection Service - Patient Care Benefits

6.3.9 This development will improve patient care directly, through enhanced research and teaching and in the event of a major outbreak or pandemic:-

- Patients with HIV are currently cared for in accommodation (Jubilee building) that is over 120 years old. The 3Ts development will provide modern, appropriate, purpose-built patient facilities in 100% single rooms, all with en suite toilet and bathroom facilities.
- The Clinical Infection Service will centralise clinical expertise in the management of patients with clinical infection. This will create an environment in which medically highly complex patients with HIV and other clinical infections, e.g. patients with HIV and TB co-infection, can be managed by different specialties in a single unit under common clinical protocols.
- The development will further strengthen the partnership between Brighton & Sussex Medical School and the NHS service and its reputation as a centre for academic and clinical research, multi-professional teaching and training. This will enhance patient care locally and, through research publications and collaborations, nationally and internationally.

³

Fighting Infection, House of Lords Select Committee on Science & Technology (2003) – Chapter 9

6.3.10 The facility will allow the service to respond more efficiently and flexibly to the changing epidemiology of hospital- and community-acquired infectious disease, in particular through the provision of negatively pressured inpatient and treatment rooms. It will also provide an expanded negatively pressured isolation facility that has been designed to be able to be 'locked down' in the event of major outbreak.

Acute Brain Injury Centre

6.3.11 The detailed clinical and operational model is under development and will be finalised at Full Business Case stage, in partnership with the Sussex Stroke Network. Key features will include the following:-

- Development of the ABIC and refinement of the stroke pathway will allow patients with stroke to be seen rapidly by a senior/experienced member of the stroke team. This will enhance early intervention and ensure standardisation to best clinical practice;
- The TIA service currently offers rapid weekday access, aiming to see the majority of patients with high-risk TIA within 24 hours of referral. Future developments include a six day service that aims to see all patients with high-risk TIA within 24 hours of referral. This is expected to reduce the 8% two day stroke risk for patients with high-risk TIA through early intervention, including provision of carotid endarterectomy;
- In the 3Ts plans, the ABIC is vertically co-located with specialised neuro-imaging facilities (CT, MR) to ensure ease and speed of access;
- The ABIC's ambition is to develop pathways within the Sussex Stroke Network for the small number of young patients who would benefit clinically from acute intervention beyond the scope of a local acute hospital, for example intra-arterial clot removal, intra-arterial thrombolysis, development of carotid stenting. The co-location of neuroradiology will support this development;
- Bringing together clinical expertise in the management of patients with acute brain injury will provide opportunities for joint teaching and training of staff and will strengthen academic links with Brighton & Sussex Medical School.

6.3.12 The new ABIC addresses the current lack of a single location that brings together the expertise of four key services in the management of patients with stroke: the existing Stroke Unit and acute rehabilitation service at the Royal Sussex County Hospital and the neurology and acute neuro-rehabilitation services from the Regional Centre for Neurosciences (currently on the Princess Royal Hospital campus). It will serve the population of Brighton & Hove in-hours and a wider catchment out-of-hours.

6.3.13 The Centre will also draw on the wider tertiary care expertise of the Regional Centre for Neurosciences. Strengthening this relationship is particularly important in the optimal treatment of young patients with atypical strokes and some patients with intracerebral haemorrhage or subarachnoid haemorrhage. Although there are relatively few indications for neurosurgery in patients with stroke, appropriate intervention in specific cases (eg. cerebellar haematoma, hydrocephalus, massive peri-infarct oedema) may be life-saving. There may also be a role for interventional neuroradiology in the management of patients with basilar thrombosis.

Imaging and Nuclear Medicine

- 6.3.14 The 3Ts development will create an integrated Imaging, Neuro-Imaging, Nuclear Medicine and Interventional Radiology service. Patients will benefit from the purpose-built environment that is being designed to ensure their privacy, dignity and safety.
- 6.3.15 Patients will also benefit from improved access. The planned increase in capacity comprises three elements:
- Additional capacity commensurate with the planned expansion of the Regional Centre for Neurosciences and Sussex Cancer Centre and the establishment of the Royal Sussex County Hospital as a Major Trauma Centre;
 - Additional capacity to ensure that the Imaging & Nuclear Medicine service is able to achieve a maximum two week wait for investigations. This allows two diagnostic cycles to be incorporated within the six week diagnostic phase of the 18 week pathway. Although the current MR scanners operate over extended hours seven days a week and additional capacity is purchased from the Independent Sector, meeting the access targets presents a considerable daily challenge;
 - Some additional flexibility in recognition of the gradual increase in the rates of clinically-indicated CT and MR, as highlighted through the Department of Health's National Diagnostics Capacity Planning Programme (NDCPP)⁴. This research suggested an increase in rates for both MR (from c. 28 scans per 1,000 population currently to 70-92 per 1,000 population) and CT (from c. 30 scans per 1,000 population currently to 100-144 scans per 1,000 population) to bring them into line by the end of the century with rates seen in other OECD countries. This is fully consistent with *The Future of Imaging Services in England*⁵ (2010).
- 6.3.16 The NDCPP recommendations have not yet been formally adopted by local PCT commissioners however it appears to be the direction of travel nationally. It is also the direction of travel internationally: the Canadian Expert Panel on MRI and CT published a report⁶ in 2005 recommending increased rates consistent with the results of the NDCPP analysis and far higher than currently provided in England.

The planned changes in capacity are shown overleaf:

⁴ 'Evidence for a probable and growing diagnostic deficit in MRI and CT access in the NHS in England', Rafferty, White & Marchand (2006) for *The National Diagnostics Capacity Planning Programme*

⁵ *The Future of Imaging Services in England*, National Clinical Director for Imaging (December 2010)

⁶ *MRI and CT Expert Panel: Phase 1 Report*, authored by Dr Anne Keller, Expert Panel Chair (April 2005)

Table 6.4: Imaging & Nuclear Medicine Service: Planned Expansion Under 3T Programme

Modality / Location	CT	MRI	X-ray	Fluoro	IR	US	Gam. Cam.	PET-CT / SPET-CT
Imaging RSCH	2	2	6	2	1	6	3	
Imaging PRH	1		2	1		1	1	
Neuro PRH	1	< 1	1		1			
Sussex Cancer Centre								
Community/ Other			3			1		
Current Total	4	2.5	12	3	2	8	4	0
Imaging RSCH	5	4	6	3	2	7	4	1
Imaging PRH	2	< 1	2	1		1	1	
Neuro RSCH	1	1	1		1			
Community/ Other			3			1		
3T Total	8	> 5	12	4	3	9	5	
3T Shell		2					1	1

CT

6.3.17 CT is the decisive modality in the management of patients with major trauma, Acute Brain Injury, Vascular Injury and in the staging of many cancers. The redevelopment plans include four additional CTs:

- Two in the Emergency Department, of which one will be co-located with the resuscitation area. This will provide immediate and dedicated access for patients with major trauma in line with national recommendations⁷;
- One within the Regional Centre for Neurosciences. The existing Hurstwood Park CT will remain on the Princess Royal Hospital campus. This is due for replacement in 2015 and it is envisaged that the service will revisit overall CT capacity on the campus at that stage; and

MR

6.3.18 The programme includes three additional MRs:

- One located within the Regional Centre for Neurosciences, since MR is the modality of choice for imaging the Central Nervous System;
- Two additional MRs for general Imaging to meet the access targets described above. Improvements in MR technology allow MR to replace techniques involving ionising radiation, eg. traditional angiography; this is further increasing the demand for MR; and

⁷

Regional Networks for Major Trauma, NHS Clinical Advisory Groups (September 2010)

- Two 'shell' MRs, i.e. the development will include shell accommodation but equipping and fitting will be subject to a separate business case against Trust capital monies.

X-ray and Fluoroscopy

- 6.3.19 Imaging & Nuclear Medicine is projecting increasing demand for X-ray from GPs in line with the increase in secondary care activity. However the capacity plan assumes that increases in demand will be offset by extended opening hours (more efficient use of existing equipment) and the gradual replacement of Computerised X-ray (CR) with Digital X-ray (DR). (The further advantage of DR for patient care is that it reduces exposure to radiation by nearly 50% in many cases. This will therefore provide a safer, faster service).
- 6.3.20 The programme does not include any additional fluoroscopy facilities. The capacity plan assumes that the projected increase in demand will be offset by the transfer of other procedures to alternative modalities, for example replacing barium enema with CT colonography.

Interventional Radiology

- 6.3.21 Interventional Radiology is a rapidly expanding field that allows patients to be treated less invasively. Current facilities within the Barry Building are of reasonable quality but are remote from ICU, the Emergency Department and theatres. This means that if an interventional procedure becomes an 'open' procedure, i.e. requires a theatre environment, the patient has to be moved between buildings. Current Interventional Radiology facilities within the Regional Centre for Neurosciences are restricted by the size of the accommodation, which means that imaging can only be undertaken in one plane.
- 6.3.22 The development includes three interventional facilities (a net increase of one) located within the 'interventional zone' of the acute floor, all of which will be equipped as theatres to enable IR procedures to convert to 'open' procedures without moving the patient:-
- One within the Regional Centre for Neurosciences. This will allow bi-planar imaging – a critical requirement of many interventional procedures;
 - One within the Main Imaging department, which will replace the facility in the Barry building; and
 - One additional dedicated endovascular theatre with facilities for both elective and emergency aneurysm stent grafting. This will provide secondary capability if an additional major trauma theatre is required.

Ultrasound

- 6.3.23 Ultrasound is playing an increasing role in the management of patients with trauma in the United States. This is largely because it is highly portable and can therefore be used to image patients in the resuscitation room, for example to detect internal bleeding, before the patient is transferred to CT or in the event that the patient cannot safely be moved.

6.3.24 The development includes one additional ultrasound room. This will free up capacity within the existing facility adjacent to the Emergency Department for patients with major trauma. It will be equipped as an interventional US room to provide a clinically safe environment to meet the growing demand for procedures such as US-guided pleural drainage, in line with the designation criteria for Major Trauma Centres agreed across the South East Coast and London⁸.

