Ymddiriedolaeth GIG Prifysgol Felindre Velindre University NHS Trust

Bwrdd Iechyd Prifysgol Aneurin Bevan University Health Board

Transforming Cancer Services In South East Wales

Radiotherapy Satellite Centre (RSC)

Outline Business Case

RSC 0BC
Sept 2020

Outline Business Case: 2020

Radiotherapy Satellite Centre (RSC)

Executive Summary

EXECUTIVE SUMMARY

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1 INTRODUCTION

1.1 Velindre Cancer Centre (VCC) is a centre of excellence for the non-surgical treatment of cancer. It is one of the ten largest regional clinical oncology centres in the United Kingdom and the largest of the three centres in Wales.

1.2 VCC serves the 1.5 million people who live in South East Wales, providing services at Velindre Cancer Centre in Cardiff and at a number of other sites in its catchment area and in patients' own homes. The Centre, however, is fast approaching the point where our skilled workforce will be unable to meet the needs of patients

1.3 To ensure that Cancer Services meets the needs of the population into the future, the Welsh Government requested that Commissioners and Velindre University NHS Trust (VUNHST) develop a Transforming Cancer Services (TCS) Programme Business Case for South East Wales. This work, that commenced in 2015 and provided a PBC in 2017 established a Clinical Model for Cancer Services in South East Wales. This was actioned through extensive engagement and consultation with partner organisations including Third Sector and, importantly, patients and their families.

1.4 After significant stakeholder and patient engagement, the Clinical Model within the PBC required the development of Regional Radiotherapy Satellite Centre to serve the North of the South East Wales catchment population. An option appraisal, independently led, was undertaken and Nevill Hall Hospital in Abergavenny was identified as the preferred location for the Regional Radiotherapy Satellite Centre (RSC).

1.5 In parallel with this work on the RSC OBC, an nVCC OBC has been developed, approved by Commissioners and submitted to Welsh Government on 8th July 2019. In this context, the Trust has received Outline Planning Permission to build the new Velindre Cancer Centre (nVCC) in Whitchurch, Cardiff. The nVCC Project Approval timeline is shared below:

Table 1-1: nVCC OBC Approval Timelines

Description	Planned Completion Date	Status
nVCC OBC approved by commissioners	April 2018	Completed
nVCC OBC approved by Trust Board	July 2019	Completed
Submission of nVCC OBC to the Welsh Government	July 2019	Completed
nVCC Commercial Approval Point (CAP) 1	TBC	Ongoing
Ministerial approval of nVCC OBC	TBC	Ongoing

1.6 There is a key relationship between the nVCC and RSC Project, and between both these Projects and the Integrated Radiotherapy Solution (IRS) procurement. These relationships relate to demand management, workforce development, clinical effectiveness and commissioning optimisation. The rationale for an RSC has been made in the TCS PBC and the selection of Nevill Hall Hospital as the preferred site in a separate option appraisal. The OBC focuses on the deliverability, affordability and VFM of that solution as compared to the expansion of the nVCC beyond the SOA contained within its current OBC.

1.7 Further, the Welsh Government approved resources in August 2019 to enable the development of an OBC for the RSC. The Project Advisors were appointed in October and November 2019 and support the RSC Project Board and Project Team established by Aneurin Bevan University Health Board (ABUHB) and Velindre University NHS Trust (VUNHST) to develop the OBC. The RSC OBC was approved by both VUNHST and ABUHB on 24th September and 23rd September respectively.

1.8 The OBC identifies that the preferred RSC option is deliverable, affordable and offers VFM.

1.9 It should be noted that significant additional revenue costs will be required in excess of the revenue cost of the preferred option to provide additional Radiotherapy capacity to meet forecast demand if the proposed satellite unit does not progress. The majority of that activity will need to be provided via other Providers.

2 OVERVIEW OF THE OBC

2.1 The provision of a Radiotherapy Satellite Centre (RSC) has been identified within the Transforming Cancer Services (TCS) Programme as a key development to facilitate timely and effective services to the South East Wales population.

2.2 The case for an RSC is further articulated within the Strategic Case. The Strategic Case also sets the policy context within which the RSC Project is being undertaken and the role of the Project in improving cancer services for the people of South East Wales in the years' ahead. Specifically, the Strategic Case clearly sets down the deficiencies of the current Model of Service and the capacity limitations to meeting service demand.

2.2 The Economic Case identifies a Preferred Option. The Preferred Option develops an RSC on land under the ownership of the Health Board. The Preferred Option provides a modern, fit for purpose, environment that can evolve to meet future demands and developments as they emerge. The Economic Case sets down the Economic Appraisal that has been undertaken to identify the Preferred Option that offers the best Value for Money to NHS Wales.

2.3 The Commercial Case sets down the approach to the procurement of the solution and the commercial approach to be adopted within the Project. The Partnership arrangements between ABUHB and VUNHST are also presented. Shared Services Technical Team have contributed to the Commercial Case, given the importance of the RSC to the TCS Programme.

2.4 The Financial Case demonstrates the affordability of the Preferred Option. The Case sets down the Financial Framework used for the development of the OBC. The Financial Case also sets down the approach to the establishment of the revenue and capital costs set down in the Business Case. It presents the methodology for capital cost development, identified by our Technical Advisors, and scrutinised by NWSSP Shared Services Property Division. The methodology for revenue cost development, identified by the Financial Scrutiny Group (FSG), is also presented, along with the agreed model for cost distribution between Health Boards and Welsh Government.

2.5 The Management Case provides assurance to decision makers on the arrangements in place to support the effective delivery of the Project. It sets down the governance and management processes identified to effectively deliver the Preferred Option. The RSC Project Board and the RSC Project Team, established to deliver the procurement and associated commercial arrangements, and the supporting Project Management arrangements are presented. In addition, the External and Internal Advisors, that are integral to the delivery process, are described along with the mechanisms to be deployed for their effective utilisation and management. The Management Case also addresses the governance interface between the Health Board and the Trust.

3 STRATEGIC CASE

3.1 The Strategic Case sets out the case for the development of an RSC. It does this by articulating the deficiencies of the current Clinical Model and Service Capacity. The RSC OBC can be viewed as a partner Business Case to the nVCC OBC in terms of the sizing of the nVCC. It is important, however, to emphasise that the RSC OBC also stands alone and separate from the nVCC OBC in terms of the Solution proposed. The case is made for local provision regardless of the nVCC being progressed.

3.2 The limitations and challenges related to the current Clinical Model and Service capacity are impacting the Trust's ability to deliver effective high quality, patient centred services are presented.

3.3 It is widely accepted that the current patient travel distances are sub-optimal and does not sufficiently promote access, patient well-being and recovery. It is also widely accepted that improving the Clinical Interface and relationship between VCC and Local Cancer Services will improve patient care.

3.4 As well as the sub-optimal patient model, it is evidenced within the Strategic Case that the current Radiotherapy Service capacity (8 treatment machines) does not meet current and projected patient demand.

3.5 To demonstrate the level of future demand at the existing VCC, the Trust has undertaken a detailed demand modelling exercise. This involved comparing the current hospital capacity to meet demand in any new infrastructure. This analysis has been presented to, and supported by Commissioners, NHS Wales Shared Services and WG Officers.

3.6 There is also no space to expand on the existing VCC site. This represents a high risk to patients given the anticipated growth timeline in demand for services. While planning is underway to mitigate as far as possible capacity limitations in the short term, it is imperative that a substantive term solution is urgently established. The timeline for the nVCC, currently being projected to open in 2025 is a significant concern.

3.7 Essentially, the Strategic Case presents the case for additional capacity to be built at the RSC in support of the following Project Spending Objectives:

Table 3-1: RSC Project Spending Objectives

Project Spending Objective	Description
Project Spending Objective 1	To build new hospital infrastructure that supports **quality** and **safe** services.
Project Spending Objective 2	To provide sufficient **capacity** to meet future **demand** for services.
Project Spending Objective 3	To **improve patient, carer** and **staff experience.**
Project Spending Objective 4	To provide **capacity** and **facilities** to support the delivery of high quality **education**, **research**, **technology** and **innovation.**

3.8 The overall objective is to deliver an RSC that will provide excellent care for cancer patients from across the North of the region, closer to their homes. The RSC will provide a range of radiotherapy services for patients across South East Wales. In addition the RSC will support the VCC, and in due course the nVCC, to be an international focal point for research and education.

4 ECONOMIC CASE

4.1 The purpose of the Economic Case is to identify and appraise the potential options for the delivery of the RSC Project and identify the option (the Preferred Option) that provides the best value for money.

4.2 The RSC Project Board followed the Options Framework approach, as recommended in the Welsh Government's Better Business Case guidance, to identify the options for delivering the nVCC Project. These options were set in the context of the previous work of the TCS Programme in identifying the preferred location for any Regional Satellite Centre. This earlier work was approved by the TCS Programme Board and the sponsoring Commissioners, in 2017. Accordingly, the identified options for the OBC were agreed with the Welsh Government at the outset of the process. The options were evaluated and appraised by the RSC Project Board against the Project Spending Objectives (PSOs) and CSFs. The RSC Project Board used the outputs of this evaluation to identify the Preferred Way Forward for the Project.

4.3 The options appraised by the RSC Project Board are presented below:

- **The Status Quo Option 'Do Nothing':** This option provides a benchmark for assessing the value for money of all options. It is limited to the Operational Optimisation of existing arrangements as far as possible in order to improve the organisation's capability to meet current demand for core services and the provision of outsourced capacity to meet forecast additional demand.

- **RSC Option (Preferred Way Forward) 'Intermediate':** This option provides the development of a purpose built RSC. This option offers an early implementation which increases radiotherapy capacity in South East Wales and will be funded through NHS Capital.

- **nVCC Expansion 'Do Minimum':** This option offers the same capacity solution as the RSC Option with the feature of incorporating this capacity within an expanded nVCC. This option requires a delayed implementation which will be funded through a mix of private and public funding. It will also maintain the 'Status Quo' in terms of service location for the residents of the Northern catchment of South East Wales

4.4 The shortlisted options were then subjected to a robust Economic Appraisal. Table 4-1 summarises the output of this Appraisal.

Table 4-1: Net Present Cost of the Short Listed Options

Expenditure Heading	Do Nothing	Do Minimum (nVCC Extension)	RSC
Initial capital costs	0	-2,299	-27,086
Lifecycle capital costs	0	0	-3,349
Total capital costs	**0**	**-2,299**	**-30,435**

Transitional costs	0	-712	-712
Outsourcing during transitional period	0	-14,488	0
Recurring revenue costs	-616,664	-199,563	-144,520
Total revenue costs	**-616,664**	**-214,763**	**-145,232**
Quantified risks - capital costs	0	0	-1,707
Optimism bias	0	0	-1,358
Revenue expected risk value	0	-5,569	-3,147
Total risk costs	**0**	**-5,569**	**-6,212**
Total costs	**-616,664**	**-222,632**	**-181,880**
Benefits	0	0	582,733
Total benefits	**0**	**0**	**582,733**
Net Present Cost (undiscounted)	**-616,664**	**-222,632**	**400,854**
Total costs (discounted)	-242,925	-96,158	-83,589
Total benefits (discounted)	0	0	374,190
Net Present Cost (discounted)	**-242,925**	**-96,158**	**290,601**
Rank	**3**	**2**	**1**
Benefit Cost Ratio (discounted)	**0.00**	**0.00**	**4.48**
Rank	**2**	**2**	**1**

4.5 The Economic Appraisal demonstrated that the RSC Option offered the lowest Net Present Cost (NPC) of the two *'do something'* options and offers best value for money in terms of whole life costs.

4.6 It also offered the best benefit cost ratio at 4.48 suggesting that it offers best value for money in terms of the relationship between benefits and costs.

4.7 The Intermediate RSC Option, is, therefore, identified as the Preferred Option for the Project.

5 COMMERCIAL CASE

5.1 The Commercial Case sets out the basis on which the Project will deliver a commercially viable procurement and deals with:

- The procurement strategy for construction and equipment, and intended procurement route;
- The key project specific contractual arrangements and risk apportionment between the public and private sector;
- The funding mechanism for services over the duration of the Project;
- Any anticipated personnel implications; and
- The accountancy treatment of the Project.

5.2 The Commercial Case outlines the Welsh Government intention to deliver funding from NHS Capital.

5.3 The Commercial Case describes how the Project is a design and build Project. Project operated by the Health Board and the Trust in partnership. The clinical service and equipment will be provided, managed and maintained by the Trust.

5.4 The Health Board will be required to provide Hard FM services for planned building maintenance (including lifecycle replacement), reactive building maintenance and hard landscaping. The cost of providing these services will be charged to the Trust as part of the agreed Service Payment. All Soft FM services will be provided by the Health Board.

5.5 The Commercial Case confirms the expected accountancy treatment and the Project will be accounted for as “on balance sheet” for the Health Board.

6 FINANCIAL CASE

6.1 The purpose of the Financial Case is to demonstrate the affordability of the Preferred Option.

6.2 A Financial Framework has been developed to support the RSC Project. The scope of the Financial Framework is focused on costs directly attributable to this investment decision.

6.3 The Financial Case has been constructed and scrutinised in partnership with the Collective Commissioning Group (CCG) on behalf of the Commissioning Health Boards. The Financial Case provides detail on the costing methodology employed and reflects a professionally and technically recognised approach to determining OBC cost information.

6.4 The Financial Case outlines the capital requirements of the RSC Project. These costs are to be funded from the All Wales Capital Programme. These capital costs are presented in the table below.

Table 6-1: Capital Requirements

Cost category	Funding requirement £	Source of Funding
Project capital expenditure	30,285,532	Welsh Government

6.5 The Financial Case identifies the capital requirements of the Preferred Option for radiotherapy treatment machines and digital resources that are being procured via the Integrated Radiotherapy Solution (IRS) procurement currently going through Competitive Dialogue managed by the TCS Digital and Equipment Project Board.

6.6 The Financial Case outlines the recurring revenue costs requirement of the Preferred Option.

Table 6-2: Recurring Revenue Costs

	NHH RSC Preferred Option £
Workforce	
Radiotherapy Delivery	1,276,039
Medical Physics Delivery	526,394
Facilities	72,858
IT	16,223
Pharmacy	8,738
Pay	**1,900,252**
Non Pay	
Utilities	95,276
Hard FM	69,207
Rates	62,536
Soft FM	9,137
Consumables	75,000
Patient Transport	5,000
Equipment Maintenance	264,390
IM&T Maintenance	27,097
Pharmacy	708
Travel	38,005
Non Pay	**646,355**
TOTAL COST	**2,546,607**

6.7 The Financial Case outlines the Balance Sheet impact of the arrangements for the Trust and the Welsh Government as “on balance sheet”. It also provides details on the annual depreciation requirements of the Project which are planned to be resourced by the Welsh Government in the usual way.

6.8 The Financial Case outlines the agreed methodology for the distribution of revenue costs between Commissioners. It also outlines the approach to risk sharing and cost inflation. The table below sets down the agreed Commissioner shares and the distribution of the recurring revenue costs of the Project over Commissioners.

Table 6-3: Indicative Split of Commissioner Costs

Commissioners	Split %	Recurring Revenue Costs £
Swansea Bay UHB	0.64%	16,298
Aneurin Bevan UHB	39.25%	999,543
Cardiff & Vale UHB	28.69%	730,622
Cwm Taf Morgannwg UHB	27.78%	707,447
Hywel Dda UHB	1.51%	38,454
Powys THB	2.14%	54,497
WHSSC	0.00%	0
Total Recurring Revenue Costs	**100%**	**2,546,607**

6.9 The Financial Case outlines the non-recurring revenue requirements for Project pre-commissioning that will be funded by Commissioners. These non-recurrent costs total £0.712m in 2022/23.

6.10 The Financial Case also outlines the new approach to LTA arrangements, that will support the Projects financial arrangements which have been recently agreed by the Trust and Commissioners.

7 MANAGEMENT CASE

7.1 The Management Case describes the Project Governance, Assurance and Management Arrangements to successfully deliver the RSC Project, to time, cost and quality. It describes the role of the TCS Programme Delivery Board, Project Board, Project Team, the External and Internal Advisors and how their contribution will be integrated within the delivery of the RSC Project.

7.2 The Project Structure will ensure the RSC Project has the ability to seek timely approvals, can be effectively reported on, and has the effective escalation of risks and issues leading to effective decision making.

7.3 The Management Case further describes how it will use Project Management methodologies to effective manage the Project. This also includes the effective oversight and management of benefits and risks.

7.4 Given the NHS capital route for the Project, the Management Case sets out how it will manage the procurement of the RSC. This includes the specification of the role of External and Internal Advisors that will also contribute to the process.

