

# ***AN INTEGRATED HEALTHCARE STRATEGY FOR BRENT AND HARROW***

## **INTRODUCTION**

This document provides a summary of the strategic direction for Harrow PCT, Brent PCT and the North West London Hospitals NHS Trust (NWLH). This is followed by a strategic outline case for the redevelopment of Northwick Park and St. Mark's hospital, which is consistent with this strategic direction.

This case for redeveloping Northwick Park Hospital will eventually form part of a suite of strategic documents including: (i) the strategic development plan for Brent currently driving a major change programme including the Central Middlesex Hospital; (ii) the strategic development plan for Harrow; and (iii) a strategic outline case for the redevelopment of the mental health services currently on the Northwick Park Hospital site.

## **1 STRATEGIC CONTEXT**

### **1.1 The NHS**

The NHS Plan, published in 2000, highlights the problems with current health systems and sets out a massive change programme. The over-riding conclusion is that the current NHS system is unsuitable for providing modern healthcare. In particular, new ways of working and new systems are required that fit together more closely.

The plan lays out a set of demanding targets. These include substantial reductions in waiting times in A&E, outpatients, and for surgery. The plan also demands that hospitals and local health services replace their current fragmented structures with a 'whole system' approach to care. The traditional structure of District General Hospitals does not compliment this approach. They have under-developed communication systems, there is under-investment in technology and they have developed systems of work that can operate against integration. The NHS Plan requires a re-investment of resources away from the old-fashioned 'outpatient warehouses', and into shared patient databases, co-located diagnostic departments and team bases. There needs to be a transformation of District General Hospitals into a new network of modern local hospitals, fully integrated with primary and community services. The modern hospital should be equipped to provide the link between specialist care and primary care, and to support logical and continuous care planning.

NWLH, Harrow and Brent PCTs have the vision to change the status quo and to produce a far more integrated and fit for purpose solution. The Trust and the PCTs have the advantage of having designed and developed a service model in the South of Brent as one of the DoH development beacons and have set up a process for implementing a range of service developments and mergers. The opportunity at NPSM is to build on this start.

### **1.2 North West London Strategic Health Authority**

The North West London Strategic Health Authority has recently laid out its key priorities in its Corporate Objectives - 2002/03, these are as follows:

- Performance manage the local NHS in delivering the NHS Plan;

- Promote better health and develop links with regeneration initiatives, establish NW London-wide strategic approach to maximise the value of regeneration initiatives in improving the health of local people and tackle health inequalities;
- Plan and begin to deliver enhancements to healthcare capacity, developing cohesive, clinically-led strategies in key areas and ensure effective implementation;
- Foster effective relationships with key stakeholders and build confidence in the local NHS;
- Manage effective communication systems to fully disseminate information and ensure open accountability;
- Deliver the Annual Accountability Agreement with the Department of Health;
- Franchise Plan in place and being developed;
- Set up organisational arrangements for the new Health Authority;
- Develop capacity and programmes of work to support the modernisation of the local NHS, support NHS organisations in the delivery of key workforce targets in 2003/04, develop framework and arrangements to ensure delivery of the NHS Human Resource Strategy "Human Resources in the NHS Plan", lead the London Emergency Care Modernisation Programme within North West London;
- Plan the future configuration of health services (including the development of clinical networks), establish effective models of care to achieve access and capacity targets, specifically Diagnostic & Treatment Centre focus for key acute services;
- Involve patients and the public in decisions concerning their care.

The NPSM development helps to establish this plan with its contribution to the NHS Plan, involvement of patients and community, enhanced health capacity (see later in this section), and the design and development of a modern integrated health system.

### **1.3 A Strategy for developing Primary Care**

#### 1.3.1 Brent PCT

The Brent PCT Local Delivery Plan (LDP) 'Investing for health' 2003/04 to 2006 is the over-arching 3-year strategic plan for the organisation and its partners. The LDP sets out Brent PCT strategic priorities.

The strategic section of the LDP states the PCT intentions to develop the following:

- Improved access to urgent treatment in GP and nurse lead Urgent Treatment Centres, both in hospitals and in the community;
- A network of Expert Consulting Centres/Primary Care Centres where traditional outpatient services can be provided locally, and new models developed;
- Diagnostic and treatment Centres (DTC)- facilities at Wembley and Willesden Health and Care Centre for expanded community based diagnostic services and a greater range of more specialist treatments, as a bridge between smaller primary care services and acute hospitals;
- New models of chronic disease management, by redesigning clinical pathways, new workforce configurations;
- An intermediate care outpatient and community based services;
- Quick access to minor surgical procedures;
- Improved access to and provision of Health promoting activities and patient education;

- New training and development opportunities, linked to Teaching PCT status.

The NPSM development includes proposals to introduce integrated urgent treatment between the hospital and primary care, a network of specialist teams and expert consulting centres, a new model of integrated disease management and an enhanced intermediate care team embracing both hospital and community teams.

#### Financial Plan

Underpinning the LDP is a 3-year financial allocation direct to the PCT. The PCT is developing a headline financial framework. This identifies the broad assumptions made over each of the next 3 years, and identifies the range of 'growth' that will be available for new investment over this period. Significantly, it identifies that the resources available in year 1 are relatively limited, however increase over the second and third years of the Plan.

The conclusion of the Trust and the commissioners of the service is that, in the light of the above, BECaD is an affordable scheme.

#### 1.3.2 Harrow PCT

The Harrow Local Delivery Plan (LDP) sets out a three year strategic plan to reduce health inequalities in its local population and its intention to develop new service models, building on local networks with partners in the health and social care system. These have been further developed recently. The main areas for service improvement and health gain are:

- To support patient self care – through information from NHS Direct; through prompt access to advice from primary care practitioners including community pharmacists; and via initiatives such as the Expert Patient Programme;
- To reduce emergency admissions through providing appropriate alternatives in the community, such as through proactive case management of older people with a history of frequent admissions and through using the single assessment process;
- To reduce admissions from falls amongst older people through an effective Prevention of Falls programme;
- To have in place an effective out of hours programme for prompt care and treatment which is part of the strategy to reduce avoidable admissions, including one or more PCT led "minor" urgent treatment facilities;
- To improve the patient experience when an emergency admission is the appropriate course of action, through swifter access to diagnosis, treatment, admission or discharge after observation;
- To reduce lengths of stay in hospital through improved access to diagnosis, treatment and discharge arrangements;
- To help patients to be discharged safely and efficiently through appropriate community support in their home or home like setting, in particular through strengthened intermediate care arrangements;
- To offer reasonable and realistic patient choice before a booked/elective admission to hospital via PCT organised Referral Centres, which will tailor packages of care to meet patient needs for timely access to diagnostics or surgery;
- To build capacity within the community, outside of hospital, so that local primary care services can provide the facilities, skills, equipment and overall resources to

end avoidable admissions – particularly for patients with a well-known history and pattern of chronic disease;

- To offer improved access to diagnostic assessments – either on the NPH site or at the proposed PCT led DTC in Wealdstone so that GPs can more quickly prepare appropriate patient treatment plans - for example chest pain, and retinopathy screening for diabetic patients;
- Improved waiting times for urgent treatments such as angioplasty and cancers;
- To develop new models of chronic disease management particularly focussed on coronary heart disease in the first instance, testing this model so that other disease pathways can quickly be developed and implemented based on this experience;
- To recruit additional staff with a focus on disease management in the community and to develop education and training programmes for existing staff and independent contractors as appropriate.

## **1.4 North West London Hospitals/St Marks NHS Trust**

### **1.4.1 Background**

NWLH provides general acute hospital services for the population of Brent and Harrow – a catchment population of approximately 460,000. In addition, it provides specialist services for a wider sub-regional catchment, including Ealing, Hammersmith and Hounslow, Barnet, Kensington, Chelsea and Westminster, and Camden and Islington Health Authorities.

The Trust provides the majority of its acute services from Northwick Park and St Marks' Hospital (NPSM) and Central Middlesex Hospital (CMH). These hospitals were run by 2 separate Trusts until they were merged to create NWLH in 1999.

The Trust's annual operating expenditure in 2002/03 was £225M and at the year-end it had fixed assets of £176M. It employed 4,400 staff during 2002/03 and treated 55,000 inpatients 26,000 day-cases, 151,000 A&E attendees and 300,000 outpatients.

The main populations served by the Trust are in Brent and Harrow.

Brent is a highly diverse borough, the most diverse in Europe in terms of its ethnic mix, and is rich in community spirit and partnership. Parts of the borough are extremely deprived, while other are relatively affluent. Harrow also has extremes of affluence and deprivation and has the country's second largest Indian population in the UK

### **A Service Philosophy Shared Between the Three Trusts**

Our shared philosophy for improving the healthcare of the residents of Brent and Harrow is based upon 4 main principles:

- Patients will only be admitted into the hospital if their needs exceed the expanded services available in the community. Stays in hospital will appropriately be much shorter and be actively managed;
- An immediate expert assessment for patients with acute problems will be available when required;
- The majority of acute care will be provided by the local hospitals and primary care services;
- Continuity of service and support will be maintained for patients.

In order to develop services in line with these principles the local system will need:

A series of teams with a community focus including:

- A well developed integrated emergency service (including hospital emergencies and community based out-of-hours services) providing intensive support in people homes and “nursing type” facilities to provide appropriate alternatives to emergency admission to hospital care. Pro-active case management will minimise emergency arising amongst a predictable caseload of frail and vulnerable people.
- An integrated intermediate care service with expanded rehabilitation services – the new Willesden hospital for example developing active fast stream rehabilitation in conjunction with active home rehabilitation;
- Community assessment teams working with Patient Choice at point of referral to support flexible elective care;
- A range of specialist teams providing Expert Consulting services;
- Well developed community multi disciplinary teams and practices to support much of the current out patient type work which would disappear under a model of Expert Consulting services;
- Improved community based diagnostics and support supporting a strong Primary Care infrastructure;
- A range of support departments providing 24/7 services.

The services will have the following characteristics:

- A combination of hospital and primary care skills;
- An ability to provide readily accessible opinions and diagnoses;
- Aggregated expertise and diagnostic capacity in order to provide 1-stop services;
- A multi-disciplinary approach with the ability to cross-cover to provide continuous service.

There will be a risk stratification approach in which only patients at highest risk and need of intensive bed based diagnostics or treatment would be admitted or seen at hospital, similar to the approach in the HMOs and Veterans Administration Services successfully implemented in the USA.

Risk stratification of patients with chronic diseases		
	<i>Description of patients</i>	<i>Main healthcare professional</i>
Level 1 (Routine care)	Patients with chronic disease who are well managed and stable	Primary care physician
Level 2 (Care management)	Patients with chronic disease who are not well managed and are unstable, or have had an acute exacerbation, and may benefit from time limited closer monitoring, increased support with lifestyle changes, and drug regimen changes	Care managers e.g. GPs, nurse consultants,)
Level 3 (Case management)	Patients with chronic disease who– for reasons such as co-morbidities, severity of illness or psychosocial factors – are not optimal candidates for Level 2 and need one to one support	Case managers

## **STRATEGIC OUTLINE CASE**

### **The Development of Northwick Park and St Mark's Hospital**

March 2004

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## **EXECUTIVE SUMMARY**

### **The Proposal**

This case proposes to transform Northwick Park and St. Mark's Hospital (NPSM) into a modern local urban hospital whilst integrating the local District General Hospital (DGH) functions with local community and Primary Care services. This initiative aims to explore how a Health Maintenance Organisation (HMO) style Integrated Health System might lead the way in meeting the needs of patients, delivering excellence in services and meeting the objectives in the NHS Plan. The case then addresses the hospital building and infrastructure requirements that fit in to this programme.

The initiative will also build on the BECaD/ACAD development at Central Middlesex Hospital (CMH) the Trust's other main site. This is one of the three Department of Health pilots on the future structure of the DGH. The lessons learnt from this project have provided a valuable baseline for the work at NPSM and have allowed this project to 'hit the ground running'.

This development will also address the needs of specialist services at St Mark's hospital with accommodation tailored to meet the changes in technology and advances in medical techniques.

### **Scope**

In 1999, The North West London Hospitals NHS Trust (NWLH) opened the Ambulatory Care and Diagnostic Centre (ACAD) on the CMH Site. ACAD is the model for a new generation of elective treatment centres launched in the NHS Plan. The Trust followed this development with the Brent Emergency Care and Diagnostic Centre (BECaD) launched in 2001 and currently in construction after the fastest health PFI process to date.

These developments have been incorporated into an integrated Brent Health Strategic development and have started to break down the barriers between hospital and community services in Brent.

This Strategic Outline Case proposes to apply the same progressive approach to the development of health systems around NPSM. The combination of the whole-systems developments around CMH and the proposed developments around NPSM will provide an integrated system across Brent and Harrow.

The main elements of the NPSM development will be:

- A series of 'super-teams' combining hospital and community services including:
  - A minor injury/illness team that will require an urgent treatment polyclinic to work from;
  - An emergency team that will require a major emergency centre including assessment facilities, diagnostic services assessment beds and a central intensive care facility and a theatre suite;
  - An intermediate care team that will require beds and rehabilitation facilities;



- A series of specialty teams that will include accommodation for staff, consulting and treatment facilities, book-able beds, diagnostic equipment and communications infrastructure;
  - A general diagnostic and treatment service with dedicated book-able facilities;
  - Dedicated children's services;
- 
- Central diagnostic and clinical support services;
  - St Mark's specialist services for gastro-intestinal and colorectal disorders;
  - Education and Research facilities;
  - Trust administration and headquarters;

## **Major Benefits**

### **Local Services:**

Greater continuity. Local health services have difficulties in providing accessible one-stop services to patients. The scheme enables the local health system to develop an integrated model of care that is less dependent upon buildings but emphasises integration of teams, invests in communication and diagnostic infrastructure and is tailored to meet the needs of patients.

Less waiting. Local health services have difficulties in providing timely interventions and NPSM has consistently experienced problems in meeting emergency targets. The development incorporates a do-now system of intervention, diagnosis and disease management that should allow timely response to problems;

### **Networks of Care:**

The scheme helps foster the creation of networks of care in London with the 'super-team' concept acting as the link between local services and specialist teams.

### **Estate**

The current NPSM estate is spread out and creates major difficulties for patients trying to orientate themselves and staff who have to make 5-10 minute journeys between departments. The new development will group teams and services together in order to allow treatment to be provided in single locations. The development will also create capacity for teams to consult with a provide diagnoses for patients in community settings;

The modernisation of NPSM allows NWLH to fulfil its commitment to local citizens in a public consultation. It was agreed that the ageing hospital buildings at NPSM were of an unacceptable standard and that investment in the hospital was essential.

### **Education**

The scheme dovetails with Local Authority strategy by enabling the development of a major educational site that will be harmonised with services provided by the neighbouring University of Westminster and will build on the existing partnership with Imperial College.

### **Options**

The strategic outline case proposes 4 options to be assessed further as part of the Outline Business Case:

- Do minimum-implement back-log maintenance work of £50m;

- Partial refurbishment of the site centred around the current ward blocks plus a new build-estimated capital costs £253m
- New build at the back of the site containing the majority of the services but excluding maternity, mental health and primary care developments (for which a separate Primary Care zone has been identified at the front of the site)-estimated capital costs of £305m;
- New build as per the above option but extending out towards the tube station on to neighbouring land-£estimated capital costs of £305m.

### **Affordability**

The current revenue income of the trust is £225m per annum. The revenue impact of the 4 options is as follows:

	PCT	R&D/Education	Total
• Do-minimum-	£ 3.2m	£1.2m	£4.4m
• Partial refurbishment-	£11.1m	£4.0m	£15.1m
• New build at back-	£12.6m	£4.5m	£17.1m
• New build plus land-	£12.6m	£4.5m	£17.1m

The case concludes that with growth in line with the SOC guidance at 3.3%, the case would be affordable.