Gamma Camera / SPECT-CT

6.3.25 The Nuclear Medicine service to patients will be considerably improved by its move to purpose-built accommodation, for example in being able to separate radioactive ('hot') patients from other patients and visitors, and in providing proper facilities to maintain patient privacy and dignity. The programme allows for future increase in Nuclear Medicine imaging through the provision of an additional 'shell' space for Nuclear Medicine equipment.

PET-CT

6.3.26 The Department of Health's 2005 PET framework⁹, which followed the 2003 Intercollegiate Standing Committee report¹⁰, concluded that:

'The evidence of benefit from PET scanning is now sufficiently robust to support the establishment of facilities across the country, so that all appropriate patients can have access to this technology. Expert advice indicates that in the immediate future cancer will account for around 85 - 90% of PET scanning utilisation, with much smaller numbers of scans being required for neurological and cardiac conditions.'

6.3.27 The 3Ts development therefore includes one 'shell' PET-CT room, i.e. the development will include shell accommodation but equipping and fitting will be subject to a separate business case against Trust or other capital monies.

Regional Centre for Neurosciences

6.3.28 The new Regional Centre for Neurosciences on the Royal Sussex County Hospital campus will be a modern, purpose-built development. It will offer significantly higher standards of patient privacy and dignity, with 46% single rooms on the neurology wards and 42% on the neurosurgery wards to reflect the need to close observation and monitoring. All single rooms and all multi-bed bays will have en suite toilets and bathrooms.

6.3.29 The expansion of the Centre will also significantly improve patient access. The additional inpatient neurosurgical beds and the increase from two to three neurosurgical theatres will allow the 29% of Sussex patients who have to travel to London currently to be treated locally, as set out in the Sussex *Tertiary Services Commissioning Strategy*.

⁸ Major Trauma Project: Designation Criteria for Trauma Networks, NHS London / Healthcare for London (2008)

⁹ A Framework for the Development of Positron Emission Tomography (PET) Services in England, Department of Health (2005)

¹⁰ Positron Emission Tomography: a Strategy for Provision in the UK, Intercollegiate Standing Committee on Nuclear Medicine (2003)

- 6.3.30 GP practices immediately to the north of the Sussex county boundary (i.e. in SE Surrey and SW Kent) already refer a proportion of their patients to the Regional Centre; the remainder are referred to London. The Centre wishes to attract a greater proportion of these patients. Modelling for the 3Ts development has assumed that the proportion of referrals from these GP practices rises to 70%. The number of patients is relatively small, however: equivalent to 2-3 beds. This change in referral pattern is included in the Outline Business Case on a tentative basis. Discussions with the respective Kent and Surrey PCT Clusters, emerging Clinical Commissioning Consortia and GPs will be undertaken during the Full Business Case stage.
- 6.3.31 In addition to the growth assumptions agreed with the Sussex PCTs, the modelling includes four additional neurology inpatient beds. This provision is for patients who are currently managed by the Regional Centre's neurologists in local acute hospitals but who clinicians have assessed would benefit from being transferred to the Regional Centre. The Medical Director of the Sussex Neurology Network has confirmed that it *'absolutely supports the proposal that appropriate patients with acute neurological conditions should be managed in the Neuroscience Centre rather than in a general hospital [and that in doing so] there are clear benefits both for patient outcome and for length of stay.'*

Severe Head Injury

- 6.3.32 Guidance from the National Institute for Health & Clinical Excellence states that clinical outcomes for patients with a major head injury (i.e. GCS = 8) are improved if the patient is managed within a Neurosciences Centre *'irrespective of the need for neurosurgery'*¹¹. Initial modelling of the Trauma Audit & Research Network (TARN) data for Brighton & Sussex University and East Sussex Hospitals Trusts, extrapolated for the Neurosciences catchment, indicate that this will require no more than four additional beds. This has been included in the modelling and will be validated at Full Business Case stage.
- 6.3.33 The development of an Acute Brain Injury Centre, which will integrate the clinical expertise of the neurology, stroke and acute rehabilitation services, is discussed in detail above. The transfer will also significantly enhance the out-of-hours neurology cover provided for patients on the Royal Sussex County Hospital campus.

Regional Spinal Surgery Unit

- 6.3.34 Complex spinal surgery is currently undertaken by neurosurgeons within the Regional Centre and by orthopaedic surgeons at the main Princess Royal Hospital. The expanded Regional Centre for Neurosciences will cohort these patients and the associated clinical expertise within a Regional Spinal Surgery Unit, in line with recommendations of the recent (2010) external review undertaken by the Society of British Neurological Surgeons. Initial discussions have been held with East Sussex Healthcare Trust about centralising its complex spinal surgery within the Regional Unit; the associated patient activity is equivalent to 2-3 beds. Again, this is expected to be finalised at Full Business Case stage.

¹¹ *Head Injury: Triage, Assessment, Investigation and Early Management, Ibid*

6.3.35 This bed modelling assumes that more routine elective spinal surgery will continue to be referred to the independent sector Sussex Orthopaedic Treatment Centre, which is also located on the Princess Royal Hospital campus.

Post-Acute Rehabilitation

6.3.36 The Regional Centre's Allied Health Professions currently provide neuro-rehabilitation during the patient's acute post-surgical phase and for a period thereafter while the patient is awaiting transfer to the Sussex Rehabilitation Centre, to another facility or into the community. As part of the Major Trauma Centre development and in line with the *Strategic Framework for Adult Neuro-Rehabilitation Services* adopted by the Sussex PCTs in 2009, the Trust is reviewing its rehabilitation needs to quantify the number of patients who could transfer to the Sussex Rehabilitation Centre (SRC) earlier and any changes that this would require in the SRC admission criteria. The aim is to ensure that the Regional Centre's resources are concentrated on patients who are not yet medically fit to transfer to another facility. This is expected to be clarified during the Full Business Case stage.

Sussex Cancer Centre

Linear Accelerator Development

6.3.37 This Outline Business Case does not rehearse the detailed modelling undertaken by the Sussex Cancer Network or by 2020 Delivery as part of the Sussex-wide *Tertiary Services Commissioning Strategy*. Planning for the reprovision of the Sussex Cancer Centre in the 3Ts development has responded to these analyses and commissioning intentions and assumes the following provision:-

- **Sussex Cancer Centre**
 - Six Linacs (an increase of two from current) plus one decanting bunker. The plans assume three high-energy bunkers and four medium-energy bunkers; which of these will be the decanting bunker will be determined at Full Business Case stage.
 - One additional dedicated cancer planning CT for use in the planning of radiotherapy treatments in order to support the move to more image guided 4D adaptive radiotherapy¹².
- **East Sussex**
 - a linked unit of three Linacs at East Sussex Healthcare Trust. This is subject to a separate business case, which is aligned with but separate from the 3Ts development.
- **West Sussex**
 - A linked unit of two Linacs at Worthing Hospital in line with West Sussex PCT's commissioning plans for radiotherapy¹³. This is subject to a separate business case, which is aligned with but separate from the 3Ts development.

¹² *Radiotherapy: developing a world-class service for England* – Report to Ministers from the National Radiotherapy Advisory Group (2007).

¹³ West Sussex PCT's high-level analysis suggests that 1.8 Linacs will be required by 2021 to meet the needs of the former PCT area of Adur, Arun and Worthing, although not all of this caseload could be provided safely from the linked unit.

6.3.38 The Sussex Cancer Network has confirmed that *Improving Outcomes: a Strategy for Cancer* (January 2011) does not affect the Network's previous radiotherapy activity/capacity modelling, on which the 3Ts planning assumptions for radiotherapy are based.

Haematology-Oncology

6.3.39 Planning for the 3Ts development has addressed the issues set out in the case for change. The Stage 2 development includes a modern, purpose-built, integrated haemato-oncology inpatient ward that has been sized, as set out in the activity planning assumptions, to provide more integrated, local care for patients with cancer. Specifically, the expansion will allow the service to:-

- Repatriate patients who are diagnosed at the Sussex Cancer Centre with acute leukaemia and require intensive inpatient chemotherapy but who are currently are treated in other hospitals across the Sussex Cancer Network and in London because of insufficient capacity at the Royal Sussex County Hospital. This development is therefore in line with the IOG for Haematological Cancers¹⁴ and with the Sussex Cancer Network's strategic intention¹⁵ that 'by December 2012, Worthing Hospital Level 2 patients are required to be treated at the Royal Sussex County Hospital';
- Repatriate earlier than currently patients who have received a bone marrow transplant and transfusion at the Royal Marsden Hospital (i.e. Level 3 patients), which will allow them to have a greater part of their post-transplant inpatient stay locally;
- Accommodate the haemato-oncology inpatient beds from the Renal Unit (Millennium Building) and beds currently used on the general medical wards to provide a single, integrated facility that brings together clinical expertise that is currently disparate; and
- Treat the small number of patients (mostly with cord compression) who require inpatient radiotherapy at the Sussex Cancer Centre but who are currently in beds at East Sussex Healthcare or Worthing Hospital and travel to the Centre on a daily basis for treatment. These patients will in future be inpatients at the Royal Sussex County Hospital during their treatment (usually 7 days) and then transferred back to their local acute hospital once the course of treatment is complete.

Interim Planning

6.3.40 Although the haemato-oncology wards are planned as part of the Stage 2 development, the need to provide more coordinated care and greater capacity for patients with haematological cancers requires urgent attention to meet the Sussex Cancer Network's strategic intention. The 3Ts decant plan will therefore include provision of a dedicated haemato-oncology inpatient unit with integral haematology Day Case unit.

¹⁴ *Guidance on Cancer Services : Improving Outcomes in Haematological Cancers – The Manual*, National Institute for Clinical Excellence (2003)

¹⁵ *Service Delivery Plan 2009/10 – 2011/12*, *Ibid*

Chemotherapy

6.3.41 The 3Ts Stage 2 building includes a modern, purpose-built haemato-oncology Day Unit that has been sized to accommodate expected growth in demand, as set out in the activity planning assumptions. This will integrate the Day Units currently provided in the Sussex Cancer Centre and haematology unit.

