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Health Board



**Outline Business Case for Prince Charles Hospital  
Ground and First Floor Refurbishment – Scheme 3  
Executive Summary**

**Cwm Taf Health Board**

**February 2013**



## Executive summary (ES)

### Introduction

1. This Outline Business Case seeks approval for a capital investment of £119.8m (at MIPS Index level FP/VP 173) to fundamentally address the long standing and increasingly pressing statutory safety issues (fire and asbestos) within the ground and first floor areas of the Merthyr block of Prince Charles Hospital (PCH).
2. This OBC has been developed and prepared on the back of the approval of the Strategic Outline Case (SOC) which was granted in May 2012 at a revised value of £107.8m. A breakdown of the OBC cost and key movements since SOC are provided within the financial case below.
3. Specifically, it will address issues contained within a Fire Enforcement notice served on the organisation in December 2010 that was due to expire in December 2012. As much as Cwm Taf Health Board have been able to satisfy the immediate requirements of the fire authority who have now extended the original notice, to June 2014 in the first instance. This has only been achieved on the strength of some interim temporary works undertaken during 2012 and supported by progression of this business case to provide permanent remediation solutions to these issues. Failure to complete the associated and necessary permanent works within the timescales as defined in this business case would ultimately result in the enforcement notice being enacted with resultant prosecution and potential closure of Prince Charles Hospital.
4. This follows the approval of a Full Business Case for the refurbishment of the 12 inpatient wards in the main Merthyr Block to address the same statutory fire and asbestos issues. This work commenced in August 2008 and is well advanced with a final completion date of early 2013.
5. The proposal seeks to utilise the unique opportunity that this presents to improve patient care and achieve greater efficiency by redesigning and relocating departments to meet modern accommodation standards and to support the organisation's strategic service plans.

### Strategic Case

#### The Strategic Context

6. Cwm Taf LHB has set out its 5 year Service Workforce and Financial Framework for 2011-16 which identifies the key challenges to maintaining clinically and financially sustainable services and the immediate priorities for closing the financial gap whilst maintaining quality of care and continuing to meet national performance standards.
7. In order to meet the financial challenge, whilst also best meeting the needs of the local population, the LHB is redesigning both systems and services. This requires not just a shift of resources from hospital services into integrated, community health and social care teams but also a major reconfiguration of acute services to ensure that a sustainable service model is developed.
8. Whilst there will be some focussing of more specialist clinical services on a single acute site, within Cwm Taf the role and function of the provision of local acute care at both Royal Glamorgan and Prince Charles hospitals will continue.
9. There is ongoing work at a regional level to ensure that the emerging model for a network of specialist, local and community hospitals provides integrated systems of care and Prince Charles Hospital will have a significant role in the regional network.

10. Recognising there are still some unanswered questions over the regional delivery model for certain strategic services, namely 24/7 consultant led neonatal, obstetrics, paediatrics and major trauma, which are currently out to engagement and consultation across South Wales, the plans within this case have been developed to allow flexibility with minimal impact in response to the eventual model should the service mix change for these elements at PCH.
11. This service redesign work across acute and community settings to provide an integrated system of care will continue to be taken forward in conjunction with the FBC planning to ensure that the redesigned environment acts as a catalyst for change which will enable the implementation of the emerging model of care.
12. The themes and direction within the LHB's 5 year plan for this investment and associated strategies, programmes and plans are consistent with current national, regional and local strategy and policy documents including: Better Health, Better Wales, One Wales, Our Healthy Future, Primary and Community Services Strategic Delivery Programme – Setting the Direction, the directions outlined in the consultation document Together for Health, the Cwm Taf LHB 5 year plan and the Merthyr Tydfil Health & Social Care Wellbeing Strategy
13. The LHB has been managing a significant capital programme in support of its strategic service model and estates strategy. This includes the construction of the new Ysbyty Cwm Cynon, opened in the spring of 2012, which has replaced Aberdare and Mountain Ash Hospitals, the Keir Hardie Health Park opened in October 2012 which has facilitated the transfer of services from St Tydfil's Hospital and The Hollies and Seymour Berry Health Centres, a new Emergency Care Centre and Day Surgery Unit at PCH and of course the major Ward Refurbishment programme at PCH. Consequently this Business Case is seen as one of the final key pieces in the LHB's estates redevelopment programme to facilitate major service reconfiguration for the Merthyr and Cynon locality areas within Cwm Taf.

### **The Case for Change**

14. The proposal has two fundamental statutory drivers in relation to the failing estate. There is also a key opportunity linked to the need for service change. The existing situation and case for change for each of these is set out below:
  - **Fire Prevention and Safety Compliance**
  - The majority of the ground and first floor area is currently failing to comply with current fire legislation. This was first identified in the Welsh Health Estates (WHE) Fire Risk Assessment dated December 1996 and has remained a high risk for Cwm Taf Health Board and its predecessor organisations since then. The Fire Authority indicated at the SOC stage that their assessment was that Prince Charles Hospital was the highest risk public building in Wales.
  - The existing asbestos spray coating fire protection to the steel frame has become friable over time and has deteriorated to such an extent that the level of fire protection to the steel frame is substantially reduced.
  - In addition, large areas of the ground and first floor building have either non-existent or insufficient levels of fire compartmentation and fire stopping. Furthermore, various other fire safety issues prevail in the form of inadequate fire doors, fire fighting equipment and appropriate means of detection.
  - As a consequence, two Enforcement Notices were served upon the Health Board. One, relating to the central core of the hospital, has now been resolved, but the one relating to the ground and first floor areas remains outstanding. The original enforcement notice expired in December 2012 and only on the strength of the interim temporary fire precaution works undertaken across 2012 and the progression of this OBC to provide

permanent solutions has it now been extended in the first instance for an additional 18 month period and it remains a legal requirement to comply with the extended notice.

