The Whittington Hospital Redevelopment

Reshaping Acute Services

FULL BUSINESS CASE

April 2002

The Whittington Hospital NHS
NHS Trust

CONTENTS

Section 1: Executive Summary

1.1 Project Overview

The Whittington's central strategic objective is to provide high quality acute and general hospital services to its local population. To this end, it is widely recognised that the Trust needs to modernise both its facilities and its service delivery to fully meet the standards set out in the NHS Plan. This business case for the renewal and reshaping of the acute core facilities represents the first stage in the redevelopment of the whole hospital. The availability of a privately-financed option has enabled the Trust not only to take this project forward in the context of heavy demands for capital resources, but to secure added value from the preferred solution through the procurement process.

1.2 Qualitative Benefits

The preferred PFI solution draws on the Public Sector Comparator developed in the Outline Business Case, but provides additional benefits in terms of extra floor space, increased public spaces and improved inter-departmental functional relationships. In short, the scheme integrates the existing A&E/Diagnostic block (block K) and the Great Northern Building (currently containing wards, theatres, educational facilities and staff amenities (block L)), with a new building on a cleared site to create a more coherent configuration of the acute core of the hospital.

Key features include the integration of emergency, assessment and critical care services, and planned diagnostic and ambulatory services on separate floorplates running across all three buildings. This will provide a more appropriate response to emergency demand and a more streamlined delivery of planned services resulting in reduced waiting times.

The scheme also provides a reorientation of the hospital towards Archway, with a new and accessible pedestrian entrance and drop-off point further downhill in Magdala Avenue, leading into an attractive atrium with retail and restaurant facilities and a central reception area.

1.3 Future Flexibility

The PFI solution for the acute core of the hospital forms part of a development control plan which envisages the replacement of the remaining Victorian accommodation with new in-patient facilities designed for appropriate levels of acute care and rehabilitation. Further flexibility for achieving the optimum capacity and configuration of services in the longer term is offered by the private sector solution through the availability of an additional floor in the new building, created as a shell, and falling within the capital expenditure limit for regionally-approved schemes. This represents a significant qualitative and economic benefit with the potential to create additional bed capacity.

Other sources of flexibility in capacity and service development which contribute to the achievement of NHS Plan targets include the provision of additional theatres in the ambulatory unit, and additional critical care facilities.

The utilisation of the site in this scheme retains the option of redeveloping maternity and children's facilities at the western end of the complex.

1.4 Staff and Stakeholder Involvement

A particular feature of this scheme is the manner in which staff have been involved in service specification and design development. This has been effected through Clinical Working Groups who have drawn on their detailed planning of future service delivery via the development of departmental operational policies. Other staff have been involved through the Joint Consultative Committee, and ideas have also been tested with existing patient groups. Communications with the local community have been actively maintained in the context of plans for wider economic regeneration.

Health service commissioners have been closely involved through the strategic planning process and through membership of the Project Board.

1.5 Economic and Financial Implications

The preferred PFI option submitted by Jarvis Projects proposed a capital development of £26.5m, with an annual unitary charge of £3.17m (at April 2001 prices) for a period of 30 years. This has been evaluated against the Public Sector Comparator, and was demonstrated to be the more economically advantageous solution, with a lower risk-adjusted Net Present Value and a higher benefits score.

The Trust's financial advisers have examined the PFI financial model and are satisfied that it is robust. In the opinion of the Trust's Finance Director, the value of the fixed asset created by the scheme is appropriately treated as off-balance sheet.

1.6 Key milestones

Subject to the approval of the Full Business Case, the project plan currently proposes the following timescales to full commissioning of the facilities:

Date	Milestone
June 26 2002	Financial close
July 2002	Construction commences
March 2004	New build construction completed
May 2004	Jarvis services and refurbishment phase commence
October 2004	Refurbishment phase completed
November 2004	All facilities operational

Section 2: Strategic Context

2.1 National and Local Contexts

2.1.1 National Context

The government's agenda for the NHS is based on the principles of partnership and national standards of service provision. The modernisation agenda has grown and developed rapidly, requiring 21st century health services that can be flexible and responsive to patient need.

There are a number of key documents which impact directly on the future shape of services provided by the Trust:

2.1.1.1 The NHS Plan

To quote:
"This is a Plan for investment in the NHS with sustained increases in funding. This is a Plan for reform with far reaching changes across the NHS. The purpose and vision of this NHS Plan is to give the people of Britain a health service fit for the 21st century: a health service designed around the patient.

2.1.1.2 This needs to be achieved in all the areas where the NHS and its partners provide services: to patients, to users and to the public. These are:

- the provision of preventive services;
- support for self care;
- social care;
- primary care;
- intermediate care; and
- hospital care.

2.1.1.3 In each area the aim is to improve quality and the overall experience of patients and users as they are looked after and move between these different types of care."

(Implementation Programme for the NHS, Department of Health)

2.1.1.4 National Service Frameworks (NSFs) for Coronary Heart Disease, Older People and the NHS Cancer Plan

The NSFs and Cancer Plan set out detailed national targets for service delivery.

2.1.1.5 Underpinning strategies

In addition, there are a number of underpinning strategies which also need to be delivered to achieve the vision:

- better prevention and health promotion
- better treatment and care with better outcomes for patients and users and less variation in services and quality
- more patient/user involvement and feedback in both directions
- faster and easier access
- providing the right care in the right place by the right people
- creating a better environment for patients and staff
- making better use of IT and staff.

2.2 Local Context

2.2.1 Local Stakeholders/Influences

The local strategic context for the Whittington Hospital is shaped from a number of directions:

- *targets set by the London Regional Office*
  These targets reflect NHS Plan targets with a particular emphasis on targets arising from the outcome of the Local Modernisation Review Process. The key target areas for the Whittington are: outpatient and A&E waits; cancer waits; information and decontamination; financial balance; and, quality of catering.

- *plans for service provision within the North Central London Health Economy*
  Strategic service planning relevant to the Whittington is taking place for a number of services as follows: children and young people; PALS; emergency care services, TB; cancer; and, renal. The Whittington has planned this development on the basis of continuing provision of a comprehensive emergency service supported by relevant services, a fully developed PALS service, and continuing provision of cancer and paediatric services. The Whittington will also be supporting the HA's renal strategy by the provision of space on site for the future development of a satellite renal dialysis unit.

- *Plans of the two local PCT/Gs (Haringey PCT and North Islington PCG)*
  Current plans echo NHS Plan targets and the priority areas identified by LMR reviews. In addition, Haringey PCT is looking to develop primary care based specialisms (such as dermatology), where appropriate, and to explore future configurations of surgical services in general.

2.2.2 The Trust is also a member of the 2nd wave Camden & Islington HAZ project, and ensures through its membership that the objectives of the Trust are synergistic with wider HAZ strategies.

2.2.3 Development is also taking place at a number of local Trusts, most significantly for the Whittington, the University College London Hospitals (UCLH) whole hospital development. The Whittington development takes into account agreed transfers of day case and inpatient activity between the Whittington and UCLH. The Whittington has also identified space for the development of a satellite renal dialysis unit to replace that at the Middlesex due for closure in 2005.

2.3 Local Commissioning Priorities

2.3.1 The local health economy priorities for acute services in the main echo the national agenda, outlined above. The detailed approach to each of these issues is provided in the North Central London Franchise Plan (attached as Appendix W) which is cross referenced under each heading below.

- *managing emergency pressures (see NCL Franchise Plan Section 4.1)*
  A priority for health authorities continues to be the need to ensure that emergency services are sufficient and responsive to meet the needs of the local community.

- *waits for elective admission (see NCL Franchise Plan Section 4.3)*
  Reducing waiting lists/times continues to be a high priority for health authorities. This relates both to waits for first outpatient attendance as well as waits for surgery. Increasing focus is also being paid to waiting times for access to

treatments for cancer, and the development of cancer networks within the local health community, and treatments for coronary heart disease.

- *care of older people (see NCL Franchise Plan Section 4.7)*
  Camden & Islington Health Authority are working jointly with the borough of Islington and linking with Barnet Enfield and Haringey HA, on a strategy for services for older people. The emerging strategy emphasises the need for alternatives to hospital care for older people requiring support or rehabilitation, but also makes the case for the provision of inpatient services in more modern premises, including the development of inpatient rehabilitation services.

- *care of children (see NCL Franchise Plan Section 5.2)*
  Camden & Islington Health Authority and Barnet, Enfield & Haringey Health Authority are in the process of reviewing and consulting on the future configuration of hospital based children's services.

- *chronic disease management (see NCL Franchise Plan Section 5)*
  For both health authorities the incidence of chronic diseases is high, particularly for diabetes, renal disease and haemaglobinopathies. Barnet, Enfield & Haringey have highlighted sickle cell and thalassaemia as local priorities, whilst both health authorities have estimated that there will be a growing need for the provision of renal dialysis in the coming decade. The North Central London Renal Group has conducted a detailed analysis of the future needs for renal services. This has led to Camden and Islington Health Authority, as the lead commissioner for renal services, conducting a consultation on their future configuration.

- *patient environment*
  The national focus on responding to patients needs has resulted in renewed attention being paid to the environment in which services are provided, physical access to services, and the supporting services that patients receive.

2.4 The Whittington's position in the local health economy

2.4.1 The Whittington believes that there is a high degree of consensus among purchasers and other providers about the future of the Whittington.

2.4.2 This view was established clearly by the Turnberg Review set up in June 1997 to consider the future provision of London's health services. The Turnberg Review highlighted the 'urgent need ..[for].. capital investment' in the Whittington to enable it to continue its role in 'serving..[its]..local population, yet remaining a significant centre for medical education.' This view was supported by the government's response (whilst recognising that the development needed to be congruent with developments at UCLH, (as described in 2.2.3 above)).

2.4.3 The London Regional Office re-iterated its commitment to the Turnberg Review findings in its report *'Modernising the NHS in London'*.

2.5 Changes in context since OBC approval

2.5.1 Whilst the NHS Plan was developed subsequent to the approval of the Whittington's OBC (attached as Appendix A), the objectives set for the development are congruent with the NHS plan and continue to be congruent with the priorities for the local health economy.

2.5.2 Appendix B shows the relationship between the NHS Plan targets and the objectives of this development, demonstrating that the proposals outlined in this business case make a significant contribution to the Whittington's ability to meet the NHS Plan

2.5.3 There are two areas of strategy consultation in particular which have had an impact on the proposals outlined in the final Outline Business Case, leading to changes in the original development as set out in this full business case.

- renal strategy consultation on the future configuration of services for North Central London
- consultations on the future configuration of children's services in North Central London

2.5.3 The continuing consultation on the future configuration of these services led to the Whittington reconsidering, in partnership with its main commissioner, the elements of the development relating to these services. A conclusion was taken to defer elements of the development specifically related to these services, in particular the satellite renal dialysis unit, and possible enhancements in the provision of services for children.

2.6 The Whittington Trust

2.6.1 Trust profile

2.6.1.1 The Whittington Hospital NHS Trust is an acute general teaching hospital situated in the area between Archway and Waterlow Park in the London Borough of Islington. The Trust was formed in November 1992, and currently employs approximately 1800 staff, with an income for 2001-2002 of approximately £93 million.

2.6.1.2 The Trust provides a wide range of clinical services described below in Table 2.1. Future activity assumptions are described in more detail in para. 2.10.1.

Table 2.1: Trust clinical activity 2000-2001

Service	2000/2001 activity
Accident & Emergency	68,000 attendances
Non Elective inpatient FCEs • medical (including Older People) • surgical • paediatric • maternity Total Non Elective	 7,911 4,090 2,710 5,876 20,583
Elective inpatients	4,012
Elective day cases	10,435
Adult critical care	7 beds >400 patients 2,400 beddays
Maternity services (includes specialised prison services)	3,200 deliveries 29,000 ante-natal OP atts (hospital & community) 20,000 post-natal OP atts (hospital & community)
Neonatal services	16 cots intensive 1,750 beddays high dependency 590 beddays special care 3,980 beddays
Outpatient services (attendances) • medical • surgical • paediatric • maternity (see above) • allied health professional (e.g. physiotherapy, OT) • physiological measurement (e.g. ECG, EEG) Total	 59,500 70,000 10,500 49,000 19,000 24,000 232,000 attendances
Radiology/Imaging	121,000 procedures
Pathology	631,000 tests

2.6.1.3 From 2001/2002 onwards there have been significant shifts of elective activity from inpatient to day case, and from day case to outpatient. In 2001/2002 alone, over 2,500 day cases were re-classified as outpatient attendances. A number of pilots have commenced testing the implications of performing more complex day cases. All these initiatives are intended to make early progress towards the shift towards ambulatory care envisaged in the OBC (page 23, para 3.2.1.2).

2.6.1.4 The Trust is also a large centre for training and accreditation of health professionals of varied disciplines, in addition to its more widely recognised role in undergraduate education.

2.6.1.5 The Trust is a longstanding partner of what is now the Royal Free and University College London (UCL) Medical School (RF&UCLMS), and has well-established academic departments in surgery, medicine, obstetrics and gynaecology and primary health care; as well as the Centre for Health Informatics and Medical Education (CHIME).

2.6.1.6 The Whittington includes training facilities for both UCL and Middlesex Universities.

2.6.2 Trust Objectives

2.6.2.1 The Trust's formal objectives were set out in a strategic direction document published in December 1996. These objectives still remain current, and may be described in summary as follows:

- to retain and develop the Trust's core role as an acute general hospital providing high quality care for its local population;
- to secure and maintain financial stability;
- to build alliances with community services, and to open up possibilities for service provision across the primary and secondary boundary;
- to exploit the opportunities of the new information age in health;
- to retain the Trust's position as a significant provider in the areas of service, education and research, and to support related developments to ensure maximum benefit for all stakeholders.

2.6.3 Population served

2.6.3.1 The Trust serves two main population groupings within two Health Authorities – West Haringey (Hornsey and Wood Green) within Barnet, Enfield and Haringey Health Authority, and North Islington within Camden and Islington Health Authority. These two authorities will merge into the North Central London Strategic Health Authority in April 2002.

2.6.3.2 The total population served in this catchment area is approximately 225,000. The population is highly diverse both in terms of ethnic mix and in terms of its economic status. In West Haringey 20% of the population comes from an ethnic minority, while the figure for North Islington is 29%.

2.6.3.3 There are marked variations in the levels of deprivation, ranging from areas of great affluence to areas with some of the highest levels of deprivation in the country. Levels of deprivation in North Islington are high across the board. West Haringey is more affluent, but with some pockets of considerable deprivation.

2.6.4 Income sources 2001/02[1]

Table 2.2: Income sources for the period 2001-2002

Health Authorities Service Agreement Income	
Camden & Islington (Incl Out of Area Treatment (OATs))	46,801
Barnet, Enfield & Haringey	27,075
East London & The City	3,377
Other Health Authorities	1,975
Total Health Authority Income	**79,228**
Other Income	
Non-NHS (Private/Road Traffic Accidents)	927
Undergraduate Teaching – SIFT	5,967
Non-Medical Education & Training (NMET)	458
Medical Education (MADEL)*	3,108
R&D NHS Levy	811
R&D commercial & non-commercial income	125
Service Agreements with other Trusts	1,158
Staff Catering	350
Telecommunication recharges	70
Residences	58
Car Parking	60
Retail Outlets	110
Social Club	30
Other facilities recharges	161
Other non-patient flows funding	460
Total	**93,080**

*(Including post graduate education + Library)

2.6.5 Estate Description

2.6.5.1 Trust Estate

The Whittington was formed from three previously separate hospitals in 1948: Highgate, St Mary's, and Archway. Services were also provided at The Royal Northern Hospital in Holloway and a number of other smaller outlying sites. Rationalisation of the estate began in the 1980's, with the transfer of emergency services from the Royal Northern and the withdrawal of clinical services from Highgate Wing. The Royal Northern closed in 1993 and clinical services were withdrawn from Archway Wing in 1995. Development Control Plans are attached as Appendix C, and an aerial photo of the site is attached as Appendix D.

2.6.5.2 In 2001 the Trust's estate consists of:

- *St Mary's Wing (main site)*
  All clinical services, together with support accommodation and education

[1] The information contained within Table 2.2 is supplemented by the narrative within Appendix Q – Financial Appraisal.

- *Highgate Wing*
  The Trust leases the building fronting Dartmouth Park Hill from Camden & Islington Mental Health Services Trust as administrative offices. The Mental Health Trust is currently developing the rest of the Highgate Wing site as a mental health facility. Upon its completion the Trust will relocate its offices into the Waterlow Unit on the main site (currently leased back to C&IMHST).

- *Archway Wing*
  The Trust leases a post-graduate education centre on the site. The freehold of this wing now lies jointly with University College London and Middlesex University, and is being developed as a major health education campus.

2.6.5.3 The St. Mary's Wing of the Whittington Campus lies in the London Borough of Islington and is located on a site of some 4.29 hectares, between Dartmouth Park Hill to the west, Highgate Hill to the east, a primary school to the north and Magdala Avenue to the south. The site is densely developed with a mix of Victorian and more modern hospital buildings, and currently accommodates a variety of in-patient wards, ambulatory services, accident and emergency, residential accommodation, administration and other support departments. The site holds one Grade 2 listed building, the Jenner Building. The site falls sharply from north to south by almost 9m, resulting in difficult site organisation and circulation patterns.

2.6.5.4 Highgate Wing lies in the London Borough of Camden and is also located in a conservation area.

2.6.6 Condition, function and space utilisation

2.6.6.1 An assessment of the present estate performance was carried out in late 1998 by external consultants. The survey covered the following areas:

- Physical condition
- Statutory compliance
- Energy performance
- Function and space utilisation

2.6.6.2 The exercise was completed in conjunction with the Trust's facilities managers in order that a fully comprehensive assessment could be made, which would then form the basis of an ongoing and dynamic appraisal programme. A separate assessment of functional suitability and space utilisation was also carried out.

2.6.6.5 The conclusion was that generally the functional suitability of many departments and the relationship between departments was below an acceptable standard. These assessments also demonstrated that a considerable proportion of the estate was sub-standard. Despite some recent improvements, substantial investment of approximately £11 million at current prices would be still be required over the next ten years to upgrade the present estate to Estatecode condition B.

2.6.6.4 The majority of the condition backlog is contained within the Victorian ward accommodation, where there are serious structural problems with the southern elevations of blocks A, B, D and E (scaffolding currently supports the structure). Whilst A & B blocks are being demolished as part of the GoL enabling works; blocks D & E will remain standing until further development takes place. The more recently built blocks (K and L) also have significant backlog. Fire safety backlog was eliminated in 1999 and the site was fully certificated; however, some renewed fire

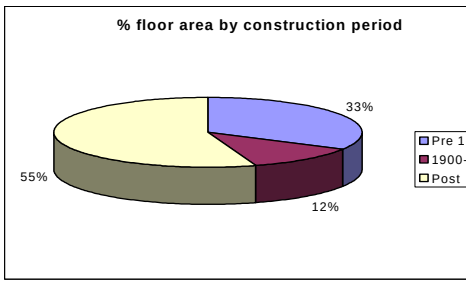
backlog has now emerged. The stated costs do not allow for any improvement to functional suitability.