Acute Oncology

6.3.42 The Sussex Cancer Centre wishes to ensure that the relatively small number of patients presenting with severe complications following chemotherapy are admitted directly to the integrated haemato-oncology inpatient unit rather than to the general Acute Medical Unit. The ward has therefore been planned with this flexibility.

6.3.43 The Sussex Cancer Centre redevelopment also includes a purpose-built aseptic unit. The unit's existing accommodation within Main Pharmacy (Thomas Kemp Tower) is too small for current levels of demand and some manufacture is therefore outsourced. The new unit will allow the unit to expand to meet the planned increase in demand for chemotherapy.

Major Trauma

6.3.44 Detailed planning for the Major Trauma Centre facilities has drawn on the experiences of the Oxford Radcliffe and Royal London hospitals in particular as well as international examples such as The Washington Hospital Center; Tampa General Hospital, Florida and University Hospital New Jersey in the United States of America and Berlin. Planning also now reflects the NCAG *Regional Networks for Major Trauma* recommendations (2010) and the London Trauma Office's designation criteria for Major Trauma Centres, which has been adopted across the South East Coast. The development therefore includes the following:

- A dedicated major trauma theatre with full interventional capability, plus an additional interventional theatre for elective interventional radiology and to provide a back-up for the major trauma theatre;
- An air ambulance helipad, in line with NCEPOD and Royal College of Surgeons/British Orthopaedic Society recommendations that 'a helicopter pad close to the A&E department is mandatory [for Major Trauma Centres and that] there should be no additional secondary journey by road.' Although the most recent national guidance does not include an on-site/integral helipad as a designation criteria for Major Trauma Centres, it is considered necessary in light of the particular geography of Sussex and the wider region, and the number of remote/inaccessible locations, including the Sussex coastline, that necessitate rapid transfer by Air Ambulance.

6.3.45 As set out in the *NHS Operating Framework 2011/12*, the Trust plans to go live as a Major Trauma Centre from April 2012, so work is progressing on some interim facilities to be available in advance of the 3Ts project. These are therefore outside the scope of this Outline Business Case:

- A temporary major trauma ward that will provide facilities for hyper acute rehabilitation;
- An enhancement of the existing Emergency Department to create an enlarged resuscitation area with co-located imaging (CT) and direct access to a temporary major trauma theatre.

Critical Care Beds

- 6.3.46 Modelling for the number of additional general and neurosciences critical care beds required for the planned increase in the number of patients with severe injury and major trauma is progressing. Initial modelling suggested that 39% of patients with major trauma currently received by the Trust are admitted to a critical care bed (at Level 2 or 3). This suggests that an additional two to three critical care beds would be required for the expected number of additional major trauma cases.
- 6.3.47 However research into the outcomes and cost of blunt trauma¹⁶ show a greater (70%) use of critical care beds. Modelling using these data suggests that four to five additional critical care beds would be required, which is supported by key clinicians within the Trust. The Trust currently has 14 ITU beds on Level 7 of the Thomas Kemp Tower with no prospect of expansion in the current location. This analysis suggests that 21 beds would be required overall as a result of the Trust becoming a Major Trauma Centre. If ITU were to remain in TKT, expansion could only be delivered by taking over a floor above and displacing a ward there with no obvious potential on the site to rehouse this in a way which is clinically coherent. It should be noted that accommodation below the existing ITU is currently utilised by Pathology.
- 6.3.48 It was therefore agreed that ITU would be reprovided, with the potential for future expansion, into the 3Ts Stage 1 building. This has provided an opportunity to co-locate main ITU and the neurosurgery ITU on the same floor to facilitate inter-disciplinary working between general ITU, ITU for major trauma patients and ITU for neurosurgery. This will also afford additional operational flexibility.
- 6.3.49 Additionally, the Trust's High Dependency Unit was established in 2010 on Level 5 of the TKT/A&E extension directly adjacent to the Emergency Department and the Acute Medical Assessment Unit. The development of such a facility – there had been no HDU facility within the Trust up until this point – was the subject of a separate Business Case funded by SHA Strategic Capital and is now complete. The Unit has a capacity for 12 beds.
- 6.3.50 Relocating the other critical care facilities into Stage 1 of the 3Ts development provides a strategic opportunity to also reprovided HDU into the same space, centralising all adult acute critical care beds into one geographical area.

6.4 Capital Cost Audit Trail

Background

- 6.4.1 The Strategic Outline Case for the project was approved by South East Coast SHA in July 2008 and the approval was extended until November 2011 based on an updated version of the OBC.

¹⁶ 'Outcomes and costs of blunt trauma in England and Wales', *Ibid*

Figure 6.3 The key headlines relating to the approved cost of £389m were:

Element	Cost (£'m)
Fit for Purpose	
Reprovision of Nuclear Medicine	3.6
Conversion of Barry Building	17.7
Reprovide 174 beds from Barry Building	34.0
Reprovision of HIV Ward and Support from Jubilee Building	1.8
New Main Entrance	1.6
Reprovide Hurstwood Park	
Reprovision of the Regional Neurosciences Centre	41.4
Cancer Centre	
Refurbishment and Extension of existing facility	25.0
Level 1 Trauma Centre and Critical Care Enhancements	
Helipad	14.5
ITU Beds	10.3
HDU Beds	4.0
Fit for the Future	
Reconfiguration of Obstetrics for additional activity	6.9
Creation of Midwife led unit at PRH	1.8
Infrastructure	
200 additional car parking spaces	4.8
New boiler house	3.1
Decanting space	8.1
Sub-Total	196.7
Optimism Bias (43%)	80.4
Inflation to out-turn	62.7
VAT	55.2
Sub-Total	395.1
LESS Land Sales	(6.0)
TOTAL FOR APPROVAL	389.1

Note: The figures shown in the cost column include equipment and contingencies. Optimism bias, inflation and VAT are shown separately. The VAT figure allows for allowable VAT reclaim on fees by the Trust.

Land Sales

6.4.2 The land sales related to two potential disposals:

- The current Outpatients building on the south side of the Eastern Road opposite the Barry Building on the Royal Sussex County Hospital site. The intention in the Strategic Outline Case was, potentially, to reuse the Barry Building for Outpatients and non-clinical support accommodation once new build accommodation had been provided for the ward accommodation currently in the Barry and Jubilee Buildings. This was valued at £4m in early 2008;

- A piece of land on the Princess Royal Hospital site adjacent to the area which will be vacated by the Hurstwood Park Neurosciences Centre. This was valued at circa £2m in July 2007.

6.4.3 Since the valuations were undertaken, the global economic climate has meant that the market appetite and potential market price for developable land has contracted dramatically. There are now no clear signals in the market that the decline in the property market has yet bottomed out and what the likely timescales for recovery will be.

6.4.4 The Trust has therefore decided not to include any potential land sales in the Outline Business Case since it cannot guarantee that the optimal value for money would be delivered for the public purse.

General Principles of Movement in the Capital Cost between Approval Stages

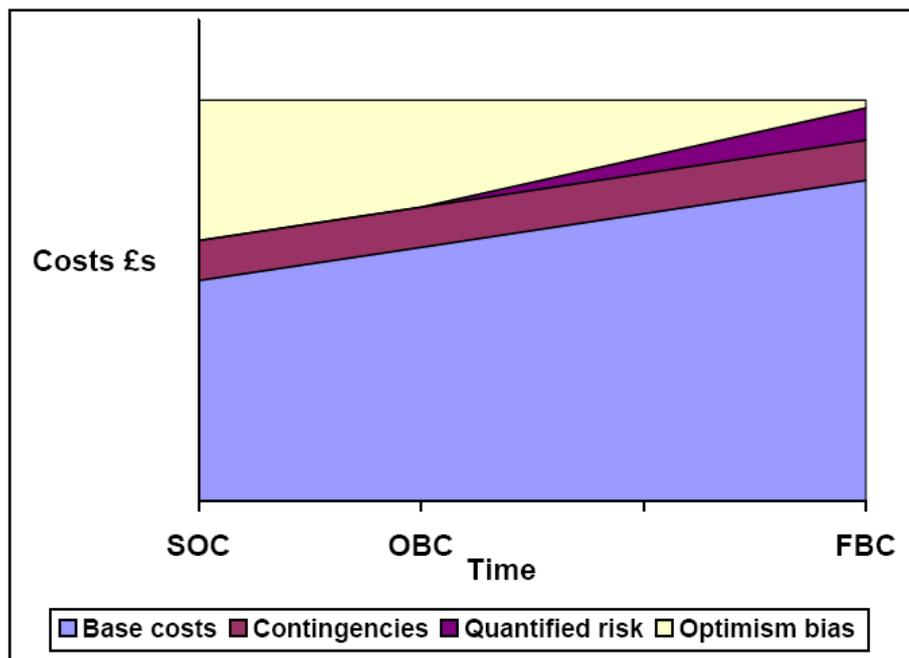
6.4.5 There are three key variables which make up the overall capital cost at high level:

- The estimated works cost of the development (including equipment and fees etc). Over the lifetime of the procurement, these are expected to start off relatively low in the cost form, and increase steadily over the procurement lifecycle, from SOC to OBC to FBC. At FBC, these are expected to be firm – either because the Trust will have undertaken a PFI-type procurement and selected a preferred bidder and negotiated a firm works cost or that the Trust had entered into a partnering type arrangement such as ProCure21+ and had negotiated a Guaranteed Maximum Price;
- Optimism Bias – this is a factor which reflects the inherent optimism in procuring entities in estimating capital costs for major developments. It also acknowledges that there may well be policy changes during the lifetime of the procurement that may have an impact on capital costs. It also reflects the fact that at SOC stage, the Trust's requirements ('Brief') for a particular range of options will be at a high level and will be refined as the scheme progresses and that there will be external impacts on the cost of the scheme such as service reviews and local authority planning requirements. Optimism bias starts at a relatively high level to reflect the degree in uncertainty about the scope of the scheme, regulatory requirements and the policy environment and reduces during procurement until the point at which the Trust is ready to proceed with building the scheme (FBC), at which stage optimism bias trends towards zero;
- Planning contingencies – these reflect the fact that there will need to be contingencies held by the project to deal with assessed risks occurring during the construction of the project. At SOC and OBC stages, these are usually expressed as percentages of the works cost. At FBC stage, the contingency is defined as a costed, quantitative assessment of the risks that relate to the known design and site conditions.