7.5 The proposed approach to change control, procurement and contracts management is also presented.

7.6 The Management Case also sets out important estimated timelines, for the procurement and the construction of the RSC, based on industry benchmarks. These are summarised in Table 7-1.

Table 7-1: Project Plan Key Milestones

Milestone	Dates
Submission of OBC to Commissioners and Welsh Government	September 2020
Welsh Government Approval / FBC Commencement	January 2021
Enabling Works Commencement	January 2021
Submission of FBC to Welsh Government	September 2021
Welsh Government Approval / Start-on-site	November 2021
Completion	August 2023 (subject to confirmation of IRS Preferred Partner and commissioning period)

8 PREFERRED OPTION

8.1 The Preferred Option delivers an RSC at Nevill Hall Hospital, Abergavenny. The ambition is to deliver a world-class facility that will provide specialist care for cancer patients from that locality. The RSC will provide a range of radiotherapy services for patients across the northern catchment population of South East Wales. In addition the RSC will support the nVCC to become an international focal point for research, learning, technology and innovation. A summary of the key requirements and features of the Preferred Option are provided below.

Activity

Table 8-1: Activity Casemix

Treatment Type	No of Fractions
Prostate Fractions	7,434
Breast non-DIBH	3,234
Breast DIBH	3,234
Palliative Treatment	1,699
	15,600

Footprint

8.2 The proposed 'footprint' of the new Preferred Option is 2,528m^2. The proposed current 'footprint' of the Preferred Option has been sized in line with Health Building Notes, best practice guidance and statutory compliance requirements. In addition the RSC will be able to accommodate forecast activity projections.

Flexibility for Future Expansion

8.3 It is important to highlight that there is planned expansion space (equivalent to accommodation for 2 additional treatment machines plus supporting equipment) on the identified site for the RSC. This expansion capacity is important to the TCS Programme Risk Management Strategy in the event that the clinical growth assumptions prove to be understated.

Major Medical Equipment Requirements

8.4 The delivery of non-surgical Cancer Services is dependent upon having access to two treatment machines which will be essential to support the safe

and effective delivery of patient treatments. These treatment machines are being procured via the Integrated Radiotherapy Solution (IRS) Project.

Cost

8.5 The RSC costs of £30.28m in Capital and £2.547m in Revenue on a recurring basis is in addition to £0.712m of transitional costs.

Benefits

8.6 For the purposes of the economic appraisal, we have quantified benefits which differentiate between the options, are measurable and evidence-based, and can be monetised using recognised methodology. This includes the following:

- Additional capacity available to meet forecast demand
- Reduced travel time for patient and carers
- Improved access to treatment and clinical trials leading to better clinical outcomes

8.7 In addition, there are a number of benefits which are relevant to the case but are difficult to quantify in monetary values and/or do not differentiate between the options and so have not been incorporated within the economic appraisal. These include:

- Patients have access to seamless pathway of care in a single place
- Improved patient and carer experience
- More resilient and flexible workforce
- Improved staff satisfaction (although may be disbenefit for some staff members - additional travel)
- Improved safety and compliance with standards
- Better sustainability, resilience and future proofing
- Opportunities to attract further investment

9 CONCLUSION

9.1 The Case for a nVCC has been made within the OBC. The deficiencies and challenges of the current infrastructure in supporting the delivery of high quality patient care have been clearly presented. The constraints of the current site to meet future demand and technological change have also been clearly set down.

9.2 A rigorous Economic Appraisal, following HM Treasury guidance and Welsh Government Better Business Case guidance, has been undertaken and this robust and transparent appraisal process has identified a clear Preferred Option. The Preferred Option has been approved by the Velindre University NHS Trust Board and Aneurin Bevan University Health Board.

9.3 The delivery of the Preferred Option is to be executed through the Commercial arrangements set down in the Commercial Case, as required by the Welsh Government. The development of the RSC supports the VCC and the development of a nVCC which is a key commitment in the Welsh Government's Programme and will be delivered as one of three pathfinders' Projects under the Welsh Government's innovation MIM Programme which has been established to support investment in capital infrastructure in Wales

9.4 The Financial Case has been developed in partnership with Commissioners, taking the advice of the Welsh Government, and the Financial Framework adopted has delivered a robust assessment of the overall capital and revenue consequences of the Preferred Option. The Financial Case clearly demonstrates the affordability of the Preferred Option and presents the distribution of cost shares between Commissioners.

9.5 The Management Case provides assurance on the delivery process for the Preferred Option. It describes the clear Project Management arrangements developed to deliver the RSC Project. The role of External and Internal Advisors have been clearly established. Change Control and Risk Management has been detailed and set down. The Project Plan to deliver the RSC by August 2023 meets the objectives set by the TCS Programme. The capital costs of Project delivery are to be resourced by the Welsh Government.

9.6 The Preferred Option, and the delivery approach described within the RSC OBC is presented to the Welsh Government for support and approval.

9.7 It should be noted that significant additional revenue costs will be required in excess of the revenue cost of the preferred option to provide additional Radiotherapy capacity to meet forecast demand if the proposed satellite unit does not progress. The majority of that activity will need to be provided via other Providers.

Outline Business Case: 2020

Radiotherapy Satellite Centre (RSC)

Strategic Case

STRATEGIC CASE

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1 INTRODUCTION

1.1 The scope of the Project is limited to the building of a Radiotherapy Satellite Centre (RSC). In taking forward this scope, Aneurin Bevan University Health Board (ABUHB) and Velindre University NHS Trust (VUNHST) will be seeking formal approval from Partner commissioners and from the Welsh Government in relation to the Outline Business Case (OBC) for an RSC. In seeking approval, the OBC must provide assurance in relation to:

- The need for an RSC;
- The Preferred Option identified within the OBC;
- The building footprint of the RSC;
- The additional costs directly attributable to the RSC; and
- The Project Management and Governance arrangements for delivering the RSC Project.

1.2 The purpose of this strategic case section is to:

- Provide an overview of Aneurin Bevan University Health Board (ABUHB) and Velindre University NHS Trust (VUNHST) and their relevant Service Hospitals
- Provide an overview of Cancer Services in South East Wales and the whole system leadership arrangements
- Provide an overview of the Transforming Cancer Services (TCS) Programme
- Describe the Project partnership arrangements between ABUHB and VUNHST
- Describe the existing arrangements and the business needs for this business case
- Set out the project scope including objectives, benefits and risks
- Describe how the Project will support the delivery of sustainable radiotherapy services across South East Wales

2 BACKGROUND

2.1 Radiotherapy is the use of ionising radiation, usually high energy x-rays to treat disease and is usually used to treat malignant disease (cancer) and some benign indications. It has an important role in treatment of cancers as 50% of all cancer patients will benefit from receiving radiotherapy as part of their cancer management. Developments in radiotherapy techniques and the increasing incidence of cancer indicate that the demand for radiotherapy will continue to rise and require sufficient and resilient capacity to be made available. Work to date by VUNHT indicates the service will be unable to deliver a high, quality, reliable and sustainable service without an expansion in capacity.

2.2 This need to meet the demand of non-surgical cancer services, together with the poor condition of the estate at Velindre cancer Centre (VCC) led to the Transforming Cancer Services program (TCS), which developed with partners a clinical model for non-surgical cancer services. This model included a satellite Radiotherapy centre (RSC) and this business case focuses on the RSC and its role to secure radiotherapy capacity for the population of South East Wales. The capacity needs to be in place ahead of the new VCC as demand is already exceeding capacity but also to enable medical physics staff to be available to commission the equipment in RSC but also in the new VCC.

2.3 In addition to the lack of capacity, a key factor supporting the case is the benefit of care being delivered closer to home, especially as there is evidence that update of radiotherapy in Wales is below best practice and there is evidence that availability of services closer to patients leads to increased uptake of treatments – which in turn will lead to improved outcomes and better experiences for patients.

2.4 Following agreement on the TCS clinical model, the process for determining the best site for the RSC was established with partner organisations through an evaluation exercise. This led to the selection of Nevill Hall Hospital as a site for the RSC and as such this is a joint project between the 2 organisations.

2.5 The remainder of this Strategic Case will provide more detail on the above issues to support the case for change for this service development.

3 ORGANISATIONAL OVERVIEW

3.1 This section will provide an overview of Aneurin Bevan University Health Board (ABUHB) and Velindre University NHS Trust (VUNHST) and their relevant Service Hospitals and an overview of Cancer Services in South East Wales and the whole system leadership arrangements.

Aneurin Bevan University Health Board (ABUHB)

3.2 Aneurin Bevan University Health Board was established in October 2009 and achieved 'University' status in December 2013.

3.3 It serves an estimated population of over 639,000, approximately 21% of the total Welsh population.

3.4 With a budget of **£1.281 billion the HB** delivers healthcare services to people in Blaenau Gwent, Caerphilly, Monmouthshire, Newport, and Torfaen and also provide some services to the people of South Powys.

3.5 The Health Board covers diverse geographical areas and had to take account of a mix of rural, urban and valley communities. The valleys experience high levels of social deprivation, including low incomes, poor housing stock and high unemployment.

3.6 The Health Board employs over 11,000 staff and is the largest employer in Gwent.

Services

3.7 The Health Board provides a comprehensive range of acute hospital based, Community based, Mental Health and Primary Care services via a large and complex estate consisting of the following:

- Acute Hospitals - Royal Gwent, Neville Hall, Ysbyty Ystrad Fawr
- Community Hospitals - County, Ysbyty Aneurin Bevan, St Woolos, Chepstow and Monnow Vale
- Mental Health Hospitals - St Cadoc's, Llanfrechfa, Maindiff Court, Ysbyty'r Tri Chwm
- 8 Locality based Mental Health Units and 1 Residential Unit on LGH site, 4 unoccupied units across Gwent.
- 30 Locality based Community clinics

3.8 In addition to the above the new Grange hospital, Specialist Critical Care Centre (SCCC) is due to open in November 2020.

Velindre University NHS Trust (VUNHST)

3.9 The Trust has evolved significantly since its establishment in 1994 and is operationally responsible for the management of the following two divisions:

- Velindre Cancer Centre; and
- Welsh Blood Service.

3.10 The Trust is also responsible for hosting the following organisations on behalf of the Welsh Government (WG) and NHS Wales:

- National Wales Information Services (NWIS)*;
- NHS Wales Shared Services Partnership (NWSSP); and
- Health Technology Wales (HTW).

** NWIS will be transferred to a SHA 2020/21*

Velindre Cancer Centre (VCC)

3.11 Velindre Cancer Centre is located in Whitchurch on the North-West edge of Cardiff and is one of the ten largest regional clinical oncology centres in the United Kingdom and the largest of the three centres in Wales. The Trust is the sole provider of non-surgical specialist cancer services to the catchment population of 1.5 million across South East Wales, from Chepstow to Bridgend and from Cardiff to Brecon. Addiotnally it provides more specialist radiotherapy services across the whle of South Wales. Velindre Cancer Centre employs around 700 members of staff and has approximately 70 volunteers who provide a range of 'added value' roles across the centre. The Trust also works in partnership with a wide range of third sector, charities, Higher Education Institutions (HEIs) and Industry/Commercial Partners to deliver high quality cancer care and undertake clinical research.

3.12 Velindre Cancer Centre is responsible for the delivery of non-surgical treatment including Radiotherapy and SACT, recovery, follow-up and specialist palliative care. Following their specialist cancer treatment, Velindre Cancer Centre supports patients during their recovery and through follow up appointments.

3.13 Specialist teams provide care using a well-established multi-disciplinary team (MDT) model of service for oncology and palliative care, working closely with local partners and ensuring services are offered in appropriate locations in line with best practice standards of care. The range of services delivered by Velindre Cancer Centre includes:

- Radiotherapy
- Systemic Anti-Cancer Therapies (SACTs) and chemotherapy
- Inpatients
- Ambulatory care
- Outpatient services
- Pharmacy

- Specialist radiology/imaging
- Nuclear Medicine
- Specialist Palliative care
- Acute Oncology Service (AOS)
- Living with the impact of cancer
- Education and Learning
- Research, Development and Innovation.

3.14 The following patient services are delivered in outreach settings in Health Board (HB) locations across South East Wales from Velindre Cancer Centre:

- SACT delivery;
- Outpatient appointments;
- Inpatient reviews; for patients receiving care and treatment in HBs
- Health Board MDTs; and
- Research and Education.

3.15 However, all Radiotherapy activity is currently delivered at the Velindre Cancer Centre.

Overview of Cancer Services in South East Wales

3.16 The planning and delivery of cancer services in South East Wales is the responsibility of the four Health Boards (HBs) as part of their statutory responsibility to meet the health needs of the populations they serve. The HBs are supported by the Welsh Health Specialist Services Committee (WHSSC) which commissions specialist cancer services on their behalf.

3.17 The four HBs in South East Wales are:

- Aneurin Bevan University Health Board;
- Cardiff and Vale University Health Board; and
- Cwm Taf Morgannwg University Health Board.
- Powys Teaching Health Board

Figure 3-1: Map of Local Health Boards across South East Wales

3.18 The HBs also work in partnership with the All Wales Cancer Network, NHS Trusts, Community Health Councils, Voluntary and Charitable Organisations and Public Health Wales.

3.19 The four Health Boards, in conjunction with VUNHST and other stakeholders e.g. Wales Cancer Network (WCN), have formed the South East Wales Collaborative Cancer Leadership Group (CCLG). The purpose of the *South East Wales CCLG* is to provide effective system leadership for Cancer Services across South East Wales and deliver improvements in outcome and service experience for the catchment population. It aims to achieve this through the building and nurturing of a sustainable, collaborative cancer community across the region to align change across the whole cancer system.

3.20 The CCLG oversees all Collaborative Cancer Programmes of work within the region, ensuring clear leadership and coordination with a focus on benefits delivery for patients, putting into practice the national policies, standards and procedures for the benefit of patients. The CCLG functions at a regional level

in support of the work of the CIG, other groups including the SCP Strategic Groups, on an All Wales level.

3.21 The CCLG also looks beyond health to ensure its ways of working embed the Well-being and Future Generations (Wales) Act 2015 and contribute to the seven Well-being goals and the sustainability principles.

3.22 The CCLG's remit is also to coordinate commissioning decisions and investments and facilitate the realignment of pathway resources within and between organisations. As such the CCLG will oversee the scrutiny and approval of the RSC OBC and its alignment with other regional developments.

The Cancer Pathway

3.23 The delivery of cancer services across Wales generally conforms to a well-defined pathway of care which includes the following five key stages:

Table 3-1: The Cancer Pathway

Cancer Prevention: Enhancing public awareness and education to make informed decisions about lifestyle choices that promote a healthy, cancer free population.
Cancer Diagnosis: Cancer can be identified through a National Screening Programme or where cancer symptoms are identified by the patient/health care professional. If cancer is suspected the patient is assessed by a multi-disciplinary team in the Health Board (often supported by Velindre Cancer Centre staff) and cancer may be diagnosed.
Treatment: The treatment options for every patient are discussed and considered by multi-disciplinary teams (MDTs). The treatment options include surgery, non-surgical treatment e.g. Radiotherapy or Systemic Anti-Cancer Therapy (SACT), a combination of these treatments and supportive care. Care often straddles organisational boundaries.
Recovery/Follow Up: Regular follow up appointments are important to monitor recovery, manage and reduce the after effects of treatment and to ensure any signs of cancer relapse/recurrence are identified at their earliest stage.
End of Life Care: Sadly, not all patients survive cancer – openness about the need to plan end of life care is essential. A focus on living and dying well, early identification of needs and access to fast, effective palliation are important to reduce distress for both the patient and their family.

The Single Cancer Pathway (SCP)

3.24 The Single Cancer Pathway (SCP) Strategic Leadership Group has been established to co-ordinate and align the all Wales activities of partners, and align the needs of local organisations, to drive the transformation of patient outcomes through the implementation of a SCP.

3.25 The SCP will replace the current Urgent Suspected Cancer (USC) and non-Urgent Suspected Cancer (nUSC) pathways. The aim of the new pathway is to ensure that patients begin a first definitive treatment no later than 62-days after

the point of suspicion of cancer. Such an ambition necessarily presents capacity challenges at all points of the patient pathway, not least in relation to treatment delivery.

3.26 The Wales Cancer Network's (WCN) Cancer Site Groups (CSGs) have developed a suite of optimal, site-specific, pathways describing road maps for how the SCP might be successfully implemented. The optimal pathways which are currently available, which include those for all common cancers, almost exclusively allow a maximum 21-day period for post-diagnosis planning and scheduling before treatment must begin.