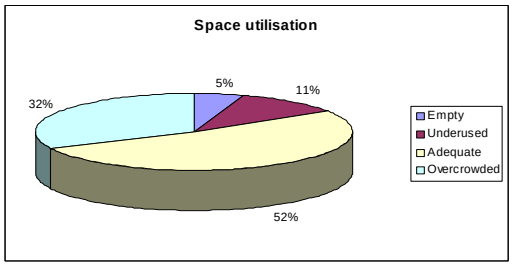
Figure 2.1: Scaffolding supporting structural failure at D block

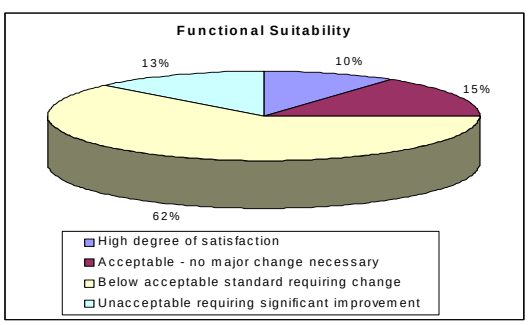
Table 2.3: Summary of function and space utilisation findings

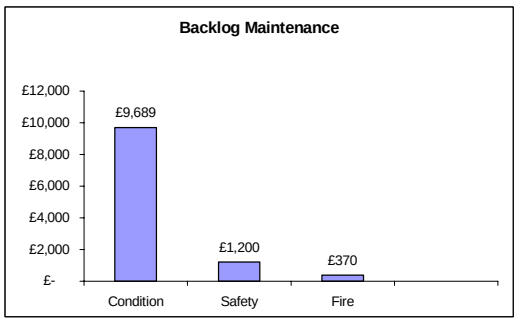
Functional Suitability	10%	High degree of satisfaction
	15%	Acceptable-No major changes required
	62%	Below acceptable standard-requiring change
	13%	Unacceptable requiring significant improvement
Space Utilisation	5%	Empty
	11%	Underused
	52%	Adequate
	32%	Overcrowded

Figure 2.2: Summary of main estate indicators









2.6.6.5 Backlog maintenance costs are for the period 2001-2002 and exclude VAT. Figure 2.2 (backlog) also excludes block A which has already been declared surplus. Information relating to estate areas not included within this development is contained within Section 6 (see para. 6.3.3. and Figure 6.4).

2.6.6.6 It should be noted that since commencement of the decanting programme for the scheme, the empty space category has now fallen to zero. There has also been a decline in the underused category, but this has not been measured to date. The Trust estate is currently at its most intensively used ever.

2.7 Case for Change

2.7.1 The strategic context outlined in this section provides clear justification for the development proposed in this business case. The Whittington Hospital cannot provide 21st century health care within its current buildings and structures.

2.7.2 The key priorities to be addressed by the development proposals, in response to the national agenda and local commissioner requirements are as follows:

- *managing emergency pressures*
  The Whittington's ability to provide high quality and responsive emergency and critical care services is severely hampered by poor functional relationships and space constraints. The current dislocation of the A&E department from the ITU and ward areas impacts on the provision of seamless assessment, diagnosis and treatment processes. Patient privacy and dignity is significantly compromised by the journeys required between the different areas. The patient environment is poor both for patients undergoing assessment and diagnosis within A&E, and for patients in ITU and the Victorian wards.

- *improving waits for elective admissions*
  The lack of sufficient and adaptable ambulatory facilities for day case surgery and endoscopy procedures with flexible capacity, hampers the hospital's ability to insulate elective work from emergency admissions. This can lead to cancellations and impacts on waiting times.

  On average 6-8 elective procedures are cancelled every month as a result of emergency bed pressures (data from 2001 SITREP reports). The increased provision of ambulatory facilities and consequent shift of inpatient activity to ambulatory care, plus improved management of emergency patients in A&E will provide the capacity required to reduce the number of cancelled operations. The reduction in cancellations and increased ambulatory care facilities will contribute to the Whittington being able to reduce waiting times for surgery.

  The capacity for carrying out efficient pre-operative assessments and pre-clerking is compromised by insufficient and poorly located space. Poor functional relationships between the current day surgery facilities, endoscopy facilities, imaging, phlebotomy and outpatients impacts on the development of one-stop clinics, and provides a sub-optimal patient experience.

- *improving the patient environment (access and physical)*
  A key priority for the Whittington is to improve access to the services provided on the main site, and to re-orientate the hospital to relate better to both its communities. The current entrances to the hospital require ambulant patients coming from the south to walk uphill further than optimal, and mixes patients

attending A&E with visitors and those relatively well patients going to other parts of the hospital.

Figure 2.3: Current approach from Archway transport links, with the high wall as first introduction to the hospital

In addition, it is often difficult for patients and visitors to the hospital to way-find around the hospital once inside – a problem exacerbated by the many level changes on the site. There is an urgent need to improve the communication routes within the hospital.

Much of the physical environment at the Whittington is not conducive to the provision of modern healthcare. Whilst some development has taken place on the Whittington site in the 1970s and 1990s, significant elements of service provision (principally medical wards, ITU, day surgery, endoscopy and maternity), remain in inappropriate Victorian accommodation (see Section 6, para. 6.3.3). Modifying this environment to meet patients needs is often difficult, and leads to significant compromises. See the Development Control Plan at Appendix C.

- *continuation of role as a centre for training staff*
  There is a very large population of doctors, nurses and other professionals in training at the Whittington who require training facilities close to clinical spaces. The ability to meet the needs of this group is becoming increasingly difficult within the confines of existing spaces.

- *NHS Plan/Modernisation Agenda*
  The Whittington must change and develop to meet the vision (and targets) set out within the NHS Plan and the Modernisation Agenda.

2.8 Responding to the Case for Change

2.8.1 The hospital is seen as a fixed point in the health economy, meeting a clear local demand. It needs to continue its role as an acute hospital and centre for training staff, whilst improving the standard of its accommodation and modernising its services.

2.8.2 Project Objectives

For the Trust to respond to the case for change the following project objectives were established:

- provision of a more effective and appropriate range of responses to emergency arrivals, through the creation of a graduated set of emergency and critical care services;
- improved bed usage and reduced lengths of stay through better resourced and more focused initial assessment facilities;
- provision of elective services which are more responsive to patient needs and reduce the need for repeat visits, through the development of more flexible and accessible ambulatory services (surgical and diagnostic);
- better response to changes in demand through the provision of flexible and accessible ambulatory services, largely separated from emergency services;
- significant improvements in the environments in which patients are cared for;
- more efficient working through the reorganisation of acute core services to improve key functional relationships;
- flexibility for the future development of services;
- strengthened ability to secure accreditation and recruit and retain staff;
- contribution to financial sustainability for the Trust through improved facilities and functional relationships.

These objectives are described more fully within Section 14 – Benefits Realisation.

2.8.3 Appendix B shows in more detail the relationship between the national agenda for the NHS as set out in the NHS Plan, and the objectives for this development – clearly demonstrating the need for investment at the Whittington to enable the provision of an acute core which is appropriate and accessible for its local population.

2.8.4 The Development

To meet the project objectives, the Trust established through its outline business case, the need for a development on site of approximately £24 million (capital cost). This development would be progressed alongside a programme of organisational change to enable the Trust to move towards its vision for future service provision.

2.8.5 How the Trust will operate in the future

This development will enable the Whittington to meet future service requirements in a number of areas:

- *Accident & Emergency*
  Comprehensive 24hr emergency access will continue to be provided to the local population. Compliance with national standards through the development of operational and clinical policies will be supported by better functional relationships between A&E, new assessment facilities, and existing inpatient areas through the physical reorganisation of buildings.

  The development of assessment facilities will allow greater emphasis on the early assessment of, and more rapid planning of appropriate care for emergency patients.

Figure 2.4: The current combined main entrance and A&E lead to inappropriate mixing of emergency and ambulant patients

- *Critical Care*
  The service for critically ill patients at the Whittington will be enhanced by the development of a new facility designed to provide intensive and high dependency care. This facility will be located close to the A&E and assessment areas and main theatres, thus creating a 'hot floor' for the provision of a graduated care model for the management of acutely ill patients. The clinical area of the critical care facility will be supported by appropriately sized accommodation to meet the needs of carers and staff.

- *Acute inpatient services*
  Acute inpatient services will continue to be provided with improved functional relationships between inpatient beds, A&E, critical care services and diagnostic facilities.

- *Ambulatory care*
  The provision of elective care within managed waiting periods will be facilitated through the provision of separate ambulatory care facilities purpose designed for efficiency and patient acceptability. The reduction of waiting times and the management of winter pressures will both be assisted. Separate circulation routes and largely dedicated elective patient facilities will help to ensure that (relatively) healthy elective patients do not share experiences with patients who are acutely ill.

- *Diagnostic services*
  Imaging and phlebotomy services will be co-located and improved through the provision of accessible purpose-built facilities to maximise patient convenience.

- *Education, training and research*
  The Whittington's contribution to the professional development of staff will continue. The reorganisation of clinical policies and facilities will provide an improved training experience more suited to the future of hospital care in London.

2.9 Meeting Commissioner's requirements

2.9.1 In summary, this development will support the Whittington's ability to meet a number of requirements:

- the "hot" side of the hospital can bring all its resources into play to provide more effective care and cope with "winter pressures" – through the development of a graduated care model;
- delivery of current activity with the addition of the agreed flow of patients between the Whittington and UCLH (See Appendix E for activity flows);
- waiting times will benefit from the greater efficiency of the ambulatory care unit as this facility will be relatively insulated from fluctuations in emergency demand;
- NICE, CHI, Royal College and other standards of quality will be easier to achieve in well organised accommodation;
- The movement towards a stable break-even position

2.10 Future changes in levels of activity/bed requirements

2.10.1 Assumptions about the level of activity are largely based on the current evidence on the demand for emergency and elective services by specialty. No firm plans have been notified by significant stakeholders of material changes in the commissioning of services from the Whittington. Local commissioners support the activity assumptions made in this FBC around maintaining stable demand whilst allowing for agreed transfers of activity between UCLH and the Whittington. Prudent assumptions have been made about the retention of elective referrals from more distant commissioners. While the level of demand is assumed to be stable, the changing way in which this demand is met is a key feature of this development.

2.10.2 As stated earlier, agreements have been reached with UCLH on some transfers of elective in-patient and day care surgery. The activity model upon which these agreements are based is attached as Appendix E.

2.10.3 The National Beds Inquiry (NBI) was established in 2000 to provide planning tools ("Modelshire") to estimate future bed requirements to meet NHS Plan targets. Camden & Islington HA and Barnet, Enfield & Haringey HA have used this model to estimate bed requirements for General & Acute and Intermediate Care beds. BEHA are preparing action plans to further reduce the average length of stay, to contain non-elective admissions and enhance intermediate care services in order to reduce the number of additional beds required to zero. The table below summarises the outcome of the analysis to date. It must also be noted that these outcomes are totally dependent upon the length of stay reductions in Modelshire being achieved. Without these reductions, the bed requirement is significantly higher (more than double).

Table 2.4: Assessment of future bed requirements (NBI)

	Impact on Bed Numbers	
	G&A	Intermediate
Camden & Islington HA	0	26
Barnet, Enfield & Haringey HA	151	66

2.10.4 Whilst the future bed requirements have yet to be translated into clear commissioning intentions, the Whittington redevelopment contributes to the NBI objectives by improved management of emergency services, reductions in length of stay, containment of emergency admissions and (the potential) for additional bed capacity.

Section 3: Outline Business Case (OBC)

3.1 Introduction

3.1 The Outline Business Case for the redevelopment of the Whittington's acute core services was approved in the Autumn 1999. In response to a further need resulting from the UCLH FBC plans identified in early 2000, a subsequent addendum (attached as Appendix A) was approved in April 2000, allowing for the inclusion of a 25 station satellite renal dialysis unit. The inclusion of the renal unit led to the exclusion of plans for a reorganisation of A&E services in the existing building.

3.2 The OBC identified the Trust's preferred solution for the redevelopment of the site as follows:

- redevelop the acute core of the hospital on the site of the existing A, B and M blocks, retaining K block, and developing a new pedestrian access from Highgate Hill

3.2 Outline Business Case Objectives and Benefit Criteria

3.2.1 OBC Objectives[2]

The objectives of the final OBC (incorporating the OBC addendum) are outlined below:

3.2.1.1 Emergency Arrivals

The redeveloped Whittington is to retain full emergency capability. A number of additional facilities will be developed as follows:

- *Assessment Unit*
  A 24 hour assessment unit will enable an appropriate group of patients to remain within a focused assessment and diagnostic environment. This will take place where the completion of work-up, or a period of observation is likely to result in a return home without the need for admission.

- *Critical Care facility*
  A critical care facility located close to A&E, assessment facilities and main theatres will allow for the early treatment of critically ill patients in an appropriate environment. Resuscitation will be retained in A&E.

- *Acute Medical and Surgical Beds*
  Medical and surgical inpatient beds will continue to be provided with admission generally through the A&E/assessment facilities. A re-designation of beds will be considered to ensure patients are cared for in the most appropriate environments.

3.2.1.2 Elective Care

Elective care to be provided mainly through ambulatory facilities while retaining appropriate capacity for elective inpatient stays and overnight stays.

[2] Note: a number of the original OBC objectives (i.e. prior to the addendum), have been removed due to the inclusion of renal and the removal of the K block works.

- *Ambulatory Unit*
  This is the main treatment area for elective cases and will provide for a wide range of interventional and some imaging procedures, in addition to consulting, education and allied activities. It is intended to provide a pleasant, reassuring and efficient service to patients without the disruptions and delays caused by mixing non-urgent and urgent cases. The centre will be largely separated from emergency treatments; however, it is accepted that some ambulatory procedures will need to be performed on an emergency basis. Most endoscopic, catheter based procedures, surgical or radiological interventions will be conducted in the unit.

- *Diagnostic Unit*
  This unit will contain the main imaging centre for the hospital and the phlebotomy service. It should be designed to enable separation of ambulant patients from inpatients and enable non-urgent work not to be disrupted by urgent work. A separate satellite imaging centre will continue within A&E.

- *Satellite Renal Dialysis Unit*
  A 25 station satellite dialysis unit to be included to replace the existing unit at the Middlesex hospital.

3.2.2 Summary of Main Functional Relationships

3.2.2.1 One of the Trust's principal objectives in this reorganisation of its services is to establish improved functional relations. In effect, the core acute hospital will comprise two distinct blocks of accommodation - the "hot" floor(s) dealing with emergency services and the elective floor(s) providing well organised elective services to very large numbers of patients who are mainly walk in/walk out.

3.2.3 Benefit criteria

The following non-financial benefits and weightings were utilised to score the options (the abbreviations used later in the tables are given in the "Ref" column):

Table 3.1: Benefit Criteria

Criteria	Ref	Notes	Weight
Access to services	A	The degree to which the options improve patient access to the services offered by the Trust	5
Clinical quality of care	CQ	The impact of the options on the clinical performance of the hospital	20
Future flexibility	F	The degree to which different options allow the Trust to re-profile its services in the future and to cope with increased or decreased demand levels.	10
Patients' environment	E	The impact of each option on the pleasantness of the physical environment in which services are provided	10
NHS staff support	SS	The degree of expected staff support for each option	10
Compliance with HA, HIMP and HAZ	NP	The degree to which each option advances the strategic policies of the local health region	15
Training & accreditation	TA	The impact of each option on the Trust's significant role in training and education	15
Public acceptability	PS	The degree of expected public support for or opposition to each option	10
Ease of implementation	I	The practicality of each option in respect of disruption and difficulties during execution	5

3.3 Identification of Long List of Options

3.3.1 The following options were considered:

1	Do Nothing	Shortlisted
2	Upgrade Existing Buildings	Shortlisted
3	Redevelop acute core hospital with Demolition of K Block	Shortlisted
4	Redevelop acute core hospital retaining K Block	Shortlisted
5	Redevelop whole hospital	Rejected. Although this option met the Trust's objectives, it was apparent that a strategic context for the Maternity & paediatric services could not be established at the time. As this option could not be partially implemented (without becoming Option 3 or 4 above) it was rejected on the grounds that options that are not capable of implementation should not be appraised in detail.
6	Move entire hospital to Archway Tube site	Rejected. Although this option met the Trust's objectives and would have attractions if capital were unlimited, the advice from Islington Borough was that land acquisition was not feasible. It was rejected on the grounds that it could not be implemented.

3.4 Short-Listed Options[3]

3.4.1 Description of options as contained within the original OBC.

The shortlisted options were described in the OBC as follows:

3.4.2 Option 1: Do Nothing

3.4.2.1 Under this option the hospital operates from essentially the same estate as at present, with changes in clinical practice possible only where this is compatible with existing buildings and relationships. The footprint of the hospital would remain as is, and the Highgate Wing would continue in operation.

3.4.2.2 Capital costs of £7.965millions (OBC price base) would be incurred by the Trust over a three year period to ensure compliance with statutory requirements and NHS guidance. Some elements of the capital costs would tackle serious backlog maintenance issues such as the southern elevations supported by scaffolding. No fundamental changes would be made to functional relationships - for instance the remoteness of ITU from A&E and theatres.

[3] NB: With the amendment of the original OBC by the OBC addendum, it was felt that options 3 and 4 could incorporate a 25 station dialysis unit with the omission of the reconfiguration of the A&E and outpatient services components.

3.4.2.3 The Trust would have difficulty in achieving improvements in operating costs to meet its cost improvement targets or in meeting Patient Charter and other quality standards. This option would not allow the Trust to reconfigure services in line with the UCLH development agreement, and would not assist the Trust to achieve and maintain financial recovery.

3.4.3 Option 2: Do Minimum

3.4.3.1 This option entails carrying out the backlog maintenance programme that is essential over the next three years, plus any work necessary for statutory compliance. This option also includes expenditure to improve functional relationships and suitability within the constraints of the existing estate.

3.4.3.2 Costs of £16.59 millions (OBC price base) would be incurred.

3.4.3.3 The main change to the estate would be the refurbishment and re-commissioning of A block with this key site would no longer earmarked for major development. This would allow some services such as ITU and Assessment to be relocated nearer the heart of the hospital and related services. The existing Day Surgery Unit in C block would be extended in an attempt to increase capacity. Extensions to blocks D & E (south) would increase the size of these wards thus improving their economic performance. Some of the wards at the western end of the site could be vacated allowing the relocation of offices from either Highgate Wing or block F (Jenner Building).

3.4.3.4 Notwithstanding these changes, accommodation would remain poor. This option does deliver some improvements but does not allow the Trust to fundamentally reconfigure its services in the way described in the Project Objectives. It would not be possible to reconfigure services in line with the UCLH development agreement to take additional cases at the Whittington, or to fully meet the Trust's financial recovery plans.

3.4.3.5 Both the Do Nothing and Do Minimum options used blocks A, B and M which are currently being demolished following OBC approval. The capital costs will therefore not be consistent with the Trust's presently reported backlog position.

3.4.4 Option 3: Redevelop core acute hospital with demolition of K block

3.4.4.1 Preparatory work requires the decanting of blocks B and M to enable these, along with block A (currently empty) to be demolished. A new pedestrian access is to be formed from Highgate Hill, and a new road is to be constructed along the southern edge of the site to provide access to the new Ambulatory Day Care Unit from Dartmouth Park Hill and Magdala Avenue. A new building will then be constructed on the site of blocks A, B and M.

3.4.4.2 At level 1 the new block contains the new A&E dept above which are the Assessment Unit, ITU and other elements of the emergency hospital linking to the existing theatres in block L.. At level 3 the new building contains a new imaging dept. and part of the new outpatient consulting centre - the remainder being formed from a converted level 3 block L (which is at ground level on the north side.) Level 4 contains the new Ambulatory Day Care Unit and level 5 has plant and the central teaching/education accommodation.

3.4.4.3 On completion of the new building, block K can be decanted and demolished. A new link road can then be formed to connect the existing entrance on Highgate Hill to the

new road on the south side. A new Main Entrance building can then be formed at level 2 which will connect into the hospital street.

3.4.5 Option 4: Redevelop acute core hospital retaining K block (see Appendix F for related drawing plans).

3.4.5.1 Preparatory work requires the decanting of blocks B and M to enable these, along with block A (currently empty) to be demolished. A new pedestrian access is to be formed from Highgate Hill and a new road is to be constructed along the southern edge of the site to provide access to the new Ambulatory Day Care Unit from Dartmouth Park Hill and Magdala Avenue. A new building will then be constructed on the site of blocks A, B and M and in the gap between blocks K and L. At level 1 the new block contains the Ambulatory Day Care Unit and a new main entrance to the acute core on the south side with access to the existing lifts in K block. On level 2 the new building contains the Assessment Unit & ITU which link directly to the reconfigured A&E dept in K block. A new main entrance will be formed on the north side with the entrance functions including a café distributed on both floors. At level 3, the new building contains a new imaging department. On level 3 of L block the area of the existing staff restaurant will be converted to form space for pharmacy and acute rehabilitation. No significant works are proposed to levels 3-6 of L block.