6.4.6 Regular risk workshops have been undertaken across all aspects of the project, which has identified a comprehensive list of risks; these have been scored for impact and likelihood of occurrence, assigned to those most suited to manage the risk,

mitigated and re-scored as required. Further to this, they have been subsequently quantified via the use of a Monte Carlo analysis and the 50% confidence level included in the contingency figure. This is summarised in the figure below which is extracted from the NHS guidance on optimism bias and its interplay with overall capital costs and contingencies:

Figure 6.4 Optimism Bias over time



(Source: DH guidance)

Key Changes in Scope since SOC Approval

6.4.7 There have been two main developments in local and national policy since the approval of the SOC:

- The increased drive towards greater privacy and dignity in inpatient accommodation. From April 2011 NHS Trusts that are not able to offer single sex inpatient accommodation will be fined for each breach of this duty. This is expected to increase the number of single rooms across the NHS, or ensure that multi-bedded bays are designated as single sex. The key principle is that patients who wish to use toilet or shower facilities should not have to cross an area occupied by someone of another gender. The 3Ts SOC assumed that an average of 50% single rooms would be provided. The OBC assumes that an average of 65% will be provided in the new build;
- The review of the *Fit for the Future* service configuration proposals across West and Mid Sussex. The proposals contained in this originally envisaged that consultant-led maternity services at BSUH would be centralised at the RSCH site. This particular proposal is no longer being pursued and

consultant-led obstetric services will continue to be offered by the Trust from both its major campuses.

But also:

- The key changes in the scope of the 3Ts Programme since the SOC are identified in the table below. It should be noted that the capital costs in this table include optimism bias, contingencies etc in the main cost element (which is why they do not align exactly with the headline narrative above).

Figure 6.5 Changes since SOC approval

Factor	Cost (£'m)	Cumulative Cost (£'m)	Reason for Inclusion/Exclusion
SOC Approval (July 2008)		389.0	
Changes to MIPS (514 to 515)	0.8	389.8	Nationally notified changes to the tender price index to be used in Business Cases by the Department of Health.
EXCLUSIONS FROM SCOPE			
Land Sales	6.0	395.8	<p>As noted above the Trust has decided that, due to the prevailing economic climate, the disposal of such small mounts of land is not optimal. In any event, the disposal contributed little to the affordability of the scheme. This meant that, on the RSCH site, that it may be advantageous to keep the main Outpatient building in its current location and with existing usage.</p> <p>A further driver for this was the emerging national drive to provide more Outpatient consulting, diagnostic and minor treatment facilities away from major hospital sites and closer to where people live and work. Given the service and estates strategy for primary and community care services is still evolving, it was felt that there may be greater opportunities in this direction rather than reprovision in the 3Ts build.</p>

Maternity Services Transfer	(17.6)	378.2	This element of the West Sussex Fit for the Future Programme is no longer being pursued.
ITU Expansion	(20.5)	357.7	Initial data analysis and activity modelling indicated that the creation of an HDU on the site through the Level 5 project, plus the expansion of Neurosciences ITU in 3Ts, would not require further expansion of ITU across the Trust. This is being kept under constant review as better data related to trauma and catchment is being collected. The exclusion of this item will be reviewed formally by the Trust post OBC approval and before detailed work on the FBC commences.
HDU Expansion	(7.9)	349.8	The Level 5 project (currently underway) is providing an HDU for the first time on the RSCH site. The scope of provision is being kept under review alongside general ITU provision.
Refurbishment and Extension of the Cancer Centre	(50.2)	299.6	The SOC assumed that it would be possible to extend and refurbish the existing cancer centre on the site to allow the requisite expansion of the radiotherapy and chemotherapy facilities. A high level feasibility study undertaken since SOC has shown that this is potentially possible to achieve. However, there is doubt that the required clinical functionality could be provided by this option. Also, the cost of extending, decanting existing areas in order to undertake refurbishment and the disruption that this would caused over an extended period led the Project Team to abandon this as a viable option. The cost of undertaking this was in excess of the cost of the new-build and was therefore abandoned.

Refurbishment of the Barry Building for Outpatients and Non-Clinical Accommodation	(35.1)	264.4	Given the view that Outpatients could stay in situ for the medium term, this meant that the functional content of a potential refurbishment of the Barry Building was declining and the value for money of refurbishing for non-clinical accommodation in such a location was also declining. This, combined with the practical difficulty and value for money of refurbishing the existing cancer centre, mitigated the need to retain the Barry building.
Provision of a Helipad on the Thomas Kemp Tower	(28.7)	235.8	At SOC stage, it was not clear that any new-build would reach the requisite height to accommodate the helipad on it – as the helipad must be the highest point on the site. As the shortlisted options, and the eventual preferred option, developed it was clear that part of the new-build would need to be at least as tall as the Thomas Kemp Tower and therefore it made greater economic sense to provide the helipad there. The additional benefit of placing the helipad on the new-build is the ease with which lift access can be brought to the helipad level and then down to the theatres and ITU below.
INCLUSION			
Provision of a helipad on Stage 1	10.0	245.8	See helipad comment above.
Polytrauma Theatre	2.5	248.3	An analysis of the theatre requirements for the additional projected caseload (and the time per case required) for major trauma and polytrauma cases meant that an additional emergency theatre was required to deal with this activity. The theatre has been specified to be larger than normal to deal with several teams working simultaneously on a major trauma patient. It has also been designed to include CT scanning and interventional radiology facilities directly adjacent.

Polytrauma Ward	8.6	256.9	The circa 350 additional cases for major trauma have been modelled into inpatient stays using the average length of stay being planned for the Royal London trauma centre. This indicated that 16 additional beds would be required for this group of patients. The preferred option allows for this and allows for future expansion space as part of a standard 32 bed ward template.
New-build Cancer Centre	88.0	344.9	As noted above, a feasibility study identified the difficulty of providing the requisite clinical functionality by extending and refurbishing the existing cancer centre. A new-build facility provides better overall value for money.
Increase in decant costs	20.0	364.9	A full audit of accommodation was undertaken after SOC approval across the RSCH campus to identify fully the functions which would need to be decanted to accommodate the development of the site. This identified a significant number of small departments and areas which would require temporary or permanent accommodation during the construction phase. Many of these had not been identified for costing purposes in the SOC. The major difference was the requirement to decant the inpatient accommodation currently in the Jubilee Wing (23 beds).
Fracture Clinic	6.9	371.8	The fracture clinic has recently (April 2009) been decanted into temporary accommodation adjacent to the Barry building to facilitate the Level 5 project. Given the key clinical adjacencies between this function, the main imaging department and the other trauma & orthopaedic on the site, it was agreed that this should be relocated into the 3Ts development.

Cardiac Investigation	4.9	376.7	The cardiac investigation department caters for inpatient and outpatient cardiac testing and is currently on the ground floor of the Barry Building, remote from other cardiac areas in the Millennium Wing. It was agreed that the optimal location would be on Level 6 of Stage 1 of the new-build which will provide a good horizontal relationship with the rest of the Sussex Heart Centre.
Additional medical and care of the elderly beds	8.1	384.8	The SOC allowed for the reprovision of 153 inpatient beds (medicine, care of the elderly, HIV and clinical infection) into the new-build. Since the approval of the SOC, two additional wards have been established on the RSCH site to cope with inpatient demand. One of these will be reprovided in an intermediate care setting but capacity for another is required on the site.
HIV Outpatients	2.5	387.3	The SOC did not envisage the transfer of HIV outpatients from Sussex House to the new-build. With the establishment of an HIV and clinical infection in-patient services, it was agreed that the HIV outpatient facility would be relocated to the new-build to ensure continuity of clinical care across the continuum of the HIV service.
Energy Centre	9.4	396.7	The SOC allowed for a small energy centre within the new-build. Further investigation of the energy requirements of the new-build and work being undertaken on the estates strategy for the entire RSCH site indicated that a larger energy centre would be required with Combined Heat and Power facilities which would contribute to a BREEAM "Excellent" rating.

Increase in Neurosciences Accommodation	6.2	402.9	Detailed work on the neurosciences brief identified additional accommodation required for the service to operate optimally. There is also some flexible shell space allowed within the curtilage of the department for future service developments such as interoperative MRI.
Increase in Imaging Accommodation	9.4	412.3	Detailed work on the imaging brief identified additional accommodation required for the service to operate optimally. The SOC was a straight function for function reprovision but did not take account of modern space standards in clinical areas. There is also some flexible shell space allowed within the curtilage of the department for future provision of additional MRI and CT scanning facilities. These would be required if the current growth in scanning in these modalities is to continue.
Increase in Nuclear Medicine Accommodation	3.1	415.4	Detailed work on the nuclear medicine brief identified additional accommodation required for the service to operate optimally. The SOC was a straight function for function reprovision but did not take account of modern space standards in clinical areas. There is also some flexible shell space allowed within the curtilage of the department for future service developments such as PET scanning. NHS Brighton & Hove has recently commissioned additional PET scans from the department who deliver these from the Medical School scanner at Falmer. This will allow the establishment of a PET scanner on the RSCH site in the future once the capacity of the BSMS scanner is reached – at current levels of growth, this is likely to be in 2014 – around the time that the Stage 1 facility is due to open.