3.27 Currently, time to radiotherapy performance at VCC and the other Welsh cancer centres is monitored relative to a series of targets previously recognised as defining best practice standards by the Joint Collegiate Council for Oncology (JCCO), the co-ordinating, inter-collegiate body for non-surgical oncology in the United Kingdom. These measures require that the large majority of patients undergoing treatment with radiotherapy begin that treatment within 28-days of referral. This is at odds with the ambition of the SCP and it is inevitable that the development of revised treatment pathways locally will pose further capacity management challenges for VCC.

3.28 A related development in the field of radiotherapy, more specifically, will see the adoption of a revised suite of time to treatment measures in the near future in Wales. These measures, developed by the Clinical Oncology Sub-Committee (COSC), will replace the extant JCCO measures. The COSC performance measures are supported by definitions which better reflect the ever increasing complexity of radiotherapy planning and will require the great majority of patients referred for radiotherapy treatment to begin their treatment within 21-days of referral. This is in step with the overarching ambition of the SCP, but again will pose significant capacity challenges.

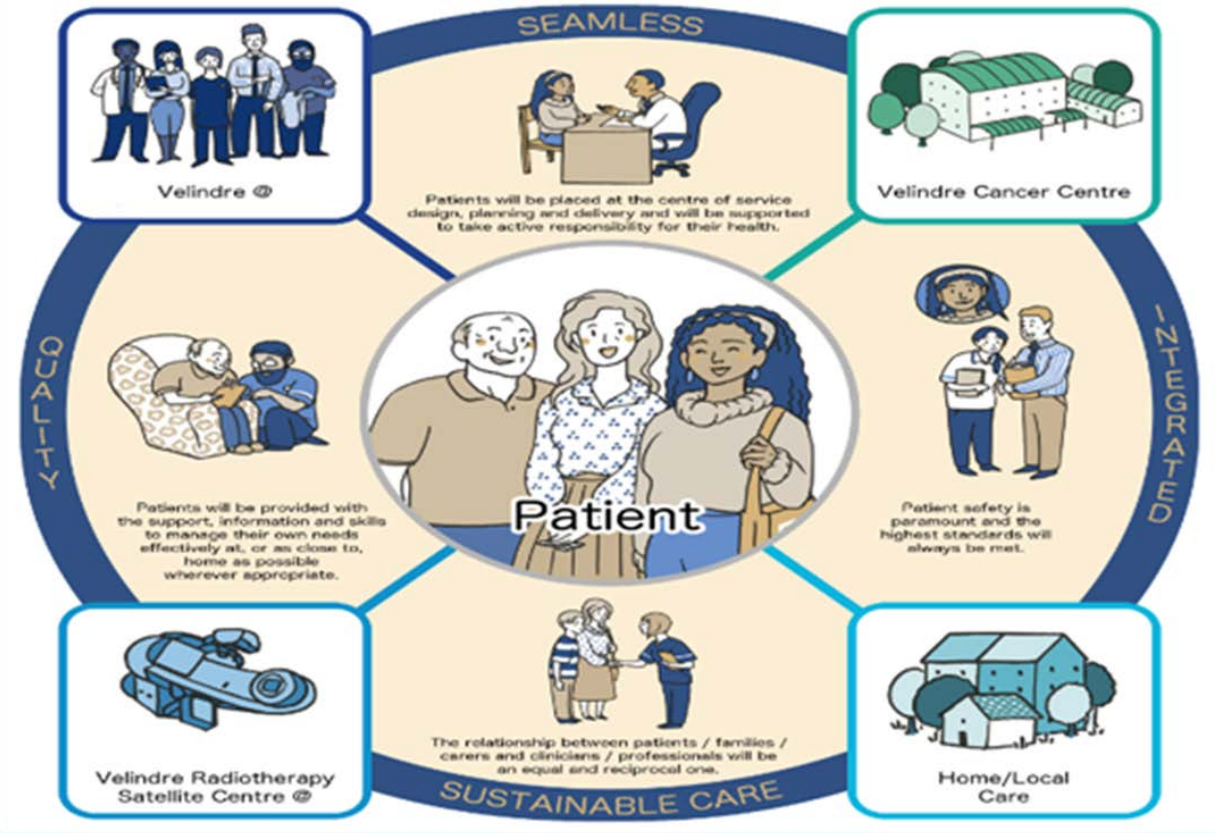
3.29 It is obvious that efforts to support the implementation of the SCP and the adoption of the new COSC time to radiotherapy measures will exacerbate issues associated with the availability of treatment capacity at VCC due to rising demand.

Transforming Cancer Services (TCS) Programme

3.30 It is important to understand where this OBC sits in the context of the overall TCS Programme. The TCS Programme is an ambitious Programme which aims to deliver transformed Tertiary non-surgical Cancer Services for the population of South East Wales.

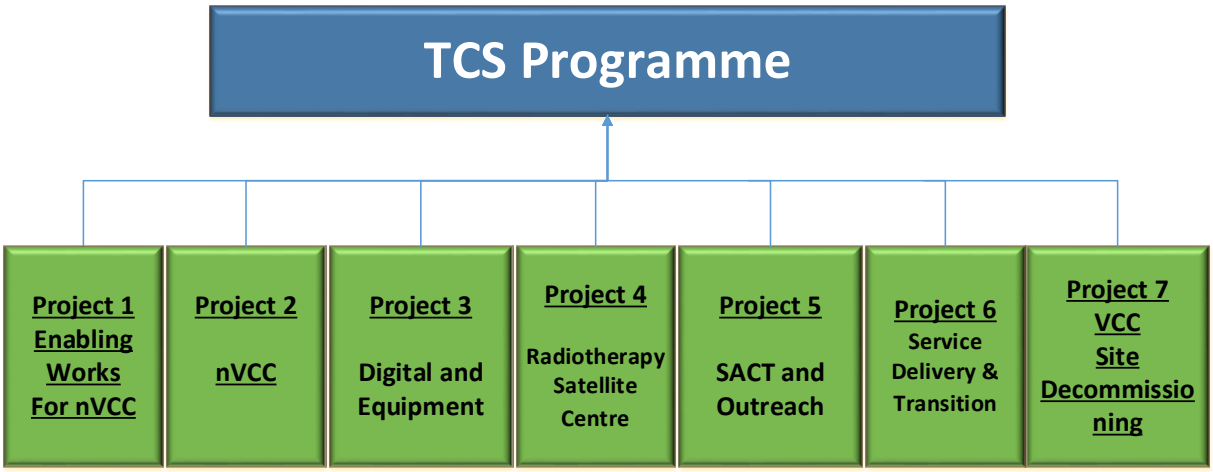
3.31 The detailed clinical model was developed through over 70 workshops/events/meetings involving more than 1000 people – professionals, patients and public from a range of organisations including HBs, Third Sector, and CHC. The clinical model is shown below:

Figure 3-2: Clinical Model



3.32 Following agreement on the proposed clinical model 7 programmes of work/projects were developed to deliver the TCS programme:

Figure 3-3: Seven Programmes of Work



3.33 The Strategic Case for the TCS Programme, its links to Welsh Government Strategy and Velindre's own Cancer Strategy, are made in the TCS Programme Business Case (PBC). It is not the intention of this OBC to restate these, more to show alignment with this wider Programme's aims and objectives.

3.34 This OBC is also related to the Outline Business Case (OBC) for the new Velindre Cancer Centre (nVCC) and the OBC for the Integrated Radiotherapy Solution (IRS). The latter project aims to deliver the Trust decision to seek one prime vendor to deliver a fully integrated Radiotherapy solution and move away from the current situation of dual vendors of Radiotherapy equipment. The Integrated Radiotherapy Solution Procurement OBC is being developed from a Digital and Equipment Procurement De-coupling PBC submitted to and approved by the Welsh Government on 5th June 2019.

3.35 The Clinical Model within the TCS PBC, and as outlined in diagram above describes how services will be delivered in the future and is predicated on the following principles:

- The service model seeks to promote a new set of relationships which work in partnership to improve the way we collectively design and deliver services around patients' needs and to achieve these improvements in a truly sustainable way
- The patient will be central to plans with an integrated network of services organised around them. The organising principle seeks to 'pull' high quality care towards the patient that is accessible in their preferred location and will support them achieving their personal goals during treatment and subsequently living with the impact of cancer
- Patient safety is paramount and the highest standards will always be met;
- The relationship between patients / families / carers and clinicians / professionals will be an equal and reciprocal one.
- Patients will be provided with the support, information and skills to manage their own needs effectively at, or as close to, home as possible wherever appropriate
- Patients will be treated at theirclosest centre where appropriate and safe to do so (removal of HB boundaries)
- Optimising information technology, quality improvement systems, patient involvement, education and embracing innovative approaches to healthcare will all be essential to achieve high levels of service quality in a sustainable way

3.36 To deliver the principles of the new clinical model, care will be delivered differently and at different locations. This will require a number of infrastructure and technology projects as well as service change projects to be established.

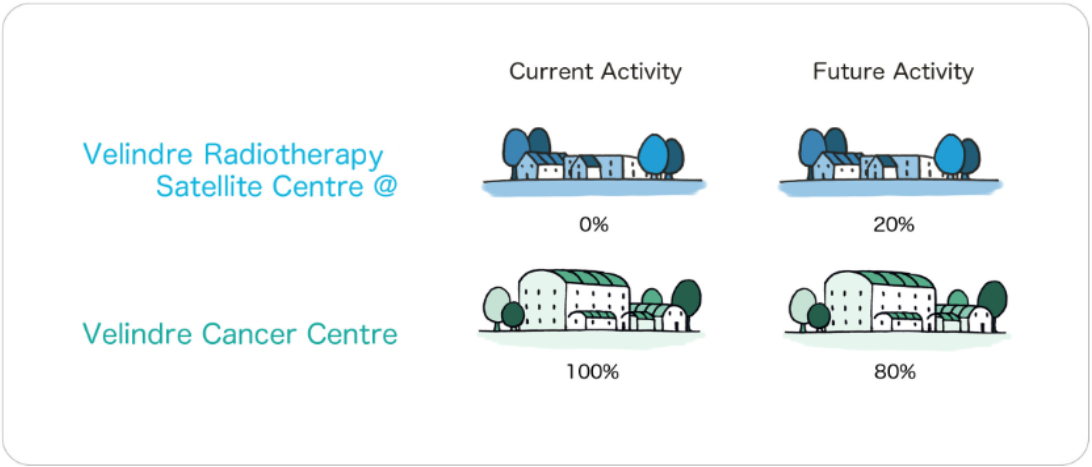
3.37 These locations and their functions are described briefly below:

- **Health Boards**: A range of cancer care occurs within the Local Health Boards (LHB's), with a proportion of patients having all their care

delivered by the Local Health Board (LHB) teams. For other patients who need non-surgical treatment, their care needs to be seamlessly planned with the non-surgical aspects of the pathway, as patient care can often transition from one team to another. The **Velindre@ Outreach facilities** and collaborative working will support this approach

- **Velindre Outreach Centres:** These facilities will provide SACT, outpatient services, education and information provision and ambulatory care procedures within HBs
- **New Velindre Cancer Centre:** The new Velindre Cancer Centre will provide specialist and complex cancer treatment including SACT, radiotherapy (including brachytherapy and unsealed sources) and specialist palliative care, inpatient facilities (being open for admission 24 hours/day, 7 days/week), a specialist acute oncology assessment unit and outpatient services, radiology and nuclear medicine. Due to its geographical location (i.e. within the Cardiff and Vale University Health Board area) it will also form part of the system providing local care to patients for whom it forms the nearest non-surgical cancer facility. Patients will only have to travel to the nVCC if we cannot deliver their care more locally
- **Radiotherapy Satellite Centre:** The Radiotherapy Satellite Centre (RSC) will provide radiotherapy treatment for approximately 20% of our patients (provided by 2 new linear accelerators).

Figure 3-4: Current & Future Activity



3.38 This means better access for patients, reduced travel for patients, associated improved outcomes, and less use of transport services. This will mean that fewer patients need to travel to VCC for their radiotherapy. These Benefits are the focus of this business case.

Preferred Operational Model

3.39 The TCS Programme undertook an appraisal of a wide range of operational delivery models for all its services. The primary objective of this appraisal was to identify the option which provided best value for money.

3.40 Eight different operating scenarios, including extended working hours as well as five, six and seven-day operational models, were evaluated by a multidisciplinary group which was externally facilitated. The assessment was undertaken based upon:

- A non-financial assessment of options against the Projects Spending Objectives and Critical Success Factors; and
- A financial (capital and revenue) assessment of options.

3.41 The preferred operating scenario (Scenario 8) scored the highest based on a combined non-financial and financial score. This scenario included the following components for radiotherapy services:

Table 3-2: Preferred Operating Scenario

Radiotherapy Service	5 days a week, 9.5 hours a day at both NVCC and RSC 7-day Radiotherapy service for emergency patients and for urgent palliative patients who are treated at VCC

3.42 Following the determination of the clinical model and the preferred operating model it was necessary to determine an appropriate location for the satellite center.

Process for Identifying a Preferred Site

3.43 In determining the preferred location of the Velindre RSC the TCS Programme requested all Health Boards in South East Wales in 2017 for expressions of interest in hosting the RSC. This resulted in two University Health Boards, Aneurin Bevan and Cwm Taf (now Cwm Taf Morgannwg University Health Board), expressing an interest and subsequently offering up a range of possible locations on the Nevill Hall Hospital and Prince Charles Hospital sites respectively. Following an estate-based assessment, two potential sites for each Health Board were identified and subjected to more detailed scrutiny.

3.44 To assist the Trust in undertaking the evaluation, support has been provided from a range of specialist sources with the overall process being overseen by Capita Business Services Ltd who were appointed by the TCS Programme to provide Health Care Planning advice for the RSC Project.

3.45 The approach, criteria and weightings within the evaluation methodology were developed by Velindre in partnership with each Health Board and CHCs through the establishment of joint planning groups. There has been positive engagement between Velindre and the Health Boards throughout the process.

The methodology was approved by the Velindre Trust Board in April 2017; and it was agreed at the Joint Planning Group with Aneurin Bevan and Cwm Taf UHBs on 26th April and 20th April respectively.

3.46 Subsequently, on 20th June 2017 the Transforming Cancer Services Programme Evaluation Panel met to review all elements of the "Radiotherapy Satellite Site Selection Evaluation Review" taking into consideration all the evidence received during the evaluation process. The Evaluation Panel:

- Approved the evaluation report;
- Approved the key findings and results outlined within the report;
- Approved the 'preferred' site location option to host the Radiotherapy Satellite Centre as being Nevill Hall Hospital (site 8) based upon the analysis presented.

3.47 This OBC is based on this Site Selection Evaluation as set down by the Joint Leadership Team at the IIB Meeting 24 July 2019 and the Projects response to the Welsh Government approval letter to proceed dated 28th November 2019.

Project Partnering Arrangements

3.48 Following the selection of ABUHB as the site for the RSC the 2 organizations developed project partnering arrangements:

3.49 ABUHB and VUNHST are proposing to develop and operate the RSC as a partnership with clearly defined roles and responsibilities for each organization within the partnership agreement

3.50 ABUHB will build and provide the landlord services and facilities for the RSC building.

3.51 VUNHST will provide the clinical services and own the associated clinical equipment within the RSC

4 STRATEGIC POLICY CONTEXT

Introduction

4.1 This section of the Outline Business Case (OBC) summarises the strategic context for the Radiotherapy Satellite Centre (RSC) Project.

Strategic Context in Wales

4.2 The Welsh Government has published a wide range of national strategies which provide the framework for the planning and delivery of public services in Wales. These are supported by a range of policies, frameworks and guidance which relate more specifically to health and social care.

4.3 In addition, the TCS Programme and its partner organisation continually scans the environment at a population, national, regional and local level to develop our knowledge and intelligence on key issues which we need to take account of in the strategic planning and delivery of services. We use the Sustainable Development Principles as the basis for our horizon scanning.