3.5 Capital costs of the short-listed options summarised (excl. VAT, OBC price base)

Forms OB1	1 Do Nothing	2 Do Minimum	3 Demolish K Block		4 Retain K Block	
1 Departmental costs				10,367,912		8,607,038
2 On costs			62%	6,405,256	69%	5,935,475
3 Works cost [MIPS 310]				16,773,168		14,542,513
4 Location factor			19%	3,186,902	19%	2,763,077
5 Sub total				19,960,069		17,305,590
6 Fees			15%	2,994,010	15%	2,595,839
7 Non works cost				300,000		300,000
8 Equipment costs			13%	1,311,992	15%	1,284,150
9 Planning contingency				1,965,286		1,718,846
10 Total				26,531,357		23,204,425
11 Inflation adjustments						
12 **Forecast OBC Total**	**7,965,000**	**16,590,000**		**26,531,357**		**23,204,425**

The Do Nothing and Do Minimum costs are based on Trust data of backlog maintenance and meeting statutory requirements with some functional content improvements under the Do Minimum option. Detailed feasibility work was not carried out as per the other options and so only the total figures are included here for comparison.

3.6 Non-financial Appraisal[4]

3.6.1 The scores awarded are summarised below, the weighted scores and ranks are given later within the economic appraisal.

[4] (NB: the changes outlined in the OBC addendum were not judged to have had any impact on the non-financial appraisal of the options and therefore the summaries given represent the original scoring exercise.)

3.6.2 Access to services

Option	Score	Reasons
Do Nothing	10	No change on existing
Do Minimum	10	No change on existing
Acute Core, without K Block	15	This option is scored higher because of its opening up of access at the downhill corner of the St Mary's site and the improvements to traffic access and circulation by the removal of K Block
Acute Core, with K Block	12	Some improvements to access and circulation

3.6.3 Clinical quality

Option	Score	Reasons
Do Nothing	10	No change on existing
Do Minimum	12	Some marginal gains
Acute Core, without K Block	20	This option gives the full benefits of upgraded accommodation, the installation of high technology clinical support and optimised functional relationships
Acute Core, with K Block	18	As above but with slightly reduced benefits in functional relationships due to the poor interface between K Block and the Great Northern Building

3.6.4 Future flexibility

Option	Score	Reasons
Do Nothing	5	Lack of flexibility is key current problem
Do Minimum	5	Lack of flexibility is key current problem
Acute Core, without K Block	20	This option allows the two main elements of the acute hospital, GNB Building & the new block to be operated as a whole or separately
Acute Core, with K Block	18	Some improvements in use of the new building, GNB and K Block – the revised circulation will assist future changes of use.

3.6.5 Environmental quality

Option	Score	Reasons
Do Nothing	5	Current poor environment is a key reason for change, it is expected that current conditions will become less acceptable to future patients
Do Minimum	10	Cosmetic improvements possible, basic problems with location, design and size remain
Acute Core, without K Block	20	This option provides all new or upgraded with high quality arrival and circulation
Acute Core, with K Block	19	As above, internal spaces are improved but entrance and circulation is not quite as high impact

3.6.6 NHS Staff support

Option	Score	Reasons
Do Nothing	5	Poor quality and ambience likely to be a retention/recruitment barrier in future
Do Minimum	8	As above, slightly moderated
Acute Core, without K Block	20	Strong staff support for redevelopment
Acute Core, with K Block	20	Strong staff support for redevelopment

3.6.7 Compliance with Health Authority, HIMP and Health Action Zone policies

Option	Score	Reasons
Do Nothing	5	Gives little help with any compliance, hinders some – winter pressures, mixed sex wards.
Do Minimum	5	As above
Acute Core, without K Block	10	Removes barriers to reorganising care to meet current and future policies - provides good quality flexible accommodation. Does not guarantee compliance
Acute Core, with K Block	10	As above

3.6.8 Training & accreditation

Option	Score	Reasons
Do Nothing	5	Lack of teaching space integrated with clinical areas is a current problem - this lack threatens future accreditation
Do Minimum	10	As above slightly moderated
Acute Core, without K Block	20	All clinical areas re-modelled to meet Ed. Requirements
Acute Core, with K Block	20	All clinical areas re-modelled to meet Ed. Requirements

3.6.9 Public acceptability

Option	Score	Reasons
Do Nothing	0	Lack of development seen as major threat to public confidence in hospital
Do Minimum	5	Small gains arising from treated areas
Acute Core, without K Block	20	Major development seen as good news. Reorganised southwest aspect more integrated with public transport and secure underground parking is bonus for local users
Acute Core, with K Block	18	As above but with slightly reduced impact on entrance and circulation problems

3.6.10 Ease of implementation

Option	Score	Reasons
Do Nothing	20	No implementation problems
Do Minimum	20	No implementation problems
Acute Core, without K Block	5	Significant implementation problems in prospect, complex decanting, extreme site congestion and noise/dust pollution
Acute Core, with K Block	15	Some problems expected but ability to utilise K Block eases decanting. Building works are less invasive

3.7 Summary of non-financial benefit scores

Option	**UNWEIGHTED SCORES**	Access **A**	Clinical Quality **CQ**	Flexibility **F**	Environment **E**	Staff Support **SS**	National Policy **NP**	Training & Accred **TA**	Public Support **PS**	Implementation **I**	**TOTALS** **TOT**	**Rank**
1	Do nothing	10	10	5	5	5	5	5	0	20	**65**	
2	Do Minimum	10	12	5	10	8	5	10	5	20	**85**	
3	Acute Core - demolish K Block	15	20	20	20	20	10	20	20	5	**150**	
4	Acute Core - retain K Block	12	18	18	19	20	10	20	18	15	**150**	
	TOTALS	47	60	48	54	53	30	55	43	60	**450**	
	Weighting factors	5	20	10	10	10	15	15	5	10		
	WEIGHTED SCORES	**A**	**CQ**	**F**	**E**	**SS**	**NP**	**TA**	**PS**	**I**	**TOT**	
1	Do nothing	50	200	50	50	50	75	75	0	200	**750**	**4**
2	Do Minimum	50	240	50	100	80	75	150	25	200	**970**	**3**
3	Acute Core - demolish K Block	75	400	200	200	200	150	300	100	50	**1675**	**2**
4	Acute Core - retain K Block	60	360	180	190	200	150	300	90	150	**1680**	**1**

3.8 Financial and Economic Appraisals

3.8.1 Methodology & Assumptions

The economic evaluation tables designed to calculate net present cost and equivalent annual cost of the four options were based on the following assumptions:

- 1999/2000 (MIPS 310) prices throughout;
- 60 year project life with secondary and tertiary capital inputs as required;
- 6% discount rate.

3.9 Capital Costs

Table 3.1: Summary Results

	1 Do Nothing	2 Do Minimum	3 Demolish K Block	*4* *Retain K Block*
Capital Costs (ex VAT) £k	**7,965**	**16,590**	**26,531**	***23,204***
Capital Costs (inc VAT) £k	**9,203**	**19,169**	**30,650**	***26,811***
Equivalent Annual Cost (EAC) £k	**75,343**	**75,486**	**74,740**	***74,520***
Net Present Cost (NPC) £k	**1,219,801**	**1,222,127**	**1,210,036**	***1,206,476***
% Difference	**1.1%**	**1.3%**	**0.3%**	***0.0%***
Non-Financial Benefits(NFB)	**750**	**970**	**1,675**	***1,680***
NPC per NFB point	**1,626**	**1,260**	**722**	***718***
NPC per NFB Ranking	**4th**	**3rd**	**2nd**	***1st***

3.9.1 Sensitivity Analysis

Given the small variation between the two highest ranked options, sensitivity analysis on the economic evaluation focused on comparing the preferred option with the "do minimum" option.

Table 3.2: Sensitivity analysis

Sensitivity Factor	†% Change to make EAC/NPC of "do minimum" = preferred option	‡% Change in EAC / NPC of preferred option from 10% change in sensitivity factor
Capital Costs	38.6%	0.34%
Gross Expenditure	1.9%	7.0%
Savings not achieved	66%	0.01%

3.9.2 Commentary

Given the scale of the Trust's operating expenses over the period of evaluation and the very small variation between the two highest ranked options, the Trust considered that the two variations of the redevelopment were economically equivalent and that the decision was therefore not economically determined.

3.9.3 The preferred option was therefore selected on the basis of the interaction between non-financial benefits and providing an affordable option (see financial appraisal (affordability)). The indicative NPC per non-financial benefit point was lowest for the preferred option. Furthermore, there were practical implementation advantages in the shorter term in opting for the lower capital cost option.

3.10 Changes Since OBC and Impact on Options

3.10.1 As described in Section 2, the main areas of strategy consultation since the OBC was approved are as follows:

- ongoing renal strategy consultation on the future configuration of renal services for North Central London

† The two options are therefore economically equivalent if, all other things being equal, capital costs increase by 38.6%, or gross expenditure increases by 1.9% or 66% of savings are not achieved under the preferred option.

‡ These figures represent the change in EAC / NPC for a 10% increase in capital costs, gross expenditure and savings not achieved.

- ongoing consultation on the future configuration of children's services in North Central London.

To date these consultations are still continuing, and no firm conclusions have been reached.

3.10.2 The ongoing consultation on children's services configurations and subsequent slight amendment of OBC objectives has had no impact on the ranking of options within the OBC.

3.10.3 The ongoing renal strategy consultation regarding the future configuration of services led to the Whittington reaching agreement with its main commissioner to the substitution of the 25 station renal dialysis unit with an 18 bedded acute ward. Alternative space has now been identified on the Whittington site for this development to take place once future renal service configurations have been agreed. This substitution is judged to have had no impact on the ranking of the options.

Section 4: Public Sector Comparator (PSC)

4.1 NHS guidance

4.1.1 NHS guidance sets out the requirement for a Value for Money (VfM) test based upon comparison of the selected PFI option with a Public Sector Funded Option, or Public Sector Comparator. The PSC is assumed to be the preferred option identified within the Outline Business Case.

4.1.2 The PSC fulfils a number of key roles:

- At the OBC Stage, its development helps to ensure that the output specification against which bids are sought from the private sector can be met within the NHS Trust/Commissioning HA's affordability ceiling;
- On the receipt of bids from potential partners, the PSC serves as a useful benchmark against which the value for money of such bids can be assessed;
- At the FBC stage, the PSC provides a comparison against which the value for money of the selected PFI solution can be demonstrated.

4.2 OBC Preferred Option

4.2.1 The Trust's OBC Preferred Option is the partial redevelopment of the acute core of the site, retaining the two most recent blocks (K & L) and constructing a new block along with associated public spaces and circulation to provide an integrated facility across the three blocks. It is this solution that forms the basis of the PSC.

4.3 Development Control Plan

4.3.1 The Trust's Development Control Plan (DCP) envisages the retention of the south-east corner of the site as the acute core of the hospital with further acute and intermediate facilities developed to the west. North of the internal road the site will continue to house non-clinical accommodation. The exact configuration of further development is dependant on a number of health economy reviews of clinical services currently in progress, particularly maternity, neonatal and paediatric services. However, the underlying assumptions of the above strategy are robust. It is intended to update the DCP when the outcome of these reviews is known.

4.3.2 The strategy for energy provision on the site envisages the phased decommissioning of the current boiler house complex which contains boilers up to 35 years old. A decentralisation strategy has been adopted for heating and hot water, and combined heat and power (CHP) technologies where a suitable electrical load exists. The removal of the boiler house will aid the development of the site.

4.3.3 Appendix C shows the DCP in its current form.

4.4 The Public Sector Comparator Option

4.4.1 Drawings showing the content and design solution for the PSC are included as Appendix F.

4.4.2 The Trust engaged a team led by Nightingale Associates to develop the OBC preferred option into a costed design solution. The main change from the preferred option described in the OBC was the location of the ambulatory unit and the addition

of the satellite renal dialysis unit, which subsequently changed to an inpatient ward (see para. 3.10.3).

4.4.3 The PSC is essentially a two-phased scheme that constructs a new block to the south of the Great Northern Building (block L) followed by a second refurbishment phase in block L after the migration of services across to the new building. On completion, all emergency and ambulatory services are provided from the three modern blocks, unified by new entrance and circulation arrangements. This approach gives the advantage of large floor plates across the three blocks, allowing functions to be grouped logically and economically on the same level.

4.4.4 Phase one (the new block), provides a new entrance, catering and retail, and UCL education facilities at level 1. The entrance re-orientates the hospital towards the south and Archway via a ramp. Level 2 is designed to tie in with the existing A&E in block K, and the main theatres in block L. This "hot" floor provides Acute Assessment and Critical Care in the new block, linking with A&E and theatres. Further expansion of assessment in block K would follow in a subsequent scheme.

4.4.5 The third level of the new block houses the new imaging suite with CT and MRI. This function co-locates with the main out-patient department in block K level 3.

4.4.6 The fourth level primarily accommodated the satellite renal dialysis. The addition of this service, and its subsequent relocation to another part of the site, has been described in Section 3. Following the recent agreement on the more optimal location, the renal unit has been replaced with an 18 bed ward. This allows a direct comparison with the PFI option.

4.4.7 In order to enable a direct financial and non-financial benefits comparison with the chosen PFI scheme, the PSC has also been modified to include an additional shell floor (level 5), and a CHP installation with additional boiler plant to the same performance standards as the PFI scheme.

4.4.8 The subsequent phase then refurbishes vacated restaurant and UCL areas in block L as the ambulatory unit and completes the scheme. Two new theatres are provided in addition to two existing theatres below. This location enables a direct pick-up zone outside on the main internal road. Its proximity to imaging and outpatients on the same level aids the ambulatory principle, and ensures complete separation of emergency activity.

4.5 Capital Cost

4.5.1 The capital cost of the PSC is summarised below in Table 4.1. A full breakdown of the PSC costs are included with Appendix G. The Trust's technical advisors, Cyril Sweett, have reviewed the original design solution from Nightingale Associates, and incorporated the following variations to make the PSC directly comparable with the PFI design solution:

- An additional floor has been provided at level 5 and the existing plantroom moved to level 6. As in the PFI proposal, this floor is shell only. Due to the size of the existing proposed level 4 this floor is smaller than the PFI design.

- The services strategy has been revised in line with the PFI proposals and a Combined Heat and Power (CHP) plant included within the costs together with decentralised energy provision for the new block and existing blocks K & L.

- In addition to the above the proposed Satellite Dialysis Department has been omitted and an adult acute ward incorporated within the same area.

4.5.2 The overall effect of these changes is shown below:

Table 4.1: PSC Capital Costs

	Approved OBC	Public Sector Comparator
Works Cost including Fees	£20,936,841	£20,848,000
Equipment	£1,360,649	£1,360,649
Planning Contingency @ 8%	£1,783,798	£1,776,692
Total @ MIPS 310 FP	**£24,081,288**	**£23,985,341**
Additional Floor		£1,371,655
Renal Variation		£252,841
Engineering Strategy Variation		£1,239,528
Planning Contingency @ 8%		£229,122
Revised Total @ MIPS 310 FP		**£27,078,487**

4.5.3 The above costs exclude VAT and inflation allowances.

4.5.4 The baseline PSC cost is broadly the same as the OBC figure. With the additional content, the PSC cost rises to £27m in comparison to the PFI solution at £24.5m, with the same content.

4.6 Risk Retained Profile

4.6.1 The risk analysis process is described in Section 8 with detailed supporting schedules provided in Appendix H.

Section 5: The PFI Procurement Process

5.1 Procurement Methodology

5.1.1 In order to identify the correct procurement route and to assist the Trust in establishing evaluation criteria, external advisers were appointed in advance of advertising the project in the Official Journal of the European Community (OJEC). A design team was also appointed to develop the Public Sector Comparator.

5.1.2 On the advice of its legal advisers and the NHSE's Private Finance Unit (PFU), the Trust advertised the project in OJEC under the Services Contract Regulations. This advertisement, a copy of which is included at Appendix I, was placed under the Negotiated Procedure Notice on 26th May 2000.

5.1.3 The scope of the project was outlined as follows:
"[the provision of] Hospital facilities, repair and maintenance services related to buildings, buildings and facilities management services".

5.1.4 54 Expressions of interest were received from a number of prospective bidders, and when the advertisement closed on 27th June 2000 a Memorandum of Information, along with a Pre-Qualification Questionnaire (PQQ), was sent to all the companies that had responded. The companies were also invited to attend an Open Day on 14th July 2000 where the Trust presented its requirements and conducted tours of the site. The PQQ was produced to enable the Trust to evaluate the technical, financial and economic strengths of individual bidders or groups of companies forming consortia, and to identify a manageable long-list of six bidders.

5.1.5 In line with PFI guidance, the Trust had agreed that a Preliminary Invitation to Negotiate (PITN) would be issued to long-listed bidders, with the objective of short-listing further to three consortia who would bid against a Final Invitation to Negotiate (FITN).

5.1.6 Following receipt of three responses to the FITN, the Trust issued FITN clarification documents to all bidders, which delayed the process of appointing a preferred bidder. Further clarification took place with a single potential preferred bidder around the standard form of contract, leading to the appointment of a preferred bidder in November 2001.

5.1.7 The Whittington Hospital NHS Trust appointed Jarvis plc preferred bidder on 9th November 2001.

5.1.8 A review of the procurement process has been undertaken by District Audit. No concerns with the process have been raised.

5.2 The Trust's Advisers

5.2.1 The Trust's external advisers are:

- Legal Advisers: Bevan Ashford
  Contact: Mike Strathdee

- Financial Advisers: Ernst & Young
  Contact: Sheldon Taylor

- Technical Advisers: Cyril Sweet
  Contact: Paul Crabb
  Supported by: Sheppard Robson and Oscar Faber

- Insurers: AON Insurance
  Contact: Andrew Birt

5.3 Pre-Qualification Process

5.3.1 Pre-qualification evaluation criteria

5.3.1.1 Seven candidates responded to the Pre-Qualification Questionnaire on 21st November 2000. The information returned with the PQQ was evaluated using the following criteria:

5.3.1.2 Financial and economic standing:
- a review of the financial and economic record of the candidate and relevant companies; and,
- an evaluation regarding the candidate's ability to raise the finance required.

5.3.1.3 Technical assessment:
- an assessment of the candidate's experience demonstrating their overall level of competence in design, construction and facilities management; and
- an assessment of the candidate's capability of undertaking the project successfully by putting together high quality, cohesive teams able to utilise their collective experience.

5.3.2 Evaluation

5.3.2.1 An evaluation of the submitted information was completed by an evaluation panel comprising members of the project team, staff side, the Director of Human Resources & Corporate Affairs, and supported by the Trust's advisors.

5.3.3 Identifying the Long-List of Bidders

5.3.3.1 The PQQ responses received were examined in detail by all the members of the evaluation team, some of whom were tasked with advising the team on specific aspects of the responses. The group scored each bidder against the previously agreed criteria and weightings.

5.3.3.2 The Project Board agreed that the six highest scoring would proceed to the PITN stage.

5.4 Preliminary Invitation to Negotiate (PITN)

5.4.1 The six bidders who pre-qualified were issued with a Preliminary Invitation to Negotiate. The six consortia were:

- Canmore
- Catalyst Healthcare
- Impregilo UK
- Jarvis Projects Ltd
- Shepherds
- The Hospitals Partnership

5.4.2 The purpose of the PITN stage was to seek further information from pre-qualified candidates in response to the detailed requirements set out in the Trust's PITN. The information returned was used to short-list the three bidders who would be sent a Final Invitation to Negotiate.

5.4.3 This information was to cover a number of areas for consideration by the Trust to examine and identify whether:

- the proposals addressed the needs of the clinical services
- the proposals were robust
- the proposals were well defined
- the capital costs and service costs were appropriately assessed
- the Bidder had the potential to deliver the level of quality on time, to budget and cost
- the life expectancies were realistic and consequent costs were appropriately assessed.

5.4.4 One of the consortia (Shepherds) withdrew early in the PITN stage and did not submit a PITN response. All other bidders put forward a response.

5.4.5 PITN Evaluation

5.4.5.1 A rigorous evaluation process was designed with criteria taken from the PITN and the service specifications developed by the clinical working groups. A weighted scoring system was developed with the design considerations having the largest weighting. Other areas assessed were the construction approach, hard facilities management (FM) approach, financing strategy, legal requirements and the approach taken to human resources, equipment and IM&T issues.

5.4.5.2 The clinical leads from the clinical working groups and the Project Team scored the designs, the Project Team scored the specialised areas such as HR, equipment, IM&T and hard FM approach, and in conjunction with the external advisors, the legal, financial and construction elements.