- The Ward Refurbishment scheme, which commenced in 2008, was approved to deal with the same issues in the 12 wards in the main Merthyr Block of the hospital. This work will be completed in early 2013.
- **Asbestos Removal**
- Sprayed asbestos coating has been used throughout the building to provide fire protection to the structural steel frame. Progressive deterioration and damage has resulted in widespread asbestos contamination within the ceiling voids above the wards, and air currents have spread asbestos fibres into other connecting voids and cavities.
- The resultant asbestos contamination is now reaching the stage where basic maintenance of the building infrastructure is hindered through a requirement to test and rectify individual areas when undertaking essential maintenance tasks in voids, lift shafts or above ceilings and or when undertaking even minor improvement works within departmental areas. Consequently the costs of maintaining PCH is rapidly increasing and even small jobs now have significant impacts on service delivery.
- **Service Delivery**
- In relation to service delivery the Ground and First floor areas of Prince Charles Hospital encompass the main clinical support services, together with key non-clinical support departments. Services include main theatres, critical care, radiology, pathology, pharmacy, endoscopy, main outpatients, therapies, catering, CSSD, and the Medical Education and Training centre.
- For some services, the location and proximity to other related services within PCH was planned. However, many additional services have been incorporated into the hospital over the years, or have been moved on a piecemeal basis. Consequently many are no longer ideally positioned or in suitable accommodation to meet their needs, adding delays in the care pathways and hindering best practice opportunities.
- Added to this some of the recent major capital investments have enabled the integration of “hot” emergency care services in the new Emergency Care Centre. This scheme complements those changes and ensures that ground and first floor services can be best positioned both in terms of appropriate service adjacency, patient flow and also public accessibility.
- Due to phased implementation, decant requirements and clinical adjacency improvements outlined above some services that lie outside of directly affected (fire & asbestos) areas on the PCH site may need to be considered within the remodelling solutions so as to ensure best fit and accessibility for patients across the whole site. At the same time the phased decant needs will provide some opportunity at the back end of the scheme, when decant areas are finally vacated, for other service accommodation solutions across Cwm Taf.

### **The Investment Objectives**

15. The investment objectives for the scheme are:-

- Statutory fire compliance with the Regulatory Reform (fire Safety) Order 2005\* at the Prince Charles Hospital site.

- Removing the potential risk of asbestos exposure to patients, visitors and staff within the original building of Prince Charles Hospital, resulting in compliance with the Health and Safety at Work etc Act 1974, the Management of Health and Safety at Work Regulations, 1999 and Control of Asbestos Regulations 2006.
- To improve service efficiency, quality and productivity in line with the wider Cwm Taf LHB clinical and financial strategic direction.
- To redesign clinical areas, as currently provided from within the ground and first floor areas of PCH in line with accommodation standards to provide flexible, safe and welcoming accommodation in support of improved productivity and future proofing against emergent strategies.

A clear set of benefit criteria associated with these investment objectives along with key measurements and timescales for their achievement (SMART criteria) has been identified within the appendices to this business case, along with the main strategic risks, constraints and dependencies of the project.

## Economic Case

### The Long-list

16. The following options were originally considered using the Options Framework and compared against the investment objectives and critical success factors for the scheme at SOC. These have subsequently been reviewed during the OBC and the only key changes can be found under 1.4 and 2.9:

Options	Finding
<b>1.0 Scope</b>	
1.1 "Do Nothing"	Discounted – This option has been discounted as it fails to take account of the investment objectives for the scheme. It is taken forward only for the purposes of providing a cost comparison.
1.2 "Minimum" scope	Possible - This option would address the pressing statutory safety issues (fire and asbestos) but would not realise the advantages of service improvements that the opportunity presents.
1.3 "Intermediate" scope	Preferred- This option would address the pressing statutory safety issues (fire and asbestos) but would, in addition, provide the central focus for the remodelled delivery of care across the PCH site, thus delivering the investment objectives for this project.
1.4 "Maximum" scope	<b>Possible (Preferred Plus)</b> - This option could in theory provide for an extended scope solution. As much as the existing building envelope does not have the suitable capacity the potential to deliver more of the service elements from HBN HTM compliant accommodation is desirable. A relatively minor expansion to the site footprint could both assist with this and further enhance patient flows. It is recognised this would attract both greater capital and revenue costs however in order to further analyse the potentials of this option it has been included at OBC and will also provide greater cost comparisons for the other short listed options.
<b>2.0 Technical Solutions</b>	
2.1 – Do Nothing	Discounted - This option has been discounted as it fails to take account of the investment objectives and critical success factors for the scheme.

	It is taken forward only for the purposes of providing a baseline for cost comparison.
2.2 – Address fire safety issues and only related enabling asbestos works	Discounted - To only seek to address the statutory fire safety issues is considered too short sighted, given the known asbestos management issues across the site and in recognition of the ongoing Health & Safety Executive enforcement notices placed upon the virtually identical Glan Clwyd Hospital in North Wales.
2.3 – Address all fire and asbestos works and like for like refurbishment	Possible - This option is possible as it provides for a level of long term building sustainability but fails to enable improved patient care, improved service delivery or realise other service benefits.
2.4 – Address all fire and asbestos works and reconfigure and provide accommodation for new model of care	Preferred - This option is preferred as it provides an ideal level of long term flexible building sustainability and configuration combined with optimising the service benefits for patients and staff for the delivery of the new model of care. This is considered the ideal solution to meet the investment objectives and offers the best return on the investment.
2.5 – Address all fire & asbestos works and reprovide in linked new build accommodation	Discounted - This option is discounted on the grounds of unacceptable fire safety management for a partially occupied site and increased patient risk arising from separation of key service functions.
2.6 – New Build DGH suited to new model of care	Discounted - This option is discounted on the basis of lack of strategic fit both at a local LHB level and Welsh Government level, given recent and ongoing major capital investment in estate improvements across the site at PCH.
2.7 – Address all fire & asbestos works and reprovide core elements within RGH	Discounted - This option has been discounted as it is not considered a long term sustainable solution both in terms of risk and also strategic fit for service delivery.
2.8 – Address all fire & asbestos works and seek alternative local provider for core elements	Discounted - Both in the absence of any viable alternative local provider and its inherent patient safety issues this option has been discounted
2.9 – Address all fire and asbestos works and reconfigure and provide accommodation for an extended scope new model of care	<b>Possible – Retained at OBC</b> to reflect a realistic “plus” / aspirational option that although not immediately achievable within the existing building envelope would only require a comparatively small amount of additional build footprint. Retaining this option for more detailed appraisal also provides greater comparison and sensitivity to the other options being considered within the short list.
2.10 - New Build DGH suited to extended scope new model of care	Discounted - This option has been discounted for the same fundamental failings as identified under the lesser scope new build DGH option 2.6 above
<b>3.0 Service Delivery</b>	
3.1 In-house	Preferred - This option would retain one overall point of responsibility /accountability and control together with sustainable expertise and staffing levels.
3.2 Outsource	Discounted - This option has the potential of loss of control, expertise and staffing levels and maintaining these integrated specialist service links to other aspects across PCH is considered fundamentally critical.
3.3 Strategic Partnership	Discounted - This option also has the potential of loss of control, expertise and staffing levels and maintaining these integrated specialist service links to other aspects across PCH is considered fundamentally