Figure 4-1: A Summary of the Strategic Context for the TCS Programme

4.4 The core themes running through the strategic framework within NHS Wales are summarised as:

- Sustainability as the fundamental principle of public services;
- Putting citizens and patients at the centre of service design and delivery;

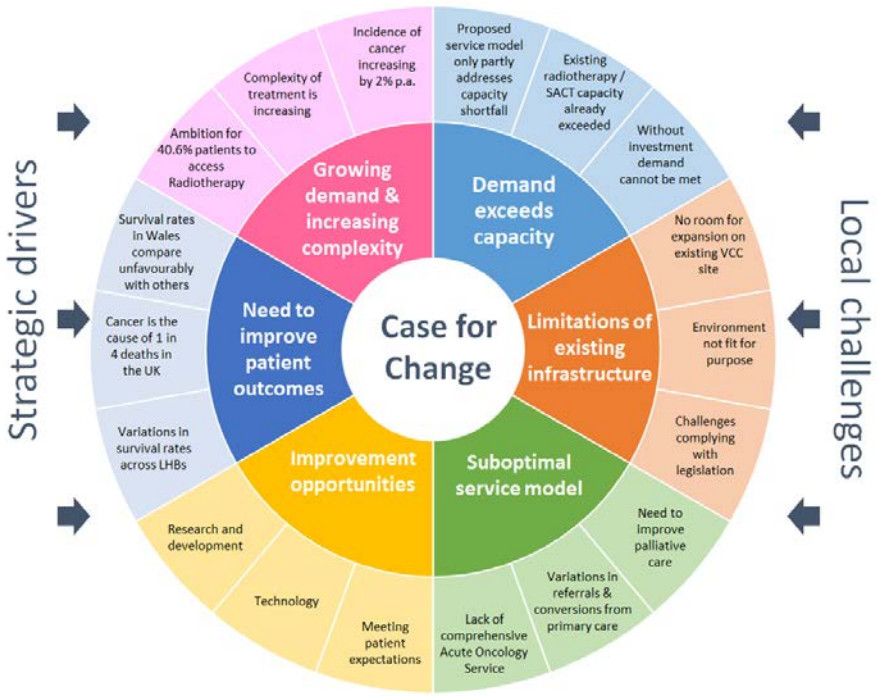
- Developing a new relationship with citizens and patients based upon the principles of prudent health and co-production;
- Providing services of the highest quality which meet the needs of individuals consistently;
- Improving the quality of services;
- Delivering outcomes which are comparable with the best elsewhere;
- Reducing all avoidable waste, harm and variation;
- Providing care at home or within the local community wherever and whenever possible;
- Using resources in a sustainable way;
- Treating people individually with dignity and respect;
- Ensuring that every Welsh pound is spent efficiently and effectively; and
- Providing a first-class experience for everyone who uses services.

4.5 The TCS Programme Business Case (PBC) outlines the strategic context for the Transforming Cancer Services Programme and describes how the Programme is central to VUNHST's ability to deliver key national and local strategic objectives, especially in relation to those outlined in the following strategic documents:

- Well-being of Future Generations (Wales) Act (2015);
- A Healthier Wales: Our Plan for Health and Social Care;
- Prudent Healthcare: Securing Health and Well-being for Future Generations;
- Together for Health – Cancer Delivery Plan;
- The Velindre University NHS Trust Cancer Strategy; and
- Velindre Cancer Centre Strategy for Radiotherapy

Note: It has been agreed with commissioners, through the collaborative scrutiny process, that the PBC is extant and for contextual understanding only. However, the PBC will remain a 'live' document which will be updated at key milestones in the Programme and is currently being updated.

Figure 4-2: Strategic Drivers and Local Challenges



National context Together for Health – Cancer Delivery Plan 2016 – 2020

4.6 Clinical outcomes for cancer patients in Wales compare unfavourably with other countries.

4.7 The Welsh Government's '*Together for Health – Cancer Delivery Plan*' provides a clear strategy for cancer care in Wales and sets out the key drivers for improvement between 2016 and 2020:

- **Preventing cancer**: people to live a healthy lifestyle, make healthy choices and to minimise risk of cancer;
- **Detecting cancer earlier**: cancer is detected earlier where it does occur or recur;
- **Delivering fast, effective treatment and care**: people receive fast, effective treatment and care so they have the best chance of cure;
- **Meeting people's needs**: people are placed at the heart of cancer care with their individual needs identified and met so they feel well supported and informed, able to manage the effects of cancer;
- **Caring at the end of life**: people approaching the end of life feel well cared for and pain and symptom free;
- **Improving information**: providing improved analysis and information which is available at the right time to the right person; and
- **Targeting research**: to support improvements in cancer treatment.

4.8 All the HBs within SE Wales, and within the remit of this business case, along with VUHNST have used these pillars as the basis for their local Cancer Delivery plans to meet the needs of their local population. The key, and consistent, themes from these documents are:

- Improve cancer outcomes in Wales through improved prevention, early detection and better treatments
- Work across the whole healthcare systems to deliver seamless and integrated care for cancer patients
- Deliver care closer to home where safe and appropriate to do so
- Address inequalities for cancer patients
- Equitable access to radiotherapy
- Improve Research, development and learning
- Improve patient experience through patient centred model

Local Strategic Context in VUNHST and ABUHB

4.9 As mentioned above both VUNHST and ABHB have Cancer Strategies and delivery plans which have shared ambitions.

4.10 ABUHB Cancer Strategy *Cancer Services: Delivering a Vision 2020-2025* has the following ambition:

Figure 4-4: ABUHB Vision

ABUHB Vision:

Improve prevention, optimise treatments, patient outcomes and reduce health inequalities for our population and those we serve.

4.11 Velindre cancer strategy - '*Shaping our Future Together'* sets the following vision for cancer services for the next ten years:

Figure 4-4: VUNHST Vision

VUNHST Vision:

To lead in the delivery and development of compassionate, individualised and effective cancer care to achieve outcomes comparable with the best in the world

4.12 At the heart of the TCS Programme is the delivery of a patient centred service model that will allow Commissioners to provide sufficient capacity to deal with growing and changing demand for services, whilst improving clinical outcomes for the population of South East Wales.

4.13 Both ABUBH's Cancer Strategy and its plans for Nevill Hall Hospital (NHH) after the opening of the Grange include the development of the RSC as a key

driver to deliver its ambitions. In the HB's plan the RSC at NHH will operate alongside key other cancer services including local SACT treatments, Acute Oncology Services (AOS) and specialist palliative care.

4.14 This Outline Business Case (OBC) will provide the case for the RSC to support the existing, and in due course new, Velindre Cancer Centre in its provision of Radiotherapy services for the population of South East Wales. The nVCC will provide a hub to deliver the many of specialist non-surgical cancer services for South East Wales but with radiotherapy services closer to home for a proportion of the catchment population delivered via a Satellite Centre. As such it is critical to the delivery of the overall TCS Programme and is therefore aligned to the wider healthcare strategic context, at both a local and national level.

5 EXISTING ARRANGEMENTS RADIOTHERAPY

5.1 The purpose of this section of the business case is to describe the current service delivery arrangements for the services covered within the scope of the RSC Project;

Service Delivery Arrangements, including equipment

5.2 VUNHST delivers specialist non-surgical cancer services to a catchment population of 1.5million people using a hub and spoke service model. For some specialist Radiotherapy treatments the catchment population is all of Wales.

5.3 Services are currently provided across South East Wales from one of two main treatment locations:

- **Velindre Cancer Centre:** The hub of the Trust's specialist cancer services is a specialist treatment, training, research and development Centre for non-surgical oncology; and
- **Outreach Centres:** outpatient and SACT treatments are delivered on an outreach basis within facilities across South East Wales, including District General Hospitals and from patients' own homes.

5.4 Currently all radiotherapy treatments are provided at VCC hub**.**

5.5 Patients are referred to Velindre Cancer Centre for treatment by the following routes:

- Following referral by a GP to the relevant HB; or
- Following presentation as an emergency at an A&E department.

5.5 Prior to referral to Velindre Cancer Centre, all patients will have been investigated and diagnosed with a solid tumour. Some patients may have already undergone surgery. Velindre Cancer Centre's role is to deliver specialist and tertiary cancer treatment, including Radiotherapy, until the patient can be referred back to their host Health Board for ongoing treatment, management, and follow-up.

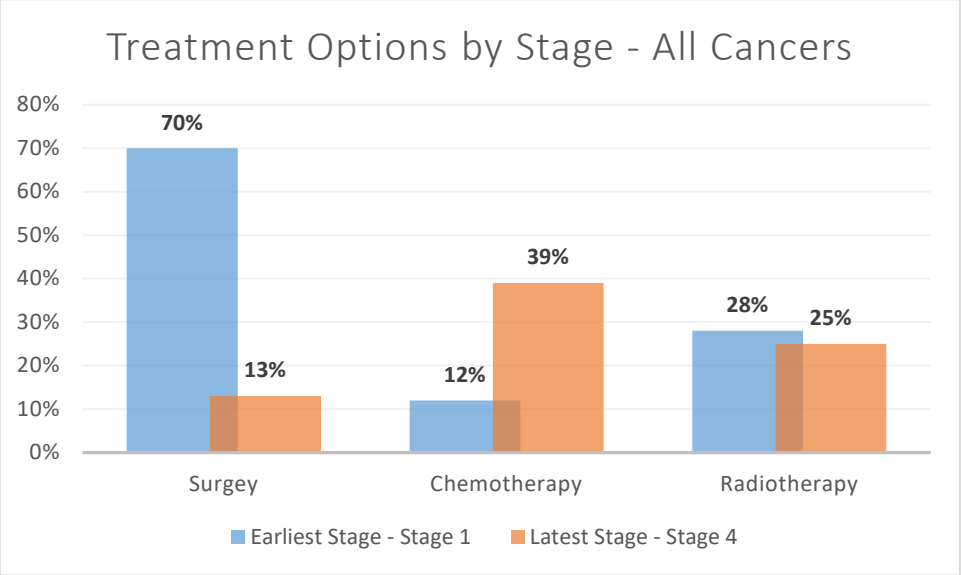
5.6 Radiotherapy plays a vital role in the treatment of cancers with:

- 40% of all patients cured of cancer are cured by radiotherapy
- It also can offer patients the choice of organ preservation and avoid the need for major or disfiguring surgery.

5.7 With rapid developments in the technology the role of Radiotherapy continues to expand in the treatment of cancers.

5.8 Radiotherapy is a flexible treatment modality which is used with a curative or palliative intent, at a consistent rate, regardless of cancer staging as shown by the following graph:

Figure 5-1: Treatment Options by Stage



5.9 Overall the Radiotherapy servicehas a number of specific functions:

- Supports diagnosis
- Undertakes pre-treatment planning
- Outlining – identifying what should be treated
- Undertakes on-going treatment planning and review
- Delivers external radiotherapy using Linear Accelerators (Linacs) and a superficial treatment area as well as Brachytherapy.
- Supports training and education (undergraduate and post graduate) including medical and radiologist training
- Supports the wider VCC and LHB cancer teams and specialists through participating in multi-disciplinary, multi-agency meetings and discussions at a patient and service-wide level.
- Undertakes radiotherapy research

5.10 The current radiotherapy department is based on a single site at the Velindre Cancer Centre (VCC) with the following facilities and equipment include:

- 8 x Linear accelerators;
- 1 x superficial treatment area;
- A brachytherapy suite (with theatre area);
- Pre-treatment planning areas which is supported by 2 CT Simulators, each with a small number of consulting rooms to support on-treatment review and consultation.
- Physics planning areas;
- An electronics and computing workshop that supports the medical physics function i.e. basic repair and PAT testing.

- An engineering workshop/machine shop, electronics workshop, dosimetry & metrology laboratories

5.11 Recent years has seen an increase in the complexity of linear accelerators which impacts on repair, QA and maintenance time to safeguard the reliability and high accuracy of the machines, which is particularly important given the increasing trend of higher doses over less fractions.

5.12 The life expectancy of a Linac is 10 years and it is important that the linacs are fit for purpose and not beyond their life expectancy which leads to increased risks about breakdowns and failures, which in turn affects the sustainability of a safe and reliable radiotherapy service.

5.13 The linacs at VCC are ageing with an average age of 9.6 as at 2020; with a peak age of 15 years which is well beyond the expected lifespan. The table below show the aging profile of machines at VCC:

Table 5-1: Aging Profile of Machines at VCC

			Planning Scenario - No Early Replacement of linacs - No RSC - Wait to nVCC																									
	Type	Location	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2020	2021	2021	2022	2023	2023	2024	2024	2025	2026
																		Transition YR		Transition YR			Transition YR		Transition YR			
LA10	Std	VCC / nVCC																										
LA9	Std	VCC / nVCC																										
LA8	Std	VCC / nVCC							0	1	2	3	4	5	6	7	8	9	9	10	10	11	12	12	13	0	1	2
LA7	Std	VCC / nVCC						0	1	2	3	4	5	6	7	8	9	10	10	11	11	12	13	13	14	0	1	2
LA6	Std	VCC / nVCC	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	15	16	16	17	18	18	19	0	1	2
LA5	Std	VCC / nVCC								0	1	2	3	4	5	6	7	8	8	9	9	10	11	11	12	0	1	2
LA4	Stereo	VCC / nVCC										0	1	2	3	4	5	6	6	7	7	8	9	9	10	0	1	2
LA3	Std	VCC / nVCC			0	1	2	3	4	5	6	7	8	9	10	11	12	13	13	14	14	15	16	16	17	0	1	2
LA2	Stereo	VCC / nVCC												0	1	2	3	4	4	5	5	6	7	7	8	0	1	2
LA1	Std	VCC / nVCC				0	1	2	3	4	5	6	7	8	9	10	11	12	12	13	13	14	15	15	16	0	1	2
Total											6	7	7	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Avg Age											4.17	4.43	5.43	5.63	6.63	7.63	8.63	9.63	9.63	10.63	10.63	11.63	12.63	12.63	13.63	0.00	1.00	2.00
Peak Age											8	9	10	11	12	13	14	15	15	16	16	17	18	18	19	0	1	2

5.14 The RSC is an important development to ensure VUNHST is able to continue to deliver safe and effective Radiotherapy services.

Benchmarking

5.15 As part of the development of TCS programme we have taken the opportunity to benchmark the efficiency of our service. Whilst benchmarking data is routinely captured in many sectors of the health service there is no established benchmarking framework within UK for tertiary cancer services which has made it challenging for VCC to routinely benchmark it performance against other cancer centres. Similarly, in light of fact that operating models, adherence to practice guidelines, etc., vary greatly outside the UK a comparison with non UK radiotherapy centres is not the most appropriate benchmark. In recognition of this, VUNHST has undertaken benchmarking itself.

5.16 Benchmarking exercises were undertaken during 2016/17 and 2019/20 with a number of leading Cancer Centres from across the UK including:

- The Beatson West of Scotland Cancer Centre;
- The Clatterbridge Cancer Centre NHS Foundation Trust;
- Leeds Teaching Hospital NHS Trust; and
- The Royal Marsden NHS Foundation Trust.

5.17 These benchmarking exercises indicated that VUNHST compares favourably with other UK Radiotherapy centres in respect of throughout and efficiency and, therefore, additional capacity cannot be fulfilled by improved efficiency with the current service.

6 BUSINESS NEEDS

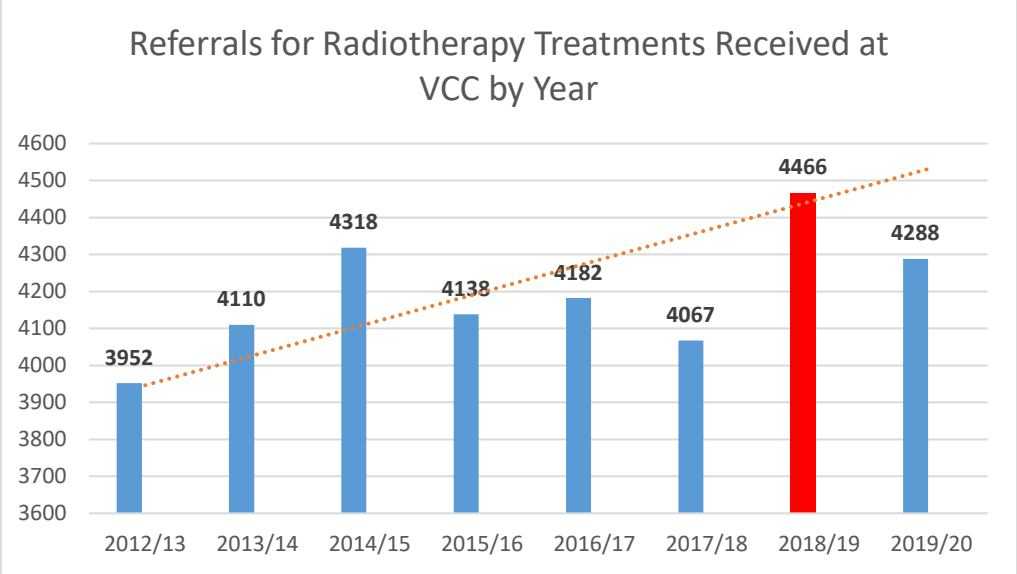
6.1 This section will review the clinical growth assumptions and demonstrate that additional capacity is required to meet the forecast increases in demand for Radiotherapy.

6.2 Earlier sections outlined the role radiotherapy plays in the treatment of cancers. Regardless of the future delivery of systematically more rapid diagnosis, increased screening capacity and public health initiatives, radiotherapy will remain a valid and effective clinical option for the treatment of a large proportion of all patients with cancer.