5.4.5.3 The evaluation of the bids showed three clear candidates to take forward into the next stage of the procurement process (the Final Invitation to Negotiate). All bidders submitted bids that offered the Trust a significant and achievable development. Some bidders solved some of the design issues better than others, whilst no bidder solved all of the requirements at this stage.

5.4.5.4 The Project Team recommended to the Project Board that Impregilo UK, Jarvis Projects Ltd, and The Hospitals Partnership, be shortlisted for the next procurement stage, and invited the Project Board to accept and endorse this recommendation to the Trust Board on 20th December 2000.

5.5 Final Invitation to Negotiate (FITN)

5.5.1 The three short-listed bidders (Impregilo UK, Jarvis Projects Ltd and The Hospitals Partnership) were issued with the FITN. As the purpose of this stage was to enable bidders to produce detailed proposals and firm priced bids, it was important to ensure that they were provided with sufficient information and access to key members of the Trust's staff. It was equally important that the bidders' responses were comprehensive and detailed enough for proper evaluation. The Trust considered that these objectives could best be achieved by providing details in the FITN of what constituted a core reference bid, what information was required, and how it would be evaluated.

5.5.2 Bidders were given four months in which to prepare their bids. The Trust met with each of the consortia on a number of occasions throughout the period to ensure that the bidders understood the Trust's requirements, and to enable the Trust to inform them if any aspects of their bid would be considered non-compliant.

5.5.3 Core reference bid

5.5.3.1 Bidders were required to submit a reference bid which incorporated new/refurbished facilities, and the provision of building and engineering maintenance services for the new build element of the project and the whole of the Great Northern Building (L Block).

5.5.3.2 Fixed priced bids had to apply from the date of submission to the projected date of financial close (23/11/01), and be within the affordability ceiling. Bidders were also required to include details of any change in the price for the period up to three months after the projected date of financial close, and monthly thereafter.

5.5.4 Project requirements

5.5.4.1 Bidders had to demonstrate their compliance with the Trust's requirements by providing a range of information under the following headings:

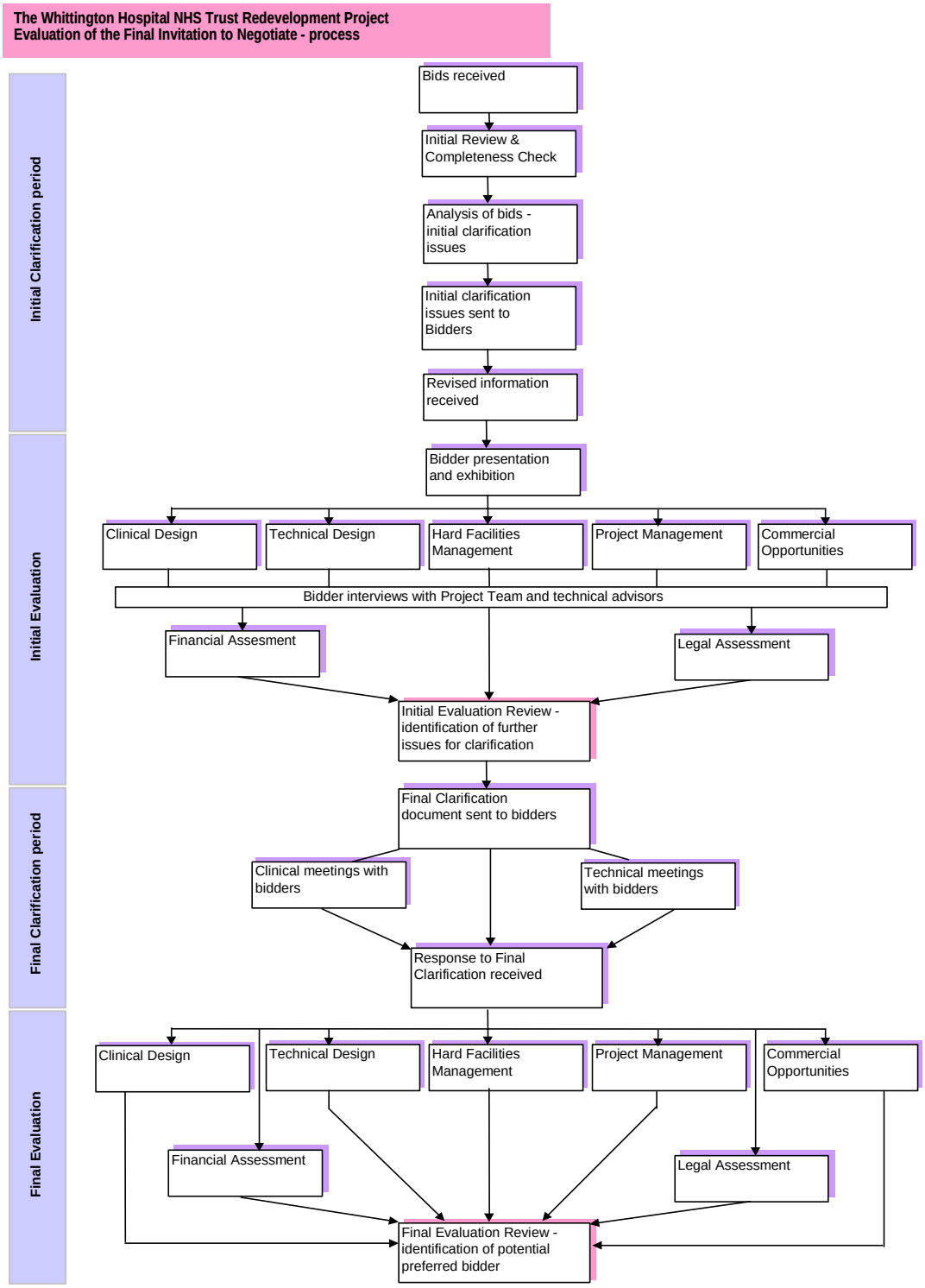
- Health Planning and Architecture
- Engineering Services
- Construction Approach
- Capital Costs
- Life Cycle Costs
- Hard FM Service Approach
- Human Resources
- IM&T Approach
- Financial Bid Requirements
- Legal Requirements

5.5.5 Evaluation of FITN Bids

5.5.5.1 An evaluation process was established as detailed in Figure 5.1.

5.5.5.2 Following the initial evaluation review of the FITN responses held on 29th May 2001, it was felt that there were a sufficient number of significant issues requiring further clarification to require the issuing of an FITN Clarification document to each bidder. The evaluation process was then repeated, leading to the selection of a potential preferred bidder.

Figure 5.1: Evaluation process diagram



5.5.5.3 Responses to the FITN and FITN clarification document were evaluated on the basis of the most economically advantageous bid having regard to a range of criteria. These criteria were set out in the PITN and the FITN, and covered the following elements:

- clinical design
- technical (design and construction)
- hard Facilities Management (FM)
- project management
- commercial opportunities
- financial
- legal.

5.5.5.4 The evaluation of the clinical design, hard FM, project management and commercial opportunities elements of the bids were evaluated by teams comprising of Trust staff with advisers in attendance.

5.5.5.5 Technical evaluations were carried out by the following Trust Project advisers:

- financial evaluation: Ernst & Young
- legal evaluation: Bevan Ashford
- design/construction: Cyril Sweet, supported by Oscar Faber and Sheppard Robson

5.5.5.6 The evaluation of the FITN used an extension and adaptation of the scoring methodology used at the PITN stage.

5.5.5.7 The principle of separate evaluation teams scoring a particular area of the bid and using an aggregation and weighting of the area scores to produce a single combined score for each bid was retained. However, the main change to the PITN method was how the financial elements of the bid were assessed. The financial evaluation assessed the value for money of each bid and calculated a net present value (NPV) of each bid. This NPV was used as a proxy for the cost of each bid, and the weighted scores were used as a proxy for the benefits of each bid. A comparison of the cost/benefit ratio of each bid determined the most economically advantageous bid.

5.5.5.8 Each of the sections carried a weighting as follows:

Section	FITN weighting
Operational view - design	35%
Operational view - FM	15%
Construction - technical	30%
Project Management	15%
Commercial opportunities	5%
TOTAL	100%

5.5.5.9 The evaluation process adopted for the responses to the FITN Clarification document was similar to the initial evaluation; however, adjustments to existing scores only took place where additional or changed information was provided.

5.5.5.10 Jarvis Projects Ltd and The Hospitals Partnership chose to amend their *variant* bids only in response to the Trust's clarification document, and these were both regarded by the bidders as their primary bid.

5.5.5.11 Once all elements of the bids had been evaluated, a final evaluation meeting took place attended by the Project Team, Advisers, Chair of the Project Board, Trust Chief Executive and Chair of the Trust Board. This meeting served a number of purposes:

- review of the process to date
- understanding of conclusions arising from the evaluations
- identification of potential preferred bidder
- identification of actions required to appoint preferred bidder.

5.6 Selection of a Preferred Bidder

5.6.1 An overall benefit score was generated for each bid, which combined with the NPV gave a cost/benefit ratio. The Jarvis variant bid was strongest in terms of both overall benefits and NPV, thus giving the highest cost/benefit ratio.

5.6.2 Clinical design and health care.

5.6.2.1 Whilst all three bids had areas of merit, there were clear differences in approach to individual departmental designs and the ability to meet the overall objectives for the project.

5.6.2.2 The Jarvis variant proposal was judged to be significantly stronger in both departmental design and in meeting the overall project objectives, demonstrating a sound grasp of the design brief. The proposal was judged to provide the greatest benefits for patients, staff and visitors.

5.6.3 Technical (design and construction).

5.6.3.1 The Jarvis variant proposal was judged to provide an acceptable solution following the technical evaluation. Whilst the nature of the design requiring large ground excavations suggested a higher risk factor than with the other proposals, this risk was balanced by greater overall benefits.

5.6.4 Hard FM provision.

5.6.4.1 Two out of three of the Hard FM proposals met the criteria set. The Jarvis proposal was comprehensive with particular attention paid to the Trust's requirements for the helpdesk operation and workforce resources.

5.6.5 Commercial Opportunities.

5.6.5.1 It was felt that the Jarvis proposal successfully integrated an increased provision of retail into the scheme in good locations.

5.6.6 Financial evaluation.

5.6.6.1 The detailed financial evaluation conducted by the Trust's financial advisers recommended that the Jarvis variant proposal represented the best value for money.

5.6.7 Legal.

5.6.7.1 Following receipt of the responses to the FITN clarification document, it was agreed that a legal Evaluation would not formally take place until evaluation of the responses was undertaken in every other area. Once the Jarvis bid had been judged to have clearly the best cost/benefit ratio and they had confirmed their willingness to accept the standard form of contract, further clarification of the legal position took place following their appointment as potential preferred bidder.

5.6.7.2 The Whittington Hospital Trust Board approved Jarvis Projects Ltd as potential preferred bidder on 12th September. This was followed by the signing of a Preferred Bidder letter, confirming the basis of the final price and how it will apply, and acceptance of the NHS Standard Form Project Agreement, on 9th November. The Whittington NHS Hospital Trust appointed Jarvis plc as preferred bidder on 9th November 2001 (see Appendix J).

5.7 Staff and Stakeholder Involvement

5.7.1 The Whittington is committed to ensuring that staff, their representatives and the local community are involved in the redevelopment of the hospital. Involvement takes place in a number of ways including the following:

5.7.2 Involving Staff.

Involving a wide range of staff in the future planning of the hospital is crucial to establishing the right vision and making it happen. The Whittington has involved staff extensively from planning the vision through to the detailed design of the units. A range of staff are also actively involved in planning and implementing the way in which the models of service provision will change to provide 21st century healthcare.

5.7.2.1 Clinical Working Groups/Modernisation and Redevelopment Group.

Clinical Working Groups were established in September 1999 to undertake much of the thinking around the way in which services would be provided by the Whittington in the future. The work of these groups (described more fully in Appendix K) has ranged from the development of a whole hospital vision, to the detailed design of the individual departments and development of operational policies.

5.7.2.2 Planning for the future has focused on the changes in service delivery required for the future, as well as the consequent physical accommodation needs. Whilst the detailed design of the building has been taken forward in the main by the relevant clinical working groups, the organisational change agenda is now managed through a range of projects under the umbrella of the Modernisation and Redevelopment Group (MARG). This Group, described in more detail in Appendix K, is responsible for overseeing the Whittington's modernisation and redevelopment agenda through the monitoring of established projects, addressing of issues generated by the projects, and the initiation or closure of projects where appropriate.

5.7.2.3 Facilities Services.

The Whittington recognises the importance of ensuring that the development not only delivers 21st century clinical accommodation and services, but also delivers a design that can be effectively managed and supported by the facilities services. A range of facilities staff have been actively involved in developing the future operational policies and reviewing the design proposals.

5.7.2.4 Joint Consultative Committee.

General consultation within the Trust is undertaken through the Joint Consultative Committee (JCC), which is the Trust's, main forum for consultation with staff representatives on issues that affect staff in their working lives. The Trust's recognition agreement ensures the group's membership, which is drawn from the Trust's Accredited Representatives Committee, covers representatives from all the trades unions and professional bodies who work on behalf of the Trust's employees across all the NHS staff groups and professions.

5.7.2.5 JCC meetings are held monthly for the Trust's senior managers and staff representatives to discuss a range of issues around patient care, terms and conditions of employment, management arrangements, the redevelopment of the hospital and the long term direction and development of the Trust.

5.7.3 Involving the Local Community.

5.7.3.1 The Whittington has worked with the London Borough of Islington through a number of forums to ensure that its development is responsive to the needs of the local community. The Whittington is an active member of the Islington Strategic Partnership and involved with the Archway Regeneration planning where appropriate. Green Travel plans were drawn up with the active involvement of both the Boroughs of Camden and Islington.

5.7.3.2 The Whittington has used local consultation events at ward level to present information about the proposed hospital developments and found this valuable in seeking views from the local community. Liaison with local councillors has led to further contact with local residents' associations.

5.7.4 Involving patients.

The Whittington has involved patients in the planning and design of the development through the use of existing Patient Groups and the involvement of individual patient's in the design process.

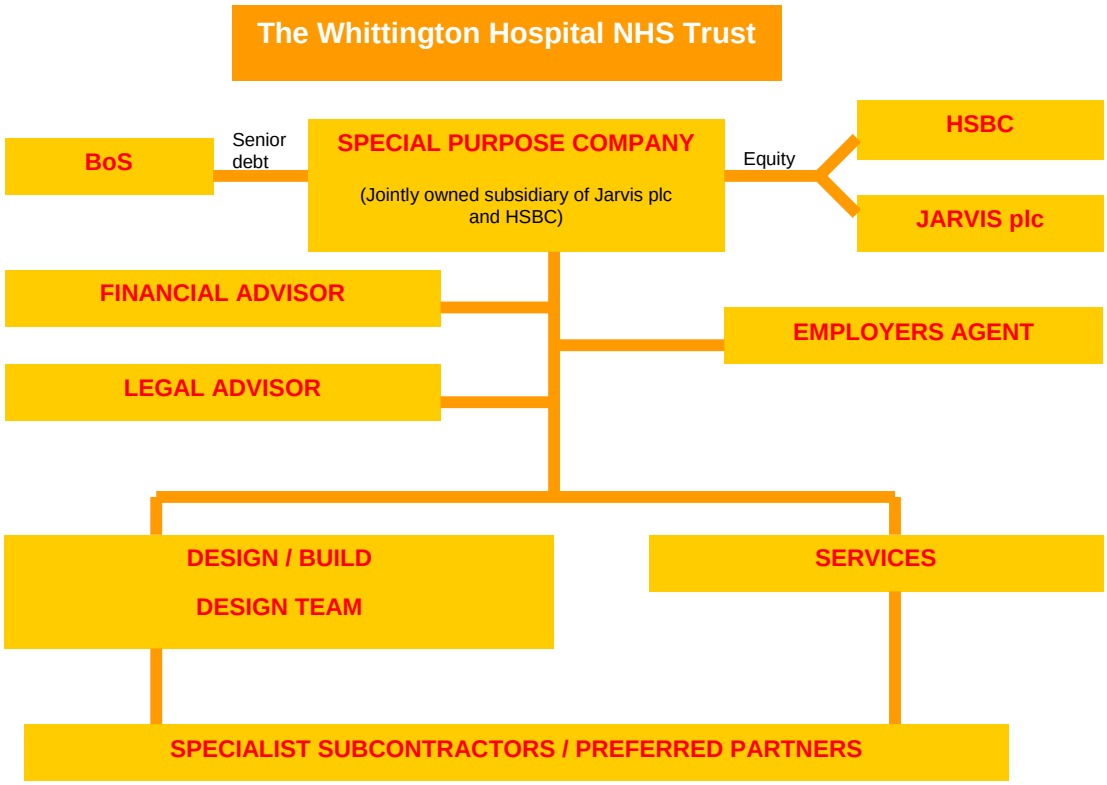
Section 6: The Preferred PFI Solution

6.1 The Project Company

6.1.1 The Project Company "Whittington Facilities Ltd" (WFL) is a jointly owned subsidiary of Jarvis Plc and HSBC. Senior debt is provided by Halifax Bank of Scotland and equity jointly by Jarvis Plc and HSBC. Section 11 describes in detail the funding structure.

6.1.2 Design and construction is provided by Jarvis Construction (UK) Ltd. Hard FM services will be provided by Jarvis Workspace FM. Figure 6.1 shows how the project is structured:

Figure 6.1: Project Co Structure



6.1.3 This structure has been successfully employed by Jarvis Plc on previous PFI projects. A full breakdown of the WFL team and advisors is attached as Appendix L.

6.2 The PFI solution

6.2.1 The solution proposed by WFL has been developed by their team from the Trust's output specification and has been influenced by the key elements of the Trust's PSC:

- The creation of an emergency, or "hot", floor.
- The creation of a main ambulatory investigation and treatment floor.
- The re-orientating of the hospital towards Archway and its key transport interchange.

6.2.2 The scheme has successfully developed these ideas in an innovative way, providing additional and better organised clinical space for these services and bringing them

together with impressive public and circulation spaces. The proposal also provides a new main entrance to the south by introducing a new lower level directly connecting with the street. The model illustration below gives an impression of the new block, entrance and connecting atrium. Appendix M shows floor plans and elevations in more detail.

Figure 6.2: The PFI design solution

6.2.3 WFL have also been able to offer the Trust two affordable added value proposals in addition to the output specifications, but within the £25m approval limit. These are:

- A combined heat and power installation serving the new block, block L and block K, together with additional boiler plant. This substantially aids the Trust's energy strategy, and allows subsequent decentralisation from the current ageing energy centre.
- The shell of an additional floor at level 4 providing the opportunity for fit-out as part of the next stage of the site development. This will significantly reduce future decanting problems and speed the replacement of redundant buildings. Aesthetically, the building benefits from the additional height.

6.2.4 The Trust's PSC was unable to accommodate these proposals without exceeding £25m limit. Whilst not forming part of the output specifications, these proposals represent real value for the Trust and considerably aid the site development strategy. A full breakdown of the PFI costs are included as Appendix N.

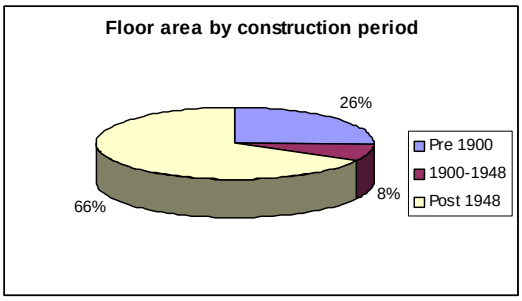
6.3 Site preparation

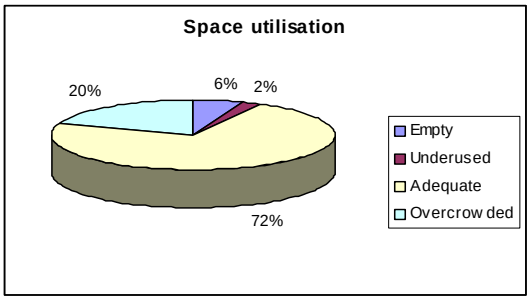
6.3.1 The Trust has decanted services and demolished the blocks previously occupying the development site. The single largest scheme of the decanting package was the provision of a new bed block as an extension to the old Nightingale blocks D & E. This block and other enabling works on the west side of the site will remain until site redevelopment has been completed with subsequent projects.