	critical.
<b>4.0 Implementation</b>	
4.1 Big Bang	Possible - This approach is only possible for new build DGH and Link new build options and would reduce the impact on working clinical areas during development and the overall reduced time.
4.2 Phased	Preferred - This option is preferred as it supports the delivery options that are most viable and sustainable and is the approach that would be required to mitigate the impact on clinical areas. The refurbishment options are only possible under a phased approach.
<b>5.0 Funding</b>	
5.1 Private Funding	Discounted - It has been determined by the WG that subject to approval this scheme will be publicly funded as part of the All Wales Capital Expenditure Programme, it will be unnecessary to consider the use of alternative methods of finance.
5.2 Public Funding	Preferred - It has been determined by the WG that this scheme, subject to business case approval, will be publicly funded as part of the NHS Capital Expenditure Programme.

### The Preferred Way Forward

17. On the basis of the above analysis, the preferred and recommended way forward based on totality of the preferred choices within each of the above categories is as follows:

- **Scope:** Option 1.3 Intermediate scope - This option would address the pressing statutory safety issues (fire and asbestos) but would, in addition, provide the central focus for the remodelled delivery of care across the PCH site, thus delivering the investment objectives for this project.
- **Solution:** Option 2.4 Address all fire and asbestos works and reconfigure and provide accommodation for new model of care -This option is preferred as it provides an ideal level of long term flexible building sustainability and configuration combined with optimising the service benefits for patients and staff for the delivery of the new model of care. This is considered the ideal solution to meet the investment objectives and offers the best return on the investment
- **Service Delivery:** Option 3.1 - In-house delivery - This option would retain one overall point of responsibility /accountability and control together with sustainable expertise and staffing levels.
- **Implementation:** Option 4.2 – Phased approach - This option is preferred as it supports the delivery options that are most viable and sustainable and is the approach that would be required to mitigate the impact on clinical areas. The refurbishment options are only possible under a phased approach.
- **Funding:** Option 5.2. – Public Funding - It has been

determined by the WG that this scheme, subject to business case approval, will be publicly funded as part of the NHS Capital Expenditure Programme.

18. The preferred way forward best meets the investment objectives for the scheme and therefore presents the opportunity to realise the main benefits to patients, clinicians and NHS administrators, which are as follows:
19. Benefits are expressed as follows:
- **CRB** – cash releasing benefits (e.g. avoided costs)
  - **Non CRB** – non cash releasing benefits (e.g. staff time saved)
  - **QB** – quantifiable benefits (e.g. achievement of targets)
  - **Non QB** – non-quantifiable or qualitative benefits (e.g. improvement in staff morale)

Benefit Criteria	Stakeholder Group	Benefits
Comply with fire/asbestos obligations	Patients & staff	<p>Non QB – Provide a safe and secure environment both within the G&amp;FF areas and consequently across the site as a whole</p> <p>Non CRB – avoidance of potential litigation with regard to asbestos exposure</p>
	Health Community	<p>Non CRB – Reduced building maintenance issues due to improved specification of refurbished areas</p> <p>Non CRB - Reduced potential impacts in the event of fire occurring both in terms of resulting remediation and potential litigation</p> <p>Non QB – Allow Cwm Taf LHB to meet its statutory obligations in respect of the Fire compliance and Enforcement notice in a timely fashion and also it's statutory obligations for asbestos management</p>

Benefit Criteria	Stakeholder Group	Benefits
Develop/improve existing services and co-location;	Patients	<p>QB – reductions in hospital acquired infection rates resulting from increased laminar flow provision and improved recovery bay spacing;</p> <p>QB – reductions in patient attendances as facilities support one-stop clinics reducing patients need to attend hospital on multiple occasions;</p> <p>Non QB – shorter patient journeys across the hospital through co-location of key services e.g. 23.59 and theatres/recovery</p> <p>Non QB – new inpatient therapy suite to maintain privacy of inpatients from outpatients, located for ease of access from wards.</p>
	Staff	<p>Non QB – Enable teams to work efficiently and effectively. E.g. co-location of all radiology modalities; incorporation of clinical engineering and equipment library adjacent to theatres/Critical care and lifts to wards; new designated trauma lift to link Emergency with theatres/Critical Care and first floor of wards</p> <p>QB – Improved clinical pathways allowing timely delivery of care e.g. 23.59 facility located adjacent to theatre recovery</p> <p>QB – Improved reconfiguration / co-location allows more effective service delivery through co-ordinated services e.g. a straight line flow within pharmacy to enable progressive receipt/store and dispensary functions</p>
	Health Community	<p>QB – Effect a shift in greater provision of community and primary care delivery as part of the Cwm Taf wider strategic direction – support a shift from acute to community.</p> <p>Non QB – enable the delivery of modern clinical care and extended range of options for delivery (e.g. modern theatre settings)</p> <p>QB – support the achievement of reduced waiting times and average LOS in certain specialties e.g. across surgical specialties</p> <p>QB – phasing geared to deliver new high tech patient facilities earlier in the programme i.e. theatres/critical care</p>

Benefit Criteria	Stakeholder Group	Benefits
Improve environmental quality	Patients	<p>QB – Provide welcoming, safe and appropriate environments of care for patients and visitors e.g. Enhanced Procedure suite will provide less frightening environment with adjacent chair recovery area, minimising patient movement post procedure and exposure to main theatre environment; new ambulatory entrance/concourse/waiting areas and streaming of patient and visitor flows.</p> <p>Non QB – Improved privacy and dignity across a number of clinical areas e.g. Out patients no longer seen in various poorly supported disparate locations across the site e.g. pathology Ward 15 etc ; recovery areas spaced to allow maximum privacy; waiting areas separated from clinical areas; separate male/female change areas.</p>
	Staff	Non QB - Enable separation of dirty and clean supplies/waste flows with designated storage areas so corridors kept clear
	Health Community	<p>QB – Improved BREEAM rating</p> <p>QB - Achievement of a good AEDET score</p> <p>QB - Compliance with Fire, Health &amp; Safety and DDA standards</p> <p>QB - Compliance with HBNs, HTMs and HIW standards wherever possible.</p> <p>QB – Improved environments to enable productivity gains in certain specialties.</p> <p>QB – Meet recognised environmental sustainability through provision of modern technical building management solutions</p> <p>CRB – Remove various short life expectancy, thermally inefficient “temporary structure” accommodation around the PCH site through reintegration into the main building envelope, so that no patients seen in ‘cabin’ accommodation i.e. re-integration of accommodation to suit Diabetes Centre, Aseptic suite, Transfusion Unit, Dental training, Bed Store, IT &amp; Server rooms.</p> <p>CRB – Realise revenue benefits of new efficient M&amp;E plant solutions. E.g. Absorption chiller , LED lighting</p>
Strategic fit/flexibility of solution	Patients	Non QB – new trauma lift sized for bariatric patients to enable bariatric patient transfer from Emergency to theatres and onwards to ward