6.3 There are challenges inherent in attempting to forecast future demand for radiotherapy services given changes in clinical indications, incidence and changing treatment complexity. The TCS Programme has developed clinical growth assumptions which in turn have informed the development of this Outline Business Case. It is estimated that demand for radiotherapy services in south-east Wales will increase at a rate of 2% per annum to 2030/31.

6.4 It is apparent that demand for specialist cancer treatment is increasing. This demand is represented in the most immediate sense by the receipt of increasing numbers of patient referrals. Such an increase has been observed by the radiotherapy service at Velindre Cancer Centre in recent years.

Figure 6-1: Referrals for Radiotherapy Treatments



6.5 The graph above details the number of individual patient referrals for treatment with radiotherapy received at Velindre Cancer Centre from 2012/13 to 2019/20, inclusive. The dotted line overlaid on the graph describes an increase in referrals of 2% per annum from a base in 2012/13. Although there are year on year fluctuations, the graph serves to illustrate that the actual historical growth in referrals has been in step with the 2% clinical growth assumption for radiotherapy within TCS plans.

6.6 The 4,466 referrals received in 2018/19 represent the largest number of referrals received for the radiotherapy treatment at Velindre Cancer Centre in any given year. This follows an earlier peak in 2014/15 (4,318 referrals). Such marked increases in demand present stark capacity challenges which will become more acute as the clinical growth assumption underpinning the TCS Programme materialise.

6.7 There are a number of factors that influence the demand for Radiotherapy including:

1) Increasing incidence of cancer

It is recognised that the rate of cancer incidence in the United Kingdom and Welsh populations has been increasing over time. Cancer incidence in the United Kingdom increased by 12% between the early 1990s and the late 2010s and is expected to increase by a further 40% by 2035. This would represent 514,000 new cases of cancer in the United Kingdom compared to the 359,960 reported in 2015. Within Wales it is forecast incidence will increase by 2% pa over the next 10 years.

As mentioned earlier in this case the Wales Cancer Delivery plan has a focus on earlier detection and diagnosis of cancer. These patients will then require treatments including Radiotherapy. It is also likely to shift the balance towards a higher number of radical treatments as cancers get detected earlier.

2) Increasing population

The increased rate of incidence is driven, in part, by the fact that the population is growing and ageing. Welsh Government's most recent *Future Trends Report* forecasts that the population of Wales will increase by 5% between the mid-2010s and the mid-2030s. Although population level estimates of future changes in incidence take some account of forecast changes in population level and demographic, the anticipated increase to the population of certain areas in south-east Wales in the coming decades are marked. For example local authority population projections, prepared by *Statistics for Wales* on behalf of Welsh Government in 2016, indicate that the population of Newport will increase by approximately 12,000 by 2039 and that of Cardiff will be 26% larger in 2019 than in 2014, an increase which would represent more than 90,000 extra residents.

It is acknowledged that cancer incidence is higher among the over 65s and the same report predicts that the overall proportion of the Welsh population aged 65 and over will increase from 20% to 25% over the same period.

3) **Increasing complexity of treatments**

New techniques and developments are impacting on cancer treatments, including radiotherapy.

New techniques in the planning and delivery of Radiotherapy are improving accuracy of treatments for example to avoid critical organs which helps reduce long term side effects which can be debilitating, but also improves survival.

Developments continue to lead to growth in complexity and create an increase demand on resources including pre-treatment and treatment capacity, increased time to plan, treat and an increase in the rate of re-planning.

One new technique is hypo fractionation which involves high volumes but over shorter fractionation regimes. Whilst this enables fewer visits by patients it requires an increase in accuracy and specification of planning and dosimetric delivery of treatments. This demands more high quality treatment planning but also longer set up time and imaging at the time of treatments. Thus it is predicted that the throughput of treatments per hour will reduce. These, together with the commensurate increase for Quality assurance checking to ensure treatments are delivered in an optimum and safe manner, are having an impact on demand for radiotherapy.

Another example of developments is in chemo radiation with the potential for combination drug therapies that may provide opportunity for enhanced update of radiation by cancer cells or to protect healthy tissues during Radiotherapy.

4) Current uptake levels of RT

Analysis of the update rates of Radiotherapy in Wales show it to be about 37% against best practice of approximately 41% which suggest there are people in Wales who could benefit from Radiotherapy that are not currently receiving it.

It is acknowledged that the proximity of the population to specialist services assist in ensuring greater access and uptake of these services. There is evidence that the uptake of RT treatment by patients diminishes with the distance travelled by patients to reach radiotherapy centres. The provision of a satellite will provide improved access to patients as their travel time will be reduced. The Royal College of Radiologists indicate a journey time of less than 45 minutes is appropriate

Previous work analysing potential sites has shown that a satellite centre will improve the number of patients who live within 45 minute drive of a radiotherapy treatment centre in SE Wales. As the population ages too this should ensure that as many patients as possible can access the relevant treatments. Therefore it is anticipated that a Radiotherapy satellite centre in South East Wales will also lead to an increase in the update of Radiotherapy treatments.

5) Rapid developments in techniques

Velindre Cancer Centre has always had an excellent reputation for delivering high quality radiotherapy to it patients. It has been instrumental in delivering practice changing clinical research and has always been an early adopter of new technologies such as IMRT and stereotactic radiotherapy. The pace of innovation, clinical and technological change and complexity in cancer services is rapid. It is important that the radiotherapy service at Velindre Cancer Centre be at the forefront of cancer treatment, delivering a range of high quality, people centred services, which can benefit the Welsh population, whilst balancing innovation and research with accurate, timely, effective, efficient use of resources.

6.8 Within these demand increases it is projected that the most prevalent tumour types will remain as now. In 2035, approximately a third of all cancers reported in men are anticipated to be cancers of the prostate and a similar proportion of all cancers reported in women will be cancers of the breast.

6.9 These drivers and demographic developments strongly indicate that over the coming years the demand for RT will continue to rise and require sufficient and resilient capacity to be made available. The need for this increased capacity for Radiotherapy services in South East Wales is shown in graphs below and it is this which underpins the development of this OBC.

Figure 6-2: Radiotherapy Activity

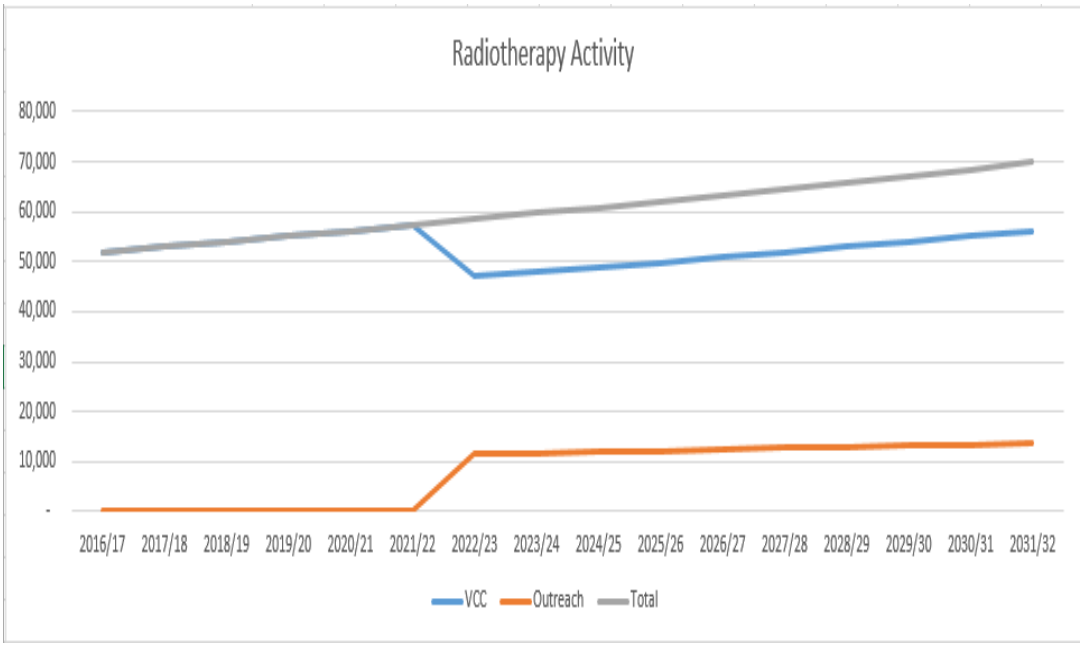
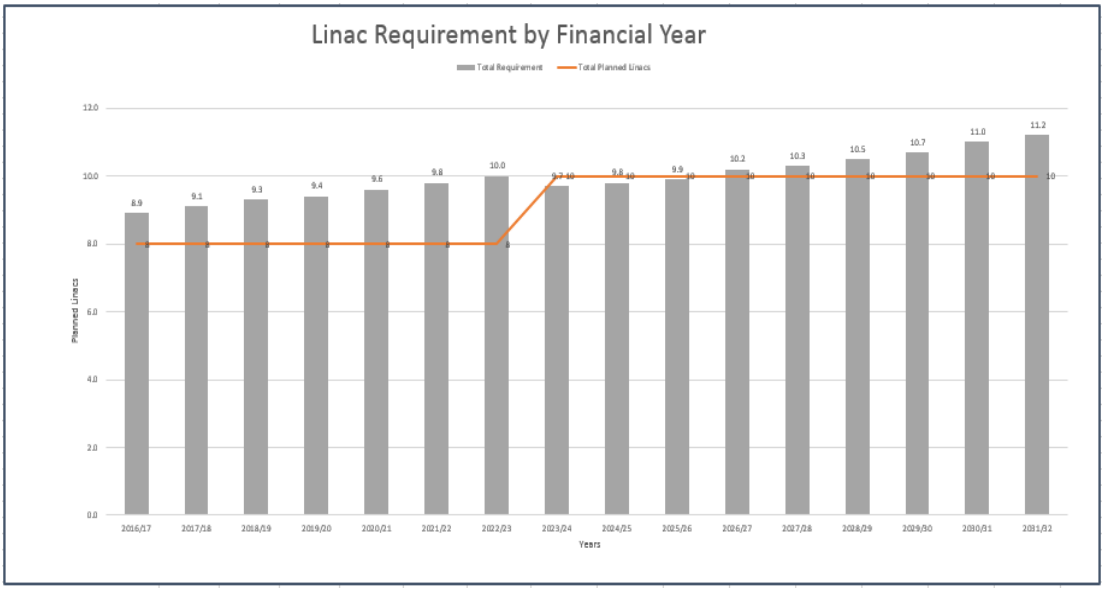


Figure 6-3: Linac Requirement by Financial Year



6.10 In summary the key drivers for the drivers for a RSC are:

- Improve access rates for Radiotherapy treatments, as rates are low in Wales compared to best practice and 50% of all cancer patients will benefit from receiving radiotherapy as part of their cancer management and in 40% of cases it contributes to a cure.
- Currently there is a poor patient experience for patients who travel significant distance for radiotherapy, often every weekday for many weeks.
- A RSC will contribute to the National policy: Healthier Wales –as it delivers care at home/locally where possible
- This type of networked model is used by leading cancer centres around the world delivering good outcomes
- Both Organisations are keen to increase access to research and trials and it is planned that local access to radiotherapy will increase availability and update of Radiotherapy trials

7 KEY RADIOTHERAPY SERVICE AND CAPACITY REQUIREMENTS

7.1 The purpose of this section is to:

- Summarise the methodology which has been applied for forecasting future capacity requirements of South East Wales Cancer Services;
- Provide an overview of the service and capacity requirements and functional requirements; and the Major Medical equipment requirements.

7.2 It is important to highlight the relationship between the nVCC OBC and the RSC OBC in terms of whole system capacity and delivery.

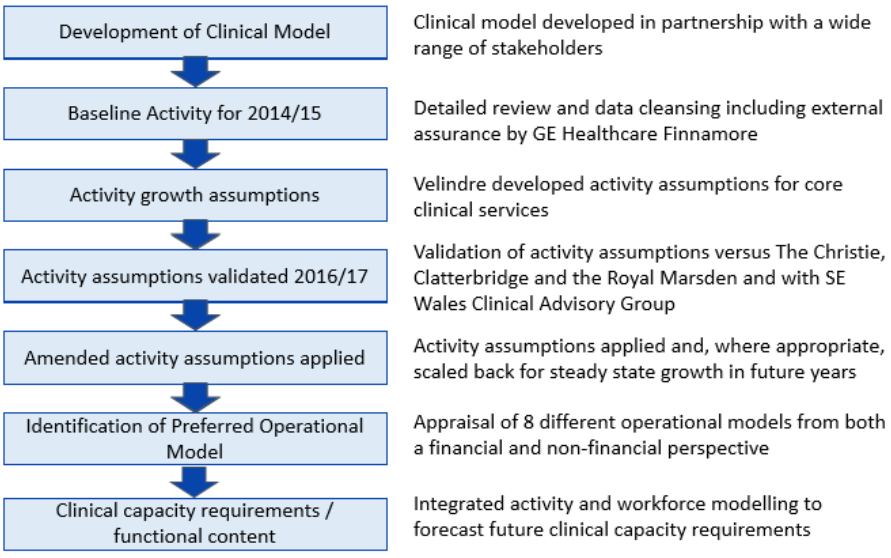
Modelling Future Capacity Requirements

7.3 The TCS Programme has developed a comprehensive activity model to forecast future capacity requirements for as set down in the nVCC OBC South East Wales Cancer Services. 2016/17 has been used as the baseline activity year for the model. The 2016/17 data set has been subject to rigorous review, including external validation, to ensure the accuracy of the data.

7.4 The functionality of the model has been subjected to quality assurance tests by the Trust's Technical Advisors, by GE Healthcare Finnamore and by the TCS Programme Team.

7.5 A summary of the process followed in forecasting future capacity requirements is shown in Figure 7-1.

Figure 7-1: Methodology for Forecasting Future Capacity Requirements



Clinical Growth Assumptions

7.6 The TCS Programme has developed a set of clinical growth assumptions for its core services. These clinical growth assumptions have been developed in partnership with clinical colleagues from across South East Wales and are informed by cancer incidence projections provided by the Welsh Cancer Intelligence and Surveillance Unit (WCISU).

7.7 The assumptions, following the availability and validation of 2016/17 activity data, have been reviewed by the VCC Senior Management Team and by the VCC service and clinical leads respectively. The main output of this review was a reduction in assumed growth rate for Radiotherapy from 4% to 2% between 2016/17 and 2030/31.

7.8 The clinical growth assumptions have been approved by the TCS Programme Management Board and by the TCS Programme Clinical Advisory Board.

Table 7-1: Clinical Growth Assumptions for Radiotherapy Services

Service	Annual Clinical Growth Assumption
	2016/17 – 2030/31
Radiotherapy	2%

7.9 In addition a validation exercise has been undertaken to compare the Trust's clinical growth assumptions against the following Cancer Centres from across the UK.

- The Beatson West of Scotland Cancer Centre;
- The Clatterbridge Cancer Centre NHS Foundation Trust;
- The Christie Cancer NHS Foundation Trust;
- Leeds Teaching Hospital NHS Trust; and
- The Royal Marsden NHS Foundation Trust.

7.10 This validation exercise demonstrated that the clinical growth assumptions were in line with those from other Cancer Centres across the UK, where comparable data is available. It can also be that radiotherapy services at Velindre Cancer Centre has observed growth in recent years in keeping with the assumption.

Forecast Capacity Requirements

7.11 Following the activity and capacity modelling process outlined above, the TCS Programme has been able to establish its core capacity requirements. For Radiotherapy these equate to 10 Linear Accelerators by 2022.

7.12 Given the above activity projections, and based on the agreed operating model referred to above the following planning assumptions were developed for the RSC:

- Radiotherapy Satellite with 2 x operational Linacs. However, there is expansion space to support the installation of two more linacs if required in the future.
- 2 x Operational bunkers on day of opening
- On-treatment review and education
- 1 x CT Simulator
- Good effective and integrated radiotherapy and clinical information systems, for example to enable panning and delivery of treatments.

7.13 There will be a phased clinical implementation at the RSC:

- Phase 1 – Less complex / high volume tumour sites
- Phase 2 – Transition to a wider range of tumour sites

Table 7-2: Phased Implementation

Initial Activity	Proposed Activity	Exclusions
Breast Prostate & SABR Planned & unplanned Palliative Emergency	Urology Upper & Lower GI Lung & SABR Gynae Lymphoma Head & Neck Thyroid Neuro Electrons Chemo-radiation Research	Stereotactic Paediatrics Superficial (DXR) Brachytherapy TBI Sarcoma Benign Conditions Whole CNS Research (Early Phase)
	Research (subject to risk assessment)	

7.14 To deliver the required service model the RSC will requires access to service provided by ABUHB including pharmacy to enable the delivery of chemo-

radiation treatments and emergency medical cover. An SLA will be established for the delivery of these.