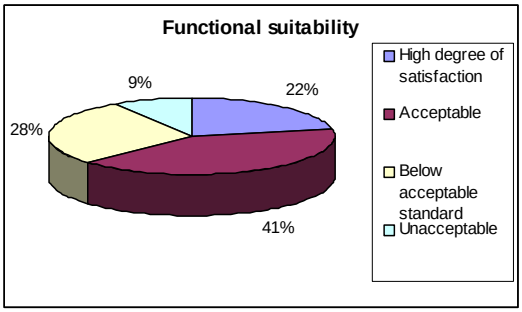
Figure 6.3: Demolition of blocks A, B and M is well under way

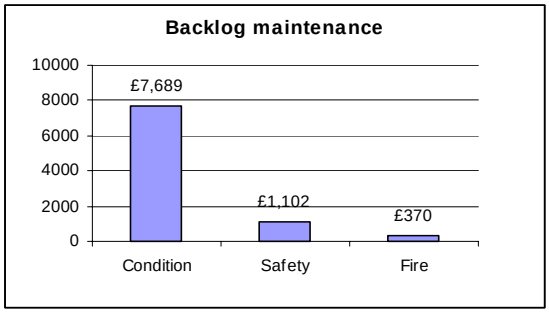
6.3.2 The WFL scheme itself includes early relocation and diversion of engineering services, substations and generators and planning work on this by Jarvis is at an advanced stage. The project company is responsible for final site preparation, including removal of remaining slabs and foundations.

Figure 6.4: Impact of the scheme on the main estate indicators









6.3.3 The scheme results in the removal of £2.098m of backlog maintenance, largely in block B (current prices, ex-VAT). Block A is already written off. In addition, £620k of backlog maintenance in block L is transferred to WFL who are required to bring the block up to condition B within 5 years. The above summary of main estate indicators

(Figure 6.4) show the changes post-completion and can be compared with the current position shown in Section 2, Fig. 2.2. The remaining pre-1900 accommodation is largely accounted for by the in-patient and maternity wards at the western end of the site. The estimated 6% empty space at the end of the scheme results from the movement of departments into the block.

6.4 Planning permission

6.4.1 Full planning permission was granted on 26th March (see Appendix J – Supporting Letters). There are minor section 106 conditions relating to tree replacement and green travel initiatives.

6.5 Development Control Plan

6.5.1 Jarvis proposed a DCP with their submission demonstrating how their scheme integrates with whole site development and facilitates further investment. Appendix C shows the completed site development. The Jarvis proposal is compatible with Trust and Health Authority views on the likely investment programme for the Whittington, and indicates the development of the site in a westerly direction. The Jarvis scheme is therefore considered to fit with the Trust's present and developing DCP. The added-value proposal in the Jarvis solution for an engineering installation serving the acute core of the site will considerably aid this process by assisting in removing the current boiler house, which acts as a development obstacle in the middle of the site.

6.6 Content, construction and phasing

6.6.1 This scheme has been designed as two phases. Phase one is the new build element (approximately 80% of the floor area). The site is accessible directly from the street and disruption will be limited to the junctions of the three blocks. Appendix M shows a stacking diagram demonstrating the arrangement of departments across the floors and the key functional relationships and circulation flows.

6.6.2 Level 0 is the new main entrance with escalators and lifts, and a drop off zone outside for private vehicles. The majority of ambulant patients and visitors will arrive at this entrance, which will provide a new "shop window" for the hospital facing towards Archway with its bus and tube links.

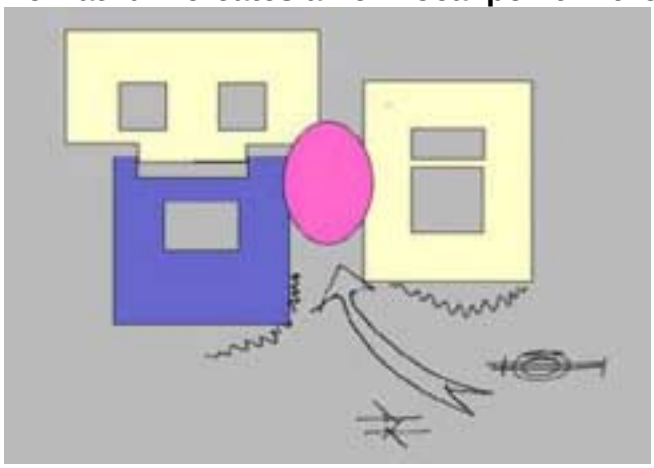
6.6.3 Level 1 contains the reprovided restaurant and undergraduate centre, together with retail units and the lower atrium space linking with block K and its vertical circulation. Materials handling space is provided at the west side with a direct link to delivery areas.

6.6.4 Level 2 is the "hot" floor. Circulation has been planned so that the majority of visitors bypass this area. The floor houses a 15 bed critical care unit, a 24 hour assessment ward of 15 beds linking across to A&E, the emergency imaging facility in block K, and an 18 bed acute/high dependency ward. The hospital street at this level is designed to operate largely as a service corridor for the movement of patients on trolleys and supplies. Main theatres are directly accessible at this level in block L. The single public area is the 24 hour entrance adjacent to A&E, which is also used for hospital transport drop-off, and accommodates the patient discharge area.

6.6.5 Level 3 constitutes the main ambulatory floor, the design of which will be deliberately non-clinical in appearance. The whole of the new building floor at this level is

allocated to the main diagnostics department with MRI, CT, nuclear medicine, general x-ray and ultrasound facilities and blood testing. A new double height atrium links diagnostics with outpatients in block K and the new ambulatory unit in block L (see Figure 6.4 below). There is direct access to vertical circulation in all three blocks. The atrium at this level will be the hub of the hospital and the new main hospital street will pass through it, connecting with the older blocks to the west.

Figure 6.5: The new atrium creates a new focal point in the hospital



6.6.6 Level 4 contains the upper part of the atrium leading to the shell area of the new building, further outpatients in block K and wards in block L..

6.6.7 Phase 2 is the conversion of level 3 of block L into the ambulatory unit with pre-assessment, four theatres, interventional imaging and four endoscopy rooms. This unit is accessed from the new public space and has dedicated discharge/pick-up for patients immediately outside. The space is available upon the move of catering and educational facilities onto the new level 1.

Figure 6.6: Block L at ground floor level (level 3) will be converted into an ambulatory day care unit with dedicated pick-up outside

6.6.8 This phase of works will be in progress following the transfer of block L to WFL. The construction risk of working within an occupied building will therefore lie with WFL. As

described in Section 13, a joint Trust-WFL body will monitor the project, with the aim of avoiding disruption to clinical services whilst providing Jarvis with the required access and shutdown time to keep the project on time and cost. The most significant area to be addressed relates to the existing main theatres which are directly under the new ambulatory unit in L block; principles have been agreed with Jarvis for phased out-of hours access to these facilities.

6.6.9 The scheme has also been carefully planned to ensure continuous operation of clinical services throughout, in particular the movement of patients and staff from A&E to the ward areas to the west. Joint planning has established the temporary routes and phasing that will be required to maintain circulation links at all times. It is not acceptable to the Trust to move patients around the site by road.

6.6.10 Summary of main benefits over the PSC:

- Four co-located theatres in ambulatory care rather than two;
- Larger and better organised diagnostics department with all key facilities co-located;
- Better main entrance concept, directly linking with the street;
- Ability to co-locate more beds on the "hot" floor due to larger footprint;
- Additional retail and café space

6.7 External features and interior design

6.7.1 The new building addresses the surrounding urban environment and overcomes the current unwelcoming aspect faced by visitors arriving from Archway. The three metre high wall is removed and the newly-created level 0 meets the street and invites visitors into a vibrant public space that logically leads to all areas of the hospital. Internally, the design is light and spacious, and as a whole the building adheres to the government's green agenda.

6.7.2 Although the "consumerism" policy does not apply to this scheme, the Trust has always sought to incorporate similar principles into the project. The key areas where the scheme could be said to promote these principles are:

- Separation of emergency and ambulatory/visitor flows by creation of the "hot floor" across the three acute blocks
- Designated ambulatory areas, which together with the circulation spaces, promote a non-clinical and calming atmosphere
- 27% average single room ratio
- the new entrance and atrium which deliberately attempts to move away from the traditional hospital entrance environment
- re-focusing the hospital entrance to be nearer transport links and lessen uphill walking distances.

The scheme contains relatively few beds and those that are provided are essentially specialist in nature, i.e. critical care, coronary care and assessment. The design incorporates the minimum bed space dimensions that were applicable at the time (2.7m bed centres), or better in the wards, and 20m² minimum in critical care, together with separate shower and WC facilities for bed bays. The ratio of en-suite single rooms (33% in assessment and 22% in coronary care) compares favourably with past hospital design, and is a significant step in the direction of the "consumerism" policy.

Planning assumptions for bed capacity in the fourth floor have since taken into account the new policy, and the assumed numbers are based on the new guidance.

6.8 Partnership and service provision

6.8.1 Jarvis Workspace FM will take responsibility for hard FM service provision to the new building and block L at the completion of the first phase. The Trust has agreed with WFL a shared vision for the provision of services across the site. From the user perspective, this provides a seamless service irrespective of who is maintaining a given part of the site. There will be a single helpdesk contact point run by the Trust and all service requests relating to WFL-maintained facilities will be passed on to them.

6.8.2 The contract is for hard FM services only and all other FM and non-clinical services will be retained by the Trust. Jarvis employees will be newly recruited and there will be no transfers or TUPE implications in this scheme.

6.9 Timetable from Full Business Case

6.9.1 The following table gives the key milestones for the project. A full programme is available as Appendix O.

Table 6.1: Project Milestones

Date	Milestone
June 26 2002	Financial close
July 2002	Construction commences
March 2004	New build construction completed
May 2004	Jarvis services and refurbishment phase commence
October 2004	Refurbishment phase completed
November 2004	All facilities operational

Section 7: Economic Appraisal (Value For Money analysis)

7.1 Methodology and Assumptions

7.1.1 The economic appraisal is designed to compare the relative costs of the scheme options by ranking them in terms of their net present value (NPV) cost appropriately adjusted for the risks inherent to each option. The NPV calculation adjusts future cash flows for the time value for money, by applying an appropriate discount factor. An indicative ratio of risk adjusted NPV per non-financial benefit point is also used to rank the options.

7.1.2 The detailed methodology, assumptions and findings are included in Appendix P, *'Value for Money Analysis'.* The report has been supplied by Ernst & Young and reviewed by the Trust. The detailed calculations are carried out in the standard Generic Economic Model (GEM) which is now a mandatory tool for all PFI schemes.

7.1.3 This section summarises the key aspects of the methodology and assumptions:

- The appraisal has been carried out in line with the *'Capital Investment Manual'*, *'PFI Guidance'* and *'Principles of the Generic Economic Model for Full Business Case Option Appraisal'.*

- The appraisal calculates the risk adjusted cost of the two proposals, PSC verses PFI, to the public sector over 32 years (principally construction period plus 30 year proposed contract term). The comparison is based on prices as at April 2001 using a real discount rate of 6% and modelling cash flow against a base assumption of 2.5% RPI per annum where relevant. A 62 year comparison has also been carried out in line with the guidance.

- Where the PFI solution varies significantly from the Outline Business Case preferred solution or PSC, the guidance stipulates that a Conventionally Financed Option (CFO), equivalent to implementing the PFI solution with public sector capital, needs to be developed and included in the economic appraisal. In this case, the substantial similarity of the PSC and PFI solutions means that a detailed CFO has not been modelled.

- *Do minimum option*
  The "do minimum" option serves as a baseline for gauging the extra costs and benefits of the PSC and PFI option. As mentioned in Section 3, this option entails carrying out the backlog maintenance programme that is essential over the next three years plus any work necessary for statutory compliance. This option was considered as part of the Outline Business Case. It was not viewed economically viable for a number of reasons including:
  a) Low non-financial benefit evaluation score notably on access to services, clinical quality and future flexibility;
  b) The scale of capital expenditure on backlog maintenance on existing buildings resulted in a higher NPC than other options being considered;
  c) The adverse impact on revenue running costs within existing buildings provided an affordability problem compared to other options;
  d) High risk retention due to the state of existing buildings being maintained.

  The above reasons also highlight why the do minimum option was not considered as part of the detailed GEM developed to support the FBC recommendation.

Furthermore, the do minimum option is no longer viable when concluding that the PFI option is better value for money than the PSC, which was the OBC preferred option.

- The inputs to the model are based on the Jarvis Financial Model for the PFI option and Cyrill Sweett (technical advisors to the Trust), for the PSC. The PSC has been supplemented with input from the Trust around anticipated hard FM costs under the PSC. Clinical and non-clinical running costs have been calculated by the Trust in line with the financial appraisal model (see Section 9).

- Under the PFI option, the Trust will pay a unitary charge of £3,173k at April 2001 prices per year subject to RPI escalations and acceptable performance under the contract terms with an interest rate assumption of 5.55%.

- The original PSC capital costs, included in the OBC, were based on MIPS 310FP (the Q1/Q2 1999 index). Since the project now anticipates an April 2002 construction start the PSC has been indexed to MIPS 369FP (Q2 2002 index).

- At the end of the PFI contract term the economic evaluation recognises that the Great Northern Building and new build return to the NHS lifecycle and hard FM costs from year 32 to 60 for these buildings are being included in the model.

- Equipment allowances have been incorporated under both PSC and PFI options. Equipment allowances in the model are in line with the do minimum option being developed as part of the equipment OBC on the basis that this is the minimum requirement to operate the new and refurbished facilities.

- The PSC and the PFI provide the same outputs in activity terms and are equivalent in assumptions around the treatment of enabling works as separate to the FBC capital costs.

7.1.4 The full economic evaluation tables are available in electronic format (file reference Whittington_GEM_080302.xls).

7.1.5 Summary Results Tables.

Table 7.1: Summary Results - 32 Year Appraisal

	NPV PFI £k	NPV PSC £k	% Difference
Total Before Risk Adjustment	1,151,459	1,147,295	0.36%
Risk Retained	5,121	10,427	-51%
Risk Adjusted Total	**1,156,580**	**1,157,722**	**-0.1%**
Non-Financial Benefit Score	**1,700**	**1,490**	**14%**
NPV cost per NFB point	**680**	**777**	**-12.5%**
Ranking	**1st**	**2nd**	
Risk Adjusted EAC (Equivalent annual Cost)	**81,290**	**81,386**	**-0.1%**

Table 7.2: Summary Results - 62 Year Appraisal

	NPV PFI £k	NPV PSC £k	% Difference
Total Before Risk Adjustment	1,311,666	1,307,721	0.3%
Risk Retained	5,917	11,277	-47%
Risk Adjusted Total	**1,317,637**	**1,318,998**	**-0.1%**
Non-Financial Benefit Score	**1,700**	**1,490**	**14%**
NPV cost per NFB point	**775**	**885**	**-12.4%**
Ranking	**1st**	**2nd**	
Risk Adjusted EAC (Equivalent annual Cost)	**81,546**	**81,640**	**-0.1%**

The numbers quoted in the tables above reconcile to the outputs of the GEM. There are small differences with the numbers quoted in the VFM report (Appendix P) due to slightly different treatment of residual value. However the impact is not material to the differential between the options.

7.2 Sensitivity Analysis

7.2.1 A sensitivity analysis was carried out to test the effects on the project options of NPV calculations of changing key financial variables i.e. capital costs, life cycle costs and hard FM costs. The GEM provides a standard approach to carrying out sensitivity testing and the figures below relate to percentage "switching values", i.e. the point at which a change in the relevant variable makes the options economically equivalent in terms of NPV value.

Table 7.3: Sensitivity Results

Sensitivity Factor	% Increase in PFI costs to make NPV of PFI = PSC	% Decrease in PSC costs to make NPV of PSC = PFI
Unitary Payment	3.5%	N/A
Initial Capital Costs	N/A	-5.5%
Life Cycle & Hard FM Costs	5.2%	-5.2%
Running Costs	0.1%	-0.1%
Public Sector Retained Risk	22%	-12.1%

7.3 Commentary

The risk adjusted NPV demonstrates that the PFI option provides better value for money than the Public Sector Comparator, with a higher non-financial benefit score and is therefore the preferred option in economic terms.

Section 8: Risk Analysis

8.1 Introduction

8.1.1 In order to fully evaluate investment options within the public sector, it is essential to identify and quantify the level of risk carried by the public and private sector under PSC and PFI alternatives in order to demonstrate value for money. The core principles underlying risk transfer in PFI projects are:

- risk should be allocated to whoever is best able to manage and control it; and
- the aim is to secure the optimum risk transfer to secure the best value for money.

8.1.2 The Treasury's publication *'Economic Appraisal in Central Government'* (the *"Green Book"*), sets out the recommended approach to risk transfer in privately financed investments:

"Private finance may relieve users or the public sector of risks which, if the project were conventionally financed, would be expected to increase costs or reduce performance. For example with a major construction project the private promoter may be prepared to accept design risk, or ground conditions risk. If so, the expected costs of these risks should be added to the tendered costs of the conventionally financed options but not to that of the privately financed options. "

8.1.3 This approach has been incorporated in the economic appraisal of the preferred PFI solution against the PSC. In order to ensure the validity of comparison, a robust risk analysis has been undertaken within the Trust.

8.2. The Risk Analysis Process

8.2.1 A risk is an event that may or may not occur, and which may have a positive or negative financial impact. In order to quantify this impact, the following conditions need to hold:

- The risk relates to a specific event or set of events within a defined time frame;
- An estimation of the probability of the event occurring can be made;
- The financial consequence of the risk materialising should be capable of measurement.

8.2.2 Non-quantifiable project outcomes which are not capable of estimation as described above, are assessed through strategic and sensitivity analysis within the FBC. There are currently no significant non-quantifiable outcomes identified by this business case. Any such risks would be retained by the Trust, and managed through agreed risk management procedures.

8.3 Approach

8.3.1 The Trust has undertaken a risk appraisal to establish the NPV of the project's cost to the public sector, taking account of the risk retained by the public sector and the risk transferred to the private sector under PFI. This has been done through a comprehensive analysis of the risks at each stage of the process.

8.3.2 The NPVs of retained and transferred risk were calculated using the expected value principle, discounted over the relevant time period at 6% in accordance with CIM and PFI guidance.

8.3.3 The risk adjusted cost of the PSC and PFI options were calculated by adding the expected value of risk to the base NPV. This calculation was performed for both 32 year and 62 projections.

8.3.4 To ensure a balanced evaluation of the various risks, a workshop was held, facilitated by the Trust's financial adviser Ernst & Young, and attended by the following individuals:

- Director of Finance & Strategic Development
- Director of Facilities
- Redevelopment Project Manager
- Strategic Development Manager
- Deputy Director of Finance
- the Trust's technical adviser
- the Trust's legal adviser.

8.3.5 Each risk event was discussed in turn and where it was considered to be quantifiable, the likely impact and probability of each event was assessed.

8.4 Risk Register

8.4.1 The risk register attached as Appendix H sets out all risks identified during the risk analysis. The following information is recorded for each risk.

- Risk identification number, category and whether it is identified in PFU guidance or project specific;
- A description of the risk;
- The allocation of the risk between the Trust and the Project Co and the cross-reference(s) to the Project Agreement;
- Period of exposure to risk;
- Cost driver;
- Potential financial impact -best, medium, worst case;
- Probability of occurrence -best, medium, worst case;
- Expected value of risk computed from the product of the impact and probability;
- NPV of risk for PSC and PFI options using a discount rate of 6%;
- Evidence of assumptions used by the "risk owner";
- Action for the mitigation of risk, both current and planned.

8.5 Implications of Analysis

8.5.1 The application of this process indicated that a significant proportion (just over 50%) of the risk faced by the public sector under conventional procurement is transferred to the private sector partner under PFI. As indicated in the previous chapter, the effect of this transfer on the risk-adjusted NPVs of the PSC and PFI options is to change the differential from 0.3% in favour of the PSC to 0.1% in favour of the PFI.