Benefit Criteria	Stakeholder Group	Benefits
	Staff	<p>Non QB – design and layout with additional lifts to improve separation of staff, patients, visitors and FM traffic</p> <p>CRB – Redesign of shared reception areas and use of technology solutions for appointment management releases various admin resources.</p>
	Health Community	<p>Non QB – Strategic fit for co-ordinated development of services to remove and prevent duplication.</p> <p>Non QB – generic rooms built to HBN standards to maximise flexibility for adaptation of services as delivery models develop and/or types of service change</p> <p>Non QB – critical care unit designed and located to enable future development as level 1 or 2 unit</p>
Enhance teaching and training	Patients	<p>Non QB – Maintaining and enhancing the educational facilities will cement and improve local access to some of today's (and the futures) leading clinicians who will seek to stay / join Cwm Taf accordingly.</p>
	Staff	<p>Non QB – new dedicated education facilities with appropriate accommodation to support the delivery of high quality health care and enable the hospital to attract and retain staff of the highest calibre</p>
	Health community	<p>Non QB – provide and continue to support and develop training opportunities associated with modern practice</p> <p>QB – centrally managed meeting/teaching/education space to maximise flexibility and availability of resources</p>
Improve access to services	Patient	<p>Non QB – improve access and patient flows within the building and across the site as a whole e.g. pharmacy adjacent to outpatients reducing patient travel distances within the hospital through drawing forward all outpatient settings to be nearest the access points to the site; 4 additional lifts to support and improve patient/supplies and visitor flows</p> <p>Non QB - accessibility improved helping to reduce patient stress through improved parking facilities, prominent and conveniently located ambulatory entrance and a clearly comprehensible ambulatory circulation pattern to aid orientation and wayfinding.</p>

Benefit Criteria	Stakeholder Group	Benefits
	Staff	<p>Non QB – improved staff morale, recruitment and retention through appropriate provision of staff support spaces for reporting, rest etc</p> <p>Non QB – out of hours access for staff to coffee/food prep area within dining facility</p> <p>Non QB – new FM lift to improve supplies/waste flows within the hospital</p> <p>Non QB – new trauma lift linking Emergency, theatres, Critical Care and first floor of wards</p>
	Health community	<p>Non QB – improved direct transfer route between helipad and emergency department to lessen disruption to the hospital site</p> <p>QB – additional car parking spaces to ease congestion on the site</p>
Ease of delivery	Patient	<p>Non QB – programme that minimises noise disruption by undertaking parallel ground and first floor refurbishment</p> <p>Non QB – temporary modular buildings used for staff support accommodation and not patient facilities in order to reduce patient access disruptions.</p>
	Staff	<p>Non QB – decant arrangements planned to reduce the requirement for services to move twice, to reduce disruption.</p> <p>QB – design and programme that enable Radiology to remain in current location and operational throughout, with no external decant facilities</p>
	Health community	<p>QB – design and programme that prevents the need for temporary theatre or other clinical decant facility. Other examples include Max Facs, Radiology, Pharmacy, Catering.</p> <p>Non QB – effective use of existing accommodation in Cynon and Rhymney blocks to minimise decant facilities and subsequent vacant space at the end of the project</p>

### The Short-list

20. Having reviewed the long list again at OBC it was established that there was little or no change to the SOC evaluation other than to include a viable “plus” option both for aspirational and cost comparison purposes and in response to scrutiny of the SOC. The resulting short list was subsequently recommended for further analysis in this Outline Business Case (OBC):-

- **Option 1 – “do nothing”** – this option is taken forward only for the purposes of providing a baseline for cost comparison. It fails to take account of the investment objectives for the scheme and is not considered a viable option.
- **Option 2 – “do minimum” / less preferred option:**
  - Scope: Minimum Scope
  - Solution: Fire & Asbestos only with like for like refurbishment
  - Service Delivery: In-house
  - Implementation: Phased
  - Funding: Public funding
- **Option 3 – the Preferred Way Forward:**
  - Scope: Intermediate Scope
  - Solution: Fire & Asbestos and Reconfigure for new model of care
  - Service Delivery: In-house
  - Implementation: Phased
  - Funding: Public funding
- **Option 4 – the Preferred Plus option:**
  - Scope: Intermediate Scope
  - Solution: Fire & Asbestos and Reconfigure for extended new model of care
  - Service Delivery: In-house
  - Implementation: Phased
  - Funding: Public funding

21. A full evaluation of these options including a benefits appraisal and value for money assessment has been conducted as part of this Outline Business Case.

### **Economic Appraisal of Short listed Options**

#### **Introduction**

22. This section describes the economic appraisal that has been undertaken to assess the overall value for money to the NHS of each short listed option.

23. A discounted cash flow for each option has been undertaken over a period of 35 years (plus initial construction) as options 2, 3 and 4 involve a refurbishment of the current building. Option 1, as the Do Nothing option, has a life provided by the DV in the latest valuation. A discount rate of 3.5% has been used for years 0 to 30 and 3% for years 31 onwards in accordance with the requirements of the HM Treasury and the Green Book.
24. Both the Net Present Cost (NPC) and Equivalent Annual Cost (EAC) have been calculated. The EAC is used for the basis of comparison in this case due to the different life spans of the options, as it converts the NPC to an annual comparative figure.
25. The following sections summarise the cost categories and values associated with each shortlisted option that are input into the cash flow model in order to calculate the net present value costs and equivalent annual costs. The categories are:-
- Capital cost
  - Optimism Bias
  - Lifecycle costs
  - Revenue costs