Workforce

7.15 A workforce plan to deliver the service outlined above at the Satellite centre has been developed.

8 SPENDING OBJECTIVES

8.1 The purpose of this section is to outline the Spending Objectives for the RSC Project. The Project Spending Objectives (PSOs) provide a basis for appraising potential options and for post-project evaluation.

Project Spending Objectives

8.2 The following RSC PSOs were developed in partnership at a stakeholder workshop, which was attended by representatives with a broad range of service views. In presenting the RSC PSOs it is important to emphasise that:

- The scope of the OBC is limited to the development of the RSC to support the existing, and in the future, a new VCC; and
- The OBC for the RSC will focus on the additional infrastructure costs directly attributable to the RSC and the variable clinical and facilitate costs that result of a step up in radiotherapy capacity to meet modelled demand.

Table 8-1: Project Spending Objectives

Project Spending Objective	Description
Project Spending Objective 1	To provide access to **quality** and **safe** radiotherapy services that optimises patient **outcomes.**
Project Spending Objective 2	To provide sufficient **capacity** to meet future **demand** for services.
Project Spending Objective 3	To **improve patient, carer** and **staff experience.**
Project Spending Objective 4	To provide **capacity** and **facilities** to support the delivery of high quality **education**, **research**, **technology** and **innovation.**

8.3 The PSOs were approved by the RSC Project Board who provided assurance to the Health Board and Trust Board that they were:

- Aligned with the national context for healthcare developments in Wales;
- An alignment with the TCS Programme;
- Aligned with the scope and strategic context of the nVCC Project;
- Specific, measurable, achievable relevant and time-constrained (SMART); and
- Focused on business needs and vital outcomes rather than potential solutions.

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Performance Metrics

8.4 To support the delivery of these objectives a number of key performance metrics have been developed and mapped against the five drivers for investment outlined within the Welsh Governments Business Case guidance.

Table 8-2: nVCC OBC Project Spending Objectives – Key Performance Metrics

Project Spending Objective	Performance Metrics
PSO1 - To provide access to **quality** and **safe** radiotherapy services that optimises patient **outcomes**	• Percentage compliance with Health Building Notes • Compliance assessment against BREAM • Percentage assessment against WHTM Estate Code (Category A Condition of Buildings) • PROM outcome measures • Access rate to Radiotherapy treatments
PSO2 – To provide sufficient **capacity** to meet future **demand** for services	• Percentage of patients receiving radical radiotherapy treated within 21 days • Percentage of patients receiving palliative radiotherapy treated within 7 days • Percentage of patients receiving emergency radiotherapy treated within 2 days • Percentage utilisation of equipment / accommodation: o Linear accelerator utilisation o Non-clinical accommodation utilisation
PSO3 – To **improve patient, carer** and **staff experience**	• Percentage of patients rating their experience as excellent • Percentage staff satisfaction • Percentage recruitment of workforce • Percentage retention of workforce • PREM measures • Reduced travel times for patients and carers with resultant better experience and reduction in carbon footprint
PSO4 - To provide **capacity** and **facilities** to support the delivery of high quality **education**, **research**, **technology** and **innovation**	• Percentage of patients who have the opportunity to participate in clinical radiotherapy research trials • Percentage of patients for each cancer site entered into radiotherapy clinical trials each year • Increased integrated and cross organisation MDT learning and education

9 SCOPE OF THE RADIOTHERAPY SATELLITE CENTRE PROJECT

9.1 As previously described the scope of the Project is limited to the building of an RSC and the following is outside of the scope of the RSC Infrastructure Project:

- All other variable clinical costs of modelled demand growth (excluding radiotherapy which is included within the OBC) which will be considered through the commissioning LTA framework and, therefore, excluded from the RSC OBC;
- All other service development Projects e.g. Prehabilitation which will be subject to separate Business Cases and therefore excluded from the RSC OBC;
- All other outreach capital Projects e.g. SACT services, which will be subject to separate Business Cases and therefore excluded from the RSC OBC; and
- All Digital Projects which the Trust needs to complete irrespective of the RSC Project. These will be the subject of separate Business Cases.

Potential Business Case Options

9.2 The scope of the Project is well defined. There are two potential options for delivering the objectives of the Project apart from the Status Quo:

- Do Nothing;
- Option 1: 10 Linear Accelerators at nVCC
- Option 2: 8 Linear Accelerators at nVCC and 2 Linear Accelerators within the RSC.

9.3 As outlined earlier, the location of the RSC has been previously determined through an independently led options appraisal.

Capacity and Functional Requirements

9.4 As outlined earlier the activity and capacity analysis has demonstrated the following Functional Content requirements is 10 linacs i.e. 2 additional linacs from current levels and when compared to the planned nVCC.

Building Footprint for RSC

9.5 The activity and capacity analysis has demonstrated that the required building footprint for the RSC, is based on the clinical model plan that 2,528 m^2.

10 PROJECT RISKS, CONSTRAINTS, DEPENDENCIES AND ASSUMPTIONS

Risks

10.1 Identifying, mitigating and managing the key risks is crucial to successful delivery. Without effective management of the key risks it is likely that the Project would not deliver its intended outcomes and benefits within the anticipated timescales and spend.

10.2 A full risk register for the RSC Project has been developed which includes the following categories:

11 **Business risks:** Risks that remain 100% with the Health Board and Trust and include political and reputational risks;
12 **Service risks:** Risks associated with the design and build and operational phases of the Project and may be shared with other organisations; and
13 **External Non System risks:** Risks that affect all society and are not connected directly with the proposal. They are inherently unpredictable and random in nature.

10.3 The RSC risk register is managed by the Project Team. The role of the Project Team in managing risks is described within the Management Case.

Constraints

10.4 The main constraints in relation to the RSC Project are outlined in Table 10-1.

Table 10-1: Main Constraints of the RSC Project

Constraint	Overview
Financial Constraints	The infrastructure solution for the RSC must be deliverable within the (including VAT but excluding equipment) capital funding agreed with the Welsh Government and the revenue resources agreed with Commissioners.
Timescale Constraints	The RSC must be operational in line with the Programme requirements and as agreed with the Welsh Government.
Service Continuity	Delivery of patient services must be maintained during the period of construction.
Compliance with Statutory Requirements	The RSC must be fully compliant with all relevant statutory compliance requirements.

Dependencies

10.5 A number of dependencies have been identified in relation to the RSC Project. These are provided in Table 10-2.

Table 10-2: Main Dependencies of the RSC Project

Dependency	Overview
Capital Funding Availability	Access to capital funding is critical to deliver the Project, including the procurement of Major Medical equipment and IM&T and essential Enabling Works.
Revenue Funding Availability	Access to revenue funding is essential to support the recurring revenue implications associated with the RSC Project.
Welsh Government Approval	The Outline Business Case must be approved by Commissioners and the Welsh Government.
Partnership Working	Co-production in the design and implementation of the Project that involves all stakeholders is essential to the Project's success.
Wider Health Strategy and Governance	It is important that general health strategy and governance in Wales, that underpins the RSC Project remains broadly consistent over the period of change.

Assumptions

10.6 The key assumptions underpinning the RSC Project are provided in Table 10-3.

Table 10-3: Main Assumptions for the RSC Project

Assumption	Overview
Implementation of the wider TCS programme	It is assumed that the following capital Projects identified within the TCS Programme are funded and the RSC has been 'sized' on the basis of this assumption. • VCC (and nVCC) at Whitchurch; and • Non-surgical cancer Outreach centres across South East Wales delivering SACT and Outpatient services.
Clinical Growth Assumptions	The RSC has been 'sized' on the basis of a number of clinical growth assumptions (in conjunction with the nVCC OBC), summarised below:

Assumption	Overview
	• Radiotherapy activity will increase by 2% per annum through to 2031

Flexibility for Expansion on the Site of the Radiotherapy Satellite Centre

10.7 It is important to highlight that there is planned expansion space (equivalent to accommodation for 2 additional linear accelerators plus supporting equipment etc.) on the identified site for the RSC. This expansion capacity is important to the TCS Programme Risk Management Strategy in the event that the clinical growth assumptions prove to be understated.

11 CONCLUSION

11.1 The Strategic Case has demonstrated the compelling case for investment to support the development of an RSC. The key factors supporting the case for investment are:

- Demand for Radiotherapy is forecast to increase over the forthcoming years and there is currently insufficient capacity to meet this demand;
- There is no expansion space on the existing Velindre Cancer Centre to, for example, install any additional linear accelerators, which limits the Trust's ability to expand its capacity in response to increasing demand for clinical services;
- Patient access to radiotherapy services in Wales is lower than in the rest of the United Kingdom and location of radiotherapy centres have been identified as a contributing factor; and
- The new Velindre Cancer Centre, has been sized on the basis that an RSC would be delivered in advance of its opening in accordance with the TCS Clinical Model.
- The RSC provides additional radiotherapy service capacity to the patients of South East Wales to meet demand significantly in advance of any other potential service development.

12 APPENDICES

For Information

No appendices are detailed to support this chapter**.**

Outline Business Case: 2020

Radiotherapy Satellite Centre

Economic Case

ECONOMIC CASE

INDEX

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1 INTRODUCTION

1.1 The case for a Radiotherapy Satellite Centre (RSC) has been clearly articulated within the Strategic Case.

1.2 The purpose of the Economic Case is to identify and appraise the potential options for the delivery of the Project Spending Objectives (PSOs).

1.3 The Economic Case outlines the option appraisal undertaken to identify the Preferred Option by the following Processes:

- Identification of the Critical Success Factors (CSFs) for the Project;
- Development of a shortlist of options in response to the case for change and the proposed clinical service model;
- Evaluation of the shortlist of options against the CSFs and the PSOs;
- An economic appraisal of the shortlist of the options; and
- A recommendation of the preferred way forward in the form of a Preferred Option.

1.4 The outcome of the option appraisal supports and justifies the decision to proceed with the Project. It does this by identifying a Preferred Option which is expected to demonstrate that the Project will deliver the benefits required and provide the best value for money.

Context

1.5 The Welsh Government approved the Trust's Strategic Outline Programme (SOP) in 2015 for the delivery of Cancer Services in South East Wales.

1.6 The SOP was followed by a Transforming Cancer Services (TCS) Programme Business Case in October 2017 that developed the clinical model underpinning service development in South East Wales.

1.7 The Project parameters set out above are important as they restrict the range and scope of options which could be considered as part of the Economic Case.

2 CRITICAL SUCCESS FACTORS

2.1 As outlined in the Welsh Government's Better Business Case Guidance, the Critical Success Factors (CSFs) are the attributes essential for successful delivery of the Project.

2.2 The Project Group developed the CSFs for the Project and in doing so considered the Welsh Government priorities as outlined in the NHS Infrastructure Investment Criteria. The criteria is outlined below:

Table 2-1: NHS Infrastructure Investment Criteria

- **Health gain:** improving patient outcomes and meeting forecast changes in demand;
- **Affordability:** given the long term revenue assumptions, there should be an explicit reference to reducing revenue costs;
- **Clinical and skills sustainability:** reducing service and workforce vulnerabilities, and demonstrating solutions that are flexible and robust to a range of future scenarios;
- **Equity:** where peoples highest health need are targeted first; and
- **Value for money:** optimising public value by making the most economic, efficient and effective use of resources.

2.3 The CSFs that were identified are as follows:

- Strategic fit;
- Potential value;
- Supplier capacity and capability;
- Potential affordability; and,
- Potential achievability.

2.4 The CSFs are used to assess each option and they have also been aligned to the infrastructure investment criteria, as outlined in the table overleaf.

Table 2-2: Critical Success Factors

Critical success factor	The option will be assessed in relation to how well it:	Alignment to infrastructure investment criteria
Strategic fit	• Meets agreed Project Spending Objectives, related business needs and service requirements; and • Provides holistic fit and synergy with other strategies, programmes and projects.	• Health gain
Potential value for money	• Optimises public value (social, economic, environmental) in terms of potential costs, benefits, and risks.	• Value for money • Equity
Supplier capacity and capability	• Matches the ability and capacity of potential suppliers to deliver the required services; and • Is likely to be attractive to potential suppliers.	

Critical success factor	The option will be assessed in relation to how well it:	Alignment to infrastructure investment criteria
Potential affordability	• Can be funded from available sources of finance; and • Aligns with sourcing constraints.	• Affordability
Potential achievability	• Is likely to be delivered given the Health Board and Trust's and partner organisations' ability to respond to the changes required; • Matches level of available skills required for successful delivery; • Facilitates the continued delivery of services throughout the duration of the project; and • Delivers an operational RSC in line with the Programme agreed with the Welsh Government.	• Clinical and skills sustainability

2.5 The CSFs are used alongside the PSOs and the infrastructure investment criteria to evaluate possible options for the delivery of the Project.

2.6 The possible options for the delivery of the Project will be identified using the Options Framework presented in the next section.

3 THE OPTIONS FRAMEWORK

3.1 The Options Framework, as outlined in the Welsh Government's Better Business Case Guidance, provides a systematic approach to identifying and filtering a broad range of options for operational scope, service solution, service delivery, implementation and the funding mechanism for a Project. An overview of these key dimensions is provided in the following table:

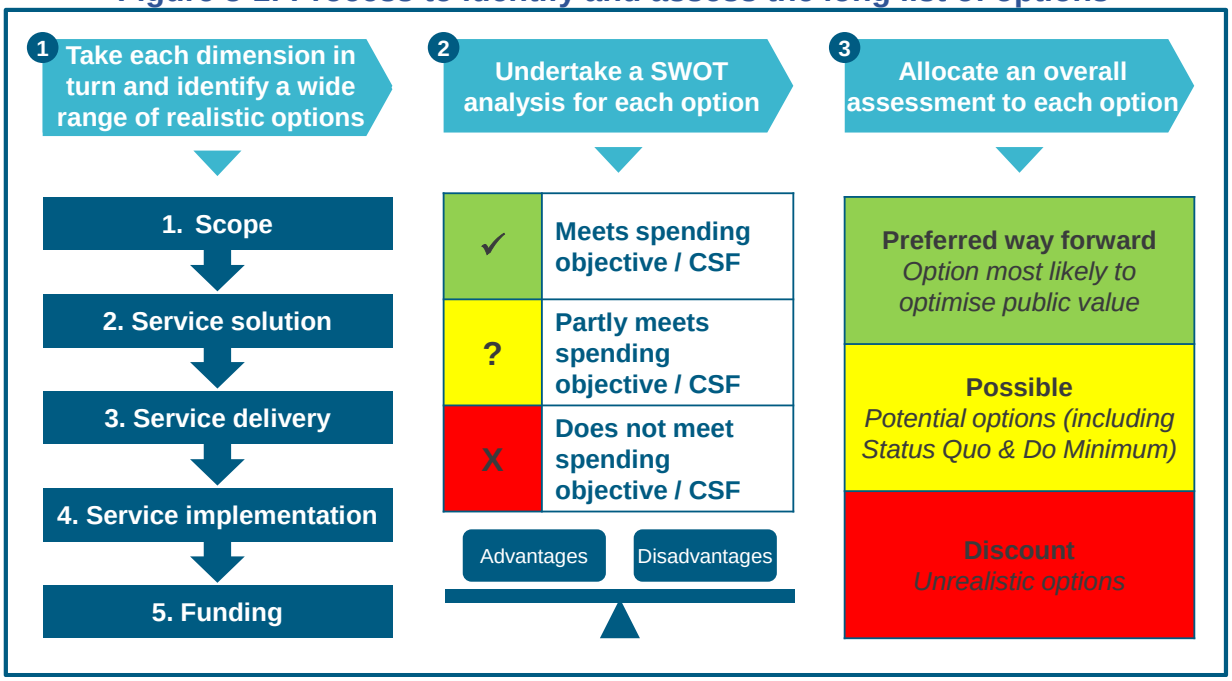
Table 3-1: Options Framework

Dimension	Description
Scope	What is the potential coverage of the project?
Service solution	How the preferred scope of the project can be delivered?
Service delivery	Who can deliver the preferred scope and service solution for the project?
Implementation	The timing and phasing of project delivery in relation to the preferred scope, service solution and delivery arrangements for the project.
Funding	Potential funding requirements for delivering the preferred scope, solution, service delivery and implementation arrangements for the project.