Discharge Lounge	1.7	417.1	The current discharge lounge is on the ground floor of the Barry Building. Once the decision had been taken to demolish the Barry and use the site for a new-build Cancer Centre, the discharge lounge required a new home in the Stage 1 development.
Switchboard	1.7	418.8	The current switchboard is on the ground floor of the Barry Building.
Other	1.3	420.1	A small number of departments, such as linen and office accommodation will also be reprovided in the new-build as they are displaced from their current locations. A key new facility for the Trust is a dedicated multi-faith centre on the site. Currently, patients and staff who require non-Christian worship facilities are poorly served.
REVISED OBC Capital Cost – as at July 2009 OBC		420.1	
<u>Changes since July 2009</u>			
Changes to VAT (17.5% to 20%)	6.9	427.0	Central government adjustment to the base level of VAT from 17.5% to 20%.
Change in location factor (6% to 8%)	4.1	431.1	Quarterly Briefing 19 Nr 1 revised the Location Factor for Brighton from 1.06 to 1.08.
Provision of underground car park in lieu of multi-storey solution	12.7	443.8	To meet car parking space requirements, additional car parking space has been provided as an undercroft to the main building.
Optimism Bias amended	(23.2)	420.6	In line with the progression of the design and accuracy of the brief and cost data, and Optimism Bias workshop has been conducted and the Optimism Bias percentage has been re-calculated based upon the latest information.
MIPS change from 515 to 480	(28.6)	392.0	
ADDITIONAL SPACE REQUIREMENTS TO MEET CLINICAL DELIVERY			
Simulation Suite added	2.2	394.2	To facilitate improvements in teaching and training.

Additional scope for non invasive cardiology	1.2	395.4	Minor changes in functional content.
Changes to Rheumatology/MXF and OPD	2.4	397.8	Minor changes in functional content.
Critical care floor included	32.1	429.9	Inclusion of critical care facilities from Level 7 of Thomas Kemp Tower and Level 5 (HDU).
Changes to AMU/Short Stay Ward	10.5	440.4	Relocation of AMU from Level 5 to free up space for future developments within and immediately adjacent to the Emergency Department, notably the requirements of the Major Trauma Centre.
Rationalisation of clinical space to all floors subsequent to architectural review	6.6	447.0	Increase in circulation (intra and inter-departmental) space to allow for appropriate configuration of the building.
CIRU Area Increase	5.4	452.4	Minor changes in functional content.
Aseptic Suite area Increase	4.4	456.8	Minor changes in functional content.
RATIONALISATION OF SCOPE			
Clinical Offices (previously in Ralli)	(3.9)	452.9	An analysis of the clinical adjacencies concluded the benefits of providing the clinical offices in close proximity to the clinical delivery thus providing a more efficient service and improved patient experience. These have been rationalised in conjunction with the overall BSUH strategy to optimise the office provision.
Occupational Health	(1.7)	451.2	Removed from scheme – decant location now permanent location.
Therapies	(1.6)	449.6	Minor changes in functional content.
Anaesthetic Offices	(3.5)	446.1	Removed from scheme – decant location now permanent location.
Non clinical offices (previously in Barry building)	(1.4)	444.7	The most efficient and value for money location for the re-housing of the non-clinical offices previously located in the Barry building subsequent to the re-massing exercise demonstrated the new build location as the preferred option in conjunction with the overall BSUH strategy to optimise the office provision.

Non clinical offices (previously in Latilla and Ralli)	(4.3)	440.4	The most efficient and value for money location for the re-housing of the non-clinical offices previously located in the Latilla and Ralli buildings subsequent to the re-massing exercise demonstrated the new build location as the preferred option in conjunction with the overall BSUH strategy to optimise the office provision.
Medical Wards	(19.7)	420.7	Exclusion of wards to match revised bed requirements.
Polytrauma Theatre	(1.1)	419.6	Further to the analysis of the theatre requirements for the additional projected caseload (and the time per case required) for major trauma, further interrogation to optimise the efficiency of this space has resulted in a small reduction in the required area.
Polytrauma Ward	(3.9)	415.7	The circa 350 additional major trauma cases have been modelled into inpatient stays using the average length of stay at the Royal London hospital. This indicates that 16 additional beds would be required for this group of patients. The preferred option provides this and allows for future expansion space as part of a standard 32 bed ward template. End user and service delivery review identified improvements to the net to gross of this space, thus providing a saving. Will go to Level 7 of Thomas Kemp Tower.
Reduction in Imaging Accommodation	(2.9)	412.8	Detailed work on the imaging brief identified additional accommodation required for the service to operate optimally; this work has further been refined with further intelligence in relation to MRI and CT scanning equipment and a small area saving generated.

Fracture Clinic	(0.6)	412.2	The fracture clinic was decanted into temporary accommodation adjacent to the Barry building in April 2009 to facilitate other refurbishment work. Given the key clinical adjacencies between this function, the main imaging department and the other major trauma and orthopaedic services on the site, it was agreed that this should be relocated into the 3Ts development. Initial design allowed for a like-for-like replacement; due consideration of the flows and pathways have enabled a more efficient solution to this space without impacting service delivery.
Reduced area for Medical Physics	(1.0)	411.2	
Other	(1.1)	410.1	A small number of departments, such as office accommodation, Facilities Management, Meeting and Teaching rooms, discharge lounge, Doctors' Mess, Sussex Heart, boiler house, multi faith facility and nuclear medicine have all undergone minor adjustments from the OBC.
Provision of Helipad endoskeleton solution to Thomas Kemp Tower	4.41	414.51	Planning requirement
Provision of building Toe to East side of site towards Bristol Gate	3.99	418.5	Planning requirement
Provision of additional underground car parking	1.6	420.1	Planning requirement
REVISED OBC Capital Cost		420.1	

Note: the revised capital cost includes equipment, fees, non-reclaimable VAT, optimism bias and inflation to out-turn. This EXCLUDES the provision of a private patient facility (£6.3m) which will need to show that it is self-funding and is to be provided in Stage 2. It also excludes the cost of the Medical School's proposed Centre for Innovative Research (£11.5m) which the Medical School is pursuing separate funding for.

Real Terms Increase in Cost Since SOC

6.4.8 On a like for like comparison of costs and comparing the scope of the scheme once Trust-generated inclusions and exclusions have been calculated as shown in the table above, **the relevant cost increase from SOC to OBC is under 8% in real terms.**

This lies within the 10% allowed by the Capital Investment Manual and Department of Health guidelines.

Calculation of Space Requirements

- 6.4.9 The calculation of space in NHS developments is guided by the Health Building Note (HBN) series, volumes of which are published from time to time by the Department of Health for the NHS in England. The devolved administrations also publish similar documents – in many cases they are the same.
- 6.4.10 Each HBN is produced by a panel of NHS clinicians, managers and private sector advisers and is a statement of guidance to the NHS based on good practice in how clinical and support departments within healthcare facilities can operate and the levels of accommodation which are required. These schedules of accommodation contain the types of rooms which should be provided and the recommended sizes for each one, based upon custom and practice and in some cases on ergonomic research.
- 6.4.11 As noted above, the HBN series are guidance for the NHS and are not mandatory. However, NHS organisations are expected to take cognisance of this guidance when planning new developments or refurbishments and to tailor the guidance to local circumstances and operational practice.
- 6.4.12 It should also be noted that HBNS are not always available for all departments in a hospital development. In those cases, NHS bodies may develop their own operational policies and schedules of accommodation and can interpolate other HBNS to achieve this.
- 6.4.13 In some cases, older HBNS provide schedules of accommodation based on a series of particular scenarios: for example, HBN 12 which deals with Outpatient Facilities in acute hospitals, identifies Outpatient Department which may have 6 or 12 consulting/examination rooms and builds up the schedule of accommodation around this figure. However, if as a result of local calculations a particular outpatient functions requires 5 or 8 consulting/examination rooms, then an interpolation of the guidance for 6 or 12 is required to arrive at a suitably endowed outpatient suite for 5 or 8 rooms.
- 6.4.14 In the case of 3Ts, the Trust has used the health planning experience of Cyril Sweett health planners, who have over 20 years of advising NHS organisations on the development of such matters, to draw up draft schedules of accommodation based on the clinical functions identified as part of the overall redevelopment. These were based on the Trust's assessment of the level of facilities required (numbers of beds, imaging rooms, consulting/examination rooms etc).
- 6.4.15 These were then compared directly to the amount of space provided in the guidance where this existed explicitly, or an interpolation of the guidance was provided.
- 6.4.16 In essence, the overall total in each schedule of accommodation (as compared with the HBN or the interpolation of that guidance) was then used as a target figure for that particular clinical or support department.
- 6.4.17 The schedules were reviewed by the Trust team to ensure that the overall totals lay within the Trust's ability to afford the development. Once the overall total for each department was agreed within the project team, the Trust team and Cyril Sweett

discussed and agreed the detail with wider user groups for each of these departments. These user groups were composed on clinicians (in the widest sense), managers and facilities management staff. The expectation was that each user group would tailor the draft schedules to local practice whilst remaining within the target total provided. Any variance from this is required to be agreed by the Trust Programme Director as part of a carefully managed change management process.

6.4.19 When the schedules were agreed with each clinical and support service user group, these were then provided to the Design Team to commence drawing up:

- 1:500 scale plans which showed the inter-relationship between different departments both within the two stages of 3Ts, but also to ensure that there was coherence across the site when linked to the existing estate which lay outwith the planned development;
- 1:200 scale plans of how rooms would be arranged within each of the departments, and;
- 1:50 scale plans of the furniture and equipment within each room.

6.4.20 It is the process of identifying and agreeing the 1:200 scale process which is key to driving the scale of the building when compared to the schedules of accommodation which have been drawn up in advance of that process. The schedules of accommodation include the circulation (corridors etc) within departments but exclude the circulation between departments themselves and the hospital streets – the primary circulation routes around the facility for patients and visitors. It is also possible that this process will drive increases or decreases in space required as the operational requirements of particular departments are fleshed out and explored in greater detail through the process of generating the 1:200 drawings and staff can visualise more easily how a department will work rather than the more theoretical exercise of generating the schedules of accommodation.

6.4.21 The final shape of the building will be determined by:

- how the departments within the building fit together to meet the clinical adjacencies determined by the patient care pathways, and;
- external factors (discussions with statutory bodies etc);
- the overall context of the site (adjacency of other buildings etc).

6.4.22 It is the interplay between these two factors (the building being designed inside out and outside in) which yields the final shape and form of the building. In many cases, the final building will end up being marginally larger or marginally smaller than the sum of the original schedules.

6.4.23 In the case of the 3Ts development, the final drawn area is very close to the schedules of accommodation generated. The difference between the theoretical space required under the HBNs is 50,076.7 m² and the actual drawn area is 51,794.9m² (this excludes inter alia engineering plant rooms, energy centre, engineering ducts, underground car park and the corridors between departments).