### Capital Costs

26. LHB's cost advisors, Gleeds, prepared the capital cost estimates for option 2, 3 and 4. The capital costs reflect the statutory fire and asbestos issues as well as the functional content required which is directly linked to the activity / capacity planning that the LHB have developed. Capital and lifecycle costs were provided by Gleeds at MIPS Index level FP/VP 173 for options 2 to 4.
27. No capital costs have been developed for the Do Nothing solution which is a benchmark option only. However Lifecycle costs have been increased to reflect the increased maintenance/replacement that will be required
28. The following table sets out the capital requirements for the other short listed options:-

**Figure 5-1 : Capital Funding Requirement (£'000)**

	Option 1 Do Nothing	Option 2 Do Minimum	Option 3 Preferred	Option 4 Preferred Plus
		£'000	£'000	£'000
<b>Works Cost Total</b>		<b>68,694</b>	<b>70,816</b>	<b>79,421</b>
Fees		13,050	13,453	15,084
Non works costs		4,605	2,605	2,605
Equipment Costs		6,667	6,667	6,667
Quantified Capital Risk		13,952	11,692	15,566
<b>Subtotal</b>		<b>106,969</b>	<b>105,232</b>	<b>119,343</b>
VAT @ 20%		15,072	14,518	16,567

<b>Total Project Cost at MIPS FP/VP 173</b>		<b>122,040</b>	<b>119,750</b>	<b>135,910</b>
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### Optimism Bias

29. Optimism Bias has been included for the purposes of the economic appraisal in line with the Department of Health guidance and templates. The results are set out in Table ES1 below.

**Table ES1 - Calculation of Optimism Bias for the Shortlisted Options (£'000)**

Option 2 Do Minimum		Option 3 Preferred		Option 4 Preferred Plus	
%	£'000	%	£'000	%	£'000
31.60%	21,707	28.44%	20,140	29.63	23,532

30. It can be seen that all the options have relatively high levels of Optimism Bias as they involve significant work on an existing site (PCH) and at this stage only high level plans have been developed with limited consultation with end users.
31. Option 2 Do Minimum has the highest percentage compared to the other two options as the construction phase is far longer which increases the risk around policy/service changes and funding availability.
32. The calculations produced by the HB's cost advisors can be found in **Appendix D**.

### Lifecycle Costs

33. The LHB's Cost Advisors have estimated life cycle costs for each of the options which are included in the discounted cash flow calculations. Table ES2 contains a summary of the lifecycle costs for each option with the detailed workings contained in the Estates Annex.

**Table ES2 – Life Cycle Costs of Short Listed Options**

	Option 1 Do Nothing	Option 2 Do Minimum	Option 3 Preferred	Option 4 Preferred Plus
	£'000	£'000	£'000	£'000
Total Lifecycle Costs	95,083	90,707	76,039	79,360
Discounted Costs	50,369	38,313	34,986	37,043
Discounted EAC	2,396	1,605	1,525	1,615

### Revenue Costs

34. The baseline and future revenue cost for each option are based on a bottom up analysis of the proposed costs of the short listed options. These are presented in table ES3.....

**Table ES3: Revenue Cost Impact of Short-listed Options (excluding capital charges) - £000**

	Option 1 Do Nothing	Option 2 Do Minimum	Option 3 Preferred	Option 4 Preferred Plus
	£'000	£'000	£'000	£'000
Clinical Services costs	28,974	28,974	28,944	28,944
Non Clinical Services costs	3,099	3,099	3,099	3,099
Building Running Costs	4,259	4,990	5,010	5,112
<b>Total</b>	<b>36,332</b>	<b>37,063</b>	<b>37,053</b>	<b>37,155</b>
<b>Baseline</b>	<b>36,332</b>	<b>36,332</b>	<b>36,332</b>	<b>36,332</b>
<b>Impact</b>	<b>0</b>	<b>731</b>	<b>721</b>	<b>823</b>

See **Appendix F** for further details

35. The above table shows that the recurrent revenue costs in excess of the current levels of expenditure for the preferred option are £0.721m.
36. It is recognised that the costs and savings identified within the case are incremental and are restricted to those directly associated with the project itself. The HB will be required to find additional savings schemes in order to cover its on-going commitment to break-even year on year

### Transitional Costs for Short-listed Options

37. No additional transitional costs have been identified at this stage.

### Net Present Cost Analysis

38. A detailed discounted cash flow analysis for each option has been carried out using the GEM. Summary outcome reports are included in **Appendix D** together with the assumptions. The full GEM has also been submitted along with the OBC.
39. The following table in Figure ES4 summarises the results of the analysis on both NPC and EAC bases due to the differing life spans of each option:

**Figure – ES4 Summary outcome of GEM for the shortlisted options**

	Option 1 – Do Nothing		Option 2 – Do Minimum		Option 3 – Preferred		Option 4 - Preferred Plus	
	Total Cost	Net Present Cost (Value)	Total Cost	Net Present Cost (Value)	Total Cost	Net Present Cost (Value)	Total Cost	Net Present Cost (Value)
	£m	£m	£m	£m	£m	£m	£m	£m

Property & Opportunity costs	-12	2	-56	-6	-54	-7	-63	-9
Capital Costs	0		129	112	125	112	143	129
Lifecycle	95	50	91	38	76	35	79	37
Revenue Costs	1,308	764	1,834	929	1680	894	1684	896
Non- Cash Releasing Benefits (NCRB)	0				-52	-23	-62	-28
Total Costs	<b>1,391</b>	<b>816</b>		<b>1,073</b>		<b>1,011</b>		<b>1,024</b>
<b>EAC</b>		<b>38.8</b>		<b>44.9</b>		<b>44</b>		<b>44.6</b>
<b>Ranking</b>		<b>1</b>		<b>4</b>		<b>2</b>		<b>3</b>

40. Option 1 offers the lowest NPC and EAC of the short listed option once differing life spans are accounted for. This is a do nothing/ benchmark option and fundamentally fails to resolve the case for change issues outlined in the Strategic Context.
41. Of the refurbishment options 2, 3, and 4, option 3 (the preferred option) offers the lowest NPC and EAC.
42. Although the results appear numerically close it must be noted that these results are expressed in millions of pounds.

#### Risk Appraisal.

43. Risk workshops have been held with the Project Team, to review in detail the capital risk register developed with Gleeds. Revenue risks were removed from this register and input into a proforma, which has enabled the quantification of both capital and revenue risks for comparison.