8.5.2 Material components of risk transferred to the private sector under the PFI option have been assessed in Table 8.1 as follows:

Table 8.1: Material risks transferred to the private sector

Nature of risk	NPV transferred £'000
Failure to design to brief	217
Unforeseen ground/site conditions under the footprint of existing facilities	260
Responsibility for maintaining site safety during construction	337
Construction delay events	704
Legislative/regulatory change (non-NHS specific) affecting construction costs	247
Poor project management	319
Performance (Facilities Management)	893
Legislative/regulatory change (non-NHS specific) affecting operating costs	730
Other	1,714
Total Risk Transfer	5,421

8.5.3 The actual differential between the NPVs of the PSC and PFI could be higher or lower depending on the extent to which public sector risks are realised and managed by the Trust. The Trust's plans to mitigate and manage any retained risks are described more fully in Section 18: Risk Management Strategy.

Section 9: Financial Appraisal (affordability analysis)

9.1 Methodology

9.1.1 The approach taken to measure affordability has been to compare the total operating expenditure (including capital charges) charged out by the Trust in 2001-2002, with the projected level of costs in 2006-2007.

9.1.2 The Trust has modelled the revenue impact of the preferred PFI solution based on the assumptions summarised below. The detailed affordability model is available as Appendix Q "Full Business Case Financial Appraisal – Working Papers". This model indicates affordability over the life of the project although the figures used in this chapter use 2006-2007 to indicate the specific impacts in this year.

9.2 Assumptions

9.2.1 Baseline recurrent financial position.

9.2.1.1 The Trust remains committed to achieving a break even out turn for 2001-2002. This position is dependent on the delivery of a 4% (£2.7m) 2001-2002 CRES (Cash Releasing Efficiency Savings) target of which 2% (£1.3m) has been recognised as only achievable non-recurrently. There remain significant risks around the recurrent achievement of the remaining £1.4m and it is anticipated that only £0.7m of these savings are recurrently sustainable. Furthermore, the in year break even commitment has been assisted by non-recurrent income benefits of £0.75m and non-recurrent capital to revenue transfers of £0.55m.

Table 9.1: Underlying deficit movement summary

	£m
01/02 opening underlying shortfall	4.2
01/02 recurrent savings target	(1.4)
01/02 non recurrent savings target	(1.3)
01/02 additional income target	(1.5)
01/02 out turn	**0.0**
Add Back	
01/02 actual non recurrent CRES	1.25
01/02 non recurrent income and balance sheet impacts	0.75
01/02 actual non recurrent income	0.75
01/02 actual non recurrent capital - revenue transfers	0.55
01/02 out turn underlying position	**3.3**

9.2.1.2 The major single component of the underlying deficit is the shortfall on junior doctors new deal compliance initiatives, compared to funding and banding savings available. This has had an adverse impact of £0.8m on the underlying position. Other components have been discussed in detail with host Health Authorities and the Regional Office in addressing the 01/02 in year position and there remains a risk of a deficit of £0.5m against the break even target. The extent to which non-recurrent initiatives can be continued into 2002/3 would benefit the underlying position.

9.2.1.3 2002-2003: Recovering the underlying deficit.

The position of the Trust remains that comprehensive recurrent savings to fully address the underlying deficit are not achievable in 2002-2003. The key risk impacting on the delivery of recurrent savings are the requirement to continue to deliver NHS Plan activity performance targets. Any savings plans implemented for 2002-2003 will need to address the underlying position rather than enable additional investment in achieving additional NHS Plan targets. As a planning assumption the Trust is currently assuming a 2% efficiency target, but the significant risk around delivering this *recurrently* should be noted.

9.2.1.4 The Trust develops CRES plans and monitors delivery on an ongoing basis. For 2002-2003, examples of particular areas being explored for efficiencies are:

- Bank and agency spend (LAP/NHS Professionals);
- Procurement savings through utilising electronic requisitioning and ordering to improve management information and control.

9.2.1.5 A 2% efficiency target does not enable the underlying deficit to be addressed, so the Trust will therefore continue to look for support from commissioners to achieve non-recurrent in year break even in 2002-2003. This position is in on-going discussion with local commissioners via the Service and Financial Framework (SaFF) process.

9.2.1.6 Assumptions for 2002-2003.

In addition to the underlying deficit the Trust is in discussion around further funding shortfalls in 2002/3 for junior doctor new deal compliance and changes to the approach for clinical negligence premium increases (CNST). Both of these items are currently under review to minimise the adverse impact on the underlying financial position.

9.2.1.7 The Trust has modelled activity assumptions required to deliver NHS Plan targets in 2002-2003 and is in discussion with commissioners around the financial implications of meeting these targets. Again, in targeting financial balance for 2002-2003, it is assumed that additional financial impacts of delivering NHS Plan targets will be funded through the SaFF process.

9.2.1.8 Baseline Assumption in Full Business Case.

As with the OBC it is assumed that the underlying financial balance of the Trust will be established as part of the annual SaFF planning round. The Trust achieved break-even in 2000-2001 and is committed to achieving the same position in 2001-2002, although a risk of £0.5m remains. Efficiencies identified as part of the full business case proposals are designed to demonstrate the affordability of the redevelopment proposals, and not used to address short term underlying shortfalls in current funding against current expenditure. The risks around this position are explored as part of the sensitivity analysis on affordability.

9.2.1.9 Assumptions for interim period 2003-2004 to 2004-2005.

The key areas requiring assessment are as follows:

- Imaging relocation - notably the impact of potential MRI down time. The current financial model includes estimates of costs based on three months down time (£200k). An exact assessment cannot be made until timing of MRI replacement and move is finalised. Non recurrent funding support for this issue will be required;
- Medical school relocation - currently not assumed as a material issue financially;
- Staff restaurant relocation - the Trust is currently carrying out a separate financial appraisal on a range of options post redevelopment. The assumption for the interim period is that there will not be a material net increase in the cost base as a result of the staff restaurant being relocated.

9.2.2 Income Changes from 2001-2002 Baseline – Market Forces.

9.2.2.1 The model contains PCT level assumptions which have have been made with distance from target information used to inform assumptions around the balance between Health Authority/PCT efficiency requirements and activity changes. However, current indications are that it is reasonable to assume current income levels for delivering current activity levels. Efficiency gains will therefore be required to address the underlying financial position and unfunded cost pressures rather than additional activity at current funding levels.

9.2.2.2. Table 9.2 summarizes the impact at Health Authority level as well as changes in major levy funding. The revenue model phases these evenly over the period 2001-2002 – 2004-2005 for both PFI and PSC options.

Table 9.2: Impact of income changes 2001/02

Income Source	Baseline FYE Recurrent Income 01/02 £k	% of Total patient flows income	% 3 year Real Change
Islington PCT	39,224	53%	0%
Haringey PCT	21,564	28%	0%
Camden PCT	2,417	3%	0%
Enfield PCT	777	1%	0%
Barnet PCT	3,393	4%	0%
East London & City PCTs	3,376	4%	0%
Other H.A's	1,357	2%	0%
Other	2,828	4%	0%
OATs	979	1%	0%
Total Patient Flows	**75,919**	**100%**	0%
SIFT	5,966		
MADEL	2,605		
Community SLAs	972		
R&D	810		
NMET	375		
Income Generation	2,190		4%
Other	2,489		
Total Income	**91,331**		

9.2.3 Income Changes – Functional Content.

9.2.3.1 The core affordability assessment does not assume any income increases above current levels for functional content, with the exception of changes in clinical caseload levels that have been agreed between UCLH and The Whittington – specifically ensuring consistency of workload assumptions between the UCLH FBC and this FBC.

9.2.3.2 Cost modeling has been set up to allow the impact of increasing capacity above current levels to be assessed. However, these are considered separate to the core affordability assessment. If additional resources were made available (for example to deliver NHS Plan performance targets), capacity would be available to increase activity throughput.

9.2.4 Operating expenditure modelling

9.2.4.1 The Trust has developed a cost and activity model incorporating over 80 activity, time and space based cost drivers. The model covers Trust wide activity, but clearly the major changes from the current cost base focus on the impact of the reshaping of acute services covered by this business case. A "top down" and "bottom up" model has been developed to allow the impact on unit costs to be flagged up to commissioners.

9.2.4.2 The major impact of the preferred option on the operating expenditure baseline can be summarised as follows:

- The requirement to fund the unitary payment (£3.2m);
- The reduction in capital charges through the removal of facilities currently on the new build site from the Trust's fixed assets (£0.5m);
- Reduction in clinical operating costs to provide current capacity/outputs adjusted for UCLH transfers;
- Changes in non-clinical operating and maintenance costs (the model includes a capital to revenue transfer of £0.5m to reflect life cycle costs which under the PSC would be incurred against the Trust's capital programme, but which under the PFI are being paid within the unitary payment).

9.2.4.3 There is the potential to increase capacity and activity as a result of the preferred option. However, the core affordability model identifies the potential efficiency savings available for an activity and bed model (attached as Appendices E and R respectively) which is based on current levels adjusted for assumed inpatient and day case transfers between the Trust and UCLH. The key adjustments to current operating costs which drive the efficiency savings and transfers of costs within the Trust under the preferred option are listed below:

- Beds – conversion of 1 surgical inpatient ward to short stay (5 day);
- Transfer of current beds located in Montuschi ward and current Medical Assessment Unit (to maintain overall bed complement at current levels);
- Theatres – increased day case rates and theatre utilisation levels (and hence reduced sessions);
- Other clinical costs – reduction in work done by other hospitals, notably specialist imaging activity brought in-house;
- Support Costs – facilities savings through reduced floor area (maintained by the Trust)
- Utilities – Energy savings;
- Reception staff ;
- Income generation – retail income and other space rental income.

9.2.4.4 OBC Addendum – Renal Dialysis

The revenue model contains the impact on capital charges of creating a shell to accommodate renal dialysis in the Waterlow unit. In line with the approach taken in the OBC addendum, it is assumed the increases in operating expenditure to accommodate renal dialysis activity will be funded. The agreement to actual renal

dialysis capacity and funding is seen as a separate process to this business case but is described here for the purposes of clarity. Capital charges associated with creating a shell are included as these would be incurred anyway. The detailed base financial model excludes any other additional income and expenditure associated with this activity as the developments proposed in this business case are not dependent on this change. The current assumption, consistent with the local health economy strategy on renal services, is that the Whittington will accommodate 25 renal dialysis stations in 2004. The projected costs of this to the Whittington were agreed at £2.652m @ 1999/2000 prices in the OBC. The position of the Health Authority is that as long as this service is provided at a cost reasonably comparable with other sites then funding support would be provided. In terms of funding pressures, the main issues arising are the additional capacity that these stations provide above current levels, and the level of releasable variable costs from UCLH. The total impact of these two issues was flagged up as an additional pressure to the Health Economy of £734k @1999/2000 prices in the OBC.

9.2.4.5 Modelling the implications of expanding capacity

In addition to the core affordability model, the Trust has quantified the additional revenue cost impact of expanding capacity. The key areas, which have been quantified within the financial model, are listed below. Please note that these tables are intended as an indication of scale in each of the areas being modelled - the impact on income by Health Authority and unit costs is presented in the detailed financial model. The costs relate to the direct running costs (pay and non-pay) of each area, the facilities costs, and capital charges on additional equipment required. Where there is an increase in activity, then increases in indirect activity based costs (diagnostics, therapies, clinical support, etc.) are also included.

9.2.4.6 Capacity for an additional 8 beds on the critical care unit.

The base financial model does not open these beds and only assumes equipment in line with that supplied by the PFI partner and available within the Group 3 equipment allowance provided by the Trust (see 9.2.5.4).

The following options have been modelled:

Table 9.3: Options for increased capacity

	Indicative Capacity Increase*	Revenue Costs additional to base financial model*
a) Redistributing within current bed capacity i.e. opening as normal acute medical beds but closing equivalent beds	0	£0.2m
b) As option (a) but staffing and equipping as HD beds.	0	£0.5m
c) Opening as additional HD beds	500 FCEs 2,500 Bed days	£1.4m

* Current commissioner split 56% C&I, 33% BEH, 11% Other

9.2.4.7 Capacity for utilising 4th floor of new build.

The base financial model only allows for the costs of creating a 4th floor "shell". Various options are being considered for this space but modelling at this stage has focused on the options listed below. Capital costs of fitting out the area to be run as 50 bed wards would be in the range £3.5m - £3.8m.

Table 9.4: 4th floor capacity options

	Indicative Capacity Increase*	Revenue Costs additional to base financial model*
EITHER a) Fit out and open 50 beds but maintain overall current bed capacity i.e. running as normal acute medical beds but closing equivalent beds	0	£0.6m
OR b) Opening as additional beds but for current activity to reduce occupancy levels to 82%.	50 Beds 15,500 bed days	£1.8m

* Current commissioner split 56% C&I, 33% BEH, 11% Other

9.2.4.8 Ambulatory Theatres, treatment rooms, endoscopy suites and interventional radiology rooms.

The base financial model only allows for the creation of ambulatory and diagnostic capacity with basic fixed equipment but not actually fitting out and running extra sessions to provide additional activity. The following table illustrates the potential activity and costs associated with these areas.

Table 9.5: Revenue implications of increased activity

	Indicative Capacity Increase*	Revenue Costs additional to base financial model*
2 additional ambulatory theatres and additional treatment rooms	11,000 FCEs	£1.9m
2 additional endoscopy suites	6,300 FCEs / OP Atts	£0.3m
Interventional radiology room	1,400 FCEs	£0.25m

* Current commissioner split 56% C&I, 33% BEH, 11% Other

9.2.4.9 Re-opening current capacity.

The base financial model transfers current capacity into the new facilities to maintain current levels of bed capacity and activity. Re opening this capacity would provide an additional 39 beds (approximately 12,000 bed-days/4,550 FCEs) and would add £1.9m to the base financial model.

9.2.5 Capital Charges and Fixed Assets

9.2.5.1 In calculating capital charges across the PFI and PSC options, the following assumptions have been made:

- The new build will be on-balance sheet under the PSC and off balance sheet under the PFI;

- The refurbished Great Northern Building (L block) will be on-balance sheet under the PSC and off balance sheet under the PFI.

Please refer to Section 12: Accounting Treatment, and Appendix T for a more detailed discussion on the balance sheet position.

9.2.5.2 Block A has already been written off. Furthermore, capital charge savings arise from the removal of blocks B and M, and plant/engineering in blocks T and U. The one-off impairment impact resulting from these write-offs will be funded, and therefore have no net I&E impact for the Trust, as confirmed by the host Health Authority. The impairment (net of revaluation reserve adjustments) will be around £1.5m.

9.2.5.3 Although additional equipment is being considered as part of a separate business case, capital charges equivalent to the minimum level of equipment required to operate the redeveloped facilities have been added to the base financial model affordability assessment. This is equivalent to the "do minimum" option being developed in the equipment outline business case. This position is maintained consistently in the PFI and PSC options economic appraisal.

9.2.5.4 An additional allowance for general Group 3 equipment not supplied under the PFI contract has also been included. By default, funding for this is assumed to be via block capital allocations, although the Trust is also keen to explore short term support to relieve pressure on the block capital programme. Again, this is included as a minimum requirement to operate the redeveloped facilities, and not the impact of opening additional capacity.

9.3 Summary Results

9.3.1 Forecast Revenue.

9.3.1.1 The affordability assessment is based on 2006-2007 (2 years post redevelopment), as this represents the point at which the full impact of the capital investment will have been felt. If income and expenditure affordability can be established for 2006-2007 it is deemed to represent the potential for a continued break even position.

Table 9.6: Core Affordability Summary

2 Years Post-Development	£k
Income	**(92,194)**
Capital Charges	**6,705**
Sub Total - Contribution	**(85,489)**
Operating Expenses	**85,489**
Surplus (Deficit)	**0**

Table 9.7: Statements of Variance from 2001/2 Baseline

Income	£k
Baseline 01/02	(91,275)
Market Forces Reduction	0
Income Generation	(100)
Activity Increase (UCLH Transfer)	(359)
Capital to Revenue Transfer	(460)
2006/7 Out turn	(92,194)

Gross Expenditure	£k
Baseline 01/02	84,061
Operational Savings	(1,641)
FM / Energy Savings	(258)
Activity Increase	154
Unitary Payment	3,173
2006/7 Out turn	85,489

Capital Charges	£k
Baseline 01/02	7,214
Cap Chgs impact of redevelopment	(509)
2006/7 Out turn	6,705

9.3.1.2 The detailed tables underlying the revenue model are included in the separate document "Full Business Case Financial Appraisal – Working Papers", attached as Appendix Q. These include full expenditure forecasts, income analysis by PCT / Health Authority, unit costs and balance sheet, and EFL analysis for the preferred PFI solution. Sensitivity analysis on key variables is also included.

9.4 Commentary

9.4.1 Within the core affordability model the Trust delivers current activity outputs (adjusted for UCLH transfers) at current income levels, but benefits from more efficient functional relationships and other factors to allow the revenue impacts of the capital development to be financed. The Trust has taken a prudent view on future income, and has incorporated the full costs of capital and risk with relatively unchallenging savings and efficiency targets for the acute core hospital redevelopment. Within this, the preferred PFI solution demonstrates both affordability and the ability of the Trust to meet its medium and long term financial performance objectives.

9.4.2 In addition, the Trust has quantified the additional revenue cost impact of expanding capacity which would provide both extra beds (including critical care) and capacity for additional ambulatory activity. The Trust will be liasing closely with commissioners on utilising available funding streams to fund this additional activity/capacity to enable the delivery of additional performance targets.

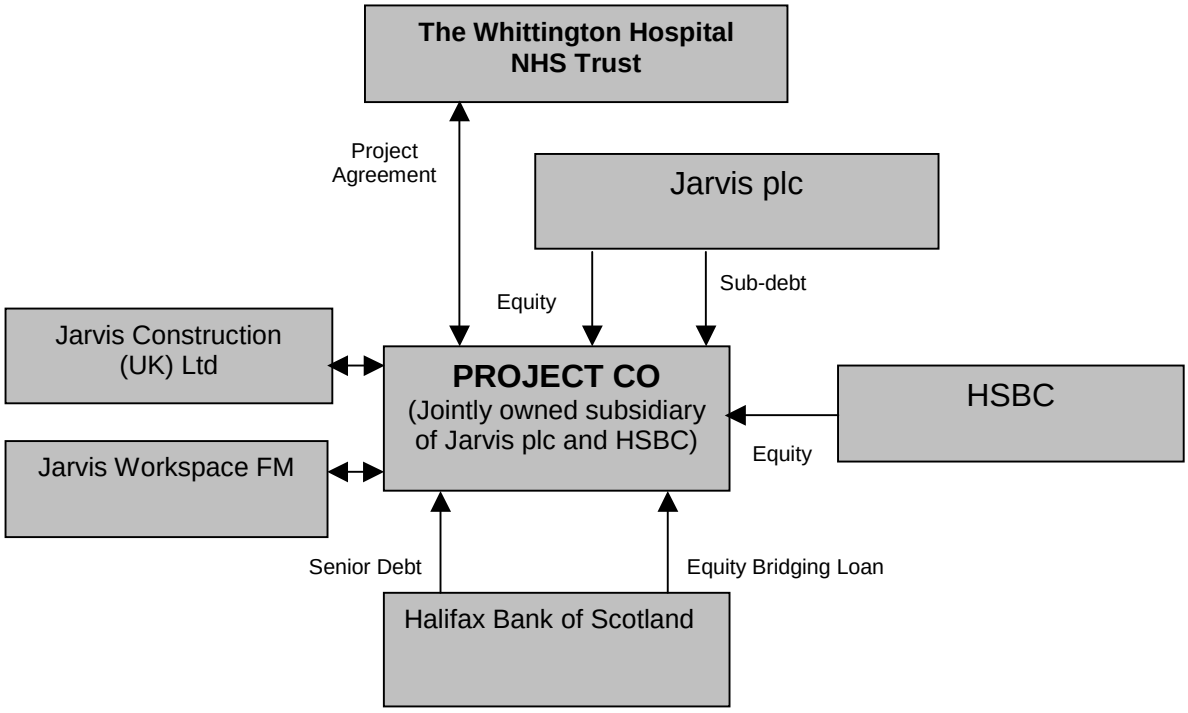
Section 10: Summary of the Contract Structure

10.1 Contractual Framework

10.1.1 The Project Agreement will be entered into by the Trust and a Special Purpose Vehicle (the Project Co) established and owned equally by Jarvis plc and HSBC. The project involves the design and construction of a new building (the initial works) and the refurbishment of an existing building (the remainder works), both to be maintained by the Project Co (known as "Whittington Facilities Ltd") for a period of 30 years from completion of the initial works.