The difference between the two areas is 1,718.2 m² which is a 3.4% variance. This is comprised of:

- additional circulation space required on the wards to meet the building shape: in the redesign of the building in 2009, the “three finger” solution was adopted as it was felt that this contributed to the breaking down of the scale and mass of the Stage 1 building as the design moved away from the taller octagonal tower which was the July 2009 solution. In order for the maximum number of patient rooms to be afforded views, these rooms were placed on the outside east, west and south elevation of every “finger” – in order to achieve an efficient movement of patients, staff and supplies through the wards and across each floor, two circulation corridors have been provided to each floor. This was particularly marked in the CIS ward on Level 6 where only one ward was to be provided on that floor, but the building form dictated that the ward needed to take up one and a half fingers with some resulting inefficiency;
- the adjustment of the entrance space for the Stage 2 building to meet town planning comments brought the new entrance drum forward, resulting in a larger space generated behind it;
- the adjustment of the south east corner of the Stage 1 building to meet town planning comments – this had an impact on three floors of the building in this area.

6.5 Clinical adjacencies

6.5.1 There is a compelling rationale to arrange the clinical departments around a clinical ‘centre of gravity’ on the RSCH campus. This focus of clinical activity is vital for the hospital to deliver its overarching objectives; to provide district general hospital services to the population of Brighton and Hove and to provide specialist tertiary services across Sussex.

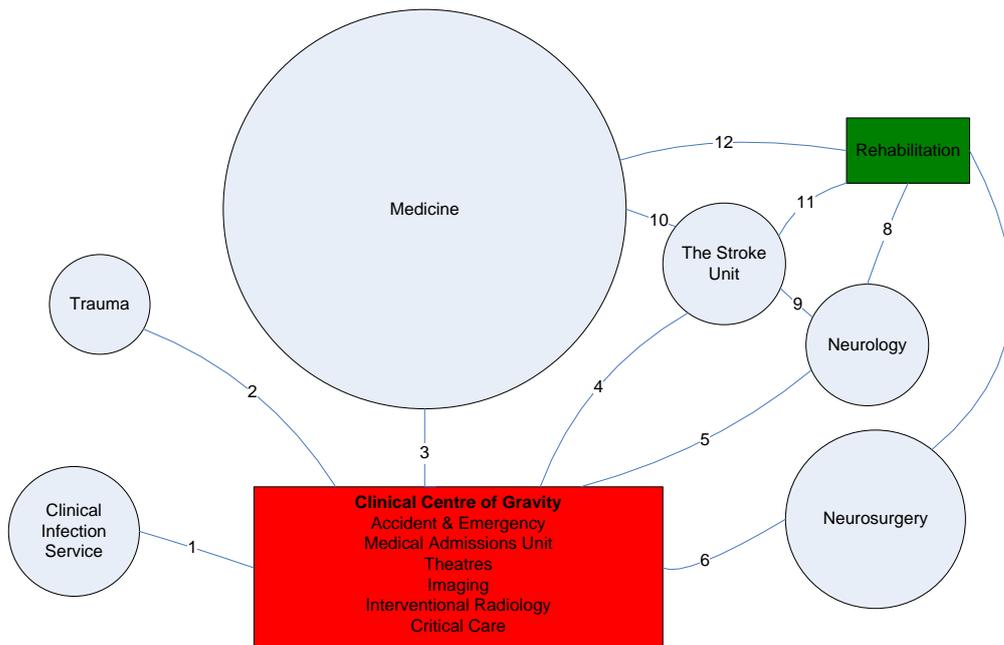
The 3T programme will create a clinical centre of gravity on the RSCH campus. The centre of gravity is made up of two components;

1. the hospital’s front door (Medical Admissions Unit, Accident and Emergency and Trauma) and;
2. The key clinical support services (Critical Care, Imaging and Interventional Radiology)

6.5.2 Locating the key clinical support services alongside the sickest patients arriving at the hospital is supported by a wealth of evidence. The most obvious example of this is the multiply injured patient following a road traffic accident who may require emergency surgery, imaging, interventional radiology and critical care in the minutes after their arrival into the hospital.

6.5.3 The clinical departments provide care for specific patient groups. There are some essential adjacencies between the clinical departments in the stage 1 building and the essential support services provided in the clinical centre of gravity. Some collocated departments will be able to benefit from shared facilities and their collocations will enable multidisciplinary team working. The key clinical adjacencies and the relation of the clinical departments to the clinical centre of gravity are shown in the model below :

Figure 6.6. - Model of the key adjacencies and relationships between the clinical departments



The table overleaf demonstrates in m² how this complex interdependency translates into space requirements:

Figure 6.7 Clinical space justification

Service/Department	Rationale for Inclusion in Development	Relevant Health Building Note	Space Identified by application of HBN (m ²)	Space Drawn (m ²)
Stage 1 – Level 1				
Main Entrance	The closest to a Main Entrance on the site is the entrance to the Barry Building which is small for the current size of the hospital: the original entrance to the Barry building was designed for a hospital of less than 100 beds in 1828.	51	1360.0	1355.8
Retail	The development proposals call for a café and some retail units to be included in the main entrance space for patient, visitor and staff amenity.	51		
ENT/Audiology/Maxillofacial Outpatients	The current ENT/Audiology/MaxFax Outpatients will be decanted to make way for the main development into temporary accommodation elsewhere on the hospital site. The potential to move it away from the site has been considered and rejected: clinical staff undertake outpatient clinics, undertake surgical procedures and also manage in-patient beds on the site – often during the same day. It is therefore considered to be an inefficient use of staff time if the OPD function was located remotely from surgical and inpatient facilities.	12	1175.2	1136.8

Rheumatology Outpatients	Rheumatology is currently located in the Latilla Building and will be decanted to Brighton General for the period of the Stage 1 build. This was considered to be a temporary move as the clinical staff also manage Rheumatology inpatients and are required to attend patients in Accident and Emergency as part of the medical bed base. There is also an increasing link to treatment of patients who primarily fall under the auspices of care of the elderly. It was considered that a permanent move would not be sustainable in the longer term.	12	457.7	434.3
Switchboard	Switchboard is also the main location for siting of medical gas alarms, management of the bleep system (including change over of bleeps to junior medical staff) and dealing with cardiac arrest calls. This is the main telecommunications hub for the Trust. Switchboard is currently located in the Barry Building which would be demolished to make way for Stage 2 of the development.	None current.	In main entrance allowance.	In main entrance allowance.
Discharge Lounge	This facility provides accommodation for patients who are medically fit for discharge from the wards but are either awaiting transport to their homes or another hospital or healthcare facility. It is a crucial part of the system of patient flow through the hospital. The number of beds/chairs in the facility has been assessed based on historical usage of the current facility, which is located in the Barry Building which would be demolished to make way for Stage 2 of the development.	None.	365.6	365.6
Former Chapel/Heritage Centre	A space has been provided to allow for the relocation of the interior of the existing chapel to a new heritage space which will allow the listed interior and patient/staff memorials to be retained for the longer term, ensuring the link between the community and the memorials are maintained. This is a space for space provision.	None.	94.2	94.2

Staff Change	Staff change and amenity is in short supply across the hospital site currently – especially in the Barry Building. This will provide facilities for staff to change and also to shower if they have cycled to work. The staff change in this area has been based in an assessment of the number of staff working on this floor who will require changing facilities.	None current.	163.9	163.9
Stage 1 – Level 2				
Neurosciences OPD	The relocation of the neurosciences function is one of the key objectives in this development. Neurology already undertake satellite clinics away from the Hurstwood Park site across Sussex. The provision for neurology reflects this. The provision for neurosurgery reflects the fact that it clinical staff undertake outpatient clinics, surgery, Intensive care and inpatient management across the day. It is therefore inefficient to divorce this facility from the rest of the overall provision.	12	727.0	680.3
Neurophysiology	The relocation of the neurosciences function is one of the key objectives in this development. The very specialised nature of the investigations undertaken here preclude an off-site provision.	None.	444.2	444.2
Neurosciences Support & Offices	This is mainly office accommodation for neurosciences staff and support staff for these functions. There is no further space at St. Mary's Hall for these functions and there is non-cash releasing efficiency in co-locating these functions with the other departments within neurosciences.	None.	679.8	679.8

Nuclear Medicine	Nuclear medicine is a core diagnostic function for the Trust and the wider health community and as such needs to be on the acute hospital site. The current department is within the Stage 1 development area and therefore needs to be decanted in the short term. The Front Car Park modular building has been identified as the appropriate location for this. The current department was built in the 1970s as a temporary location after the original RSCH development was reviewed between 1971 and 1991. The current department is no longer complaint with the regulator for this function and it is only the commitment to 3Ts (and decant) that is preventing the department being closed.	6	1366.9	1413.0
Staff Change	Staff change and amenity is in short supply across the hospital site currently – especially in the Barry Building. This will provide facilities for staff to change and also to shower if they have cycled to work. The staff change in this area has been based in an assessment of the number of staff working on this floor who will require changing facilities.	None current.	86.3	87.1
Stage 1 – Level 3				
Non-Invasive Cardiology	This is a key diagnostic function associated with the Sussex Cardiac Centre. It is currently located in the Barry Building and therefore requires reprovision before Stage 2 can be implemented. It cannot be located away from the hospital campus as it serves inpatients and outpatients and a division of function between these two areas would be inefficient. There is no flexibility to include this within the existing Millennium Wing where the Cardiac Centre is located.	None current.	1113.8	1198.0