### **Sensitivity and Risk**

The case takes a view on growth assumptions and models a limited 1% for growth available to meet the costs of the scheme. This analysis produces a £7m gap and a list of potential initiatives that close this gap include:

- Scaling R&D and education developments to meet available funds;
- Reducing the number of single beds to 30% from 50%;
- Reducing beds by a further 30 in line with NBI assumptions.

The net impact is to remove the gap with a 1% growth assumption.

### **Impact of Investment**

The development of NPSM will lead to the following:

- A reduction in waiting times in A&E in line with NHS Plan targets through the redesign of assessment services and processes;
- A reduction in outpatient waits in line with the NHS Plan and the achievement of National Service Framework (NSF) targets in areas such as coronary heart disease and diabetes, through a redirection of investment from the outpatient department to shared Primary and Secondary Care specialist and disease management teams;
- A reduction in inpatient waiting times in line with the NHS Plan through a dedicated elective and diagnostic service;
- Improvement in the quality of life and access to services for the elderly through a redirection of investment into intermediate care;

- Improvement in the patient experience of services by an improved hospital environment;
- An increase in the amount of educational activity linked to the modernisation of educational facilities

**Time-scale**

Construction on site is planned to commence in 2006 with a completion target of 2009.



## **1 STRATEGIC CONTEXT**

### **1.1 The NHS**

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Human Resource Strategy "Human Resources in the NHS Plan", lead the London Emergency Care Modernisation Programme within North West London;

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### **1.3 PCT Strategy**

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#### **Financial Plan**

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### 1.3.2 Harrow PCT

The recent PCT publication 'Improving Health' identifies a number of strategic areas that the PCT is seeking to target including:

- Tackling the local inequalities in health;
- Taking opportunities for health gain through the local LIFT projects;
- Targeting service developments and investment on those most in need;
- Targeting the biggest killers in Harrow of circulatory disease and cancer.

Harrow strategy will be developed in tandem with the Brent strategy and will dovetail with the NPSM development as shown in the front-piece to the case.

The NPSM development aims to contribute towards these targets by a whole system review of services and impact on local health.

## **1.4 North West London Hospitals NHS Trust and NPSM**

### 1.4.1 Background

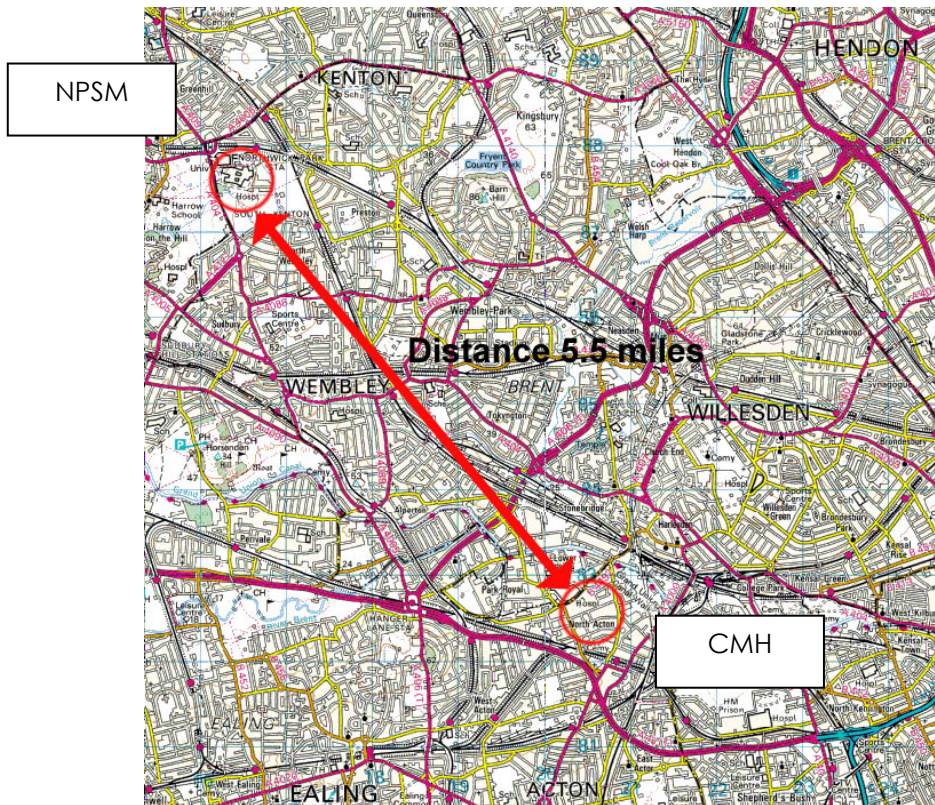
NWLH provides general acute hospital services for the population of Brent and Harrow – a catchment population of approximately 460,000. In addition, it provides specialist services for a wider sub-regional catchment, including Ealing, Hammersmith and Hounslow, Barnet, Kensington, Chelsea and Westminster, and Camden and Islington Health Authorities.

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The main populations served by the Trust are in Brent and Harrow.

The location of the Trust's main hospitals is shown in the following diagram:



Brent is a highly diverse borough, the most diverse in Europe in terms of its ethnic mix, and is rich in community spirit and partnership. Parts of the borough are extremely deprived, while other are relatively affluent.

Brent has a resident population of approximately 266,400 according to recent census figures, and a GP registered population of around 300,000. It has one of the largest, highly mobile and most diverse communities in Europe. It is estimated that there are over 18,000 refugees living in Brent and it is anticipated that this number will grow. There are several distinct local communities like Harlesden, Kilburn, Kingsbury, Wembley and Willesden. Situated in the southwestern corner of the Borough is Park Royal, London's largest industrial estate.

Brent is the twentieth most deprived Borough in the country and has five of the most deprived wards within the top 10% most deprived in the UK, namely Carlton Vale, Stonebridge, St Raphael's, Harlesden and Roundwood. The unemployment rate across these five deprived wards is nearly double the Brent average. Other indicators of health, crime and education are also considerably worse in these five wards.

The percentage of the local population aged 65 and over belonging to black and Asian ethnic minority groups is substantially higher in Brent than in Greater London as a whole. Linked to this demographic profile is a high incidence of chronic disease. There is a large proportion of this population with diabetes, sickle cell anaemia, coronary heart disease and hypertension.

Harrow has a population of 206,814 according to the 2001 census. Around 41% of the Harrow population are from non-white ethnic groups (this is significantly higher than the London average). This proportion has grown significantly since 1991 when the non-white ethnic group accounted for 26.6% of the population.

As a result of the ethnic mix in Harrow, there is a major issue around the provision of services for people with chronic diseases such as diabetes and coronary heart disease.



A common feature of the demography of both Brent and Harrow is that the future population numbers are predicted to remain the same in total and there is no projected rise in the numbers of people over 65 in the 2 boroughs.

#### 1.4.2 Trust Income

The income for the Trust is divided between its main commissioners as follows:

Commissioner	Current Income from activities 2003/4	PCT Percentage
	£M	%
<b>Harrow and Brent PCT</b>	131	79
<b>Other PCT</b>	35	21
<b>Sub-t PCT</b>	166	
<b>Other Income</b>	59	
<b>Total</b>	225	

#### 1.4.3 Trust Strategy

The Health Authority and the Trust conducted a formal consultation as part of the merger between CMH and NPSM. As a result of this consultation process, the Trust put forward a strategic approach aiming to modernise its hospital services and invest in new structures to support this modernisation programme.

**Whole System Approach:** The whole system approach is a main part of NWLH strategy. The emphasis is on teams of staff working across networks to provide integrated packages of care. The Trust aims to integrate the provision of service between the hospitals and Primary Care. In South Brent the developments around BECaD have concentrated on developing joint services for urgent treatment, intermediate care and disease management. The Trust aims to build on the 1999 merger to develop networks of care between NPSM and CMH. It also aims to link into wider London Health networks, such as the West London cardiology and cancer systems, and to build up partnerships with local community and social care agencies.

The current structure of investment at NPSM however, works against this approach. It has under-developed communication systems and there is under-investment in technology. Departments that are dependent upon each other for whole systems working are scattered around the site. There is an over-investment of resources in traditional buildings and a re-investment of resources is required into joint services centred round the patient. NPSM needs restructuring to provide the link between specialist care and primary care, and to support logical care planning.

**Emergency Care:** The Trust emphasises emergency care in its strategy, and it intends to reduce overall waiting times including inappropriate trolley waits for assessment and admission. Around 15% of patients attending NPSM in 2003/4 had to wait more than 4 hours. NPSM intends to end 4+hour waits in line with the NHS Plan, but speeding up and increasing the effectiveness of the assessment process will require a major rethink.

There is a wide scattering of critical care departments around the hospital site. In particular, the A&E department is situated at the front of the site whilst the wards and theatres are located at the back.

Patients in a sick condition are also spread around the tower block at NPSM making it difficult to co-ordinate appropriate responses and there is a lack of a substantial high dependency core service.

On a broader front there is a lack of integration and flexibility between hospital-based emergency services and community provision.

The A&E department, coronary care unit, intensive care unit and assessment units are all concerned with delivering fast, effective assessment and treatment for patients in a critical condition. They all operate with staff skilled at treating patients at a critical stage of their illness. Unfortunately the hospital design prevents full integration of these departments. Similarly, the A&E department has to cope with assessing major conditions as well as processing a large number of minor injury cases. Basic queuing theory demonstrates that mixing fast-track work, such as critical care, with less urgent slower-track work leads to delay.

**Outpatient Services:** The Trust intends to transform outpatient services to provide a vital ingredient in the management of care plans, and powerful assessment and diagnostic support for primary care referrals. As with emergency care, the main elements of success are:

- Timely expert opinions leading to the initiation or adjustment of care plans;
- The ability to complete diagnoses in a streamlined 'one-stop' fashion;
- Continuity of follow-up for patients with chronic disease;

The planning of care needs to be organised and managed jointly by primary care, local hospitals and specialist teams. This requires excellent communication and sharing of information, but outpatient services operate too independently in large suites of rooms. At NPSM, huge volumes of patients go through a wide range of consultation areas using a large amount of resource. There is little investment in communication systems and consultation services are poorly integrated with diagnostic support. This can lead to frustration for GPs as they try to provide continuous management of care and for patients who have to make multiple trips to departments to complete their diagnosis.

The concentration of resources in this care model has starved the system of triage and communication facilities. For example, diabetes consumes a great deal of resource in large volumes of outpatient consultations requiring allocated hospital space. However, there is a considerable amount of certainty in the treatment of this condition provided there is systematic monitoring of the patient. Currently there is under-investment in the systems required to monitor and share information. Often, patients will attend outpatient appointments without the consultant having the basic pathology test results. This leads to additional appointments and delays in proper assessment. Also, consultants will order tests already conducted on behalf of GPs because there is no sharing of information databases. The current average wait for outpatient consultations for chronic medical conditions is 10-12 weeks.

To deliver the requirements of the NHS Plan NPSM and the PCTs will have to totally redesign their approach to outpatient care, and redirect investment into combined hospital/community services, communication, and diagnostic systems.

**Inpatient Services:** NWLH aims to modernise inpatient services. There is a guarantee in the NHS Plan that the maximum wait for inpatient treatment will fall to six months. In

addition, the plan says 'by 2004 we will end widespread bed blocking'. The National Beds Inquiry highlights the current problems associated with bed usage. It quotes the University of York enquiry (20% of bed days for the elderly probably inappropriate) and the Audit Commission Review in 1992 (48% of elderly people occupy a bed for other than a clinical reason).

Trust strategy recognises that targets in the plan require an overhaul of existing in patient wards and systems. Patients with the severest problems should be located close to critical care services. Patients in the later stages of recovery should be located in environments that best suit their rehabilitation. These need not necessarily be on acute hospital sites. The principal consideration should be suitability for recovery rather than locations adjacent to critical care services. There should be investment in intermediate care to help facilitate recovery, avoid hospital admission and maintain independence. This should improve the performance of the hospital with a reduction in the levels of cancelled operations (currently 70 per month) and a maximum wait for inpatient care of 3 months (currently, 18% of inpatients wait longer than 6 months).

**Children's Services:** NWLH places a particular emphasis on the quality of services for children and has dedicated inpatient, ambulatory, rehabilitation and emergency services. The Trust aims to continue the development of these services by linking in to the development of a Children's Trust incorporating all services for children including health and education. The Trust also aims to develop adolescent services with their own distinct facilities.

The Trust also intends to ensure delivery against the targets in the children's NSF with the main headlines being:

Part 1 Child-centred service:

- Review access to social services
- Age appropriate play facilities are available
- There are provisions for education in hospital
- Up to date information is provided
- Information meets the needs of children, young people & parents
- Liaison with PALS & Patients Forums
- No child with protection issues discharged till a plan is in place
- Improved quality of care for children across the hospital
- Services are well coordinated
- There is a key worker for those with complex conditions
- Workforce & training issues are addressed

Key points for early consideration Part 2 Quality & Safety of Care:

- Training and administrative support for named doctor & nurse
- Amend Trust clinical governance policy
- Review policy for infection control
- Review policy for medicines and equipment
- Review arrangements for disabled children
- Develop policy on transition to adult services
- Establish part in managed clinical network for neonatal services
- Plan and support tertiary services

**St Mark's:** St Mark's has a number of inter-related functions and is distinguished by the service's national catchment for difficult and complex cases. To sustain this work a number of specialist units have developed and evolved with established international reputations including:

- Intestinal failure and nutrition
- Intestinal Imaging
- Family cancer
- Physiology unit
- Polyposis registry
- Wolfson Endoscopy unit

Research is a key component part of the specialty, and its clinical implementation drives St. Mark's patient care and postgraduate education. St Mark's clinical success over the last decade has led to a move to expand capacity and a number of individual schemes are currently in the planning stage.

The Trust is very interested in the integrated model of care that St. Mark's provides and is exploring this as a potential benchmark for other services.

**Patient Experience:** The Trust aims to improve the experience of the patients who access its services. There is a heavy emphasis on improving conditions within its hospitals. The public consultation process in 1999 called for a general upgrade in the hospital environment. The Trust places a high value on the concept that the local community in Brent and Harrow is entitled to receive services in an excellent environment.

**Staff Roles:** The strategy recognises that successful implementation depends upon a major enhancement of staff roles. The NHS Plan uses the example of NWLH where 'a willingness by all clinical staff to challenge traditional professional boundaries has led to new practices across the hospital... with real continuity of care from admission to discharge.' The NWLH vision is for a multi-skilled workforce designed to support the patient pathway. For example, in acute care, where the quality of the initial assessment is crucial to the outcome of treatment, staff will need to have a wide range of assessment skills. Similarly, in intermediate care, where the range of problems is extremely wide, staff will need to have a very broad base of knowledge. They will need a clinical knowledge and skill, and in-depth awareness of the other services and teams whose contribution is required. At the same time, there is a drive to improve specialist skills and the quality of specialist teams. The National Service Frameworks for CHD, Cancer and Mental Health emphasise the need to develop a systematic specialist team approach to these conditions. This will compliment the strengthening of the primary care infrastructure.

There will need to be an exchange of clinical skills and approaches between hospital and primary care services. The care management approach of the community nurse will need to develop across the hospital services. At the same time, nurses working in the community will need to develop specialist skills to help manage programmes of patient care. Hospital staff will develop their roles in health promotion and be encouraged to build overall health advice and promotion into their patient contacts.

There is a strategic clinical governance objective at NWLH, to encourage clinicians to test and challenge their own practice in a continual drive to raise standards.