■ **Figure ES5 : Outcome of the Risk Appraisal for the Short listed Options £'000**

Summary	Option 1 Do Nothing	Option 2 Do Minimum	Option 3 Preferred	Option 4 Preferred Plus
	£'000	£'000	£'000	£'000
Quantified Capital Risks	0	13,952	11,692	15,566
Rank	1	3	2	4
Optimism Bias	0	21,707	20,140	23,532
	1	3	2	4
Revenue Risk adjusted	1,660	961	750	854
	4	3	1	2
Overall Value	1,660	36,620	32,582	39,952
Ranking	1	3	2	4

44. Figure ES5 above illustrates the risk adjusted EAC scores of the short listed options. Option 1 offering the lowest EAC is a do nothing/ benchmark option and fundamentally fails to resolve the case for change issues outlined in the Strategic Context.

## The Preferred Option – Overall Conclusion of the Economic Appraisal

45. The results of the Economic appraisal are as follows:-

### Results of Economic Appraisal

Evaluation Results	Option 1 Do Nothing	Option 2 Do Minimum	Option 3 Preferred	Option 4 Preferred Plus
Economic Appraisal	1	4	2	3
Non Financial Qualitative Appraisal	4	3	2	1
Risk Appraisals	1	3	2	4

46. The Economic and Risk appraisals show that Option 1 offers the lowest EAC. This is a do nothing/ benchmark option and fundamentally fails to resolve the case for change issues outlined in the Strategic Case. Of the refurbishment options 2, 3, and 4, option 3 (the preferred option) offers the lowest NPC and EAC.
47. The results of the Non Financial Benefits appraisal show that Option 4 ranks the highest but it also has much higher capital and revenue costs and consequently has the worst risk appraisal ranking.
48. Therefore the preferred option identified by the LHB is Option 3.

## Commercial Case

### Procurement Strategy

49. The Procurement Strategy employed will be via the *Designed for Life: Building for Wales Framework* which provides the construction procurement and delivery framework for major capital projects with a total cost in excess of £6 million.
50. The separate approval for SCP appointment to OBC stage only has enabled Cwm Taf Health Board to take advantage of preferential rates for FBC and scheme delivery under the more recently negotiated D4L3 framework.
51. As much as continuity of SCP between OBC and FBC would have been desirable this option is not available to the Health Board as a consequence of the Laing O'Rourke Supply Chain not being selected for D4L3. Mitigation of risks to the FBC programme and scheme delivery have been developed and early selection of the SCP for the FBC and scheme delivery is a key part

to this. Formal appointment of the SCP for FBC and scheme delivery will occur upon approval of this OBC. Other risks and counter measures associated with this have been identified and included with the attached risks register.

### Required Services

52. The Supply Chain Partner (SCP) for FBC and scheme delivery will be selected via and appointed through the *Designed for Life: Building for Wales Framework*

## Financial Case

### Introduction

53. The purpose of this section is to set out the indicative financial implication of the short listed options.
54. This essential refurbishment will not only address the remaining pressing statutory issues at the PCH site but will provide a very necessary new lease of life for the provision of modernised health care in a format fit for the 21<sup>st</sup> Century.
55. The LHB has conducted a bottom up financial appraisal of the short listed options. The results of this analysis are presented in Figure ES6 for 2012/13.

**Figure – ES6 : Financial Appraisal of short listed Options £'000)**

	Option 1 Do Nothing	Option 2 Do Minimum	Option 3 Preferred	Option 4 Preferred Plus
	£'000	£'000	£'000	£'000
Capital Charges	1.126	1.805	2.101	2.239
Clinical costs	28.974	28.974	28.944	28.944
Non clinical costs	3.099	3.099	3.099	3.099
Building running costs	4.259	4.990	5.010	5.112
<b>Total</b>	<b>37.458</b>	<b>38.868</b>	<b>39.154</b>	<b>39,394</b>
Baseline	37.458	37.458	37.458	37.458
Impact	<b>0</b>	<b>1.410</b>	<b>1.696</b>	<b>1.936</b>

Source: OB1 forms

### Capital Costs

56. The LHB's cost advisors Gleeds have prepared the capital cost estimates for the short listed options. The capital costs reflect the functional content required by the LHB. The OB forms have been produced for each shortlisted option at MIPS index level FP/VP 173.
57. The following table sets out the capital requirements for the short listed options:-

**Figure ES7 : Capital Funding Requirement (£'000)**

	Option 1 Do	Option 2 Do	Option 3 Preferred	Option 4 Preferred
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	Nothing	Minimum		Plus
		£'000	£'000	£'000
<b>Works Cost Total</b>		<b>68,694</b>	<b>70,816</b>	<b>79,421</b>
Fees		<b>13,050</b>	<b>13,453</b>	<b>15,084</b>
Non works costs		<b>4,605</b>	<b>2,605</b>	<b>2,605</b>
Equipment Costs		<b>6,667</b>	<b>6,667</b>	<b>6,667</b>
Quantified Capital Risk		<b>13,952</b>	<b>11,692</b>	<b>15,566</b>
<b>Subtotal</b>		<b>106,969</b>	<b>105,232</b>	<b>119,343</b>
VAT @ 20%		<b>15,072</b>	<b>14,518</b>	<b>16,567</b>
<b>Total Project Cost at MIPS FP/VP 173</b>		<b>122,040</b>	<b>119,750</b>	<b>135,910</b>

58. The LHB assumes that all capital costs and inflation on the scheme will be publicly funded by the Welsh Government, in accordance with current Welsh Government policy.
59. The following table sets out the funding cash flow requirements of the preferred option:-

**Figure ES8 : Capital Funding Requirement (£'000)**

Year	Option 3 £'000
2012/13	2,489
2013/14	15,582
2014/15	32,295
2015/16	23,211
2016/17	16,877
2017/18	17,998
2018/19	11,299
<b>Total</b>	<b>119,750</b>

Source: OB5 forms

60. NB. The Health Board would seek approval to undertake an enabling works contract to prepare the site for the main construction works. This approach would ensure an expedient start to the main works minimising delay and ensuring that seasonal dependant activities are undertaken in advance. The detail including cost estimate and programming for the enabling package is included in the Estates Annex.

#### **Capital Cost Movements since SOC**

61. Since the submission of the SOC it has been identified that the scheme provides the opportunity to address certain site wide M&E resilience and efficiency issues and to tackle some significant maintenance shortcomings, particularly in relation to the flat roof areas across the site. This has been informed by recent surveys and investigations and has impacted on cost uplifts from SOC. However they deliver fundamental improvements to the site and, if not addressed via this business case, would end up as an additional major capital scheme submission (which accordingly would attract additional costs). There are many benefits to addressing these issues at the same time as this major scheme is being undertaken.