3.2 The process for identifying and assessing options takes each of the key dimensions in turn and undertakes the following steps (as illustrated in Figure 3-1):

- Identification of a wide range of realistic potential options within that dimension.
- An analysis for each option to:
    - Assess how well the option meets the Programmes spending objectives and CSFs; and to
    - Identify the main advantages and disadvantages of the option.
- Using the outputs of the analysis to determine whether the option will be carried forward as the preferred way forward, carried forward as a possible solution, or discounted at this stage.

Figure 3-1: Process to identify and assess the long list of options



3.3 The Programme Delivery Board has identified a wide range of realistic and possible options for the delivery of the project using the options framework.

3.4 A range of potential options were identified in relation to the range of services that the Trust is required to deliver. These options are presented below in Table 3-2:

Table 3-2: Project scope options

Ref	Option	Description
1.1	**Do Nothing**	Continue with existing arrangements
1.2	**Do minimum**	Provide additional capacity at nVCC (increase nVCC LINACs from 8 to 10) with no satellite provision
1.3	**Intermediate**	Develop a new satellite radiotherapy unit at Nevill Hall with 2 LINACs

3.5 The advantages and disadvantages of each of the longlisted options were identified. A summary of this is provided in Table 3-3.

Table 3-3: Project Scope- advantages and disadvantages of options

Advantages	Disadvantages
1.1 Do Nothing	
• Does not require any capital investment	• Service will be unable to accommodate forecast demand in the future

Advantages	Disadvantages
	• Does not increase access closer to home so reduces programme benefits associated with reduced patient travel and improved uptake of services • Does not align with the TCS strategy concerning improving the overall cancer pathway and so will impact on delivery of programme benefits
1.2 Do minimum: Provide additional capacity at nVCC with 2 LINACs	
• Potentially reduces capital costs by negating the need to develop an additional facility	• Does not increase access closer to home so reduces programme benefits associated with reduced patient travel and improved uptake of services • Physical challenges of accommodating 2 additional LINACs on nVCC site • Reduces expansion capacity on nVCC site • Does not provide additional capacity during development of nVCC so significant risk that demand will exceed capacity during this time • Does not mitigate risks associated with recruiting and retaining staff in one geographical location • Requires an increase in revenue service payment cost.
1.3 Intermediate: Develop a satellite radiotherapy unit at Nevill Hall with 2 LINACs	
• Improves access to care closer to home, leading to increased uptake of treatment which will result in improved patient outcomes • Ability to provide additional capacity during the nVCC transitional period. • Flexibility of workforce working, larger recruitment pool and flexibility between sites	• Increased capital due to the introduction of an additional building

3.6 Each option was assessed against the spending objectives and CSFs. The results of this, including the overall assessment of each option, are presented in Table 3-4 overleaf:

Table 3-4: Project Scope - Assessment of Options

		1.1 - Do nothing	1.2 - Additional capacity at nVCC	1.3 - Develop SRU at Nevill Hall
SO1	To provide access to quality and safe radiotherapy services that optimises patient outcome	X	?	✓
SO2	To provide sufficient capacity to meet future demand for services	X	?	✓
SO3	To improve patient, carer and staff experience	X	✓	✓
SO4	To provide capacity and facilities to support the delivery of high quality education, research, technology and innovation	?	✓	✓
CSF1	Strategic fit	X	?	✓
CSF2	Potential value for money	X	?	✓
CSF3	Supply side capacity / capability	✓	✓	✓
CSF4	Potential affordability	✓	✓	✓
CSF5	Potential achievability	X	?	✓
Assessment		Baseline	Possible - Carry forward	Preferred way forward

3.7 Following the assessment of the longlisted options associated with the scope of services to be delivered, it is concluded that:

- Development of a Satellite Radiotherapy Unit at Nevill Hall (Option 1.3) is identified as the preferred way forward because it best meets the spending objectives and the critical success factors, by providing increased capacity, greater workforce resilience and access to care closer to home which will lead to improved patient outcomes. This option offers a significant advantage in terms of providing additional capacity in advance of the nVCC opening.

- Option 1.1 – Do nothing is carried forward as a baseline only to allow comparison of the options. It is not a feasible option as it does not provide enough capacity to meet growing demand and since it will not achieve spending objectives, is not likely to represent value for money.
- Option 1.2 – Providing additional Radiotherapy capacity at nVCC only partly meets spending objectives in terms of additional capacity but creates some risks in terms of timescales and access to care closer to home. It is carried forward as a possible option for evaluation as part of the economic appraisal.

3.8 The outcome of this process determined the longlist of options for the Project. These options were then evaluated and appraised by the RSC Project Board against the PSOs and CSFs.

3.9 The detailed exercise of identifying and assessing the longlist of options is outlined in Appendix OBC/EC1.

4 THE SHORTLISTED OPTIONS

4.1 As outlined in the previous section, the TCS Programme Delivery Board determined the shortlist of possible options that would be appraised.

4.2 The RSC Project Board reviewed the shortlist of options by testing the following:

- Was the option likely to deliver the spending objectives and CSFs?
- Was the option likely to deliver sufficient benefits?
- Was the option practical and feasible?
- Was the option deliverable within the constraints of the project?
- Was the option deliverable without incurring an unacceptable degree of risk?

4.3 Following this review, the shortlist of options were approved by the RSC Project Board and notified to Welsh Government in a letter to Rob Hay dated 28th November 2019.

4.4 The final shortlist of **three** options are presented below:

- **The Do Nothing Option:** This option provides a benchmark for assessing the value for money of all options. It attempts to optimise existing arrangements as far as possible in order to improve the organisation's capability to meet current and some future demand for core services. It requires investment in outsourcing services to meet demand beyond that available from internal capacity.

- **The Do Minimum Option:** This option offers a realistic way forward to meet future demand for core services through the expansion of a purpose built nVCC. This option requires single stage implementation which will be funded through a Public Private Partnership (Building) and NHS Capital Funding (Equipment).

- **The Intermediate Option (Preferred Way Forward):** This option requires the development of a purpose built RSC operating in partnership with Aneurin Bevan University Health Board. This option offers a phased implementation which will be funded from NHS Capital Funding (Building and Equipment).

4.5 The appraisal, in financial and non-financial terms, of the shortlisted options is presented in Sections 5 to 8.

5 FINANCIAL COSTS AND QUANTIFIED BENEFITS

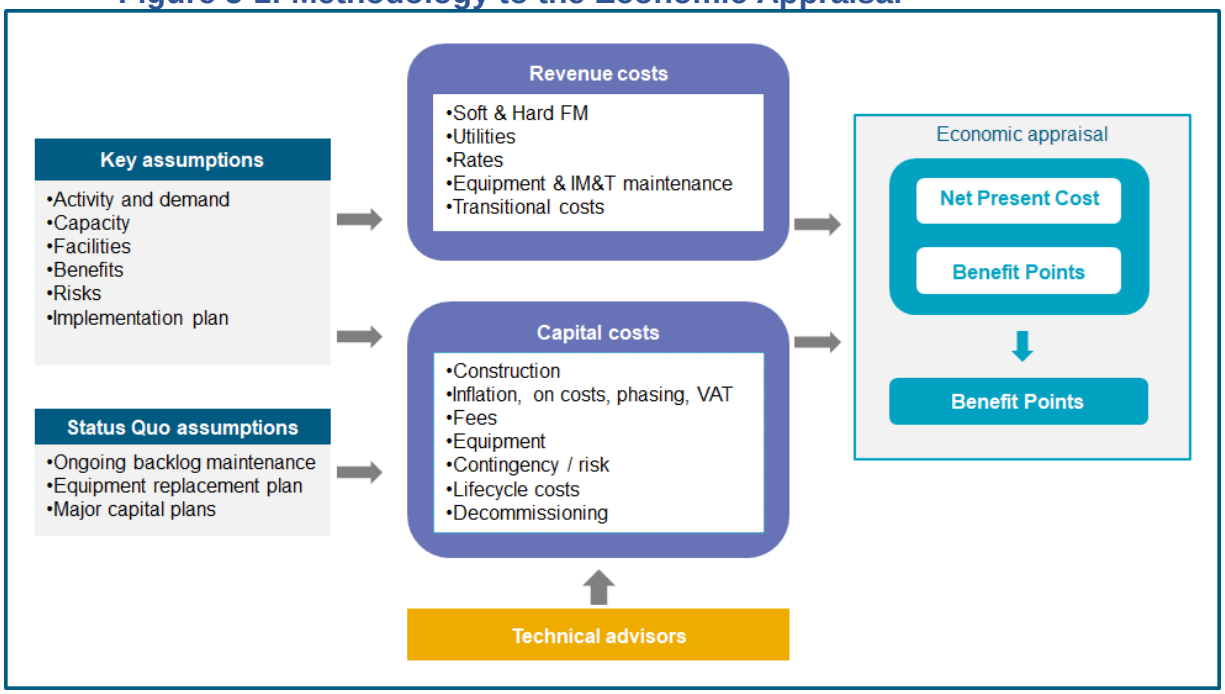
Estimating Costs for the Economic Appraisal

5.1 The treatment of costs and benefits within the Economic Appraisal is in line with current Welsh Government's Better Business Case Guidance.

5.2 The Economic Appraisal process utilises key outputs from other parts of the OBC process, in particular the required outputs and Project Plans, in establishing the capital and revenue (recurring and non-recurring) implications of each option.

5.3 The general approach to the economic appraisal is summarised below:

Figure 5-1: Methodology to the Economic Appraisal



Capital Costs

5.4 The Health Board and the Trust, and their Technical Advisors, in partnership with NHS Wales Shared Services (Shared Services), has prepared the capital costs based on an appraisal of the capital requirements of each option.

5.5 These are derived primarily from the Schedules of Accommodation (see Appendix OBC/EC2) with appropriate adjustments to reflect the costs of delivering the options at the time when the new facilities become operational. The capital requirements differ for each of the three shortlisted options and include:

- **Do Nothing Option:**
  - Requires some outsourcing of services to address demand requirements;
  - Assumes the nVCC will be built be commissioned in 2025.

- **Do Minimum Option:**
  - Construction of an extended nVCC to replace the existing Velindre Cancer Centre and meet the additional capacity required across the South East Wales Region.
  - nVCC designed and sized in line with additional service scope and in line with relevant Health Building Notes; and
  - Expansion zones identified through the design of the nVCC to facilitate the potential future introduction of new services.

- **Intermediate Option (The Preferred Way Forward):**
  - Construction of a RSC to supplement the existing (and new) Velindre Cancer Centre;
  - nVCC designed and sized in line with existing service scope and in line with relevant Health Building Notes; and
  - Expansion zones identified through the design of the RSC and nVCC to facilitate the potential future introduction of new services.

5.6 The capital cost calculations and assumptions have been developed by the Health Board and Trust and their Technical and professional Advisors, and have been shared and agreed with NHS Wales Shared Services. For further details refer to the Capital Cost Forms (Appendix OBC/EC3). The assumptions used to calculate the costs are provided below.

Table 5-1: Main Capital Cost Assumptions

- Construction costs have been calculated by the Project's Technical Advisors (Kier) and the nVCC Project Team based on PUBSEC 250.
- Capital cost forms (OBC forms) are completed using Departmental Cost Allowances Guides (DCAGs), using the Schedule of Accommodation information that outlines the clinical and non-clinical areas in sqm. These costs reflect the detailed Technical costs stage 1.
- The phasing of the capital costs is based on the Project plan.
- Appropriate on-costs have been applied to cover capital expenditure associated with utilities, communications, external building works, and auxiliary buildings.
- Appropriate fees have been determined by the Trust's technical advisors, based on industry norms.
- Equipment estimates cover IM&T, medical and non-medical equipment as provided by the technical advisors. Other equipment (Group 3 and 4 items) has been determined, by the technical advisors based on industry norms.
- Contingencies reflect the capital risks within each of the shortlisted options and are based on an assessment by the Project and their Technical and Professional Advisors. These have been quantified either based on a detailed risk quantification exercise.
- VAT is allowed for at the 20% rate. However, there has been an element of VAT reclaim assumed in developing the construction costs which has been informed by the Trust's VAT advisors.

- It is assumed that the Do Minimum option (nVCC extension) will be delivered via the MIM funding model and so only equipment related costs are included within capital (all building-related costs included within revenue costs).

5.7 The total capital costs for the Project are at 2019/20 prices and include VAT. At this stage they do not include an allowance for optimism bias. The breakdown of capital costs for each option is outlined in the following table:

Table 5-2: Breakdown of Capital Costs (£'000)

	Do Nothing	Do Minimum (nVCC Extension)	RSC
Construction costs	0	0	15,338
Fees	0	0	2,752
Non works costs	0	0	2,859
Equipment costs	0	2,299	2,723
Quantified risk	0	0	1,707
Total costs excl. VAT	**0**	**2,299**	**25,379**
VAT	0	0	4,907
Total costs incl. VAT	**0**	**2,299**	**30,286**

5.8 The capital costs (exc. VAT) have been phased in accordance with the profile of costs as outlined in the Capital Cost Forms (Appendix OBC/EC3). An analysis of the phasing of total capital costs for the Project is outlined in the following table:

Table 5-3: Capital Costs by Financial Year (£'000)

Financial year	Do Nothing	Do Minimum (nVCC Extension)	RSC
2019/20	0	0	529
2020/21	0	0	3,863
2021/22	0	0	4,392
2022/23	0	0	12,432
2023/24	0	2,299	3,933
2024/25	0	0	231
Total capital costs excluding VAT	**0**	**2,299**	**25,379**

5.9 Following the upfront capital investment, the Trust will continue to require an annual capital allocation to finance new and replacement items of equipment. These costs are not included within the cost summarised in Table 5-4.

5.10 In addition to the upfront capital investment, the Trust and its appointed Technical Advisors have estimated the lifecycle cost associated with each of the shortlisted options. The assumptions used to calculate the costs are provided below.

Table 5-4: Lifecycle Cost Assumptions

- Lifecycle costs are calculated over the full 60 year appraisal period in line based on average cost per m2 in line with similar projects. It is assumed to commence in 2023/24 following completion of the project.
- All lifecycle costs for the Do Minimum option (nVCC extension) are assumed to be included within the annual MIM charge.

5.11 An analysis of the annual lifecycle costs of the project is provided in the following table:

Table 5-5: Total Lifecycle Costs (£'000)

Cost category	Do Nothing	Do Minimum (nVCC Extension)	RSC
GIFA m2			2,533
Annual lifecycle costs			59

5.12 The figures provided in this section are consistent with the Capital Cost Forms prepared by the Health Board and Trust's Technical Advisors provided in Appendix OBC/EC3. For the purposes of the economic appraisal these will be adjusted to:

- Include an allowance for optimism bias;
- Exclude VAT; and
- Re-base to a consistent price base where required.

Non-Recurrent Costs

5.13 The Trust requires non-recurring revenue funding to ensure the delivery of the Project and to cover the commissioning phase.

5.14 The Trust has calculated commissioning costs based on the assumptions set out as follows:

Table 5-6: Main Transitional Cost Assumptions

- Non-recurring costs are to be incurred to facilitate Pre Commissioning in 2022/23

5.15 The resulting Project running costs and commissioning costs are outlined in the table below:

Table 5-7: Transitional Costs (£'000)

Cost category	Do Nothing	Do Minimum (nVCC Extension)	RSC
Pre-commissioning costs	0	712	712
Total Costs	**0**	**712**	**712**

Recurring Revenue Costs

5.16 The recurring revenue costs reflect the investment that will be required for each of the options.

5.17 Costs will differ for the three shortlisted options in relation to the operational requirements of each, the main elements of which are described below:

- **Do Nothing option:** Includes the costs to source additional demand outside of the capacity of the facility;
- **Do Minimum (nVCC Extension) option:** Includes the costs associated with operating additional capacity within an extended nVCC;
- **RSC option:** Includes the costs associated with operating the service remotely from the VCC.

5.18 The assumptions used to calculate the costs associated with these features are outlined below:

Table 5-8: Recurring Revenue Cost Assumptions

- Costs are at 2019/20 prices with no inflation included.
- Costs are based on forecast workforce and operating requirements to provide Radiotherapy services for the level of demand that is expected to exceed current/future nVCC capacity, depending on the option:

  Do Nothing
  - Since this option does not address the capacity constraints, costs to outsource unmet demand to an external provider have been estimated.

  Do Minimum
  - For the nVCC Extension option, costs have been estimated for the additional workforce and operating costs required to provide increased capacity on the nVCC site.
  - In addition, an estimate has been made of the increased annual charge associated with the MIM delivery vehicle. This has been calculated based on the estimated capital costs of nVCC extension, on a proportional basis (i.e. the estimated annual charge for the main nVCC scheme in relation to estimated capital costs) and is on a like-for-like basis (including quantified risk but excluding Groups 2, 3, and 4 equipment).