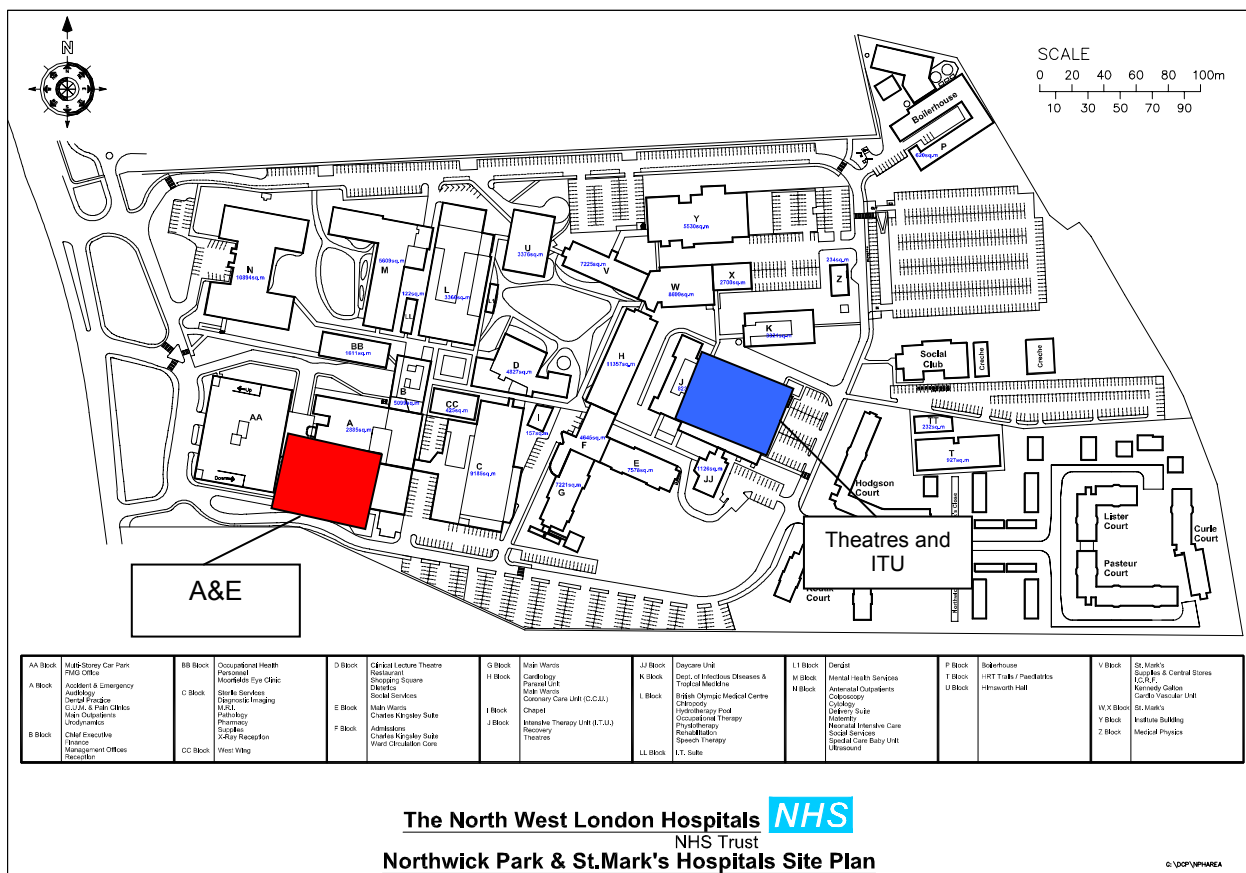
**Community Partnership:** The Trust will increase patient and citizen influence on the running of the service. The aspiration is to develop CMH and NPSM so that they become part of the fabric of the local community with the public becoming an essential part of the decision making process. There is recognition that its hospital services are not fully representative of, or accountable to, the local community. The Trust will redesign systems and services to work far more closely with GPs and community services. This could mean that some hospital services relocate in local community centres backed up with appropriate technology and communication systems. Also, the Trust will work closely with Brent and Harrow Councils to contribute to the achievement of the local UDP.

**Learning and Education:** The Trust will build on its redesign work to become a centre of excellence for education and the dissemination of best practice. The London Partnership is a prime example of integrating service development, R&D, and education and training. There is a large quality improvement team, linked to the London Partnership hosted by NWLH, that is developing new protocols and improvements in care processes. Knowledge will become more accessible by electronic links to libraries and research databases.

#### 1.4.4 Estate Strategy

The building stock at NPSM suffers from a number of problems:

- **Services and infrastructure.** The mechanical and engineering infrastructure at NPSM is essentially worn out and needs a major overhaul. In addition the windows are coming to the end of their life and need replacing. The cost of upgrading these services and structures and uplifting the NPSM estate to condition B is £50m.
- **Functionality.** The building is extremely difficult to use for both patients and staff. The recent stakeholder conference held to inform the NPSM development identified a high level of frustration for patients who have to travel long distances between departments to complete their consultations and diagnoses. The Trust recognises that the local population should be able to access excellent local services. They should not have to crowd into poorly maintained and cramped accommodation and they should not have to zigzag around the site at various stages of their treatment programmes. In addition for staff there are some extremely difficult relationships between departments, the most notable being the distance between the A&E department and the wards and theatres as illustrated in the following diagram:



- **Match-up with modern service thinking.** There is a huge gulf between the modern and innovative approaches to healthcare being planned by the PCT and the hospital and the old-fashioned and dysfunctional layout of buildings and departments. The Trust's strategy is to close this gap and to provide hospital and community teams with a clinical environment redesigned to meet a new community focussed model of service delivery. The Trust does have a few exemplars of how this functionality could be improved and the St. Mark's set-up on site is far more integrated than the sprawling Northwick campus and holds a few lessons on how the future campus might be constructed.
- **Aesthetics and Urban Planning.** The current NPSM is a very ugly building and comments from staff and patients range from 'oppressive' to 'Eastern Bloc monstrosity'. There is evidence being assimilated by the Commission for the Built Environment, South Bank University and others regarding the beneficial healing impact of the right environment. The Trust aspires to providing a healing environment on the NPSM site along the lines of the quality achieved in the ACAD building at CMH and planned for BECaD. The Trust would also like to develop a building that sits in harmony with the surrounding metropolitan land.

The Trusts overall aim, as defined in the Trust merger consultation, is to develop the NPSM site to support the move towards more integrated provision with Primary and social care, to support developments in clinical practice, to respond to national initiatives and to give the population of Brent and Harrow a high-quality hospital environment.

## 1.5 UDP

The Trust aims to synchronise its estate strategy with the work of The Local Authorities. A key opportunity for the NPSM development is to develop educational facilities in partnership with Imperial College and the neighbouring University of Westminster to provide a focus for educational activity and development in the locality. The Trust has met with the local planners who have welcomed the potential to look again at the NPSM campus particularly with regard to:

- Developing a building more in harmony with the environment;
- Making more of the tube station;
- Developing the opportunity for education.

## 1.6 Summary of the Strategic Context

**The Problem:** The NHS Plan lays out a set of demanding targets. Brent and Harrow PCTs are aiming to establish a whole health system that integrates the provision of service between the hospitals and community and primary care services. Northwick Park with its scattered critical care departments and tortuous outpatient design does not have the right configuration to deliver this programme of reform. The poor condition of the buildings at NPSM compounds the functional suitability problems. Over time the main hospital building has worn out and shows clear signs of decline and decay.

**The Opportunity:** The PCTs and NWLH have already established structures for a new integrated programme of care provision around BECaD and have a joint vision of how a new integrated system could be introduced around Northwick Park. The elements in the NHS Plan are based upon a simple concept but will require major changes in ways of working for health professionals. The opportunity at NPSM is to harness the work already undertaken in the locality and to challenge the system and provide a practical demonstration of how the NHS Plan can work. The combination of leading edge service modelling and complementary design structure could form a powerful force for change in Brent and Harrow.

## **2. HEALTH SERVICE NEED**

### **2.1 a) Access to Services**

#### **2.1.1 Current Problems and Opportunities**

There is a high incidence of chronic disease in Brent and Harrow and a large proportion of single-handed GP practices in Brent. There is little infrastructure in place to support them and they have no choice but to refer into hospital services. This results in a centralised model of chronic disease management with:

- Large variations in referral rates;
- Large volumes of patients accessing outpatient services;
- High numbers of patients who do not attend their appointments;
- High follow-up to new ratios.

In addition, the lack of standard and continuous monitoring leads to acute crises with people having to access A&E to have their condition stabilised. There is a steady increase in A&E Attendances in the Trust (9% over the last 2 years), which is placing enormous pressure on the service.

There is also a poor configuration of diagnostic and outpatient services at NPSM, with specialist teams having to operate from a general outpatient divorced from routine diagnostic facilities. This results in long waiting times, multiple visits and low patient satisfaction with the service<sup>1</sup>.

There are, however, beacons of good practice at NPSM including the ENT and the gynaecology instant access emergency services, integrated children's services and the St. Mark's Hospital integrated model of care. These exemplars could lead the way for a pattern of service provision that can respond immediately to problems and provide one-stop services for patients.

#### **2.1.2 Benefits of Scheme**

The scheme allows active management of chronic diseases. Abolishing the general outpatient department in favour of combined community and hospital teams and investment in shared databases, nurse practitioners and the development of protocols will:

- Provide prompt access to services when the need arises
- Reduce the total volume of patients having to visit hospital outpatient services;
- Reduce the number of patients who will need to re-attend;
- Reduce the number of crises and help control the increase in A&E workload;
- Improve patient experience by removing long waits in inhospitable conditions.

#### **2.1.3 Implications if Scheme Does Not Proceed**

The services at NPSM are facing rising demand. This has the following implications for patient access:

- Waiting times will increase and NHS Plan targets will not be achievable;

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<sup>1</sup> Derived from a review of the complaints system



- Conditions in outpatient facilities and A&E will become even less hospitable as volumes increase;
- Some patients may have to travel to other less accessible hospitals for their treatment;
- The level of dissatisfaction of the local citizens and patients will increase;
- The Trust promised the community, as part of the merger with Northwick Park, that it would resolve these issues and that, increasingly 'outpatient services would be provided in community settings'. The Trust would be in a difficult position if it were to default on this commitment.

#### 2.1.4 Alternative Solutions

The Trust and the PCTs are launching a range of initiatives that will have some impact on the current position including development of shared approaches to CHD and diabetes management (with a greater community focus) and re-organisation of outpatient department scheduling. However, the problems with access will not be fully resolved without the complete overhaul of current structures.

## 2.2 b) Quality of Services

### 2.2.1 Current Problems and Opportunities

There have been a number of successful initiatives in Brent and Harrow, which have improved the clinical quality of care in the health system. For example, despite a high incidence of disease, the mortality rates for CHD have fallen significantly. They are now 5% less than the national average. In addition St Mark's provide specialist services of nationally recognised quality. However, problems with the basic structure of the system are limiting the further improvements that are required:

- The acute and critical care departments at NPSM are located in different parts of the site;
- They would also benefit from an improvement in diagnostic backup including dedicated radiology, digital imaging and near-patient pathology testing;
- Outpatient services design does not support integration with primary care systems and this leads to delays in ordering tests and dislocation of care planning;

Intermediate Care is developing in the locality; however, intermediate care could extend its role and increase its impact significantly. A review of the current system indicates delays and blockages that result in unnecessary waits in hospital.

The major opportunity is to build upon the initiatives and culture at NPSM to launch new initiatives to improve the quality of clinical care across London and the NHS.

### 2.2.2 Benefits of Scheme

The scheme will generate a wide range of quality benefits:

- The whole system approach to disease management will improve care planning, provide faster assessment of problems, and improve equity of approach (e.g. common use of information and shared risk strategies for CHD);
- Concentration of services into an acute and critical care unit with high-powered diagnostic support will reduce waiting times for emergency care in line with the NHS

Plan. It will allow faster and more effective diagnosis to improve treatment plans and reduce mortality rates;

- Redirection of resources into intermediate care systems will lead to faster and more effective recovery;

### 2.2.3 Implications if Scheme Does Not Proceed

Failure to restructure the hospital environment will undermine the current levels of quality. The hospital's current configuration will not cope with increase in demand from patients and from NHS Plan targets. Failure to develop this scheme will mean:

- Deterioration of clinical standards in A&E and critical care as demand rises;
- Inability to support the quality initiatives in CHD and chronic disease management;
- Saturation of the existing intermediate care system and resultant breakdowns in admission and discharge processes;

### 2.2.4 Alternative Solutions

There are other approaches to the problem including investing more resources in the old DGH structure. However, this would not necessarily achieve national and local targets, it would miss an opportunity to invest in the whole system and would consume precious resources.

## 2.3 c) Environmental Quality of Services

### 2.3.1 Current Problems and Opportunities

The Strategic Context section has outlined the problems with the current estate. In summary:

- The services and windows at NPSM are in poor condition;
- The NPSM buildings are ugly and oppressive and discordant with their surroundings;
- The backlog maintenance programme is considerable at £50 million;
- There are recurrent patient complaints regarding building condition and services;
- The Trust merger promised that action would be taken to address the problem;
- Building layout does not complement high quality care e.g. the elderly care wards are on the opposite end of the site to the bus stops (a ½ mile walk);

### 2.3.2 Benefits of Scheme

The benefits of the scheme are:

- Development of an estate that is fit for purpose, meets the promises in the Trust consultation and matches the wishes of local citizens and patients;
- Support for an innovative care model that enables the NHS Plan;
- Contribution towards the development of excellence in Public Service building design (following the CMH example);

### 2.3.3 Implications if Scheme Does Not Proceed

With the need for intensive investment in backlog maintenance, major expenditure to support existing operations will be necessary.

## **2.4 d) Development of Existing Services**

### 2.4.1 Current Problems and Opportunities

The main opportunities for development of services are:

- The development of a network of integrated community and hospital teams
- The enhancement of intermediate care services to develop a 'whole systems' approach in Brent;
- The development of a system of chronic disease management based upon shared databases, expert consulting and assessment facilities, nurse practitioners acting as care managers and protocols agreed between primary and specialist teams.

### 2.4.2 Benefits of Scheme

The benefit of these developments in service will be the 'joining up' of the health system in Brent and Harrow with a common and equitable approach to planning and management of care.

### 2.4.3 Implications if Scheme Does Not Proceed

Non-selection of the scheme will leave Brent and Harrow with insufficient investment in its expert assessment and diagnostic services. It will lack sufficient capacity to provide effective support to the developments in primary and community-care.

## **2.5 e) Strategic Fit of Services**

### 2.5.1 Current Problems and Opportunities

There is a fairly traditional split of services between secondary and primary care with associated problems in maintaining continuity and for patients in crossing between services. Both Brent and Harrow PCTs identify the emerging national strategy of combining hospital and community services along HMO lines as having huge potential benefit.

### 2.5.2 Benefits of Scheme

The benefit of this scheme is that it draws together the community and specialist teams. It provides the opportunity to develop the HMO managed care thinking and apply it in the locality.

### 2.5.3 Implications if Scheme Does Not Proceed

Without this scheme the local strategic development of the health economy will be incomplete.

## **2.6 f) National, Regional and Local Policy Imperatives**

### 2.6.1 Current Problems and Opportunities

The NHS Plan aims to radically overhaul the NHS:

- There will be a 'whole system' approach to planning and care. Primary care, specialist teams and social services will work closely together to manage patient pathways.
- Hospital emergency departments will develop into fast, efficient assessment services with average waiting times in A&E falling to 75 minutes.
- There will be a transformation of outpatient services to get patients into the right part of the system as quickly and efficiently as possible.
- There will be a far more effective use of inpatient beds to dramatically reduce waiting times and improve rehabilitation and recovery.
- All health services, including local hospitals will be representative of and accountable to their communities and their patients.
- The patient experience will significantly improve, with better conditions in hospital and more support at home.
- Staff roles will change dramatically to break down professional boundaries.

The Brent and Harrow health system has already gone some way down this path with initiatives such as ACAD; collaborative care projects and the Brent HAZ. The problem is that there is still some way to go to satisfy the targets in the plan.

### 2.6.2 Benefits of Scheme

The NPSM scheme will enable the Brent and Harrow system to meet the NHS Plan targets. For example, the development of a combined acute care team will reduce emergency waiting times, It will also lead to new multi-skilled acute care specialists with a broad range of assessment skills. The development of integrated specialist teams with their own facilities will help develop a whole-system approach to care planning as well as eliminating long outpatient waiting times.