Therapies	Therapy activity will be focused on providing care on the wards and around the bed areas. This facility is the office base for the hospital therapists. It is located in Stage 1 as the majority of the interventions made relate to elderly care, stroke rehabilitation, neurosciences rehabilitation and trauma rehabilitation – which are all part of the 3Ts development. It would be inefficient to locate this elsewhere.	8	571.3	358.2
Staff Bank	This is the main temporary staffing management facility for the site. It is currently located in the Barry Building which is proposed to make way for Stage 2 of the development so requires a permanent location. It cannot be located off-site as bank & agency staff are controlled from here and there needs to be an interplay between this function and all clinical areas across the site.	None.	139.8	139.8
Facilities Management	The RSCH site is probably almost unique across the NHS as it does not have a central focus for Facilities Management logistics across the site – often to the exasperation of local residents. FM logistics are currently provided in a series of locations across the site and many of these are temporary facilities stemming from the pause in major redevelopment in the 1970s and which have not been addressed since. However, this area will not be fully effective until Stage 3 is complete, the Cancer Centre demolished and the new service yard is operational.	None	1306.7	1306.7
Staff Change	Staff change and amenity is in short supply across the hospital site currently – especially in the Barry Building. This will provide facilities for staff to change and also to shower if they have cycled to work. The staff change in this area has been based in an assessment of the number of staff working on this floor who will require changing facilities.	None.	216.2	216.2

Stage 1 – Level 4				
Fracture Clinic	<p>The fracture clinic is mainly an outpatient function but has close links to the Accident & Emergency Department: many of the patients treated in the clinic have already presented in A&E and have been diverted from treatment in that area (unless urgent) for less urgent treatment – often as a booked outpatient several days after their presentation in A & E (dependent upon clinical acuity). For patients who have require or have had major orthopaedic surgery, this is also the place where they will have initial or follow-up appointments with their clinical team and where their rehabilitation will be monitored. Patients who have suffered major trauma (other than neurosurgical) will also have their follow-ups in this clinic. It is important that the fracture clinic is close to imaging facilities – both conventional imaging and more complex modalities (such as CT and MRI) as different modalities will be required to diagnosed and monitor different injuries. Hence, the fracture clinic should be close to imaging and should be on the acute hospital site (doe to the links to A&E, orthopaedic inpatients and imaging). The Fracture Clinic is currently in a modular building on the west side of the Barry Building and will need to be removed to facilitate the building of Stage 2.</p>	None.	894.9	894.9

Imaging (Cold)	Imaging is part of the core functions of the hospital. A decision has been made to separate out the two key sides to imaging and place them on different floors as an aid to patient amenity. “Cold” imaging is non-urgent imaging which is linked mainly to outpatient and day case patients who require further investigation. It is linked to fracture clinic and to cancer outpatients (in Stage 2) to ensure that there is a clear pathway between imaging and booked patient attendances. In this way, emergency imaging can be kept separate (on Level 5 of the building) so that “walking”, elective patients are not imaged in the same area as emergency patients who may be in a variety of differing clinical conditions. It is the intention that no patients in beds should be scanned in the same area as patients who are not in beds – for privacy and dignity reasons.	6	2997.0	3068.4
Staff Change	Staff change and amenity is in short supply across the hospital site currently – especially in the Barry Building. This will provide facilities for staff to change and also to shower if they have cycled to work. The staff change in this area has been based in an assessment of the number of staff working on this floor who will require changing facilities.	None.	229.7	229.7
Stage 1 – Level 5				
Imaging (Hot)	See cold imaging above. However, the co-location of all “hot” imaging functions – this which will treat the sickest patients – is to ensure that there is flexibility across all specialties who require imaging (neurosurgery, orthopaedics, vascular and trauma) for emergencies. This function will be located on Level 5 of the building – which will link across to the Accident & Emergency Departments and be co-located with theatres so that patients can be diagnosed and then treated quickly and efficiently.	6	1466.1	1404.5

Neurosurgery Theatres	The relocation of the neurosciences function is one of the key objectives in this development. Three theatres are required – one for elective (booked) cases which are less urgent and two for emergency cases. This is so that booked cases are not cancelled if more than two emergencies are required to be dealt with at once. It is intended to co-locate the theatres with the polytrauma theatre for maximum flexibility and efficiency. These theatres will be on Level 5 of the new building and will be a short link away from the existing major theatre complex of the RSCH.	26	1009.1	1088.1
Polytrauma Theatre	A dedicated polytrauma theatre – which is double the size of normal theatres is required so that multiple surgical team can work in it simultaneously. It also requires the capability for imaging within it – so that surgeons can use real-time imaging to guide them in their interventions. This cannot be a shared facility with other surgical specialties as it needs to be available on a 24/7 basis.	None.	In above	In above.
Acute Medical Assessment Unit	The current AMU is on Level 5 adjacent to A&E. It is proposed to relocate this to the new facility to free up space in A&E for better treatment facilities there. Given that the majority of patients who are treated in AMU are medical patients, it is logical to have them in the same building as the medical wards on the floor above. The unit will also be adjacent to “hot” imaging so that patients who are acutely ill can be scanned quickly and away from patients who are less acutely ill.	4	1355.4	1334.0
Staff Change	Staff change and amenity is in short supply across the hospital site currently – especially in the Barry Building. This will provide facilities for staff change and also to shower if they have cycled to work. The staff change in this area has been based on an assessment of the number of staff working on this floor who will require changing facilities.	None	145.5	145.5

Stage 1 – Level 6				
Multi- Faith Centre	The multi-faith centre reflects the fact that there are increasing numbers of people who wish to have a non-denominational space in which to reflect and worship. There will be facilities for different faiths within the centre, but it will not be consecrated or designated for a single faith. The current multi-faith space is in a small room in the Barry Building and will require relocation when Stage 2 is constructed. It is proposed to place this on Level 6 of Stage 1 so that there are good links to the north part of the site as well as the 3Ts facility and will be part of a very public part of the new facilities.	None.	221.8	221.8
Clinical Infection Service Ward	The current CIS wards are in the Jubilee Wing and will be decanted temporarily to allow construction of Phase 1. Clinical Infection (including patients with HIV) is a key tertiary specialty at the Trust. It is proposed that the ward will have 100% single rooms and a large number of isolation facilities to improve the risk of cross-infection or hospital acquired infections.	4	1281.2	1653.6
Clinical Infection Service Outpatients	This is the outpatient facility which is directly associated with the CIS ward. Staff work flexibly across the two areas and therefore it is essential for these services to be co-located.	12	604.8	623.3
Café	This will be located at the end of the circulation route which will link the new facilities to Thomas Kemp Tower and to the north part of the site. It will have an unrivalled view over the sea and be a significant patient, visitor and staff amenity.	None.	In additional circulation	In additional circulation
Staff Change	Staff change and amenity is in short supply across the hospital site currently – especially in the Barry Building. This will provide facilities for staff to change and also to shower if they have cycled to work. The staff change in this area has been based in an assessment of the number of staff working on this floor who will require changing facilities.	None.	61.3	60.7

Stage 1 – Level 7				
Intensive Care Unit (General Acute)	The main hospital ICU is currently located on Level 7 of Thomas Kemp Tower and has 18 beds. Bed modelling suggests that the receipt of additional major trauma workload will require at least a further 3 beds. This is also one of the major areas which may require further expansion. The new ICU has been planned with expansion space built in for this purpose. There is currently no prospect of providing additional space in TKT for expansion without splitting the unit over two floors which has a major implication for staffing and duplication of facilities. It is therefore proposed that ICU should move to Level 7 of Stage 1 and be co-located with neurosurgery ITU and general HDU to form a major critical care unit with the potential for flexible use of staff and sharing of common infrastructure where appropriate. The relocation of ITU then frees up space in TKT to provide space for a trauma ward – linked to ITU.	57 & 6	4517.1	4490.5
Intensive Care Unit (Neurosurgery)	This provides the expanded neurosurgical ITU facilities transferring from Hurstwood Park to ensure that all patients who require ITU can be treated in Sussex. It is intended to co-locate these facilities with the general ITU and HDU from the RSCH for the reasons set out above.	As above	In above.	In above.
High Dependency Unit	See above. This frees up further space adjacent to A&E to facilitate less crowded conditions there and to provide greater flexibility across ITU and HDU (rather being separated by two floors as they currently are in the Thomas Kemp Tower).	As above	In above.	In above.

Stage 1 – Level 8				
Medical and Care of the Elderly Wards	These wards replace those currently in the Barry Building. 79 beds are provided on this floor. This gives good links to A&E and to the “hot” imaging facilities on Level 5 of the building. There will also be almost 70% of single rooms – a huge improvement from the current position in the Barry Building. There is no potential to move these wards off-site temporarily as they require access to all the facilities of the acute hospital.	4	3611.3	3963.3
Stage 1 – Level 9				
Medical and Care of the Elderly Ward	As above.	4	1491.8	1579.9
Neurosurgery Wards	These wards relocate – and additional capacity is provided – from Hurstwood Park which is one of the key objectives of the project. They are located in Stage 1 to facilitate the earliest possible transfer of services and to ensure good vertical adjacencies with theatres, ITU, imaging and the neurology ward above.	4	2008.8	2099.2
Staff Change	Staff change and amenity is in short supply across the hospital site currently – especially in the Barry Building. This will provide facilities for staff to change and also to shower if they have cycled to work. The staff change in this area has been based in an assessment of the number of staff working on this floor who will require changing facilities.	None.	193.1	193.1
Stage 1 – Level 10				
Neurology Ward	These wards relocate – and additional capacity is provided – from Hurstwood Park which is one of the key objectives of the project. They are located in Stage 1 to facilitate the earliest possible transfer of services and to ensure good vertical adjacencies with imaging, neurosurgery and the stroke ward which will be adjacent.	4	1424.3	1626.6

Stroke Ward	The stroke ward is currently located in the Barry Building and will relocate into Stage 1 to facilitate the construction of the Cancer Centre in Stage 2. The ward is being co-located with neurology because of the clinical links between the two.	4	1242.0	1398.0
Neurology and Stroke Rehabilitation	This area is designed to provide near to bed rehabilitation of neurology and stroke patients at the earliest opportunity after their admission. There is evidence to suggest that commencement of rehabilitation as soon as possible after admission improves outcomes.	8	285.5	302.5
Staff Change	Staff change and amenity is in short supply across the hospital site currently – especially in the Barry Building. This will provide facilities for staff to change and also to shower if they have cycled to work. The staff change in this area has been based in an assessment of the number of staff working on this floor who will require changing facilities.	None.	107.3	107.3
Stage 1 – Level 11				
Simulation Centre	This is a new service for the Trust. The simulation centre provides training facilities where students can practice procedures on mannequins and where all clinicians can be trained in a variety of procedures. It also provides mock-up facilities for patient bed areas and a theatre. It allows clinicians to train and be filmed/observed with the outcomes of this allowing opportunities for learning and improvement. The facility is modelled on the successful facility at University College Hospital, London.	None.	332.5	377.4