62. Since the SOC it has been identified that there are additional opportunities and a need to improve certain site wide M&E resilience and efficiency issues and to tackle some significant maintenance shortcomings most especially in relation to the flat roof areas across the site. This has been informed and developed in response to recent surveys and investigations and has impacted on cost uplifts from SOC. However they deliver fundamental improvements that, if not addressed via this business case, would end up as an additional major capital scheme submission (which accordingly would attract additional costs) and likely undo some works associated with this scheme especially if they were not concurrently sequenced with the works within this OBC.
63. In relation to improving M&E aspects two key elements will, after a pay back period, reduce revenue running costs at the site so are considered as spend to save solutions.
64. In addition the emergence of an “overnight stay” model of care has been developed within Cwm Taf since the SOC which has now been incorporated into the OBC planning. This requires some additional area to be included in the OBC but has in part been offset through the use of currently undeveloped “shell” space at the site.
65. During the scrutiny of the SOC, a significant reduction to equipping costs was made on the basis that the scheme is intended fundamentally to address physical estate failings. However, during OBC development and phasing planning review it has been established that there are significant impacts on key service areas (e.g. radiology, pharmacy robot, endoscopy, max facs) reliant on high cost equipment. The assessment of the team is that replacement of items of equipment is the most effective way to support the sequencing and phasing strategy, and avoids the need for increasing temporary decant costs.
66. The table below shows the cost movement since SOC submission and the build up of the above elements within the OBC preferred option costs:-

<b>Costs Summary</b>		£'000	£'000
Submitted SOC			125,006.0
Approved SOC			107,811.5
OBC Preferred Option		<b>119,750.3</b>	Breakdown as below
Base Costs Preferred OBC solution		<b>111,457.1</b>	Includes costs for the uplifted space of the "overnight stay" unit.
Equipment Uplift from SOC approval levels		<b>4,250.0</b>	Includes "big ticket" items to avoid significant costs on temporary decant solutions
M&E Backlog building maintenance issues		<b>2,690.2</b>	Includes £1.45mil for roof upgrade across the 1st floor, further detail is provided in the main financial case for these
<b>Spend to Save Items:-</b>			
Absorption Chiller	480.2		Provides recurrent revenue savings after pay back period
LED Lighting	872.9		Provides recurrent revenue savings after pay back period
<b>Sub-total</b>		<b>1,353.1</b>	
<b>Total OBC Preferred option</b>		<b>119,750.3</b>	

### Revenue Costs and Affordability

67. The table below summaries the additional revenue costs associated with the preferred option, excluding depreciation and impairments, year on year.

**Figure –ES9 Additional Revenue Costs**

Option 3	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20
	£'000	£'000	£'000	£'000	£'000	£'000	£'000	£'000
Clinical Costs	0	0	0	0	0	0	0	0
Non Clinical Costs	0	0	0	0	0	0	0	0
Building Running Costs	0	0	0	15	25	40	60	823
<b>Total Costs</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>15</b>	<b>25</b>	<b>40</b>	<b>60</b>	<b>823</b>
Clinical savings								-30
Building Running savings	0	0	0	-10	-20	-25	-50	-72
<b>Total Funding required</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>5</b>	<b>15</b>	<b>10</b>	<b>721</b>

68. The above table illustrates that the net costs in excess of the current levels of expenditure continue to increase and peak in 2020/21 at £0.721m which equates to 0.14% of the LHBs revenue budgets. These cost will be met by the LHB and factored into the LHBs wider 3 year financial planning from 2017 onwards. A summary of the revenue costs for the other options is included in **Appendix F**
69. It is recognised that the costs and savings identified within the case are incremental and are restricted to those directly associated with the project itself. The LHB will be required to find additional savings schemes in order to cover its on-going commitment to break-even year on year.

#### **Depreciation and Impairments**

70. A profiled summary of the depreciation and impairment costs associated with the preferred option are set out in the table below. A summary of the costs for the other options is included in **Appendix F**
71. The capital charges have been expressed at 2012/13 prices using MIPS index level FP/VP 173. Asset lives have been applied as follows in order to calculate depreciation:-
- A 35 year life for the buildings, based on DV lives issued for a similar refurbishment scheme.
  - 7 year lives has been used for equipment.

**Figure –ES10 Additional Capital Charge Costs**

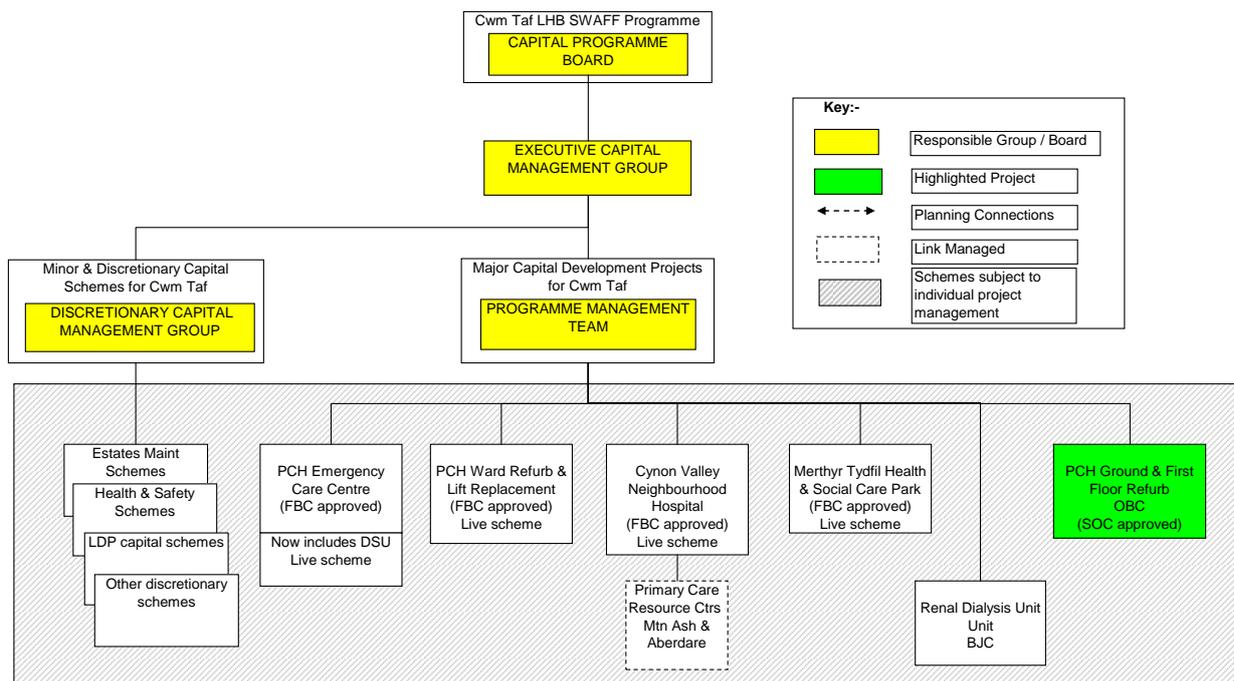
Option 3	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
	£'000	£'000	£'000	£'000	£'000	£'000	£'000	£'000	£'000
AME Impairment	0	2.402	14.883	29.010	20.206	14.130	15.002	8.776	0
Depreciation			0.021	0.383	0.875	1.289	1.648	2.018	2.101
Less current Depreciation			-0.021	-0.182	-0.491	-0.709	-0.863	-1.028	-1.126
<b>Total Costs</b>	<b>0</b>	<b>2.402</b>	<b>14.833</b>	<b>29.211</b>	<b>20.590</b>	<b>14.710</b>	<b>15.787</b>	<b>9.766</b>	<b>0.975</b>
AME funding assumption	0	2.402	14.883	29.010	20.206	14.130	15.002	8.776	0
DEL funding assumption	0	0	0	0.201	0.384	0.580	0.785	0.990	0.975
<b>Total Funding required</b>	<b>0</b>	<b>2.402</b>	<b>14.883</b>	<b>29.211</b>	<b>20.590</b>	<b>14.710</b>	<b>15.787</b>	<b>9.766</b>	<b>0.975</b>