### 2.6.3 Implications if Scheme Does Not Proceed

Without the development the local health economy will struggle to hit national targets. There will be a missed opportunity to develop a beacon for the new NHS.

## 2.7 g) Training, Teaching and Research Needs

### 2.7.1 Current Problems and Opportunities

There is a great deal of research, training and dissemination of good practice at NPSM. This is due to the quality of the staff teams and the culture but the environment limits it. Although the sprawling estate accommodates seminar rooms and education facilities, some of the clinical departments are contained in areas too small to accommodate front-line teaching areas whereas there are large under-utilised centralised teaching spaces. This limits the opportunity to provide practical as opposed to theoretical training and therefore limits the effectiveness of education.

In addition, the Trust has a problem with staff recruitment. There is an annual turnover of 22 per cent of nursing staff, which has lead to 600 vacancies across the Trust.

### 2.7.2 Benefits of Scheme

The scheme offers the opportunity to design education and learning facilities within the front-line clinical departments. For example, small-scale training facilities in critical care, in-patient and outpatient facilities will give the opportunity to mix in short learning sessions with observation of patient treatment. The scheme will include electronic links to

national libraries and research databases to research cutting-edge practice and to extend the role of NPSM as a source of learning for the NHS as a whole. The development will be attractive to staff who will get an opportunity to receive education and training in state-of-the-art facilities.

### 2.7.3 Implications if Scheme Does Not Proceed

Non-selection of this scheme would be a huge missed opportunity to seed the growth of the new NHS.

## **2.8 h) More Effective Use of Resources**

### 2.8.1 Current Problems and Opportunities

The current configuration of services makes inefficient use of estate, human resources and money. The scattered distribution of departments produces an extremely high ratio of corridor, grounds and circulation space to clinical area. There is also a duplication of staff undertaking similar reception and assessment roles in different departments. Under-investment in information systems leads to duplication of tests and information gathering and a lack of co-ordination of diagnostic services. For example, a large number of standard tests follow on immediately after outpatient consultations. However, the results of these tests are usually used as a basis for the outpatient assessment and need to be available in advance.

### 2.8.2 Benefits of Scheme

The scheme tidies up the estate and organises processes to avoid duplication and delay. The redirection of investment into communication systems will allow a streamlined process for GP referrals and decision-making between primary and secondary care.

### 2.8.3 Implications if Scheme Does Not Proceed

Without the development valuable resources will be wasted that will make it difficult for the Brent and Harrow Health systems to deliver against target whilst receiving average growth.

## **2.9 i) Other Benefits - Urban Planning**

The development of NPSM compliments the Local Authorities UDP in three main ways:

- It provides a high quality civic building that will help uplift the local environment and fit well with the surrounding Metropolitan Land.
- The hospital development will be a source of local employment. The new system of work will open up employment opportunities for local people in healthcare as the range of job roles expands. For example, the intermediate care services require a range of skills including rehabilitation workers who will not have to undergo several years of professional training to fulfil their role.
- The hospital development helps build a large educational campus in line with the aspirations of the Brent UDP.

### 3. FORMULATION OF OPTIONS

#### 3.1 Objectives

In order to satisfy health service need, the development of NPSM must address the nine key strategic questions outlined in the last chapter and demonstrate evidence of success. The following table shows the nine areas of need to be addressed and the measurements we might apply to these:

Health Service Need	Strategic Initiative	Specific Targets
A. Better access to services	Develop integrated emergency services and no-wait 1stop ambulatory services	End 4hr+ A&E trolley waits, End 6 month+ IP waits No-wait OP service
B. Improved clinical quality of services	Develop disease management protocols and common standards	Reduce standard mortality rates for CHD, stroke and diabetes to HON targets
C. Improved environmental quality of services	Upgrade NPSM estate	Ensure all estate condition at A or B
D. Develop existing services	Increase capacity in community and Primary Care	Increase capacity of intermediate care by 25%
E. Improved strategic fit of services	Develop networks with other hospitals and services	Agreed protocols and networks in place between CMH and NPSM and other specialist centres for cancer and cardiology
F. Meet national, regional and local policy imperatives	Reduce waiting times and meet NSF standards	Meet targets in National Service Frameworks
G. Meet training, teaching and research needs	Develop and modernise educational infrastructure	Increase educational activity by 25%
H. Make more effective use of resources	Combine teams and streamline flows of patients	Deliver clinical targets within agreed cost ceiling.
I. Regeneration of locality and fit with UDP	Develop educational partnerships with Imperial and University of Westminster	Increase employment of local people in the hospital

#### 3.2 Generation and Short-listing of Options

The project team generated a long-list of options for discussion and selection. The project team and the Trust Board reviewed these options. A stakeholder group including PCTs community groups, patients and the local councils, then appraised these options. Details of this consultation are included in appendix A.

From this exercise, a short-list of options was produced. The options that were considered are detailed below.

Option	Description	Narrative	Short-list
A	Do Nothing	Major Backlog Maintenance Required	No
B	Do Minimum	Backlog maintenance expensive but need b/mark	Yes
C	Refurbish whole site	Does not fully address functional unsuitability	No
D	Part Refurbish-ward and theatre blocks/Part New-everything else	Structure basically sound-so could be a strong possibility-difficulty in maintaining services during construction and PFI does not suit grey areas such as refurbishment	Yes
E	New hospital on existing site using block by block phasing	Unnecessarily complicated as there appears room to develop at back using 1 or 2 phases	No
F	Single phase development at front of site	Looks too tight and would require land deal to make it work-pulls hospital away from the tube	No
G	Single phase development at back of site	Looks too tight but pulls hospital towards the tube	No
H	Single phase development at back of site (excluding maternity Mental Health) plus creation of Primary Care zone at the front	Added advantages of making the site work more effectively and enabling the PCT and hospital strategy	Yes
I	Back of site development plus Primary care zone as above but including new plot of land to spread out development	Would be the closest to the tube option but complications of land-swap	Yes
J	Greenfield site	No real driver for this	No
K	Close hospital	Would not deliver objectives of local hospital and community integration or fit with NHS strategy on 'Keeping the NHS Local – a New Direction of Travel'	No
L	Move major services to other sites	See above comment	No

There were two options that concerned minimal change to existing structures:

**Option A: Do Nothing.** This option was considered to be untenable due to the considerable amount of backlog maintenance required to maintain services to the buildings.

**This option was not short-listed.**

**Option B: Do Minimum.** This option identifies the minimum amount of investment necessary to sustain services. Existing service processes would be sustained, except where improvements could be made independent of the building infrastructure. This option does not allow the benefits of the integration of acute and critical care services and the restructuring of the site to improve its functional suitability. It would be extremely difficult for the local health economy to meet existing demand and realise the objectives in the PCTs, NWLH and NHS Plans.

This option fails to address the need to upgrade the standard of accommodation at NPSM and would not deliver the objectives in the public consultation. This option was considered to have the disadvantages of Option A, plus disruption to services during relocation and the problems in fitting services into existing buildings.

**This option was short-listed, to provide a benchmark.**

There were two options that involved major refurbishment:

**Option C: Refurbish Whole Site.** This option would involve a major refurbishment of the site converting departments into more practical spaces and modernising accommodation to meet latest NHS standards. This option would not correct some of the main functional problems such as the distant location of the A&E department and would also have a great deal of difficulty in accommodating the aspirations of the new services to move away from a concentrated hospital model. This option would involve major disruption of services for potentially minimal gain.

**This option was not short-listed.**

**Option D: Partial Refurbishment of the Ward/Theatre Blocks and Some New Build.** This option would involve refurbishing the core of the site. The refurbishment would take the form of restructuring interiors to meet service needs, renewing services, replacing windows and cladding the building to improve its aspect. This option would avoid the major problem of the last option as it would allow flexibility to correct major functional flaws with the site and should allow the creation of an acute centre including major A&E work. Although this option would be extremely disruptive it would potentially allow many of the benefits of the project to be realised.

**This option was short-listed.**

**Option E: New hospital on existing site using block by block phasing**

This option would entail a block-by-block development of the hospital to allow it to be rebuilt over the current building. This option would be complex, expensive and disruptive and would only be considered if there were no other option available for a new build on site. There is however a later option that allows room for single-phase development.

**This option was not short-listed.**

**Option F: Single Phase Development at the Front of the Site.** This option would entail a new build on the Harrow Road frontage and thus have the benefits of presence on the road and adjacency to the current multi-storey car park. The major problem with this option is that there is not enough site available to construct a one-phase development and it would pull the hospital further away from the tube station at the rear of the site.

**This option was not short-listed.**



**Option G: Single-phase Development at the Back of the Site.** This option would allow for a full redevelopment of the NPSM site to provide clinical and support facilities. The new build would be designed to address the wide range of needs identified in section 2. The site however, looks too tight to produce an appropriate environment of the right scale and mass and it ignores the need to develop Primary Care facilities.

**This option was not short-listed.**

**Option H: Single-phase development at back of site (excluding maternity Mental Health) plus creation of Primary Care zone at the front.** This would be similar to Option G but would reduce the size of the new build at the back to meet the constraints of the site. This option would also go further towards meeting the principles of the new model of care by creating a Primary Care Zone on site to allow the development of front-end diagnostics and urgent treatment.

The elements included in the back of site development would be:

- A major emergency centre including assessment facilities, diagnostic services assessment beds and a central intensive care facility and a theatre suite;
- Intermediate care beds and rehabilitation facilities;
- A series of specialty team bases that will include accommodation for staff, consulting and treatment facilities, book-able beds, diagnostic equipment and communications infrastructure;
- Dedicated children's services;
- Central diagnostic and clinical support services;
- St Mark's specialist services for gastro-intestinal and colorectal disorders;
- Education and Research facilities;
- Trust administration and headquarters;

The elements included in the Primary Care Zone would be:

- A primary care urgent treatment centre combined with;
- A general diagnostic and treatment service with dedicated book-able facilities;

Features of the accommodation would include:

- Training areas built into frontline clinical areas;
- Enhanced IT and communication systems;
- Compact layout and shorter travelling distances

This option would include a main entrance that faced towards the tube station and a boulevard pulling buses and other traffic off the Harrow Road and to the front doors of the hospital.

The main strength of this option on the transport front is its convenience for public transport, in particular the tube. The challenge will be to give the hospital presence and road access.

**This option was short-listed.**

**Option I: Back of site development plus Primary care zone as above but including new plot of land to spread out development.** This proposal would require the acquisition of metropolitan land to allow the hospital to face on to the tube. This might be achievable through a land swap. The main benefit of this option is that it pulls the hospital right next to the tube but there are potential complications of the land-swap.

**This option was short-listed.**

**Option J: Greenfield site.** There is no real driver for this option as the current site appears ideally placed for transport and access and there is room for a new development.

**This option was not short-listed.**

**Option K: Close Hospital.** This option would not deliver objectives of local hospital and community integration or fit with NHS strategy on 'Keeping the NHS Local – a New Direction of Travel'

**This option was not short-listed.**

**Option L: Move major services to other sites.** This option would not deliver objectives of local hospital and community integration or fit with NHS strategy on 'Keeping the NHS Local – a New Direction of Travel'.

**This option was not short-listed.**

The Site lay-out and DCP are shown in Appendix B

Risk

The table below identifies the key risks associated with each short-listed option.

	<b>Impact on option</b>			
<b>Key Risk</b>	Do Minimum	Refurbish	New Build on-site	New Build - extended site
<b>Insufficient flexibility to accommodate demand for more beds</b>	High - no space available and service model not delivered	High - service model part delivered but little space available	Low – service model and planned beds have capacity built in - plus additional space available on site to expand if required.	Low – service model and planned beds have capacity built in - plus additional space available. On site to expand if required.
<b>Inability to respond to NHS Plan</b>	High – service model not delivered and lack of necessary infrastructure	Medium – much of what is required could be delivered	Low – designed for purpose	Low – designed for purpose
<b>Building not ready in time</b>	High – decant and re-location programme complicated	High – decant and re-location programme complicated	Medium – less unforeseen difficulties with new build - no need to fit to current structures	High – difficulty associated with land-swap
<b>Detrimental effect on hospital operation during building works</b>	High – relocation and some reconfiguration of areas in use for patient care	Very High – relocation and significant reconfiguration of areas in use for patient care	Medium – build occurring on vacant ground therefore impact minimal	Medium – build occurring on vacant ground therefore impact minimal
<b>Capital cost over-run</b>	Medium - DCAs may fall short as buildings old – piecemeal type scheme	High – complex reconfiguration - likelihood of unforeseen problems with existing fabric	Medium – should be less unforeseen difficulties with new build - no need to accommodate current structures	Medium – should be less unforeseen difficulties with new build - no need to accommodate current structures

The new build option helps to reduce risk due to its independence from current building structures and the opportunity to match design to the new clinical model.

#### AEDET Analysis

The options were given a preliminary AEDET analysis concentrating on 3 of the categories:

USES including: service philosophy, functional requirements and relationships, workflow, logistics, layout, human dignity, flexibility, adaptability and security.

ACCESS including: vehicles, parking, pedestrians, disabled people, way finding, fire & security.

URBAN and SOCIAL INTEGRATION including: sense of place, site, neighbourliness, town planning, community integration and landscaping.

The new build option figures well against this analysis with the opportunity to:

- Match functional requirements;
- Put in layouts that encourage dignity (particularly with the increase in single beds);
- Achieve access from the tube station;

- Improve the local skyline

The refurbishment option fares less well on the access and integration headings and there are also question marks over the functionality heading.

The do-minimum had obvious shortcomings in all these areas.

### **3.3 New Service Model**

All the short-listed options will have to accommodate a new service structure capable of delivering significant health gain.

#### **3.3.1 Current System**

The current system has the following characteristics:

- Under-developed links between primary care and hospital systems;
- Unevenness in approach to management of disease between primary care and hospital services;
- An inefficient and muddled outpatient system;
- Difficulties in admitting patients;
- Difficulties in discharging patients;
- Problems with diagnostics organisation, sizing and availability;
- A good base-line for children's services but with the potential to do more;
- Lack of clarity over areas of specialism and the trademark of quality for NPSM;

#### **3.3.2 Main Concept of the new system**

The underlying principle in the NPSM development is that the strategy for NPSM needs to be developed from a patient's perspective. Working from this perspective, the requirement is to provide excellence and quality in services.

To achieve the objective the main theme of the development is to produce an integrated community and hospital model that will:

- Develop disease management systems that can manage patients across primary and secondary care supported by instant access to specialists;
- Provide low wait diagnostic and treatment services supported by instant access to specialists and diagnostic facilities;
- Provide dedicated emergency and acute services that allow quick and effective treatment for emergency cases;
- Develop an integrated care system that allows a fluid movement of patients between hospital and community settings;
- Identify and enhance areas of specialism and excellence that become the NPSM trade-mark including children's services;
- Provide an estate that supports the above objectives and provides maximum benefit to the patient's experience.