10.1.2 The figure below sets out the relationships between the various parties involved in the Project Agreement.

Figure 10.1: Trust/Project Co contractual relationships



10.1.3 Jarvis plc will carry out the majority of the Project Co requirements through the following subsidiaries:

- Jarvis Projects Ltd – Provision of project management services including main client contact;
- Jarvis Construction (UK) Ltd – Provision of design and construction works;
- Jarvis Workspace FM Ltd – Responsibility for all facilities management services;
- Jarvis Secretarial Ltd – Provision of secretarial and administrative services.

10.1.4 Jarvis plc will also guarantee the performance of Jarvis Construction (UK) Ltd and Jarvis Workspace FM Ltd for WFL.

10.2 Project Agreement Terms

10.2.1 The Project Agreement is based on the terms of the Standard Form Project Agreement released by the NHS Executive in November 1999. Variations on the standard form have been reviewed and agreed by the Private Finance Unit as project specific. The appointment of Jarvis as the preferred bidder was conditional on their acceptance of the Project Agreement as at 9th November 2001, with all outstanding issues identified in the preferred bidder letter of that date, attached as Appendix J.

10.2.2 The current state of the Project Agreement is set out in Appendix S: Key Commercial Issues for the Full Business Case, and covers the key areas where amendments to the standard form have been necessary.

Section 11: Financing of the Scheme

11.1 Introduction

11.1.1 This section describes the financing structure and terms included under the PFI solution. The funding arrangements, structure, source of funds and repayment requirements all influence the value of the final unitary charge, and therefore need to be reviewed and tested to ensure they are both reasonable and in line with the provisions in other similar projects.

11.2 Financing Structure

11.2.1 The SPV financing arrangement is a traditional PFI structure, with gearing of 90% senior bank debt and 10% equity (excluding cash flow contributions). Cash flow contributions are also used to fund the development and construction costs (2.85% of total funding requirement).

11.2.2 Senior Debt

11.2.2.1 HBOS will provide 100% of the senior debt requirement (£29,880,448 at April 2001 prices) for this project, in addition to providing an equity bridge facility (£2,960,926 at April 2001 prices) to fund the sub-debt requirements during the construction period. HBOS is not a shareholder, and therefore is not directly a party to the Project Agreement.

11.2.2.2 The senior debt is drawn down over the construction period and there is no capital repayment holiday. The bank relies on cash flow from Project Co to service the debt.

11.2.3 Equity

11.2.3.1 Equity finance is to be provided in the form of ordinary share capital (10% of total funding requirement) and sub-ordinated debt (90% of total funding requirement). Jarvis plc will provide 50% of the ordinary share capital and 50% of the sub-ordinated debt. HSBC will provide the remaining 50% of share capital and sub-ordinated debt. Jarvis has underwritten the sub-debt financing terms.

11.2.3.2 The sub-ordinated debt is financed through an equity bridge facility, provided by HBOS during the construction phase.

11.2.3.3 The repayment and servicing requirements of the sub-ordinated debt ensures debt will only be serviced if the senior debt is current, and specific standard covenants (such as debt service cover ratios), are met. The sub-ordinated debt is quasi-equity, in that payment is based on residual cash flow after operations and after senior debt payments.

11.2.3.4 During the operational phase of the concession the financing becomes stable and Project Co regularly services debt, maintains reserves and issues dividends as appropriate.

11.3 Financing Terms

11.3.1 The financing terms as negotiated by Jarvis are summarised below in Table 11.1.

Table 11.1: Financing terms

	Senior Debt	Sub-ordinated Debt	Equity
Provider	Halifax plc	Jarvis plc (50%) Charterhouse (50%)	Jarvis plc (50%) Charterhouse (50%)
Facility Limits	£31,000,000	£2,960,926*	£331,700*
Interest Rate	LIBOR plus credit spread plus margin plus MLA.	12.50% after financial close until Year 9 rising to 14%	N/a
Arrangement Fee	1.00%	1.00%	N/a
Commitment Fee	0.50% (0.25% equity bridge)	Letter of Credit at 0.30%	N/a
Term (years)	28 years	29 years (incl. equity bridge)	30 years
First Interest/Dividend Payment (Year)	1 (operational)	1 (operational)	9 (operational)

Note: * Extracted from Jarvis' Financial Model

11.3.2 The long term LIBOR swap rate (5.55%) and RPI inflation rate (2.5%) included within Jarvis' model were provided to bidders by the Trust's financial advisers during the FITN tender period. This was to ensure the underlying interest rate (which is a Trust risk to financial close), was directly comparable across all FITN bids to assist in evaluation.

11.3.3 At financial close the Project Co will enter into both an interest rate swap agreement and a RPI swap agreement. The LIBOR swap should ensure the LIBOR interest rate is fixed on the senior debt for the full term of the debt, whilst the RPI swap should ensure the Unitary Charge inflation is fixed for the full term of the concession.

11.4 Financial Model

11.4.1 A financial model has been developed for this project and will be audited prior to financial close. The model incorporates the following assumptions:

Table 11.2: Financial model assumptions

	Construction	Operations
Senior Debt Interest Rate:		
- LIBOR*	[5.55%]	[5.55%]
- Credit Spread	0.10%	0.10%
- MLA	0.04%	0.04%
- Margin	1.05%	0.85% (to Yr 12) 0.95% (to Yr 20) 1.00% (remainder)
- Total	6.74%	6.54% - 6.69%
Deposit Rate	5.00%	5.00%
RPI (All Items)*	[2.50%]	[2.50%]
Blended Equity Internal Rate of Return (IRR):		
- Nominal	13.95%	13.95%
- Real	11.14%	11.14%
Project Rate of Return:		
- Nominal (post tax)	7.90%	7.90%
- Real (post tax)	5.28%	5.28%

Note: * subject to change

11.4.2 The following points should be noted:

- Corporation tax and VAT have been modelled, although Jarvis state that VAT is fully recoverable;

- The building has been depreciated over the concession term in line with the contract provisions, and there is no residual value in the model;
- Ernst & Young has advised the Trust on project finance in relation to this project and found that the banking terms and financing structure within this Project Co are within market norms for a NHS PFI project. In addition, Ernst & Young has had access to the financial model and have found that the unitary charge is reasonable in relation to the inputs.

11.5 Project Benchmarking

11.5.1 Cash held in the Financial Model

11.5.1.1 Ernst & Young reviewed the levels of cash in the model over the concession period and concluded that the balances are satisfactory. A six month debt service reserve and a fixed (in real terms) annual allowance for the sinking fund are considered relatively standard on similar projects.

11.5.1.2 Other cash is minimised through distributions through loan stock earlier in the project life than pure equity.

11.5.2 Financing Terms

11.5.2.1 Ernst & Young, in consultation with the NHS PFU, produced a series of financing term benchmarks which were provided to the FITN bidders. The Jarvis financing terms are considered close to these benchmarks, and reasonable in the current PFI financing market.

11.6 Unitary Charge

11.6.1 The unitary charge will be fixed at financial close, following agreement of the hedging arrangements (interest rate and inflation), until commencement of operations at which time the escalator is applied. Due to the nature of the project there is both an interim and full unitary charge. The interim unitary charge is to be paid by the Trust following completion of Phase 1 (the Initial Works) and comprises:

- Hard FM services and lifecycle costs for Initial Works; and
- Interest repayments on senior debt outstanding on completion of the Initial Works.

11.6.2 This payment will be increased by the hard FM service costs associated with Phase 2 (the Remainder Works) on completion of Phase 2. The full unitary charge will then commence six weeks following handover of the Remainder Works.

11.6.3 The Unitary Payment comprises two elements: Availability Charge and Service Charge. These payments will increase, in full, annually in line with the Retail Price Index (All Items).

11.6.4 The full Unitary Charge payment (at April 2001 prices) agreed on appointment of Jarvis as the preferred bidder was as follows:

Table 11.3: Unitary charge schedule

	Payment (£'000)
Availability Charge	2,795
Service Charge	378
Total Unitary Charge (excl. buffer)*	***3,173***

* A buffer has been included in the affordability analysis (Appendix Q) to reflect the Trust's risk of changes in interest rates and other variations prior to financial close.

Section 12: Accounting Treatment of the Scheme

12.1 Introduction

12.1.1 A fundamental principle of PFI is that risk is held by or transferred to the party best able to manage it. HM Treasury has adopted the Financial Reporting Standard “FRS 5 - Accounting for the Substance of Transactions" as its measure of the extent to which risks have been appropriately transferred to the private sector partner under a PFI scheme. FRS 5 considers where the risks and rewards of ownership lie, and requires that any asset or liability (in this case the obligations under the PFI contract) be accounted for on the balance sheet of the party bearing those risks and rewards.

12.1.2 In order for the scheme to be approved, the Trust must demonstrate that it has transferred a significant proportion of the risks and rewards of ownership to the private sector. This is considered to be the case if under FRS 5 the scheme would be treated as off-balance sheet for the Trust. It is therefore necessary for the Trust to evaluate the terms of the Project Agreement in relation to FRS 5, to establish that the necessary risk transfer has been achieved.

12.1.3 In 1998 the Accounting Standards Board (ASB) issued an "Amendment to FRS 5 Reporting the Substance of Transactions – The Private Finance Initiative". The purpose of that amendment was to clarify the technical application of FRS 5 to the determination of the accounting treatment of PFI transactions in the Public Sector's accounts. In response to the ASB guidance, HM Treasury issued its own interim guidance. Following a period of evaluation and consultation, there followed revised guidance "PFI Technical Note No.1 (Revised) - How to account for PFI Transactions" in July 1999, which is currently in force.

12.2 Impairment and land sales

12.2.1 The buildings which have been demolished in order to provide the site for the new build element of the PFI scheme had already been written off the Trust’s fixed asset account, with the consequent loss charged to the income and expenditure account under “FRS 11 – Impairment of Fixed Assets and Goodwill”. There is therefore no further impact of any book loss resulting from the project.

12.2.2 There are no land sales associated with this PFI project and therefore no capital receipts to the Trust, nor any gains or losses from such a sale.

12.3 The recognition of deferred assets

12.3.1 Deferred assets will be created in the Trust's accounts to reflect the nominal head lease to the consortium for the land on which the development will take place and the transfer of the Great Northern Building to Project Co. The Capital Accounting Manual stipulates that the perceived reduction in the unitary payment should be rolled up over the lifetime of the scheme (30 years) and valued at Net Present Value. The asset will then be charged as an operating cost over the lifetime of the scheme.

12.4 Proposed Accounting Treatment

12.4.1 The Trust's Director of Finance has assessed the proposed accounting treatment of the scheme in respect of the Trust's balance sheet and has sought the views of the Trust's financial advisors, Ernst & Young and its external auditors, District Audit. The

Director of Finance is confident, on the basis of precedence that off-balance sheet accounting treatment within the PFI scheme is appropriate, but for the avoidance of doubt has commissioned a detailed evaluation by Ernst & Young on the basis of the Treasury technical guidance. Their report supports the off-balance sheet treatment, and recommends that this should be confirmed prior to financial close, to take account of the final amendments to the project agreement and financial models.

12.4.2 Similarly, the Trust's external auditors, District Audit have given their opinion on the proposed accounting treatment. In the light of these confirmations, which appear in Appendix T, it is submitted that the scheme is off-balance sheet and that all other accounting treatment is appropriate.

Section 13: Project Management Arrangements

13.1 The process of procuring the PFI project thus far has been managed by the Trust in accordance with current guidance on the Private Finance Initiative.

13.2 The Redevelopment Project Board has been responsible for overseeing the management of the project, making recommendations at each stage to the Trust Board.

13.3 The composition of the Redevelopment Project Board is:

- Chairman of the Trust
- Vice Chairman of the Trust (Chair of Project Board)
- Chief Executive
- Director of Finance & Strategic Development (Project Director)
- Director of Nursing & Clinical Development
- Trust Medical Director
- Medical Directors of Operations Directorates (2)
- Operations Directors (2)
- Vice Dean RF & UC Medical School
- Chair and Vice Chair of Medical Committee
- Director of Facilities
- Director of IM&T
- Director of Human Resources & Corporate Affairs
- Director of Audit, Effectiveness & Risk
- Director of Research & Development
- Regional Office, Capital Investment Unit
- Health Authority/PCT representatives

Legal, financial and technical advisors and PFU representatives are in attendance, along with project team members.

Once the Full Business Case has been approved, the Redevelopment Project Board will have fulfilled its remit set out in the Project Initiation Document, and accountability for the continued management of the project will thereafter be direct to the Chief Executive and the Trust Board.

13.4 The Redevelopment Project Team will continue to manage the project on a day-to-day basis and will work closely with the clinical user groups to ensure that the project objectives are achieved. At the appropriate time during construction a joint Jarvis/Trust commissioning team will also be established to bring the buildings into use.

13.5 The Redevelopment Project Team meets weekly and is chaired by the Project Director. The core composition of this group is:

- Project Director (Chair)
- Project Manager
- Strategic Development Manager
- Asst Director of IM&T
- Asst Director of HR
- Director of Facilities
- Deputy Director of Finance
- Project Office Manager

13.6 The Trust will continue to use the services of its technical advisors, Cyril Sweett, both throughout the period up to financial close, and during construction. Cyril Sweett sub-contracts Oscar Faber (engineering and structural) and Sheppard Robson (architectural) as appropriate.

13.7 The sign-off process for the design will be managed by the project team. A clear process and audit trail has been established to achieve this. The following matrix demonstrates the methodology:

Project function/service: (eg diagnostics)

	RPT		Dept		Service Dir		Facilities		Infect. Con.		Patient rep		Tech Adv		Proj Dir		Trust Office	
	Consult	Appr.	Consult	Appr.	Consult	Appr.	Consult	Appr.	Consult	Appr.	Consult	Appr.	Consult	Appr.	Consult	Appr.	Consult	Appr.
Op Policy	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔					✔	✔		
1:200s	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		✔	✔	✔	✔	✔	✔
Room Data	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔			✔	✔	✔	✔		
1:50s	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		✔	✔	✔	✔		
Engineering	✔	✔					✔	✔	✔				✔	✔	✔	✔		
Finishes	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		✔	✔	✔	✔	✔	✔
Elevations	✔	✔			✔		✔	✔			✔		✔	✔	✔	✔	✔	✔
Commissioning	✔	✔	✔	✔	✔	✔	✔	✔	✔				✔	✔	✔	✔		

13.8 The Trust and WFL have agreed a joint control mechanism for the construction phase. This has two central objectives:

- The delivery of the project to time, cost and quality;
- The minimisation of the impact on the hospital during the construction works.

13.9 A Trust/Jarvis team will meet weekly to assess progress against plan and forward plan for any diversions, interruptions and other activities that may be required. At all times the needs of the hospital in providing a full range of clinical services will be paramount. Based on Jarvis' submission and continuing discussions, there is full confidence that the project timetable can be maintained without significant operational problems for the Trust.

13.10 A framework for monitoring the operational phase of the PFI contract has been developed by the Trust, and the principal arrangements have been discussed and agreed with the preferred bidder. Detailed monitoring arrangements, and the day-to-day managerial requirements associated with these, will be further developed and put in place prior to the commencement of the operational stage of the contract.

13.11 The project does not involve the transfer of any staff to Jarvis. A detailed HR plan has not therefore been necessary. See para 5.7.2.2 and Section 15 for descriptions of organisational change processes.

13.12 As part of the Trust's monitoring arrangements, a robust and auditable change mechanism will be implemented. A change mechanism proforma has been developed in accordance with the project agreement, and will be used if any potential variations are proposed. All variations must be signed-off by the Trust's Chief Executive.

Section 14: Benefits Assessment and Benefits Realisation Plan

14.1 The benefits of the PFI project have been described earlier in this document. These benefits would also be delivered under the conventionally funded option (see Section 4: Public Sector Comparator).

14.2 Although it is recognised that benefits to be delivered under either option are equitable, there is an acknowledged difference in the derived gain against various criteria (due to the different design solutions). Table 14.1 scores the benefits of the two options in this regard, and highlights the greater benefit under the PFI option. These benefits and weightings were identified in the Outline Business Case and used in the non-financial benefits option appraisal.

Table 14.1: Comparison of benefits from PFI and PSC designs[5]

Benefit Criteria	Weight	PFI design		PSC design		OBC pref option	
		Score	S x W	Score	S x W	Score	S x W
Improve access to services	5	18	90	14	70	12	60
Enhance clinical quality	20	18	360	14	280	18	360
Provided future flexibility	10	20	200	14	140	18	180
Provide a better environment to work in and deliver quality care to patients	10	18	180	16	160	19	190
Staff support and enhance recruitment/retention	10	16	160	16	160	20	200
Compliance with national and local policies (NHS Plan, HIMP, HAZ, etc.)	15	18	270	14	210	10	150
Support training and accreditation	15	16	240	16	240	20	300
Public acceptability	5	16	80	14	70	18	90
Ease of implementation	10	12	120	16	160	15	150
Total	100	152	1,700	134	1,490	150	1,680

14.3 The percentage difference in scores between the PFI and PSC design is 14% and between PFI scheme and OBC option is 1.2%.

14.4 Access

The PFI has a new main entrance level with Magdala Avenue and re-orients the hospital southwards. The PSC design had a pedestrian entrance on Magdala Avenue but with significant level changes (steps/ramps) and a new main entrance on the north side of K block. The new entrance on the north side of K block has potential to interfere with A&E traffic (current position).

14.5 Quality

The PSC is less than ideal in terms of some of the clinical functionality and locations, e.g., having to move patients vertically from the existing day theatres to recovery.

[5] Note that at OBC stage the PSC design was not available so the scores for the OBC preferred option are shown as a comparison of the scale of potential benefit available from the redevelopment. Although strategic changes since the OBC have affected the PFI and PSC scores, the PFI represents an excellent range of benefits particularly around access to services and future flexibility.

14.6 Flexibility

The PFI solution provides much greater flexibility within the constraints of the scheme.

14.7 Environment

Both designs provide an attractive re-provision of existing services.

14.8 Staff support

Both designs deliver a modern hospital environment that will enhance staff recruitment and retention.

14.9 Policies

The improved design and enhanced flexibility within the PFI design will contribute more to NHS Plan and other policy objectives.

14.10 Training

Both designs will provide improved hospital environment and enhanced training facilities.

14.11 Public

Both designs enhance the hospital image. The PFI design with a large visible main entrance will make a greater contribution.

14.12 Implementation

The PFI design is more complex and contains more risks.

14.13 The proposed Benefits Realisation Plan set out in Appendix U identifies the benefit criteria and their associated attributes, timing, the action required to achieve them, how the resulting benefits will be measured/monitored, and the person(s) responsible for this.

14.14 In practically all cases in Appendix U, benefits realisation is dependent upon process re-engineering projects (whether redevelopment or modernisation). The role of the Modernisation and Redevelopment Group is discussed in section 5.7.2.2 above and Appendix K: Involving Staff. Each project will have a project plan to achieve specific measurable outcomes. Appendix U is an outline benefits realisation plan showing the linkages between the redevelopment/PFI scheme, and the modernisation/NHS Plan agenda.

Section 15: Human Resources

15.1 The PFI redevelopment does not involve the transfer of any staff under TUPE, and consequently the requirements to comply with these regulations, as set out in PFI guidance to Trusts, do not apply. Similarly, issues relating to staff pensions are not relevant to this scheme.

15.2 Regardless of this, the Trust has consulted its staff side representatives about the project, and has made information available to them where this does not compromise issues of commercial confidentiality. This has been done primarily through the Trust's Joint Consultative Committee (JCC), which is the hospital's main forum for discussion with its recognised staff side organisations (please also refer to para 5.7.2). In addition to these monthly JCC meetings, there have been ongoing informal talks with staff side representatives.

15.3 The Trust has also taken the opportunity to discuss the redevelopment project with new employees at their induction training, and has actively sought their views about future staff facilities as part of this exercise. Interviews have also been conducted on a small sample of medical staff in order to ascertain their opinions on this subject.