Meeting/Teaching	The HBN allowance for every department allows for space for meeting/seminar/teaching rooms but it is considered that these are underutilised on a department by department basis. It has therefore been agreed that all such facilities are extracted from each department and centralised in the top floor of the building. This provides greater flexibility (as there will be the opportunity to create different sized rooms in an unparalleled location. The intention is to provide a flexible meeting/teaching/conference suite to rival the Rubens Suite at Guy's Hospital.	From departmental HBNs	697.1	697.1
Junior Doctors Mess	A Junior Doctors' Mess is required under British Medical Association guidance for the training of junior medical staff. It is currently located in the Trust HQ modular building and must be relocated for the construction of Stage 1. It will be decanted to Building 545 on the site which must later be demolished to make way for Stage 2. It should be central to the main clinical activity (so that students can study when away from the ward) and therefore cannot be off-site.	None.	207.5	207.5
Site Management Offices	These offices are the minimum presence necessary and include the main bed management offices and the Operations Centre for the site. These are currently located in the Railli Building and will be decanted to Building 545 for the construction of Stage 1. The majority of such offices will relocate permanently to St. Mary's Hall. Building 545 must be demolished to facilitate the construction of Stage 2, so these facilities must be provided in Stage 1.	None.	150.9	150.9
STAGE 2 – LEVEL 1				
Oncology Entrance	This is to provide an entrance facility for the Stage 2 building which will include cancer, Trust HQ and medical school facilities.	54	187.7	277.2
Radiotherapy	This is to be relocated from the Sussex Cancer Centre as part of the proposed Sussex Cancer Network expansion. There is little room to expand the existing facilities economically.	54	3432.1	3367.7

Medical Physics	Medical Physics is currently on the Stage 1 decant site and will be relocated to St. Mary's temporarily. The majority of the work of Medical Physics is with imaging and radiotherapy, so the inclusion of this facility in Stage 2 is a good fit.	None.	683.4	683.4
Staff Change	Staff change and amenity is in short supply across the hospital site currently – especially in the Barry Building. This will provide facilities for staff to change and also to shower if they have cycled to work. The staff change in this area has been based in an assessment of the number of staff working on this floor who will require changing facilities.	None.	50.5	50.5
Stage 2 – Level 2				
Trust HQ	Trust HQ is in a modular building and the function will be decanted to St. Mary's Hall in advance of the Stage 1 build. The majority of Trust HQ will remain at St. Mary's but the key Executive Office functions will move back onto the main site when Stage 2 is complete.	None.	488.1	488.1
EBME	This is a Trust-wide service which is currently in a modular building on the Stage 1 construction site. It will be decanted into the Courtyard building until the completion of Stage 2.	None.	488.1	488.1
Private Patients	This is a shell space for a potential PPU which will only be fitted out when a viable Business Case can be constructed for it.	None.	Shell space: 605.4	605.4
Staff Change	Staff change and amenity is in short supply across the hospital site currently – especially in the Barry Building. This will provide facilities for staff to change and also to shower if they have cycled to work. The staff change in this area has been based in an assessment of the number of staff working on this floor who will require changing facilities.	None.	13.1	13.1
Stage 2 – Level 3				
BSMS (Medical School Research Centre)	This space will be funded by the Medical School.	None.	1028.7	1028.7

CIRU	CIRU is currently partially attached to the Cancer Centre and needs to be demolished at the conclusion of Stage 2 to allow for the establishment of the service yard for FM services.	None.	889.6	889.6
Stage 2 – Level 4				
Oncology Support and Palliative Care	These functions support the oncology service and are currently located in the Cancer Centre.	None.	890.9	890.9
Oncology Day Care	This provides cancer day care facilities. Patients can often be in the unit for at least half a day for treatment and counselling.	54	1067.9	1119.6
Oncology Outpatients	This provides facilities for initial and follow-up consulting for patients with recent diagnosis or for follow up after treatment.	54	1065.2	1136.0
Aseptic Suite	This facility prepares drugs for use in the cancer centre. This cannot be provided off-site as some of the drugs have a limited use and must be applied immediately.	6	173.5	176.4
Stage 2 – Level 5				
Oncology Wards	The current oncology wards are in the Jubilee Wing and will be reprovided in Stage 2 with the expanded capacity set out by the bed modelling exercise.	4	2207.9	2588.9
TOTAL DEPARTMENTAL AREAS			50076.7	51794.9

6.6 Rationale for Inclusion in the 3T Programme

6.6.1 As the previous tables have demonstrated, there are some critical interdependencies which have justified the inclusion within 3Ts:-

- Critical Collocation – a requirement for an on site link to another department or service in order that the department can deliver its clinical function. An obvious example of this is the need for the trauma facilities to be adjacent to imaging as early diagnosis is vital in improving the outcome for trauma patients.
- Clinical Synergy (qualitative) - the department can deliver a higher quality service through having on site access to another service. An example of this would be the adjacency between the radiotherapy department and medical physics; allowing scientists and clinicians to work collaboratively to improve the quality of radiation therapy.
- Economies of scale (quantitative) – provision of this service on site mitigates the need to duplicate the service in another location. Neurophysiology plays a vital role in neurosciences and having these facilities in the neurosciences outpatient department ensures there is no need to replicate the facilities on the neurology ward.
- Patient Amenity – patient amenity includes aspects of the building for the use of patients, their visitors and relatives. Examples include the multi-faith area and café'

6.6.2 In 2011 services were cross referenced against these criteria. Figures 6.8-6.10 demonstrate this examination at sub-department level i.e. each department may have sub-departments – the Neurosciences department has, Theatres, wards, outpatients Neurophysiology. The majority (68%) of the floor area of the scheme is seen to be consistent with the definition of a critical collocation, clinical synergies exist between 19% of departments, 9% of areas help deliver an economy of scale and the remaining 4% deliver the essential patient and public amenities.

Figure 6.8 – Table demonstrating the rationale for the 3T departments

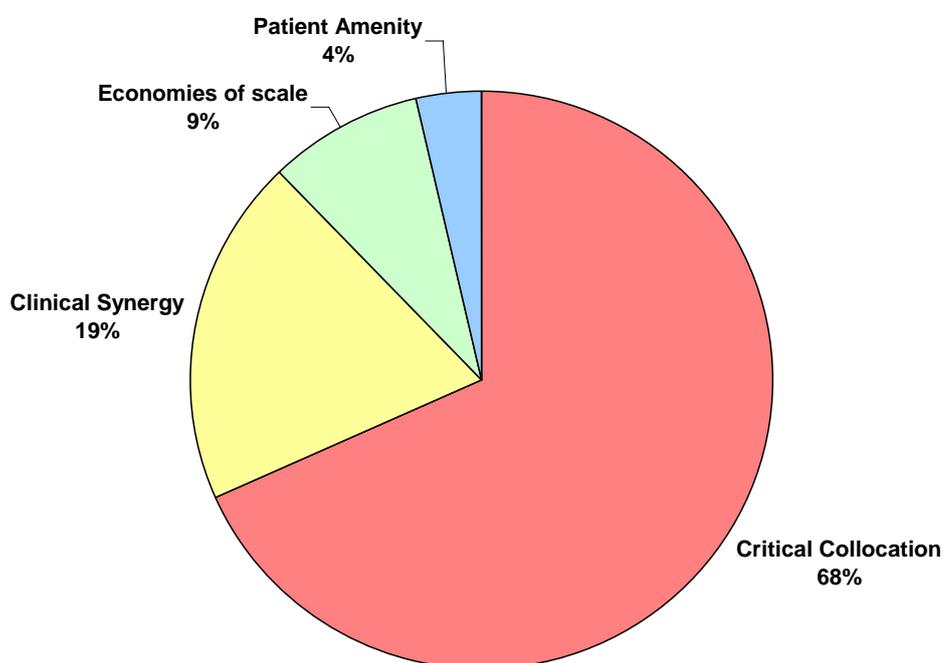
Department	Critical collocation	Clinical Synergy	Economies of scale	Patient Amenity
AMU/ Short Stay				
BSMS				
Central Treatment				
Changing Facilities				
CIRU				
CIS OPD				
CIS Ward				
Clinical Site Mgmt Offices				
Critical Care				
Discharge Lounge				

Doctors Mess				
EBME				
ENT				
FM				
Fracture Clinic				
Level 4 Cold Imaging				
Level 5 Hot Imaging & Polytrauma				
Main Entrance				
MDU & Ward Support				
Medical Physics				
Medical Ward 80 bed				
Meeting & Teaching Suite				
Multifaith				
Neurosciences				
NonInvasive Cardiology				
Nuclear Medicine				
Nursing Bank				
Oncology				
Radiotherapy				
Retail				
Rheumatology OPD				
Simulation Suite				
Stroke Ward				
Therapies				
Trust HQ				
Total Area m²	24998.5	7046.5	3175	1291.9

Figure 6.9 – Table showing the total area defined under each rationale

Rationale	Key	Total area m ²
Critical collocation		24998.5
Clinical Synergy		7046.5
Economies of scale		3175
Patient Amenity		1291.9
Grand Total		36511.9

Figure 6.10 – Chart showing the proportion of area within the scheme defined by each rationale.



Scope of the Project – Conclusions

- The Trust has developed an activity/capacity model based on extant PCT commissioning intentions, the Long-Term Financial Model aligned with the Trust's Foundation Trust application, and the future activity and financial plans emerging from the Clinical Commissioning Consortia.
- The model identifies the requisite expansion for neurosciences, cancer and major trauma as set out in the Tertiary Commissioning Strategy.
- Increased capacity is also planned for imaging and nuclear medicine.
- The Trust has developed clear service models and proposed clinical adjacencies to provide better integration across services.
- Flexibility for the future – through provision of “shell” space adjacent to key expansion areas – is provided.
- The capital costs of the project are within the approved tolerances since SOC stage.