The main elements of the NPSM development will be:

- A series of 'super-teams' combining hospital and community services including:

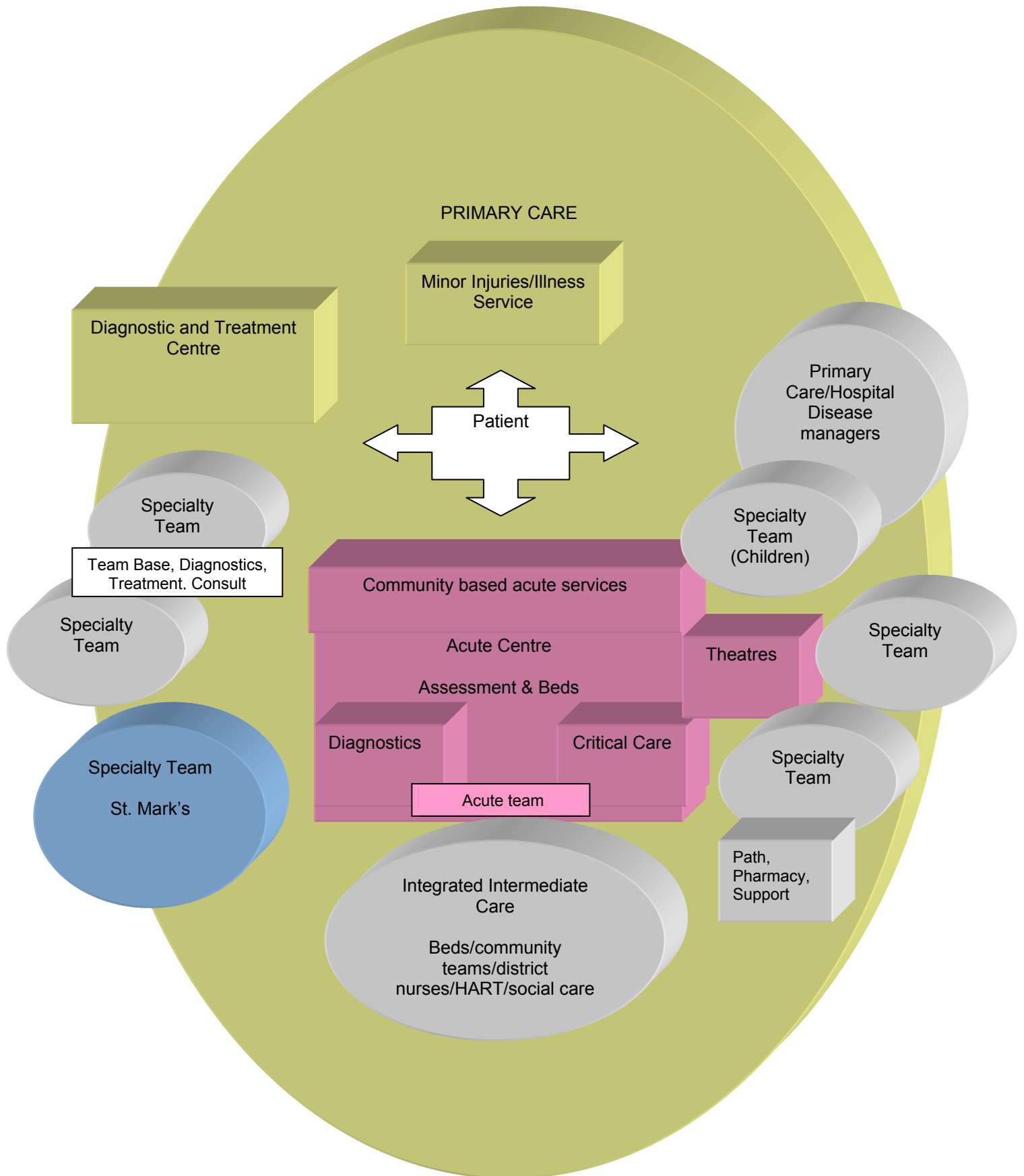
- A minor injury/illness team that will require an urgent treatment polyclinic to work from;
  - An emergency team that will require a major emergency centre including assessment facilities, diagnostic services assessment beds and a central intensive care facility and a theatre suite;
  - An intermediate care team that will require beds and rehabilitation facilities;
  - A series of specialty teams that will include accommodation for staff, consulting and treatment facilities, book-able beds, diagnostic equipment and communications infrastructure;
  - A general diagnostic and treatment service with dedicated book-able facilities;
  - Dedicated children's services;
- Central diagnostic and clinical support services;
  - St Mark's specialist services for gastro-intestinal and colorectal disorders;
  - Education and Research facilities;
  - Trust administration and headquarters;

The teams will have the following characteristics:

- A combination of hospital and primary care skills;
- An ability to provide readily accessible opinions and diagnoses;
- Aggregated expertise and diagnostic capacity in order to provide 1-stop services;
- A multi-disciplinary approach with the ability to cross-cover to provide continuous service

Access for patients could therefore be into large acute or intermediate care teams with the ability to assess, diagnose and treat immediately and in a variety of locations or into more specialist teams such as gynaecology or ENT services where a dedicated specialist team can give one-stop diagnosis and treatment.

This system is illustrated in the following diagram:



The Teams that will be developed as part of the NPSM development are described in more detail below:

**Primary Care Team:** This team encompasses the current Primary Care set-up but enhances it with the addition of diagnostic and treatment facilities and staff to allow planned and scheduled diagnoses and treatments to help arrive at diagnoses promptly and in an organised fashion.

**Urgent Treatment Team:** This team will address minor A&E (that constitutes just over half of total activity of the current service) and unscheduled primary care work. A range of services will be provided including pharmacy, treatment of minor fractures and assessment of minor conditions. There will be close liaison between this service and main primary care services to ensure follow-up and continuity of care. A team that includes A&E and Primary Care expertise will staff the unit. The unit will be supported by plain film facilities.

This team will have polyclinic facilities, which could potentially be housed on the front of the NPSM site.

**Emergency and Critical Care Team:** This team will be able to provide immediate treatment and diagnosis for presenting patients. This service will combine the skills of the A&E team with GPs with a special interest in emergency medicine and acute surgeons and physicians.

This team will have a flexible, highly trained workforce. The service will rely on a pool of staff with elements of multi-skilling to enable the service to be resilient to change; to be able to provide services in a range of different locations including patient's home and to be able to absorb peaks and flows in demand.

This service will be supported by emergency diagnostic facilities including basic x-ray, CT, ultrasound and pathology.

Associated with this team will be an integrated critical care service with the capacity to treat all levels of sick patient in a centralised facility.

**Specialist Teams:** These teams will have their own Expert Consulting facilities that will replace the current outpatient department with its confusion, long waiting times and low technology approach. These teams will have high-powered technology and diagnostics, and will work across the hospital/primary care boundary to provide rapid, expert assessments.

These teams will also have their own management and organisation to allow them to deal directly with patients and organise care.

Resources will be directed away from outpatient buildings and into teams who will manage and monitor chronic disease across primary and secondary care.

These teams will provide:

- An acute service that will back-up the emergency services and Primary Care by providing specialist input in next-day clinics and regular visits to the acute assessment areas;
- Support for programmes of disease and condition management for patients with diabetes, heart disease, asthma, sickle-cell disease and other chronic conditions. The centre will support shared databases and community based nurse practitioners and will develop protocols with primary care. There will be emphasis upon common approaches to risk and referral.
- Booked procedures, diagnoses and treatments. These teams will have access to book-able facilities for planned and elective work to ensure there is a deliverable no-cancellation policy at NPSM. Cases will be scheduled into ring-fenced elective facilities to allow theatre and beds to be booked simultaneously and to ensure maximum efficiency of resources. All cases will therefore be allocated an expected time in theatre and length of stay at pre-assessment before being allocated slots in these resources. This will require a scheduler to work with each elective team to book beds and theatre time for each case based upon an assessment of expected length of stay and time in theatre. Waiting times will be reduced to a maximum of three months in order to prevent difficulties in matching clinical prioritisation processes with resource availability.

**Children's Services:** This team will include assessment, outpatient and inpatient services and will be located adjacent to general emergency services. The development of this service will allow the provision of paediatric expertise to the large volumes of children that pass through the hospital (around 25% of the workload).

This team will need to be integrated as part of a wider Children's Trust that will encompass education, social support and a wide range of community services.

Features of the service will include:

- Children-friendly environments;
- Facilities for families;
- One-stop diagnoses and interventions;
- Dedicated children and young person's acute services;
- Dedicated ambulatory services;
- Dedicated children's theatre lists in child friendly theatres and recovery rooms;
- Dedicated day case lists for children
- Inpatient facilities divided between children up to 12 years and young people between 12 and 18 years
- Dedicated NICU services
- Child friendly investigative services e.g. in radiology with separate waiting areas

### 3.3.3 Human Resources

To support the new system of care the staff at NPSM will have enhanced roles to maximise the effectiveness of assessment and to enhance care management and planning. There will be a major programme of education and development to support a series of changes:

- Acute and critical care staff will develop their roles further as experts in assessment;



- Nurses and therapists in intermediate care services will develop their role as care managers;
- There will be an increase in the numbers of multi-skilled intermediate care assistants. This will provide employment opportunities for local people;
- Specialist teams and staff will extend their roles to provide networks of care in hospital and the community.

Changes to job roles will be subject to appropriate consultation and will be developed in line with agenda for change.

### 3.3.4 Information Management and Technology

The Trust Strategy on IM&T includes a bridging element till 2007 and then an objective to implement the National IM&T strategy through introduction of the Care Records Service in 2007/8. This will be through the Pan London implementation group.

Features of the information infrastructure will be:

- Patient tracking systems;
- Shared electronic databases with Primary Care for chronic disease management;
- Electronic access to national library and research databases;
- Scheduling systems for GP access and resource utilisation;
- Diagnostic systems that enable sharing of results between Primary Care and NPSM.

The funding for the implementation is the subject of a separate business case but, as with BECaD:

- The hospital infrastructure will be designed to accommodate the IM&T developments;
- The service model will run without the IM&T full solution.

### 3.3.5 Outcomes

The outcome of implementing this service model should be:

- Reduced waits in the system in line with the NHS Plan targets;
- Better outcomes that will be reflected in improvements in Clinical Indicators;
- Faster recovery and rehabilitation reflected by reduced length of stay;
- Improved management of chronic diseases leading to lower mortality rates less admissions per head of population and less hospital interventions;
- More efficient use of resources represented by increased day-case rates and increased throughput in the hospital.

### 3.3.6 Approach to Modelling Capacity

The Case takes 2 approaches to modelling capacity:

- A top-down model based upon the National Beds Inquiry assumptions;
- A bottom-up model based on a local study of lengths of stay and day-case rates.

The first approach is used to drive the actual bed numbers used in the case as it includes detailed assumptions on demand and capacity up to 2020 and includes a 'care closer to home scenario' that reflects the service model outlined in this case.

The bottom-up model is used to provide a first level reality check to ensure that some evidence for the scope for improvement backs the potential for bed reduction, identified in the modelling.

### 3.3.7 Top-Down Bed Modelling

In preparing the SOC analysis of the proposed model with reference to the National Beds Inquiry (NBI) modelling has produced some outline conclusions.

Firstly, the NBI looks at demand and potential changes up to 2020:

- Demand for A&E and outpatients will increase by 45% by 2020. Demand for inpatients will increase by 70%;
- Throughput will improve significantly as lengths of stay fall

Secondly, the NBI looks at capacity and the ability of services to meet this demand. Included in the broad conclusions of the report are the findings that:

- There is potential for large increases in day-case rates and corresponding reductions in length of stay;
- Higher levels of community service provision correspond with lower use of acute beds;
- Increased availability and use of beds did not lead to better control of emergency demand. Those areas of the country with highest bed use experienced significant problems with delayed discharge, re-admission rates, waiting times for emergency admission, and cancelled operations

The NBI looks at various models for service delivery. The proposed system for Brent and Harrow identified above is close in philosophy and approach to the 'care-closer-to-home' scenario in the NBI.

This scenario has a number of main features including strengthening of primary care and intermediate care and far more integration between the hospital and the community.

The Outcomes of the NBI care closer to home modelling for the national picture are summarised in the following table:

<b>Annual Growth Rates</b>	
<b>Emergency admissions</b>	1.8%
<b>Emergency ALOS</b>	-3.1%
<b>Elective Admissions/1000</b>	2.5%
<b>Ordinary elective Admissions/1000</b>	-0.8%
<b>Ordinary elective ALOS</b>	-2.8%
<b>All Ordinary admissions</b>	1.5%
<b>General/Acute Beds per 1000pop 2003/4</b>	2.73
<b>General/Acute Beds per 1000pop 2019/20</b>	2.32
<b>Overall reduction in capacity per 1000pop</b>	-15%

The headline figures for this model are that, by 2020, bed use per 1000 population reduces from 2.73 to 2.32. This is a reduction of 15% in capacity.

Making the assumption that specialist services beds would not be affected by this change, the following conclusions are drawn:

### Beds at NPSM

Bed Type	Current Beds	Beds in 2020	Difference
General Acute	418	355	-63
Elderly	97	82	-15
Children	20	17	-3
Regional Rehabilitation	26	26	0
St. Mark's	50	50	0
Private	38	38	0
<b>Total</b>	<b>649</b>	<b>568</b>	<b>-81</b>

Note1 St Mark's are currently looking at increased provision of 20 beds-any such change would be built into the baseline case

Note 2 Other planned service changes include the location of a Maxfac's centre at NPSM-the impact of this will be included when finalised

Note 3 Maternity and NICU figures are excluded

### 3.3.8 Bottom-up Activity Modelling.

The Trust commissioned CHKS to undertake an analysis of current activity against expected standards and to project potential bed requirement. The results of this exercise are included in Appendix C and indicate a potential to decrease bed numbers by 90 if performance and throughput could match the best examples around the country.

The exercise indicates that NPSM lengths of stay are currently in excess of the potential standards that are already being achieved nationally. This supports the strategic analysis in the SOC that points to under-developed links between community and hospital services.

There also appears to be significant potential to uplift day-case rates in most of the main surgical specialties.

There does have to be some caution in accepting these findings because the data quality is poor in certain specialties however, there is enough consistency in the overall trends to support a strategic change in approach.

This analysis therefore supports the top-down bed driver model and supports the overall capacity assumptions.

As a result of this analysis and the NBI analysis it is proposed to reduce the bed complement at Northwick Park and distribute resources to specialist teams, diagnostics and community infrastructure.

This case proposes to build back 30 beds to allow for potential St. Mark's expansion and service development such as the Maxillo-facial centre and also to provide a risk buffer. The proposed bed numbers in the NPSM SOC are therefore:

<b>Bed Type</b>	<b>Current Beds</b>	<b>Beds in 2020</b>	<b>Difference</b>
<b>General Acute</b>	418	385	-33
<b>Elderly</b>	97	82	-15
<b>Children</b>	20	17	-3
<b>Regional Rehabilitation</b>	26	26	0
<b>St. Mark's</b>	50	50	0
<b>Private</b>	38	38	0
<b>Total</b>	649	598	-51

## 4. AFFORDABILITY

### 4.1 Affordability Limit

The baseline for affordability is current income. The Trust has an income budget of £225m in 2003/4 as shown in the following table.

<b>Income Source</b>	<b>Amount 2003/4 £000</b>
<b>Brent &amp; Harrow</b>	131,276,519
<b>Ealing</b>	13,195,037
<b>Barnet</b>	5,752,109
<b>Hillingdon</b>	4,979,335
<b>Other PCT</b>	11,157,303
<b>Regional Specialties</b>	9,879,388
<b>OATS</b>	1,125,664
<b>NSCSAG</b>	3,503,319
<b>Other Patient Income</b>	1,536,786
<b>Private Patients</b>	5,695,079
<b>R&amp;D/Education</b>	20,439,817
<b>Other</b>	16,528,552
<b>Total</b>	<b>225,068,908</b>

In addition to the current income position reasonable assumptions need to be made as to the amount of growth that could be made available to the development.

The SOC prioritisation guidance says that up to and including 2007/8 the NHS' funding growth is agreed, with allocations and service targets in place up to 2005/6. Beyond 2007/8, there are no commitments as to the level of funding growth that the NHS might expect. Trusts may however continue to make prudent growth assumptions for 2008/9 and beyond. In making such assumptions, Trusts may wish to note that the NHS' annual "real" growth averaged 3.3% in the period from 1972/3 to 1996/7. If this period is extended to include the significant increases up to 2007/8, average "real" funding growth is around 4.2% p.a. Clearly higher growth assumptions are more risky and will require well thought out contingency plans.

The local economy is, however under considerable financial pressures and there are other initiatives such as consultant's contracts and European Working time Directive Compliance that will require funds. This case assumes, therefore, that only 1% growth is available to contribute towards the NPSM development as shown in the following table:

Year	Growth	Income (Real)	Rate
	£000	£000	%
		225069	1%
2004/5	2251	227320	1%
2005/6	2273	229593	1%
2006/7	2296	231889	1%
2007/8	2319	234208	1%
2008/9	2342	236550	1%
2009/10	2365	238915	1%
<b>Total</b>	<b>13846</b>		

On the basis of these growth assumptions, an additional £13.8m would be available for the NPSM development. The total available revenue using these assumptions would therefore be £238.9m at 2003/4 prices.