15.4 As part of the project agreement with the private sector the Trust will take steps to ensure that staff working on the hospital site who are not its employees, comply with its requirements in respect of best practice for recruitment purposes, as well as with other relevant employment legislation.

15.5 Prior to the commencement of the project, the Trust will also embark on discussions with its private sector partner to ensure that the contractors staff are successfully integrated with the hospitals workforce, and to develop mutually agreed guidelines for the resolution of any employee relations difficulties which may arise.

15.6 The redevelopment project has focused both on the physical aspects of the site, and the reviewing of existing clinical practice and the work systems, processes, and procedures that arise from this. Ways in which these may influence or be influenced by a redesigned and reconfigured facility have also been examined.

15.7 This has led to the development of a significant organisational development agenda, which has involved members of the clinical working group described in section 5.7.2.1 and other staff. These groups represent a wide range of clinical and managerial interest, and have examined a number of specific clinical areas relevant to redevelopment design issues.

15.8 A range of organisational development projects have been established which are specifically designed to develop new clinical and work practices, which will in turn address:

- aspects of the modernisation agenda
- existing and future Trust service, financial, and human resources objectives
- the ongoing needs of the development.

15.9 In undertaking this work the Trust acknowledges that outcomes should ensure that new initiatives:

- where relevant, operate across the wider health economy
- maximise the use of information technology

- utilise process redesign to enhance the ability to use human resources flexibly and effectively
- involve service users

15.10 The Trust views its staff as one of the most important factors in its continued success, and therefore considers the retention and recruitment of its workforce as being of vital importance.

15.11 The Trust considers that the redevelopment project provides the opportunity to considerably improve the working lives of its staff. The issue of staff facilities has been extensively discussed, and organisational development projects seek not only to address issues relating to clinical outcomes and the patient experience, but also to considering how working practices may be redesigned to promote a better work/life balance for staff. Specifically in relation to employees this involves exploring opportunities for:

- improved staff rest areas and catering facilities
- childcare provision
- an improved physical work environment
- maximising the use of IT to the benefit of staff
- improved training facilities
- a safer and healthier work environment

15.12 The Trust is also aware that the process of change can be a source of anxiety for employees. In order to avoid this the Trust has ensured that relevant staff and their representatives are involved in the design and implementation of new initiatives, and that all employees are informed of developments through the mechanism of:

- JCC
- focus groups
- exhibitions
- articles in internal publications
- management briefings
- 'open' staff meetings with the chief executive and executive directors
- intranet

15.13 In addition where new initiatives are introduced, this is done in accordance with Trust policies and procedures designed to address issues of organisational change, and following discussion and consultation with 'recognised' staff side representatives.

Section 16: Information Technology

16.1 The Whittington currently has in place a well-established Information Management and Technology (IM&T) department which reports directly to the Chief Executive, and covers information management, technology, medical coding and health record services.

16.2 The Trust Board approved the IM&T Strategy for the Trust in July 2000.

16.3 Until October 2001 an IM&T Strategy Steering Group provided strategic management and ownership of the Strategy, and monitored progress against plan. At that date it was decided to incorporate IM&T into the wider Modernisation and Redevelopment Group (MARG) – an executive sub-committee of the Trust Board which is co-ordinating all service development/redesign projects to meet the needs of the modernisation and redevelopment agenda. IM&T is seen a key element of infrastructure that underpins all service development projects, and should be integrated and not managed as a separate strategy or workstream.

16.4 The strategy was developed in response to the Trust requirements and national strategies for the NHS as a whole. The national strategy is set out in a number of white papers and policy documents:

- *'The NHS Plan'*
- *'Building the Information Core - Implementing The NHS Plan'*
- *'Information for Health'*

as well as the overall e-government approach set out in *'Modernising Government'* and *'Our Information Age'.*

16.5 The main focus of the Trust's IM&T strategy is the development of patient-centred information to support the delivery of patient care available to all types of clinicians when and where they need it. The scope of the strategy is not just the implementation of electronic patient records (EPR), but the achievement of the other NHS Plan targets alongside significant workforce development to enable best use of information.

16.6 Progress has been made in a number of areas:

- Desktop access to email, browsing and NHSNet services (including access to evidence based best practices). Over 1000 PCs in the Trust are connected to our intranet providing access to Trust policies and standards (such as ICPs – integrated care pathways). The intranet also acts as a portal to other directory services.
- Electronic transfer of pathology results to GPs. A pilot has been running for some months and will be extended to more GPs.
- Implementation of a new radiology system - providing order entry facilities.

16.7 In addition, the Trust has a number of projects under way:

- Implementation of a Picture Archiving and Communications System (PACS) to deliver digital images to clinicians. The Trust is investigating the possibility of off-site storage of existing films with electronic retrieval to facilitate a rapid move to a film-less hospital.
- Implementation of a common health community oncology electronic prescribing system (sponsored by the North London Cancer Network).

- Direct booking by GPs of outpatient and surgery appointments building on the protocols developed by the Trust as a phase 2 booked admissions pilot.
- Further development of a Cardiology system providing advanced decision support. The enhancements cover wider use of the system within the Trust in clinical areas, support for the coronary heart disease National Service Framework and is being developed jointly with a R&D partner in the Centre for Health Informatics & Multiprofessional Education (part of University College London).

16.8 The Trust is a participant in the Local Implementation Strategy and specialist network groups. Each of the ongoing projects contains an element of collaboration in terms of either a common specification (PACS), or joint selection and funding through the LIS (oncology prescribing and online appointment booking).

16.9 Electronic Patient Records

'Information for Health' describes six levels of EPR:

Level	Description
Level 1	independent patient administration and departmental systems
Level 2	integrated patient administration and departmental systems
Level 3	clinical activity support
Level 4	clinical knowledge and decision support
Level 5	speciality specific and advanced clinical documentation
Level 6	multi-media and telematics

16.10 The Trust has achieved Levels 1 and 2, parts of Level 3 and is piloting, through a number of projects described above, the various elements of Levels 4 to 6. However, a number of current systems are nearing the end of their useful life and will require replacement in the next 2-3 years.

16.11 The IM&T Strategy sets a target of achieving a Level 4+ EPR system (a minimum of a Level 4 EPR with selected components of levels 5 and 6). It is expected that this target will be achieved by 2004-2005 in line with national goals.

16.12 An Outline Business Case (OBC) for the procurement of an EPR system for the Trust is in preparation. It is anticipated that approval of the OBC will take place in early 2002.

16.13 IM&T within the PFI Scheme

As IM&T services are Trust wide and the PFI Scheme is a part site development, the provision of IM&T services is excluded from the PFI Scheme. This approach permits integrated development and management of IM&T services for all parts of the Trust.

16.14 The Building Output Specification expressly excludes the provision of data and telecommunications services but does contain the Trust's technical requirements for the cabling infrastructure within the new facility to permit the Trust to install and run any level of IM&T services up to and including EPR Level 6. All peripheral devices are

the responsibility of the Trust. This specification will provide a flexible and robust platform for the delivery of IM&T services including images in the form of PACS or TV/video to support clinical and teaching activities.

16.15 Although the Project Co is responsible for the voice/data cabling infrastructure within the new hospital building, the Project Agreement provides an option for the Trust to transfer those obligations to another party if an outcome of the IM&T procurement process is a site-wide integrated network management service.

16.16 Risks

16.16.1 There are no dependencies between the PFI Scheme and the IM&T procurement. The risks associated with the IM&T procurement are the approval and timing of the procurement process itself, funding availability, training and development of staff, implementation and integration with existing systems but these do not impact upon the PFI Scheme. The use of technology to assist in the delivery of patient care in terms of current models and in any future redesign will take place both before the new building is available and continue afterwards; this is a continuous and ongoing process.

16.16.2 The risk that the cabling infrastructure to be delivered as part of the PFI Scheme will not support the proposed IM&T system(s) is considered small. Likewise, the risk that any new IM&T system or service will impact upon the new building is also small. The Trust has minimised these risks by:

- specifying technical standards for cabling and ducting
- laying an emphasis on flexible use of the building and infrastructure.

16.17 Any IM&T systems or applications failure will be the responsibility of the Trust, rather than the Project Co. However, any failure in the infrastructure will be the responsibility of the Project Co, provided the Trust has not exercised its option to transfer those responsibilities to a third party as described above.

Section 17: Equipment

17.1 Introduction

17.1.1 The standard NHS definitions of equipment types have been used on this scheme. A summary of definitions and responsibilities for equipment within the scheme are shown below in Table 17.1.

Table 17.1: Summary

Group	Definition	Responsibility
1	Supplied and installed by the PFI partner under the terms of the contract. Mainly fixed items of equipment in clinical and non-clinical areas (such as theatre equipment or engineering plant).	PFI partner. The list of equipment agreed by Trust through the design sign-off process.
2	Equipment with specific space, construction or service requirements to be delivered under the contract but the equipment is supplied by the Trust.	The Trust to make the equipment available to the PFI partner. The PFI partner to commission in the new building.
3	As Group 2 but supplied and installed under separate arrangements	Trust or Trust party (if under a separate procurement).
4	Items supplied under separate arrangement that may have storage implications but not any other space, construction or service requirements.	Trust or Trust party (if under a separate procurement).

17.2 Group 1

17.2.1 The PFI partner is required to supply, install and commission all Group 1 equipment. In the main this equipment will comprise all fixed equipment in the scheme in both clinical and non-clinical areas. The PFI partner has used the ADB database to assess the likely quantities required and these were further refined through the design sign-off process (see Section 13, para. 13.7) where equipment requirements contained within the Trust's operational policies and the equipment agreed in the Room Data Sheets were reconciled.

17.2.2 The Trust's technical advisors provided commentary on the equipment and costs proposed by the PFI partner as part of the evaluation of the FITN response.

17.2.3 At FITN stage the Trust issued an Equipment List of the fixed equipment in L block (Great Northern Building) that is to be transferred to the PFI partner. The maintenance and replacement of this equipment will be the responsibility of the PFI partner through the period of the concession. These items were mainly fixtures in the existing wards relating to the medical gases provision. As maintenance of those wards will transfer to the PFI partner under the contract it is logical to transfer fixed items of equipment. All mobile medical equipment in those wards remains the responsibility of the Trust.

17.3 Group 2

17.3.1 Group 2 equipment is supplied by the Trust and fitted by the PFI partner.

17.3.2 At FITN stage the Trust issued a list of Group 2 equipment for clinical departments that are relocating into the new building. The PFI partner is responsible for the de-commissioning, transfer and re-commissioning of this equipment in the new building. In practice, this list applied exclusively to the Radiology Department.

17.3.3 There is no other Group 2 equipment for other clinical services moving into the new or refurbished buildings. Equipment will either be supplied as new as Group 1 such as theatre equipment by the PFI partner or is categorised as Groups 3 or 4 and is the responsibility of the Trust.

17.4 Groups 3 and 4

17.4.1 These categories of equipment are described as being supplied and fitted by the Trust. Group 3 equipment is defined as having significant space or construction requirements (e.g., radiological protection) and Group 4 as having minor space requirements (storage). These items of equipment are the sole responsibility of the Trust.

17.4.2 At FITN stage the Trust issued a list of equipment that must be included within the new building with appropriate space, construction and other service requirements.

17.4.3 A key element in the evaluation of bids at FITN was the degree of flexibility to incorporate additional equipment into the new building if further or new equipment is required in the future.

17.4.4 The Trust's technical advisors have provided assistance on the health planning, architectural, structural, environmental/services and commissioning issues for the equipment proposed for the new building. The Trust Radiological Protection Advisor will also review proposals for all types of equipment where appropriate.

17.5 Equipment Procurement Strategy

17.5.1 The Trust intends to purchase Groups 3 and 4 equipment as a separate procurement process, with the assets remaining on the Trust's balance sheet.

17.5.2 This equipment was excluded from the scope of this procurement at both PITN and FITN stages. The decision was based upon the requirement to keep the scheme under the capital expenditure limit and preserve flexibility in determining the scope and definition of equipment required in the new building. A separate business case is in preparation for this procurement.

17.5.3 The full list of equipment required was identified by a combination of the reconciliation between

(a) the reconciliation between Trust operational policies and agreed Room Data sheets (see above); and
(b) a review of the capital programme based on the Trust's asset register.

17.5.4 This definitive equipment list was subject to a review by service managers and external expert advisors. Appropriate procurement procedures will be followed to ensure compliance with government policy and to obtain best value for money.

17.5.5 The design sign-off process has provision for the Director(s) of Operations' approval of operational policies for the new building, including equipment. As a minimum requirement, any equipment purchased before the new building is available will be compatible with the standards specified in the operational policies.

17.6 Commissioning and Hand-over

17.6.1 All Group 1 and 2 equipment will be installed and commissioned by the PFI partner. A commissioning programme will be agreed by the Trust and the PFI partner 9 months prior to the planned completion of each stage if the building. An Independent Tester will be used by the Trust and the PFI partner to complete the acceptance testing schedule and to issue completion certificates.

17.6.2 The commissioning programme agreed by the Trust and the PFI partner will also provide the ability for the Trust to commission other equipment in the new building, if necessary before the Trust commissioning period commences. The commissioning programme agreed by the Trust and PFI partner will form part of the Project Agreement (Schedule 12 to the Project Agreement). The Trust procurement of specialist equipment will contain provisions for the installation and commissioning within the new building in line with the commissioning programme agreed with the PFI partner. The Trust is responsible for ensuring that the commissioning schedules and programmes are compatible.

17.6.3 The use of the new building to deliver clinical services to patients will depend upon both the Trust and the PFI partner commissioning equipment according to the agreed schedule.

Section 18: Risk Management Strategy

18.1 Introduction

18.1.1 The table below describes how the risks retained by the Trust under the PFI solution will be managed and mitigated. A significant number of the risks retained by the Trust in the PSC have been transferred to the private sector under the PFI contract. The risks retained by the Trust under PFI when compared to the retained risk under the PSC imply a risk transfer to the private sector of 13.5% on planning, design and construction, and 14.67% in total. The former is low compared with other PFI schemes, but the total risk transfer is at the upper end of the range. This is a result of the fact that the scheme is part new-build, part-refurbishment on the site of a fully-functional acute hospital, and excludes soft facilities management services (see Appendix J, Preferred Bidder Letter)

18.2 Risk Mitigation Strategy

18.2.1 The risk mitigation strategy is a dynamic process. Individual risks and the overall strategy will be constantly reviewed and updated at each stage of the project. The Trust's Project Director will be responsible for ensuring active management to mitigate and reduce risk. The status of each individual risk will be updated, and risks added to or deleted from the register when they emerge or are resolved.

18.2.2 The material risks retained under the PFI are set out below and a detailed breakdown of identified risks and their owners is contained in Appendix H.

Table 18.1: Management of Risks Retained by the Trust

Project Risks Retained		Probability of Medium Impact Risk Arising	Expected NPV	Risk Management/Mitigation Strategy
Category	Risk Impact		£'000	
1.03 - Design	The Trust may require changes to the design, leading to additional design and construction costs	10%	445	Design development has been tightly controlled through the establishment of user groups facilitated by members of the Project Team and technical advisers. Costed variations are considered by the Project Team before approval.
2.04 – Construction	There is a delay in the construction contractor gaining access to the site with consequent increase in construction costs	25%	529	The Trust is responsible for managing the enabling works through the Director of Facilities, who is a member of the Redevelopment Project Team and fully aware of the requirements of the project plan. The Project Board and Trust Board are closely monitoring the decanting and demolition programmes.

Project Risks Retained		Probability of Medium Impact Risk Arising	Expected NPV £'000	Risk Management/Mitigation Strategy
Category	Risk Impact			
4.03 – Operating Cost	There is an NHS-specific legislative/regulatory change leading to additional construction costs and higher maintenance equipment and labour costs	40%	871	The risk assessment is based on previous experience e.g. health & safety legislation, directions on single sex facilities etc. Flexibility has been built into the design requirements but operational impacts are not as easy to predict or mitigate.
4.04 – Operating Cost	Non-NHS specific legislative or regulatory changes with implications for construction and operating cost.	25%	243	Overall impact assessed as lower than for NHS specific changes and 75% of risk transferred to private sector through contractual terms. Retained risk on operational cost difficult to predict and mitigate.
4.07 – Operating Cost	The cost of providing clinical services may differ from current expectations.	15%	1,284	Risk assessment based on experience of variations in cost profiles and cost pressures. Impact will be mitigated through risk-sharing negotiations with commissioners.
5.03 – Variability of revenue	There may be a change in the volume of demand for patient services	5%	367	Demographic and epidemiological trends will be monitored and any significant impact managed through negotiations with commissioners.
11.04 Project specific risks	The Trust may fail to complete the fit-out of the restaurant/retail area within the planned timescale with consequent impact on PFI construction costs	35%	210	The project management structure is based on a master programme which identifies the overall critical path. The Trust's development of the retail facilities will be tightly monitored.
	Other risks retained under PFI		1,172	The Trust has a risk management strategy which is regularly updated and monitored under the corporate and clinical governance frameworks.
	Total risks retained under PFI		5,121	

Section 19: Post Project Evaluation

19.1 Objectives

19.1.1 Post project evaluation will be undertaken to assess how well the scheme has met its objectives. Its purpose is to improve project appraisal, design, management and implementation, and to monitor whether predicted benefits are realised. A framework for this work is contained in Appendix V.

19.2 Post Project Evaluation – Key Stages

19.2.1 The post project evaluation process forms part of the overall project control and management arrangements, which are set out in Section 13.

19.2.2 Stage 1

19.2.2.1 The first stage will be to plan the scope of the evaluation using a project framework to set out the main policy aims, the business objectives of the Trust, project objectives, project outputs and project inputs. At this stage quantifiable performance indicators will be identified. The assumptions and risk analyses underpinning the project will also be included within the matrix.

19.2.3 Stage 2

19.2.3.1 Stage 2 of the evaluation process will involve monitoring the progress of the project under construction. Although time and cost overruns are a risk transferred to the consortium, the Trust will want to ensure that any delays do not impact on agreed performance and quality targets.

19.2.4 Stage 3

19.2.4.1 A full evaluation will be undertaken after project completion and when facilities have been in continuous use for 6 to 12 months. Further evaluation of estate issues, for example energy costs, will be subject to longer time scales. The majority of outcomes for evaluation will arise from the detailed design brief of the project and will reflect service planning principles and measurements of quality. Some of these outcomes are expected to include performance indicators already in use, such as day surgery rates, re-admission rates, patient satisfaction surveys and Patient Charter standards.

19.3 Responsibility for Post Project Evaluation

19.3.1 The Project Director has overall responsibility for the delivery of the project and will be responsible for carrying out post project evaluation. The project control and management arrangements described in Section 13 will be carried forward into the post project evaluation process.

Section 20: Conclusion

20.1 The Whittington's central strategic objective is to provide high quality acute and general hospital services to its local population. The development proposed in this business case will bring significant benefits to patients, staff and carers, enabling the Whittington to provide acute care that is more appropriate to the 21st century.

20.2. This development will enable the Whittington:

- to provide a more effective and appropriate range of responses to emergency arrivals;
- to improve bed usage and reduce lengths of stay;
- to provide elective services which are more responsive to patient needs;
- to significantly improvement the environment in which patients are cared for;
- to improve access to the hospital;
- to respond more flexibly to future changes in healthcare and practice;
- to use its resources more efficiently and effectively.

20.3. The core affordability model enables the Trust to deliver current activity outputs (adjusted for UCLH transfers) at current income levels. Benefits from more efficient functional relationships and other factors allow the revenue impacts of the capital development to be financed.

20.4 In addition, the Trust has quantified the additional revenue cost impact of expanding capacity which would provide both extra beds (including critical care) and capacity for additional ambulatory activity. The Trust will be liasing closely with commissioners on utilising available funding streams to finance this additional activity and capacity and ensure the delivery of future performance targets.

20.5 The Whittington has worked closely with its local partners in preparing this development. Its importance to the local health community is reflected in the full support throughout the process from Camden and Islington Health Authority and Haringey Primary Care Trust.

20.6 The Whittington Hospital NHS Trust and its preferred partner Whittington Facilities Ltd, look forward to receiving approval of this Full Business Case. Both parties have invested considerable time and resources in its development and are ready to enter into the formal contractual relationship set out in the Project Agreement and to deliver the significant benefits that are detailed in this document.