**Impact on the Balance Sheet**

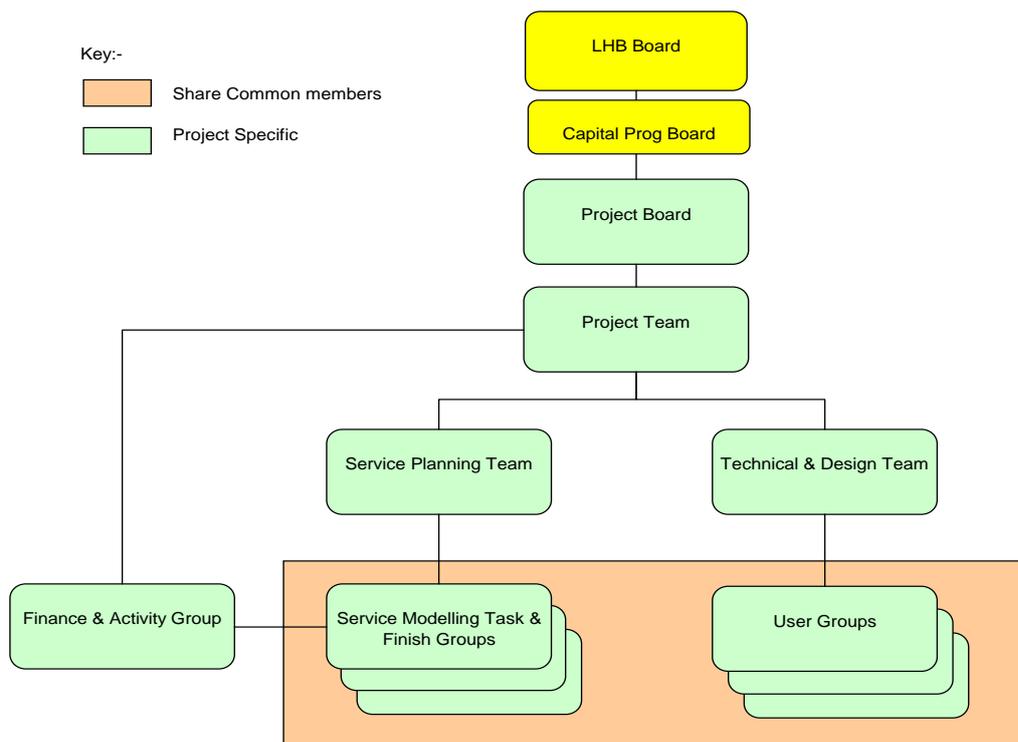
72. An assessment has been made on the timing and costs of the individual phases of the project in order to estimate the impairments and depreciation. At FBC stage this will be reassessed and updated and may result in different values in the individual years. This adjustment will be dependent on the District Valuer (DV) assessment of the value of the project on the completion of each phase. It is estimated that this maybe as much as 70% of the cost. It is also assumed that the funding for the de-recognition of the existing building would also be met by the WG and is included in the AME funding assumptions in table **Figure ES10** above.
73. The impairment has been calculated based on advice from the DV. The asset values post impairment have been depreciated over the estimates of useful economic life provided by the DV. The levels of impairment are similar to those experienced by the LHB on the PCH Ward refurbishment scheme.
74. The OBC assumes that any amounts resulting from the IFRS implications of a revaluation and depreciation charges will be met by the Welsh Government in each of the years as per the table above, in accordance with current Welsh Government policy.

**Management Case****Project Management Arrangements**

75. The wider programme management arrangements can be seen below:



- 76. The activities and outputs of the project will be managed generally in accordance with the principals of PRINCE 2 methodology and will meet the requirements of the WHC (2006): 001; Capital Investment Manual; NHS and Treasury PFI guidance; and subsequent guidance which may be issued during the project's lifespan.
- 77. The project management arrangements are summarised below. The individual and team roles and responsibilities are clearly defined and set out in the main body of this document.



78. Key project milestones are shown below:

Key Stage	Time
OBC Development & Submission	May 2012 – January 2013
OBC Approval	March 2013
FBC Development & Submission	March – December 2013
FBC Approval	March 2014
Start on site	April 2014 (enabling works from August 2013)

### **NHS Wales Gateway Reviews Arrangements**

79. As much as the current arrangements for 5 case gateway reviews are understood to be in abeyance Cwm Taf LHB have at the request of the WG undertaken and submitted a Risk Potential Assessment (RPA1) Gateway Review process document in respect of this project. Any changes or resulting need for additional assessment to this will be closely monitored throughout the development of this project, and plans will be adjusted to take account of any arising impacts.

### **Recommendation**

80. It is recommended that approval be given to progress to Full Business Case stage for this scheme along with an early release of enabling works funding to maintain compliance within the timescale for this scheme as agreed in conjunction with the Fire Authority.