#### 4.2 Capital Costs of Short-listed Options

The four short-listed options concern backlog maintenance only, a major refurbishment of the hospital or a new build. The SOC assumes that the costs of the 2 new build options will be the same as the land swap included is assumed to be cash neutral.

	Option B	Option D	Option H/I	Benchmark
	Do minimum	Refurbish all	New Build	Rebuild all
<b>Capital Cost</b>	£000	£000	£000	£000
<b>Area</b>		113	98	130
<b>£/m</b>		2,236	3,099	3,099
<b>Capital Cost</b>	<b>50,000</b>	<b>253,029</b>	<b>305,021</b>	<b>403,923</b>

This table shows the capital implications at 2003/4 prices (MIPS 385) of:

- Option B Do minimum £50M: implementing the site-wide backlog maintenance;
- Option D £253M: refurbishing the whole site, adding and amending areas to meet current Department of Health Guidelines;
- Options H and I £305M: Majority of new build at the back of the site with a primary care zone at the front.

These options are shown against an illustrative benchmark of a rebuild of the whole site to meet current guidelines with a capital cost of £404M.

The costs have been derived from the Departmental Cost analyses shown in Appendix D. this includes a standard methodology of calculation including an additional 'Optimism Bias'. This optimism bias has been adjusted from the standard recommended figure to reflect actual departmental costs incurred in the Trust's BECaD development and the experience gained in this process. The optimism bias for the refurbishment option (25%) is higher than the new builds (21%) due to the uncertainty of pricing the complexity of this type of scheme.

This analysis produces a unit cost of £3,099 per square metre for the new build that, in the experience of BECaD would provide an adequate fund to produce design quality (BECaD rates are around £2650 per square metre for a similar style of scheme).

#### 4.3 Current Revenue Costs

The existing Trust costs for NPSM together with central Trust expenses are shown in the following table:

<b>NPSM and Trust Central Costs</b>		<b>2003/4</b>
		£000
<b>Pay Costs</b>		
Nursing		37,387
Medical		30,275
Lab And Technical		6,718
PAM		8,195
Pharmacists		1,673
Scientific		2,015
Ancillary		2,068
Maintenance		1,353
Management		5,701
Admin And Clerical		13,028
Other		273
<b>Total Pay</b>		<b>108,686</b>
<b>Non Pay Costs</b>		
Clinical Supplies And Services		16,782
Drugs		7,195
Establishment Expenses		2,693
General Supplies		6,959
Premises And Plant		7,141
Miscellaneous		10,834
Capital Charges		17,461
<b>Total Non Pay</b>		<b>69,065</b>
<b>Total Costs</b>		<b>177,751</b>

These costs are as budgeted for 2003/4 with the largest items of expenditure being nursing pay at £37.4M, medical pay at £30.3M and Trust capital charges at £17.5M.

#### 4.4 Revenue Consequences of Capital Expenditure

The revenue consequences of the development fall into the following categories:

1. Likely PFI charges related to the development. Although some generic guidance has been given on the likely rates of PFI costs, the Trust has used actual benchmarks from the BECaD project at CMH;
2. Capitalised Residual Costs to reflect the value of the building after the PFI lease;

3. Remaining estate costs to cover the areas excluded from the PFI;
4. Additional clinical revenue costs to reflect the need to increase investment in key areas such as chronic disease management, acute care at home and intermediate care.

These items of revenue are shown by option (with a rebuild all benchmark) in the following table

	Option B	Option D	Option H/I	Benchmark
	Do minimum	Refurbish all	New Build	Rebuild all
<b>PFI Charge</b>	£000	£000	£000	£000
<b>Capital/Interest</b>		17,548	21,154	28,013
<b>Lifecycle</b>		4,559	3,965	5,251
<b>Hard FM/Other</b>		3,395	2,953	3,911
	-	<b>25,502</b>	<b>28,072</b>	<b>37,175</b>
<b>Capitalised Residual (net)</b>		-	2,530	-
			3,050	4,039
<b>Remaining Estate</b>				
<b>Current Building CCs</b>	1,750	624	624	
<b>Current Hard FM</b>	1,667	160	160	
<b>New Investment</b>		137	137	
<b>Additional Clinical</b>	960	960	960	960
<b>Net Charge to Revenue</b>	<b>4,377</b>	<b>24,852</b>	<b>26,903</b>	<b>34,095</b>

The benchmark cost of rebuilding all of NPSM attracts potential PFI costs of £37.2m per annum.

The reduced new build in options H and I attract potential PFI charges of £28.1m per annum and the refurbishment option charges of £25.5M.

These costs are partially offset by the capitalised residual costs. In accordance with the Treasury's "Technical Note 1 – How to Account for PFI Transactions" as recently expanded on by the NHS Private Finance Unit's "Land and Buildings in PFI Schemes (Version 2)" part of the unitary charge should be capitalised. This builds up a balance over the life of the contract that should equate to the fair value of the residual asset on reversion to the Trust. This residual interest is a relevant asset for the cost of capital calculations so a return must be made on it. The annual value that is capitalised increases throughout the period of the contract in such a way that the net reduction in operating cost, assuming constant prices and consistent assumptions on residual value, is constant.

The do minimum and new build options have estate costs attached to residual areas. In the do minimum scenario the backlog maintenance investment is assumed to attract depreciation and capital charges of 6.83%. Under the new build options, the maternity and mental health buildings are not included in the scheme and the costs associated with the existing buildings together with £2M investment in their outward appearance are identified.



Included in the costing of each option are additional clinical costs to reflect the new model of care these are broken down as follows:

- Additional acute consultants (3WTE): £270k
- Diagnostic staff and leases: £210k
- Chronic disease teams (6WTE): £240k
- Acute community services (6WTE); £240k

There are in addition savings achieved through the reduction in beds and the removal of the outpatients department estimated at £2.8m. The Hospital and Primary Care Trusts will invest these savings in infrastructure to allow the new teams and in particular the primary care and community infrastructure to provide the new model of care.

#### 4.5 Affordability Gap

The additional costs identified in the previous section are partially offset by existing capital and estate costs of:

- Capital charges: £7.8M
- Maintenance/Hard FM: £2M

These costs are show in the following table:

	Option B	Option D	Option H/I	Benchmark
	Do minimum	Refurbish all	New Build	Rebuild all
	£000	£000	£000	£000
<b>Net Charge to Revenue</b>	<b>4,377</b>	<b>24,852</b>	<b>26,903</b>	<b>34,095</b>
<b>Less</b>				
<b>Current Building CCs</b>		7,800	7,800	7,800
<b>Current Hard FM</b>		2,000	2,000	2,000
	-	<b>9,800</b>	<b>9,800</b>	<b>9,800</b>
<b>Affordability Gap</b>	<b>4,377</b>	<b>15,052</b>	<b>17,103</b>	<b>24,295</b>
<b>PCT Proportion</b>	3,229	11,105	12,618	17,925
<b>Proportion of Trust T/over</b>	2%	7%	8%	11%

The net impact of the increased PFI and other costs less the offsetting costs produces affordability gaps as follows:

- Option B Do minimum £4.4M;
- Option D refurbishing the whole site: £15.1M
- Options H and I - majority of new build: £17.1M

These compare to the benchmark of a total re-build of £24.3M

This additional cost is divided between those costs attributable to PCT activity (74%) and those associated with other NPSM activities including research and development, education and private patients.

The total additional costs required for the NPSM development associated with PCT activity are as follows:

- Option B Do minimum £3.2M;
- Option D refurbishing the whole site: £11.1M
- Options H and I - majority of new build: £12.6M

These additional costs all fall within the 1% annual growth assumptions identified in section 4.1 of £13.8M.

In addition to these development costs, the PCTs wish to provide an allowance to ensure that Mental Health services on the NPSM site can be modernised. Although this modernisation would be the subject of a separate case the PCTs have assumed for affordability purposes that allowance needs to be made for a redevelopment at some point. The costs of this have been calculated on the existing area in the hospital and applying the same methodology as the acute hospital costing a projection of an annual cost of £612k per annum for around 4700sqm of new build.

The proportion of the additional costs of the NPSM development would fall on PCTs based on their proportional usage of NPSM.

Commissioner	Current proportion of services that are covered by the scheme	Value of expected contribution £000		
		%	Option B	Option D
Harrow and Brent PCT	79	2,551	9,398	9,697
Other PCT	21	678	2,498	2,578
<b>Total</b>		3,229	11,896	12,274

The Trust is in the process of establishing the precise split of income and activity between its main sites as part of the tariff assessment exercise.

Although this work is still to be completed, it is anticipated that around 2/3 of the Brent and Harrow PCT NPSM activity will be attributable to Harrow and 1/3 to Brent. In broad terms this will leave a contribution requirement from Brent of around £3M for options D, H and I, and a contribution of around £6M from Harrow. The precise allocation will be tested as part of the work in preparing the OBC.

#### 4.6 Tariff Analysis

The Trust has carried out an analysis of its position on the 2002/3 National Reference Cost Index. This position is then adjusted to reflect the impact of the investment on the annual costs. The Trust has then modelled the potential growth as laid out in the SOC guidance and included a sensitivity analysis. This analysis is shown in the following table using the new build option as the most expensive scenario:

<b>Trust Position Against National Tariff</b>	<b>Trust</b>
<b>Current Position</b>	
<b>Target Position</b>	100
<b>Value £000</b>	158,095
<b>Trust Position</b>	105
<b>Value £000</b>	166,000
<b>Impact of NPSM Development</b>	17,000
<b>Revised Trust Costs</b>	183,000
<b>Revised Target</b>	
<b>Optimistic Growth at 4.2% (see SOC guidance)</b>	202,360
<b>Realistic Growth at 3.3% (see SOC guidance)</b>	192,097

This table demonstrates that using the assumptions in the SOC guidance on growth, the development at NPSM could have a beneficial impact on prices if the local economy were able to deliver against its targets and limit its increased investment to the NPSM initiative.

Benchmarked against the National Reference Costs, the Trust is 5% (£8m) in deficit (although the Trust is currently exploring some data issues at CMH as there has recently been a transfer to a new data system and this may prove to be a pessimistic position).

Assuming 4.2% growth, the development is comfortably within the affordability range of the Trust. The same is still true of the development at 3.3% growth.

The assumption on affordability, however, needs to take into account the requirement to manage risk.

#### **4.7 Risk and Sensitivity**

The case needs to address a number of risk factors for the development:

- The Trust is currently looking at a deficit of around £3.5m for 2003/4. The Trust has a process in train including a review from Atos KPMG and plans to put in place a cost saving programme to put the Trust into recurrent balance;
- The case includes a redirection of investment away from the hospital and into community services. There is, however, no absolute certainty over the level of investment required and growth may well be required to enhance this investment in community and Primary Care infrastructure;
- There may be issues in the development that are yet to be addressed.

Taking into account these risk factors, a sensitivity and risk analysis is summarised in the following table:

	Trust
<b>Sensitivity</b>	
<b>Pessimistic Growth at 1.0%</b>	176,212
<b>Revised Trust Costs</b>	183,000
<b>Scale Education and R&amp;D to meet contributions</b>	- 4,400
<b>Reduce Bed areas from 50% to 30% single rooms</b>	- 1,300
<b>Reduce bed areas in acute centre (see BECaD)</b>	OBC
<b>Reduce Beds by a further 30 in line with NBI</b>	- 1,300
<b>Reduce running costs through efficiency</b>	OBC
<b>Cross-boundary flows</b>	OBC
<b>Land Sales</b>	OBC
<b>Soft FM savings</b>	OBC
	176,000

This analysis produces a what-if analysis if only 1% were available to offset price increases. Under this assumption, the development would create an affordability gap of £7m.

In order to mitigate this risk, the first part of the risk plan is to separate the R&D and education elements of the scheme from the core clinical scheme to provide a fallback position whereby the hospital and community service elements can proceed as a funded phase 1 together with any education, R&D and private facilities that can be made to pay their way in time for incorporation into this phase. The Trust could then prepare a phase 2 package for elements of the scheme yet to secure funding.

The second contingency concerns reducing bed areas to 30% single rooms as opposed to the current 50%. This would remove around £1.3m per annum from the projected unitary payment.

There may be potential to reduce this area further by adopting the racetrack design of the BECaD acute centre. This option has not been costed into the analysis at this stage but will be considered whilst a more detailed Public Sector design is produced at OBC stage.

Further contingency concerns the reduction of the bed base to the full 81 suggested in the NBI analysis. Whilst this places more pressure on success in producing the alternative community model of care, the view of the PCT is that this might produce a better final outcome in terms of the overall service model. This would produce a capital saving of around £1.3m per annum.

The development also provides the opportunity to provide a capital infrastructure to reflect the Atos KPMG work and potential efficiency savings could be enabled by the development. The conclusions of this work will be built into the OBC.

The Trust has also considered cross-boundary flows as potentially helpful in gathering more activity and thus aiding the affordability position. There are agreed moves to place the Maxillo-facial centre for the locality at NPSM and this will increase the amount of specialist activity on site. There is also a restructure of vascular services with a plan to produce a network with NPSM as one of the centres. There is, however, a great deal of potential fluidity in cross-boundary flows that lead to any assumptions on increased activity to be treated with caution at the SOC stage. It is proposed to revisit the cross-boundary flow issue at OBC stage.

Other potential areas for offsetting risk are:

It has been assumed that surplus land will be retained to provide some flexibility for growth and change in the local health economy. Alternatively the land could be sold and the proceeds used to offset capital cost over-run and reduce capital charges.

The case does not rely on any further savings aside from the maintenance and capital charge elements identified in section 4.5. A more detailed piece of work at OBC stage might release some additional savings for the scheme.

#### **4.8 Key Assumptions**

##### **Land Values**

The New Build option releases around a third of the Trust's current estate. The case does not assume any disposal of this land or incorporation into a PFI deal.

##### **Backlog Maintenance**

It is assumed that statutory and urgent backlog maintenance will be undertaken in all options, to bring the estate to condition B.

##### **Capital Charges**

PFI charges have been used and referenced to the Trust's CMH PFI.

##### **Direct Revenue Costs**

The service model is flexible, improves throughput and so should absorb seasonal activity fluctuations and planned growth. To ensure that there are sufficient resources to do this, direct costs have been maintained at current levels although skill mix and deployment of nurses have been changed.

#### **4.9 Commercial Viability**

The Trust has the advantage of having recently undertaken a PFI process at CMH. This process was extremely competitive with 8 bidders responding to the OJEC and a keen competition between the 3 short-listed bidders. The attraction of the CMH scheme to the market could well be mirrored by the NPSM scheme as it has a number of similarities including:

- Sufficient room on the site to accommodate a 1-phase new build;
- Support in principle from the local planners to remove a very ugly set of buildings from the local landscape;
- An experienced PFI team with a track-record of delivery;
- A clear vision shared by local stakeholders;
- A realistic budget.

## 5. Timetable and Deliverability

### 5.1 Timetable

The timetable must address the need to achieve as inclusive a process as possible. A significant amount of time will be spent securing public involvement in the development of the scheme and securing a preferred option for the local health-economy.

The following table shows an outline project timetable that assumes a PFI process. A public procurement process would fit into this timetable.

Submission SOC	April 04	
Creation of Partnership Board	June 04	
Establishing system of public involvement	Jan-June 04	6 months
Announcement of SOC approval	June 04	
Development of concept and Public Sector Comparator	June 04-Feb 05	9 months
Public consultation process	June 04-Feb 05	9 months
Submission of OBC	Nov 04	
Approval of OBC	Dec 04	2 months
Outline Planning consent	Dec 04	
Development of output specifications	Sep 04-Feb 05	6 months
Preparation of ITN documentation	Sep 04-Feb 05	6 months
Pre-OJEC conference	Jan 05	
OJEC advert published	Feb 05	
Deadline for expression of interest	Mar 05	37 days
Deadline for pre-qualification submissions	April 05	4 weeks
Evaluation of pre-qualification submissions and short-list	May 05	3 weeks
Deadline for initial design proposals (PITN equivalent)	Aug 05	3 months
Deadline for fully priced bids to Final Invitation to Negotiate	Oct 05	2 months
Evaluation down to one potential partner	Dec 05	6 weeks
Negotiations leading up to FBC	Jan–April 06	4 months
Submission of FBC	April 06	
FBC approval	July 06	3 months
Financial close	July 06	
Construction	July 06-July 09	36 months
Commissioning building	Aug–Oct 09	3 months
New hospital opens	Nov 09	

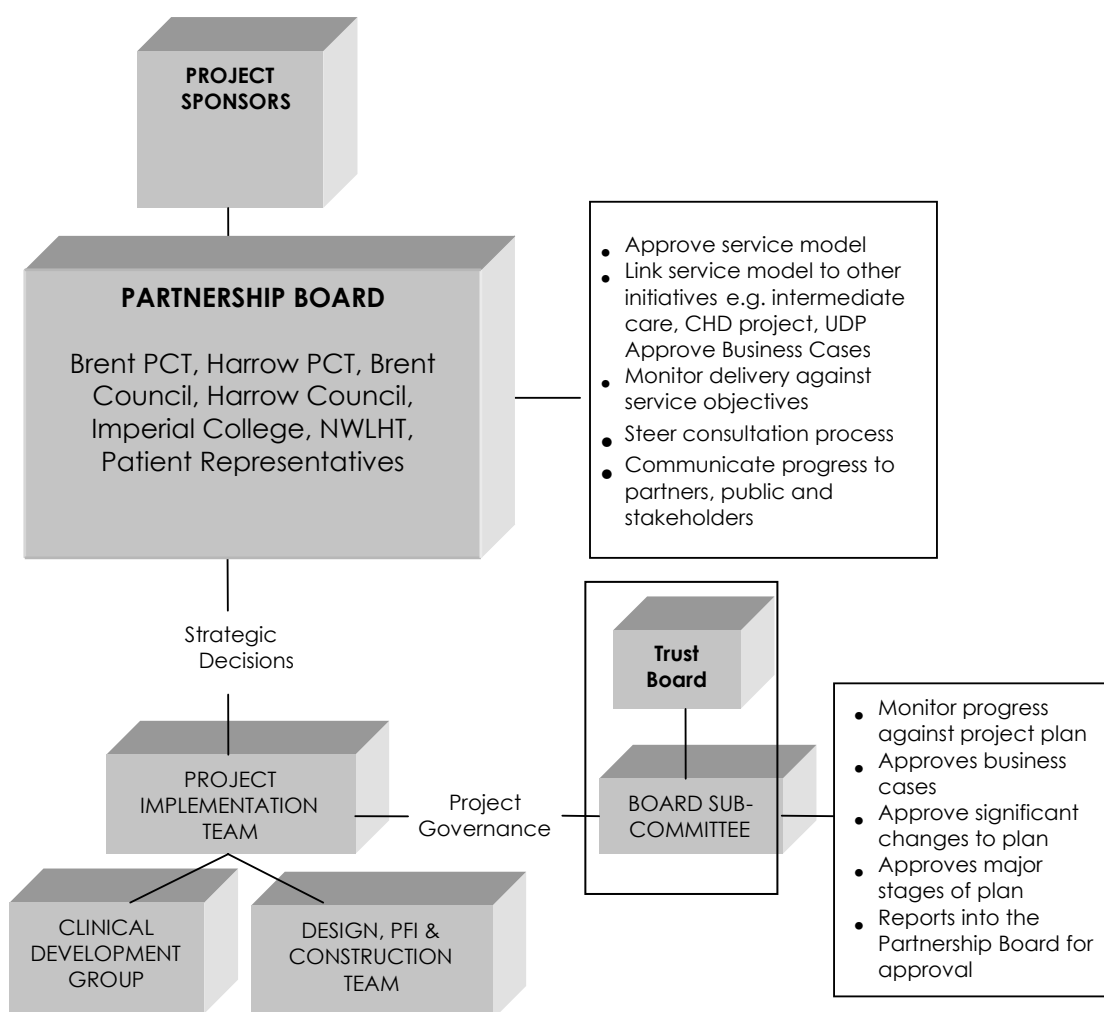
The main risks to the programme are:

- Achieving a robust specification by February 2005;
- Achieving a procurement timetable of 17months.

To manage this risk a project structure including an experienced PFI team is proposed in the following section.

## 5.2 Project Structure

The PCTs, Local Councils and Trust will sponsor the project. They will receive updates from a partnership board that will steer the project and ensure that it is meeting its strategic objectives. The project will have a Trust Board sub-committee to monitor and control capital and financial performance. A project director, who will be accountable to the sponsors, will lead the implementation team. This structure is summarised below:



The Partnership Board will act as a focal point for stakeholder involvement and communication with a wide audience.

The Stakeholder day on the 8<sup>th</sup> March was the beginning of the process and was the first of a series of public consultations. The process for this has already been successfully modelled by the BECaD development.





## **APPENDIX A: Stakeholder Consultation**

### **Invitation and Programme**

Dear all

Further to the original notification, I would like to remind you that the Trust is holding a Consultation Forum on the Future of NPSM Hospital on Monday 8<sup>th</sup> March 2004, from 10.00am to 3:00pm. Venue: Himsworth Hall, NPSM.

Please find below the objectives and programme for the day.

### **The Trust values your support, opinions and comments.**

We look forward to seeing you there.

### **The Future of Northwick Park & St Mark's**

**Monday 8<sup>th</sup> March 2004, 10.00 - 15.00, Himsworth Hall, Northwick Park Hospital, Watford Road, Harrow, Middlesex, HA1 3UJ**

### **Objectives for the day:**

1. To raise awareness of the importance that the Trust is giving to the redevelopment of Northwick Park and St Mark's Hospital (NPSM)
2. To introduce the proposal to the stakeholder groups present
3. To develop a series of recommendations through consultation
4. Through shared information and experience from this consultation, the opportunity to influence the hospital redevelopment and its future operation
5. For the workshop to result in specific recommendations that the Trust can use and reflect in their Strategic Outline Case (SOC).

**Northwick Park & St Mark's Hospital Consultation Forum  
Himsworth Hall**

**Monday 8<sup>th</sup> March  
Programme**

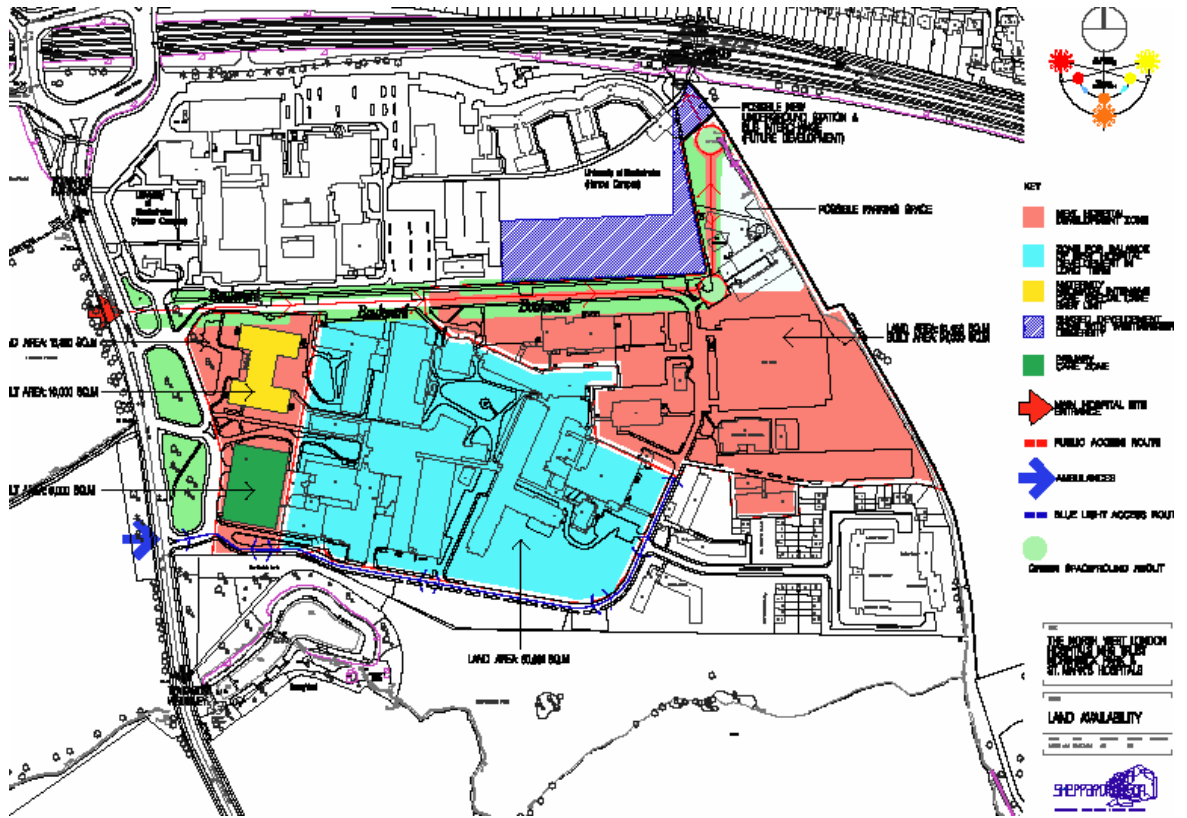
<b>09.30 - 10.00</b>	<b>Registration and coffee</b>	
10.00 - 10.05	<b>Welcome &amp; Purpose of the Day</b>	Chairman of NWLH Alastair McDonald
10.05 - 10.15	<b>Introduction &amp; Trust Intentions</b>	Chief Executive John Pope
10.15 - 10.25	<b>The Process</b>	Project Director David Powell
10.25 - 10.35	<b>What could we achieve?</b>	Chaired by Mike Burke Consultant Surgeon
10.35 - 11.10	<b>Case Studies</b>	<b>'Senior Clinicians'</b> Andrew Keat, Clinical Director Keith Steer, Consultant Physician Douglas Newton, Chair MSC Maeve O'Callaghan Senior Nurse Jo McCarthy, Head of Nursing
11.10 - 11.30	<b>Coffee Break</b>	
11.30 - 11.45	<b>Current Issues/Problems</b>	<b>ALL</b>
11.45 - 12.30	<b>Solutions</b>	<b>ALL</b>
12.30 - 13.00	<b>Summary and Feedback</b>	<b>ALL</b>

**Close of Morning Session**

<b>13.00 - 13.45</b>	<b>Lunch</b>	
<b>13.45 - 1350</b>	<b>Sally Kirkwood introductions to session 2 - The Estate</b>	
13.50 - 14.10	<b>Estate Options</b>	David Powell, Project Director
14.10 - 14.30	<b>Group Work &amp; Suggestions</b>	<b>ALL</b>
14.30 - 14.50	<b>Summary and Feedback</b>	
14.50 - 15.00	<b>Next Steps Thank you and Close</b>	



# Option H/I New Build



## APPENDIX C: Activity Analysis

### IDENTIFICATION OF KEY DRIVERS OF VARIANCE – TOP 10 HRGs (excess bed days)

Notes to the analysis:

1. This analysis excludes St Mark's activity in order to avoid distorting the data with particularly specialist work;
2. Some of the volumes included are low but the overall picture is consistent in showing higher than expected length of stays and lower than expected day-case rates
3. The data is useful therefore in developing an overall picture of current performance but would need further work before being used as a tool to target specific teams and procedures

TABLE A1	GENERAL SURGERY		
CMG	HRG Description	Data	Total
F32	Large Intestine - Very Major Procedures	Bed Days Variance	-173
		FCEs	26
		Trust ALOS	23.7
		Peer ALOS	17.7
F42	General Abdominal - Very Major or Major Procedures <70 w/o cc	Bed Days Variance	-97
		FCEs	9
		Trust ALOS	20.3
		Peer ALOS	9.4
F31	Large Intestine - Complex Procedures	Bed Days Variance	-77
		FCEs	5
		Trust ALOS	37.6
		Peer ALOS	17.8
F41	General Abdominal - Very Major or Major Procedures >69 or w cc	Bed Days Variance	-72
		FCEs	9
		Trust ALOS	23.7
		Peer ALOS	16.0
J38	Skin Ulcers	Bed Days Variance	-66
		FCEs	7
		Trust ALOS	22.0
		Peer ALOS	13.0
F33	Large Intestine - Major Procedures w cc	Bed Days Variance	-62
		FCEs	7
		Trust ALOS	31.7
		Peer ALOS	15.6
G14	Biliary Tract - Major Procedures <70 w/o cc	Bed Days Variance	-62
		FCEs	11
		Trust ALOS	12.0
		Peer ALOS	6.2

J44	Minor Dermatological Conditions or Benign Tumours	Bed Days Variance	-60
		FCEs	2
		Trust ALOS	34.5
		Peer ALOS	4.2
Q12	Therapeutic Endovascular Procedures	Bed Days Variance	-57
		FCEs	19
		Trust ALOS	17.9
		Peer ALOS	12.7
F17	Stomach or Duodenum Disorders >69 or w cc	Bed Days Variance	-57
		FCEs	14
		Trust ALOS	10.6
		Peer ALOS	6.7
Total Bed Days Variance			-783
Total FCEs			109
Total Trust ALOS			20.8
Total Peer ALOS			11.2

TABLE A2	TRAUMA & ORTHOPAEDICS		
CMG	HRG Description	Data	Total
H40	Closed Upper Limb Fractures or Dislocations <70 w/o cc	Bed Days Variance	-163
		FCEs	114
		Trust ALOS	3.8
		Peer ALOS	2.2
H39	Closed Upper Limb Fractures or Dislocations >69 or w cc	Bed Days Variance	-140
		FCEs	67
		Trust ALOS	9.4
		Peer ALOS	6.6
H49	Multiple Injury >69 or w cc	Bed Days Variance	-85
		FCEs	13
		Trust ALOS	24.0
		Peer ALOS	17.2
H19	Soft Tissue or Other Bone Procedures - Category 2 <70 w/o cc	Bed Days Variance	-57
		FCEs	30
		Trust ALOS	5.4
		Peer ALOS	3.0
H26	Inflammatory Spine Joint or Connective Tissue Disorders <70 w/o cc	Bed Days Variance	-45
		FCEs	4
		Trust ALOS	15.3
		Peer ALOS	3.7
H06	Revisional Procedures to Hips or Knees	Bed Days Variance	-44
		FCEs	9
		Trust ALOS	21.8
		Peer ALOS	12.3
H50	Multiple Injury <70 w/o cc	Bed Days Variance	-44
		FCEs	15
		Trust ALOS	14.7
		Peer ALOS	10.9
R06	Vertebral Column Injury without Procedure <70 w/o cc	Bed Days Variance	-36
		FCEs	13
		Trust ALOS	10.5
		Peer ALOS	7.6
H10	Arthroscopies	Bed Days Variance	-31
		FCEs	14
		Trust ALOS	7.7
		Peer ALOS	5.0
R03	Spinal Fusion or Decompression Excluding Trauma	Bed Days Variance	-29
		FCEs	2
		Trust ALOS	34.0
		Peer ALOS	15.0
Total Bed Days			-674

Variance	
Total FCEs	281
Total Trust ALOS	8.3
Total Peer ALOS	6.0



<b>TABLE A3</b>	<b>GENERAL MEDICINE</b>		
<b>CMG</b>	<b>HRG Description</b>	<b>Data</b>	<b>Total</b>
S25	Other Admissions	Bed Days Variance	-500
		FCEs	117
		Trust ALOS	12.0
		Peer ALOS	5.9
D33	Other Respiratory Diagnoses >69 or w cc	Bed Days Variance	-377
		FCEs	120
		Trust ALOS	8.4
		Peer ALOS	3.7
E34	Angina <70 w/o cc	Bed Days Variance	-361
		FCEs	111
		Trust ALOS	6.0
		Peer ALOS	2.8
E36	Chest Pain <70 w/o cc	Bed Days Variance	-318
		FCEs	264
		Trust ALOS	3.2
		Peer ALOS	2.1
E33	Angina >69 or w cc	Bed Days Variance	-309
		FCEs	141
		Trust ALOS	5.7
		Peer ALOS	3.5
E35	Chest Pain >69 or w cc	Bed Days Variance	-302
		FCEs	158
		Trust ALOS	4.9
		Peer ALOS	2.8
A34	Miscellaneous Disorders of Nervous System	Bed Days Variance	-291
		FCEs	32
		Trust ALOS	15.5
		Peer ALOS	5.5
K13	Diabetes with Hyperglycaemic Emergency >69 or w cc	Bed Days Variance	-263
		FCEs	11
		Trust ALOS	29.9
		Peer ALOS	5.4
E08	Pacemaker Implant except for AMI Heart Failure or Shock	Bed Days Variance	-227
		FCEs	23
		Trust ALOS	21.0
		Peer ALOS	9.4
L49	Acute Renal Failure >69 or w cc	Bed Days Variance	-204
		FCEs	18
		Trust ALOS	19.7
		Peer ALOS	6.9
Total Bed Days Variance			-3152
Total FCEs			995
Total Trust ALOS			7.2
Total Peer ALOS			3.3

<b>TABLE A4</b>	<b>CARDIOLOGY</b>		
<b>CMG</b>	<b>HRG Description</b>	<b>Data</b>	<b>Total</b>
E14	Cardiac Catheterisation without Complications	Bed Days Variance	-914
		FCEs	125
		Trust ALOS	18.4
		Peer ALOS	4.3
E12	Acute Myocardial Infarction w/o cc	Bed Days Variance	-305
		FCEs	91
		Trust ALOS	8.9
		Peer ALOS	5.4
E34	Angina <70 w/o cc	Bed Days Variance	-229
		FCEs	31
		Trust ALOS	11.3
		Peer ALOS	3.1
E15	Percutaneous Transluminal Coronary Angioplasty (PTCA)	Bed Days Variance	-142
		FCEs	22
		Trust ALOS	10.2
		Peer ALOS	4.2
E08	Pacemaker Implant except for AMI Heart Failure or Shock	Bed Days Variance	-104
		FCEs	33
		Trust ALOS	13.6
		Peer ALOS	9.1
E30	Arrhythmia or Conduction Disorders <70 w/o cc	Bed Days Variance	-99
		FCEs	29
		Trust ALOS	6.8
		Peer ALOS	2.5
E33	Angina >69 or w cc	Bed Days Variance	-96
		FCEs	22
		Trust ALOS	10.5
		Peer ALOS	5.1
E18	Heart Failure or Shock >69 or w cc	Bed Days Variance	-56
		FCEs	31
		Trust ALOS	11.4
		Peer ALOS	8.9
E29	Arrhythmia or Conduction Disorders >69 or w cc	Bed Days Variance	-34
		FCEs	25
		Trust ALOS	6.7
		Peer ALOS	4.7
E99	Complex Elderly with a Cardiac Primary Diagnosis	Bed Days Variance	-23
		FCEs	9
		Trust ALOS	13.6
		Peer ALOS	9.4
Total Bed Days Variance			-2002

Total FCEs	418
Total Trust ALOS	12.4
Total Peer ALOS	4.9

<b>TABLE A5</b>	<b>OBSTETRICS</b>		
<b>CMG</b>	<b>HRG Description</b>	<b>Data</b>	<b>Total</b>
N12	Other Maternity Events	Bed Days Variance	-959
		FCEs	446
		Trust ALOS	4.2
		Peer ALOS	2.0
N09	Assisted Delivery w/o cc	Bed Days Variance	-350
		FCEs	140
		Trust ALOS	5.2
		Peer ALOS	2.7
N06	Normal Delivery w cc	Bed Days Variance	-126
		FCEs	87
		Trust ALOS	5.7
		Peer ALOS	4.0
N07	Normal Delivery w/o cc	Bed Days Variance	-37
		FCEs	712
		Trust ALOS	2.1
		Peer ALOS	2.1
N10	Caesarean Section w cc	Bed Days Variance	-37
		FCEs	133
		Trust ALOS	6.9
		Peer ALOS	6.8
M09	Threatened or Spontaneous Abortion	Bed Days Variance	-9
		FCEs	5
		Trust ALOS	3.4
		Peer ALOS	1.5
M02	Lower Genital Tract Intermediate Procedures	Bed Days Variance	0
		FCEs	1
		Trust ALOS	2.0
		Peer ALOS	-
F47	General Abdominal Disorders <70 w/o cc	Bed Days Variance	1
		FCEs	1
		Trust ALOS	1.0
		Peer ALOS	1.7
N08	Assisted Delivery w cc	Bed Days Variance	9
		FCEs	20
		Trust ALOS	7.0
		Peer ALOS	4.5
N11	Caesarean Section w/o cc	Bed Days Variance	155
		FCEs	459
		Trust ALOS	4.0
		Peer ALOS	4.3
Total Bed Days Variance			-1353
Total FCEs			2004
Total Trust ALOS			3.8

Total Peer ALOS	2.7
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<b>TABLE A6</b>	<b>MIDWIFE EPISODE</b>		
<b>CMG</b>	<b>HRG Description</b>	<b>Data</b>	<b>Total</b>
N12	Other Maternity Events	Bed Days Variance	-370
		FCEs	458
		Trust ALOS	2.6
		Peer ALOS	1.8
N07	Normal Delivery w/o cc	Bed Days Variance	-232
		FCEs	1107
		Trust ALOS	1.9
		Peer ALOS	1.7
N06	Normal Delivery w cc	Bed Days Variance	-114
		FCEs	105
		Trust ALOS	3.6
		Peer ALOS	2.5
N09	Assisted Delivery w/o cc	Bed Days Variance	-25
		FCEs	190
		Trust ALOS	2.7
		Peer ALOS	2.6
N08	Assisted Delivery w cc	Bed Days Variance	0
		FCEs	15
		Trust ALOS	12.1
		Peer ALOS	-
M09	Threatened or Spontaneous Abortion	Bed Days Variance	0
		FCEs	2
		Trust ALOS	2.0
		Peer ALOS	-
N10	Caesarean Section w cc	Bed Days Variance	0
		FCEs	84
		Trust ALOS	10.5
		Peer ALOS	-
F42	General Abdominal - Very Major or Major Procedures <70 w/o cc	Bed Days Variance	0
		FCEs	1
		Trust ALOS	1.0
		Peer ALOS	-
N11	Caesarean Section w/o cc	Bed Days Variance	125
		FCEs	469
		Trust ALOS	4.6
		Peer ALOS	4.1
Total Bed Days Variance			-616
Total FCEs			2431
Total Trust ALOS			3.1
Total Peer ALOS			2.0

**MIGRATION TO DAY CASE**

<b>TABLE B1</b>	<b>GENERAL SURGERY</b>		
<b>CMG</b>	HRG Description	Data	Total
U01	Invalid Primary Diagnosis	Baseline Day Cases	159
		Benchmark Day Cases	360
		Variance	201
Q14	Diagnostic Radiology - Arteries or Lymphatics w/o cc	Baseline Day Cases	1
		Benchmark Day Cases	32
		Variance	31
Q11	Varicose Vein Procedures	Baseline Day Cases	3
		Benchmark Day Cases	57
		Variance	54
Q07	Miscellaneous Intermediate or Minor Vascular Procedures	Baseline Day Cases	2
		Benchmark Day Cases	13
		Variance	11
J37	Minor Skin Procedures - Category 1 w/o cc	Baseline Day Cases	10
		Benchmark Day Cases	15
		Variance	5
G14	Biliary Tract - Major Procedures <70 w/o cc	Baseline Day Cases	1
		Benchmark Day Cases	7
		Variance	6
F74	Inguinal Umbilical or Femoral Hernia Repairs <70 w/o cc	Baseline Day Cases	3
		Benchmark Day Cases	35
		Variance	32
F73	Inguinal Umbilical or Femoral Hernia Repairs >69 or w cc	Baseline Day Cases	2
		Benchmark Day Cases	12
		Variance	10
F72	Abdominal Hernia Procedures <70 w/o cc	Baseline Day Cases	1
		Benchmark Day Cases	9
		Variance	8
Total Baseline Day Cases			197
Total Benchmark Day Cases			561
Total Variance			364

<b>TABLE B2</b>	<b>E.N.T.</b>		
<b>CMG</b>	HRG Description	Data	Total
U01	Invalid Primary Diagnosis	Baseline Day Cases	100
		Benchmark Day Cases	171
		Variance	71
F05	Oesophagus - Therapeutic Endoscopic or Intermediate Procedures w/o cc	Baseline Day Cases	1
		Benchmark Day Cases	6
		Variance	5
C34	Mouth or Throat Procedures - Category 4	Baseline Day Cases	12
		Benchmark Day Cases	29
		Variance	17
C32	Nose Procedures - Category 4	Baseline Day Cases	5
		Benchmark Day Cases	47
		Variance	42
C31	Ear Procedures - Category 4	Baseline Day Cases	1
		Benchmark Day Cases	12
		Variance	11
C24	Mouth or Throat Procedures - Category 3	Baseline Day Cases	93
		Benchmark Day Cases	99
		Variance	6
C22	Nose Procedures - Category 3	Baseline Day Cases	7
		Benchmark Day Cases	52
		Variance	45
C14	Mouth or Throat Procedures - Category 2	Baseline Day Cases	12
		Benchmark Day Cases	20
		Variance	8
Total Baseline Day Cases			231
Total Benchmark Day Cases			438
Total Variance			207

<b>TABLE B3</b>	<b>TRAUMA &amp; ORTHOPAEDICS</b>		
<b>CMG</b>	HRG Description	Data	Total
U01	Invalid Primary Diagnosis	Baseline Day Cases	20
		Benchmark Day Cases	67
		Variance	47
S22	Planned Procedures Not Carried Out	Baseline Day Cases	51
		Benchmark Day Cases	69
		Variance	18
H40	Closed Upper Limb Fractures or Dislocations <70 w/o cc	Baseline Day Cases	5
		Benchmark Day Cases	11
		Variance	6
H19	Soft Tissue or Other Bone Procedures - Category 2 <70 w/o cc	Baseline Day Cases	8
		Benchmark Day Cases	23
		Variance	15
H14	Hand Procedures - Category 2	Baseline Day Cases	10
		Benchmark Day Cases	18
		Variance	8
H13	Hand Procedures - Category 1	Baseline Day Cases	86
		Benchmark Day Cases	107
		Variance	21
H10	Arthroscopies	Baseline Day Cases	32
		Benchmark Day Cases	49
		Variance	17
Total Baseline Day Cases			212
Total Benchmark Day Cases			344
Total Variance			132

<b>TABLE B4</b>	<b>GYNAECOLOGY</b>		
<b>CMG</b>	HRG Description	Data	Total
U01	Invalid Primary Diagnosis	Baseline Day Cases	96
		Benchmark Day Cases	141
		Variance	45
S22	Planned Procedures Not Carried Out	Baseline Day Cases	34
		Benchmark Day Cases	46
		Variance	12
M06	Upper Genital Tract Intermediate Procedures	Baseline Day Cases	350
		Benchmark Day Cases	490
		Variance	140
M02	Lower Genital Tract Intermediate Procedures	Baseline Day Cases	217
		Benchmark Day Cases	237
		Variance	20
F44	General Abdominal - Endoscopic or Intermediate Procedures <70 w/o cc	Baseline Day Cases	55
		Benchmark Day Cases	65
		Variance	10
F42	General Abdominal - Very Major or Major Procedures <70 w/o cc	Baseline Day Cases	1
		Benchmark Day Cases	9
		Variance	8
Total Baseline Day Cases			753
Total Benchmark Day Cases			988
Total Variance			235



<b>TABLE B5</b>	<b>REHABILITATION</b>		
<b>CMG</b>	HRG Description	Data	Total
U01	Invalid Primary Diagnosis	Baseline Day Cases	0
		Benchmark Day Cases	8
		Variance	8
A34	Miscellaneous Disorders of Nervous System	Baseline Day Cases	0
		Benchmark Day Cases	9
		Variance	9
Total Baseline Day Cases			0
Total Benchmark Day Cases			17
Total Variance			17

**APPENDIX D:**

**Capital Expenditure - Option D Refurbish**

<b>Form OB1</b>				
<b>NPSM</b>				
		Cost Ex VAT	VAT	Total
		£	£	£
<b>Departmental Costs from OB2</b>		69,812,781	12,217,237	82,030,018
<b>Adjust to MIPS</b>	385	74,660,891	13,065,656	87,726,547
<b>On-costs from OB3</b>		38,715,420	6,775,198	45,490,618
<b>Works Cost Total</b>		113,376,311	19,840,854	133,217,165
<b>Location adjustment</b>	15%	17,006,447	2,976,128	19,982,575
<b>Sub-t</b>		130,382,757	22,816,983	153,199,740
<b>Fees</b>	14%	18,253,586	0	18,253,586
<b>Non works costs from OB4</b>		2,100,000	0	2,100,000
<b>Equipment from OB2 (11.81%)</b>	EPI at 100	8,248,960	1,443,568	9,692,528
<b>Adjust to EPI</b>	108	8,908,877	1,559,053	10,467,930
<b>Planning contingency</b>	10%	15,964,522	2,437,604	18,402,126
<b>Total Excluding Optimism Bias</b>	2003/4	175,609,742	26,813,640	202,423,382
<b>Optimism Bias</b>	25%	43,902,436	6,703,410	50,605,845
<b>Total Including Optimism Bias</b>		<b>219,512,178</b>	<b>33,517,049</b>	<b>253,029,227</b>
<b>Inflation adjustments to Qtr 2 2006</b>	MIPS VOP 453 / EPI 114	37,287,937	5,660,362	42,948,298
<b>Total at Contract Close</b>		256,800,115	39,177,411	295,977,526

<b>Optimism Bias - Upper Bound Calculation</b>	
<b>Lowest % Upper Bound</b>	13%
<b>Mid %</b>	40%
<b>Upper %</b>	76%
<b>Actual % Upper Bound for this project</b>	41%
<b>Mitigation Factor (see Mitigation sheet)</b>	39%
<b>Mitigated Bias</b>	25%

## Capital Expenditure - Option H/I Rebuild

<b>Form OB1</b>				
<b>NPSM</b>				
		Cost Ex VAT £	VAT £	Total £
Departmental Costs from OB2		94,718,655	16,575,765	111,294,419
Adjust to MIPS	385	101,296,339	17,726,859	119,023,199
On-costs from OB3		44,216,602	7,737,905	51,954,508
<b>Works Cost Total</b>		<b>145,512,942</b>	<b>25,464,765</b>	<b>170,977,706</b>
Location adjustment	15%	21,826,941	3,819,715	25,646,656
Sub-t		167,339,883	29,284,480	196,624,362
Fees	14%	23,427,584	0	23,427,584
Non works costs from OB4		1,100,000	0	1,100,000
Equipment from OB2 (7.32%)	EPI at 100	6,929,965	1,212,744	8,142,709
Adjust to EPI	108	7,484,362	1,309,763	8,794,126
Planning contingency	10.00%	19,935,183	3,059,424	22,994,607
Total Excluding Optimism Bias	2003/4	219,287,012	33,653,667	252,940,679
Optimism Bias	21%	45,151,196	6,929,290	52,080,486
Total Including Optimism Bias		264,438,207	40,582,957	305,021,165
Inflation adjustments to Qtr 2 2006	MIPS VOP 453 / EPI 114	45,504,016	6,957,557	52,461,573
		309,942,224	47,540,514	357,482,738

<b>Optimism Bias - Upper Bound Calculation</b>	
Lowest % Upper Bound	13%
Mid %	40%
Upper %	76%
Actual % Upper Bound for this project	36%
Mitigation Factor	42%
Mitigated Bias	21%