  RSC Option
  - For the RSC option, costs have been estimated based on the workforce and operating costs required to deliver services from a Radiotherapy Satellite Centre at Nevill Hall.

5.19 Annual recurring revenue costs have been estimated for each of the options from 2023/24 onwards following the commissioning of the new facilities under the RSC option. It is anticipated that costs will continue at these levels from that point forward.

5.20 The summary of the annual recurring revenue costs from 2023-24 are outlined in the following table:

Table 5-9: Future Recurring Revenue Costs 2023/24 (£'000)

Cost category	Do Nothing	Do Minimum (nVCC Extension)	RSC
Pay costs	0	1,716	1,900
Non-pay costs	0	648	646
Cost of outsourcing	10,866	0	0
Additional MIM charge for nVCC extension	0	1,237	0
Annual recurring revenue costs	**10,866**	**2,364**	**2,547**

5.21 In addition, the Do Minimum option includes the cost of outsourcing unmet demand has been included for the period from July 2023 to October 2024 to reflect the capacity constraints during the additional construction period required to deliver this option.

Assessing the Cost of Risk

5.22 A range of risks have been identified for the Project, some of which can be quantified and a financial value determined. Other risks are either qualitative or cannot be attributed to specific aspects of the Project, such as revenue risks, the impact of which is excluded from this economic appraisal.

5.23 For the purposes of assessing the costs of risk for the Project the following capital risks have been calculated including:

- Quantified capital risks: which are included in the capital cost contingencies; and
- Optimism bias: the approach used to calculate this is outlined below.

Optimism Bias

5.24 The Health Board and Trust and their cost advisors have calculated an adjustment for optimism bias. This is a requirement of HM Treasury guidance and is intended to redress the demonstrated and systematic tendency for Project appraisers to be optimistic when estimating costs, benefits and timings.

5.25 The optimism bias adjustment is in addition to the calculation for Project specific risk and reflects the current level of uncertainty within the Project. Adjustments for optimism bias will be reduced as more reliable estimates of relevant costs are built up.

5.26 The optimism bias calculation has been prepared in accordance with current HM Treasury guidance following the steps below:

- **Step 1** decide which Project type to use;
- **Step 2** start with the upper limit;
- **Step 3** consider whether the optimism bias factor can be reduced; and
- **Step 4** apply the optimism bias factor to the NPV calculation.

5.27 Given the degree of complexity associated with the construction elements of the Project, it was agreed that a 'non-standard' Project type will be used.

5.28 In line with current guidance, the upper bound level for optimism bias for this type of construction Project is 24%. This was therefore used as the starting point for the optimism bias calculation.

5.29 An analysis is provided below of the main factors and how they contribute to the upper bound level before and after mitigation.

Table 5-10: Optimism Bias Contributory Factors

	% contribution to upper bound	% after mitigation
Procurement	40.0%	6.0%
Project specific	5.0%	1.2%
Client specific	37.0%	10.7%
Environment	4.0%	1.4%
External factors	14.0%	3.0%
Total	**100.0%**	**22.3%**

5.30 Applying this mitigation to the upper bound level of optimism bias results in an optimism bias factor of 5.35% for the RSC Option.

5.31 No optimism bias has been included for the nVCC option.

5.32 The resulting optimism bias factor has been applied to the capital costs within the Economic Appraisal. Further details of the optimism bias calculations is provided at Appendix OBC/EC5.

Expected risk value

5.33 In addition, an expected risk value has been calculated to reflect the risk of delays to the programme for each of the option.

5.34 The impact of any delay is increased outsourcing costs which is estimated to cost £10,866k p.a.

Table 5-11: Expected risk value assumptions

	Do Nothing	Do Minimum (nVCC Extension)	RSC
High impact	N/A	12-month delay (25% probability)	9-month delay (25% probability)
Medium impact	N/A	6-month delay (40% probability)	4.5-month delay (25% probability)
Low impact	N/A	3-month delay (25% probability)	1-month delay (10% probability)
No impact	N/A	No delay (10% probability)	No delay (45% probability)
Expected risk value (£'000)	-	5,569	3,146

Estimating the Value of Benefits

5.35 As outlined in the Strategic Case, the Project delivers benefits in a variety of areas some of which can be quantified and valued financially.

5.36 For the purposes of the economic appraisal, we have focused on quantifying benefits which differentiate between the options, are measurable and evidence-based, and can be monetised using recognised methodology. This includes the following:

- Additional capacity available to meet forecast demand
- Reduced travel time for patient and carers
- Improved access to treatment and clinical trials leading to better clinical outcomes

5.37 The approach used to calculate a monetary value for each of these benefits is outlined below.

Additional capacity

5.38 The additional capacity provided in both the Do Minimum (nVCC extension) and the RSC options, avoid the need to outsource activity to external providers in the long term, resulting in lower revenue costs when compared to the Do Nothing option. The RSC option also avoids the need to outsource activity to external providers in the short term as this can be delivered 16 months earlier than the Do Minimum option.

5.39 Since these costs and savings are accounted for within recurring revenue costs they are not stated as separate benefits in the table below.

Reduced travel time

5.40 It is estimated that around 6,343 attendances p.a. will benefit from closer proximity to the RSC at Nevill Hall, saving patients and carers around 2,957 hours of travel time each year.

5.41 Applying a value of time travelled of £6.26 per hour (Based on Department for Transport's (DfT) Transport Appraisal Guidance (TAG) – specifically, other travel not related to business or commuting at 2020 price base) results in a societal benefit equivalent to £18.5k p.a.

5.42 In addition, the reduced travel time will result in a reduction in carbon dioxide emissions. Assuming an average speed of 30-miles per hour and based on the forecast emissions associated with average fuel consumption and vehicle type applying the economic value of carbon emissions of £75.38 per tonne (Using DfT's TAG 2023 assumptions at 2020 price base), this creates a societal benefit equivalent to £12.8k p.a.

Improved access

5.43 It is estimated that current uptake of Radiotherapy services in Wales is 37% (Based on MALTHUS modelling). Given that best practice guidance is uptake of 41% and there is evidence to suggest that distances of over 45 minutes to access services is a barrier to treatment, it is reasonable to assume that the introduction of a satellite radiotherapy centre at Nevill Hall will increase uptake to at least 39%, equating to an estimated 231 referrals each year (based on average referrals for the last 3 years and ignoring any impact of growing demand related to demographic growth or increased incidence rates).

5.44 The increased uptake of treatment is expected to have a direct impact on clinical outcomes, including cancer survival rates. Applying current survival rates of 49.9% (Based on assumptions within the TCS Programme Benefits Paper) would result in 115 additional cancer survivors each year. It should be noted that this is likely to increase in line with improvements to survival rates, for instance if the target survival rate of 71% was achieved (as outline in the TCS Programme Benefits Paper), this would equate to 164 additional cancer survivors. However, for the basis of the RSC business case, current survival rates have been applied.

5.45 The social value of the life years gained by cancer survivors as a result of the improved access can be quantified by using the concept of Quality Adjusted Life Years (QALYs). QALYs are widely used in health, transport and welfare policy domains. Although there is a limited evidence-base to draw on reasonable assumptions can be made as follows:

- Average QALY for cancer survivors is difficult to establish but the TCS Programme Benefits Paper identified a paper which suggested that a reasonable assumption is 0.3 per year of survival.
- Based on TCS Programme Benefits paper it is estimated that average 5 life years gained for each survivor.
- Value of QALY is based on standard NHS assumption of £60k per QALY.

5.46 This results in a societal benefit equivalent to £10,375k p.a.

5.47 The resulting values of the quantified benefits expressed in cash terms is summarised below for each option. These have been subsequently been incorporated within the Economic Appraisal over the 60-year appraisal period.

Table 5-12: Quantified annual benefits value (£000)

Benefits category	Do Nothing	Do Minimum (nVCC Extension)	RSC
Reduced travel time	0	0	18
Reduced carbon emissions	0	0	12
Improved access	0	0	10,375
Total annual benefits	**0**	**0**	**10,406**

5.48 The approach and methodology used to estimate the monetary value of these Project benefits are outlined in Appendix OBC/EC6(a).

5.49 An analysis of quantified Programme Benefits is provided in Appendix OBC/EC6(b).

5.50 In addition, there are a number of benefits which are relevant to the case but are difficult to reasonably quantify in monetary values and/or do not differentiate between the options and so have not been incorporated within the economic appraisal. These include:

- Patients have access to seamless pathway of care in a single place
- Improved patient and carer experience
- More resilient and flexible workforce
- Improved staff satisfaction (although may be disbenefit for some staff members - additional travel)
- Improved safety and compliance with standards
- Better sustainability, resilience and future proofing
- Opportunities to attract further investment

6 ECONOMIC APPRAISAL

6.1 A discounted cash flow for each of the options has been undertaken over 60 years using a discount rate of 3.5% for years 0 to 30 and 3.0% for the remaining period in line with the requirements of HM Treasury. The key assumptions used in this analysis are summarised below:

Table 6-1: Key Assumptions Used in the Economic Appraisal

- Costs and benefits are calculated over a 60 year appraisal period.
- Baseline (Year 0) will be 2019/20
- Costs and benefits use real base year prices – all costs are expressed at 2019/20 prices in line with the baseline costs.
- The following costs are excluded from the economic appraisal:
  - Exchequer 'transfer' payments, such as VAT;
  - General inflation;
  - Sunk costs; and
  - Non-cash items such as depreciation and impairments.
- A discount rate of 3.5% is applied to the economic appraisal for years 1-30 and 3.0% for years 31 onwards, with the exception of QALY benefits which are discounted at 1.5% in line with HMT Green Book guidance.
- No financial benefits are incorporated.
- Quantified risks including Quantified Capital Risk and Optimism Bias are included based on the approach outlined above.

6.2 The results of the discounted cashflow are outlined in the following table:

Table 6-2: Net Present Cost of the Short Listed Options

Expenditure Heading	Do Nothing	Do Minimum (nVCC Extension)	RSC
Initial capital costs	0	-2,299	-27,086
Lifecycle capital costs	0	0	-3,349
Total capital costs	**0**	**-2,299**	**-30,435**
Transitional costs	0	-712	-712
Outsourcing during transitional period	0	-14,488	0
Recurring revenue costs	-616,664	-199,563	-144,520
Total revenue costs	**-616,664**	**-214,763**	**-145,232**
Quantified risks - capital costs	0	0	-1,707
Optimism bias	0	0	-1,358
Revenue expected risk value	0	-5,569	-3,147
Total risk costs	**0**	**-5,569**	**-6,212**
Total costs	**-616,664**	**-222,632**	**-181,880**
Benefits	0	0	582,733
Total benefits	**0**	**0**	**582,733**
Net Present Cost (undiscounted)	**-616,664**	**-222,632**	**400,854**
Total costs (discounted)	-242,925	-96,158	-83,589
Total benefits (discounted)	0	0	374,190
Net Present Cost (discounted)	**-242,925**	**-96,158**	**290,601**

Rank	**3**	**2**	**1**
Benefit Cost Ratio (discounted)	**0.00**	**0.00**	**4.48**
Rank	**2**	**2**	**1**

6.3 The Economic Appraisal demonstrates that the RSC option offers the lowest Net Present Cost (NPC) of the two 'do something' options, suggesting that it offers best value for money in terms of whole life costs.

6.4 It also offers the best benefit cost ratio at 4.48 suggesting that it offers best value for money in terms of the relationship between benefits and costs.

6.5 The Intermediate Option is therefore identified as the Preferred Option for the Project.

6.6 The detailed analysis of the Generic Economic Model (GEM) is provided in Appendix OBC/EC7.

7 SENSITIVITY ANALYSIS OF PREFERRED OPTION

Decision Analysis

7.1 The Economic Appraisal demonstrates that the Preferred Option has the lowest overall cost per benefit point, indicating this option delivers the best value for money of the shortlisted options.

Sensitivity analysis and switching

7.2 The results of the Economic Appraisal above have been subject to a sensitivity analysis to examine the impact of movements in capital and revenue costs.

7.3 Switching value analysis has been applied to areas of material cash flows to identify the extent that costs must change in order for the Net Present Cost to equal that of the preferred option. The results of the analysis are presented in Table 7-1:

Table 7-1: Switching Values

Costs	Do Minimum
Revenue costs	-290.3%
Net Present Cost	-280.1%

7.4 The results above demonstrate that for the Do Minimum Option to rank as the Preferred Option its NPC would need to reduce by 280%. The only way this could feasibly happen would be a for revenue costs to reduce by a similar amount.

7.5 The Do Nothing option has been excluded since it delivers no benefits and is not a feasible option.

7.6 In addition to the switching analysis, alternative scenarios have been used to consider how options may be impacted by future uncertainty and provide an assessment of risk in the ranking of options including:

1. Increase optimism bias to from 5.35% to 15.0%.
2. Exclude optimism bias
3. Revenue costs of RSC increase by 25%
4. Benefits excluded

7.7 The results of the sensitivity analysis are shown in the table below:

Table 7-2: Results of sensitivity scenario analysis

Scenario	Revised NPC		
	Status Quo	Do Minimum	Intermediate
NPC	-242,925	-96,158	290,601

Optimism bias increases to 15%	**-242,925**	**-96,158**	**293,535**
Exclude optimism bias	**-242,925**	**-96,158**	**289,359**
Revenue costs increased by RSC	**-242,925**	**-96,158**	**276,368**
Exclude benefits	**-242,925**	**-96,158**	**-83,589**

7.8 This analysis demonstrates that while each of these scenarios change the NPC, none of them have any impact on the ranking of options and therefore this analysis supports the identification of the Preferred Option.

7.9 The results of the Economic Appraisal are analysed below:

- **Do Nothing Option:** This option has the highest Net Present Cost (NPC) over a 60-year appraisal period of £242.9m. It does not deliver any financial or qualitative benefits and furthermore is not a feasible option as it does not provide sufficient capacity to meet demand without outsourcing activity to external providers and will not achieve the project spending objectives.
- **Do Minimum (nVCC Extension) Option:** This option has a Net Present Cost of £96.2m over the 60-year appraisal period which although significantly lower than the Do Nothing option, does not any quantifiable benefits. This option does not therefore offer the best value for money.
- **RSC Option (Preferred):** This option delivers the lowest discounted Net Present Cost at £83.6m over the 60-year appraisal period. In addition, it delivers £374.2m of monetised benefits over the appraisal period resulting in an overall Net Present Value of £290.6m and a benefit cost ratio of 4.48.

7.10 This analysis confirms the selection of the RSC Option as the Preferred Option.

8 CONCLUSION

8.1 Following a robust Option Appraisal process involving a wide range of stakeholders, the Trust has identified its Preferred Option for developing a Radiotherapy Satellite Centre.

8.2 The Preferred Option delivers a wide range of benefits which are complementary with local and national priorities as well as the delivery of a range of short and long term objectives to support the improvement of specialist non-surgical cancer service delivery across South East Wales.

8.3 In terms of infrastructure the Preferred Option provides a new purpose-built Radiotherapy Satellite Centre at Nevill Hall Hospital, Abergavenny; and

9 APPENDICES

For Information

The following appendices are available in support of this chapter**.**

Appendix Reference	Title

Outline Business Case: 2020

Radiotherapy Satellite Centre

Commercial Case

COMMERCIAL CASE

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Page N°

1 INTRODUCTION

1.1 This section of the OBC sets out the Commercial Case for the Radiotherapy Satellite Centre (RSC) Project which is being delivered through NHS Wales Capital Resources.

1.2 It sets out the basis on which the Project will manage commercial matters and deal with:

- The key Project specific contractual arrangements and risk apportionment between the public and private sector;
- The construction procurement strategy, implementation, timescales and intended procurement route;
- The equipment, major medical equipment and ICT equipment, procurement strategy;
- The management of services over the duration of the Project;
- Any anticipated workforce implications, e.g. TUPE; and
- The accountancy treatment of the Project.

2 POTENTIAL FOR RISK TRANSFER

2.1 The general principle is that risks should be passed to "the party best able to manage them", subject to value for money (VFM). ABUHB has carefully considered those risks best placed with the SCP and those it will bear itself. This has been achieved at OBC stage through a series of structured risk workshops involving the Health Board, SCP, Project Manager and Cost Advisor. Further information on the proposed Risk Management Strategy for the project, together with the quantified risk register has been included in the Estates Annex.

2.2 Under the Designed for life: Building for Wales Framework, which is described in the following section of the Procurement Strategy, the NEC 3 Engineering & Construction (ECC) form of contract is used. The Engineering & Construction contract is a "collaborative" contract that requires each project to include a Risk Register with risk allocated to the party best able to deal with it. The early involvement of a Supply Chain Partner means that they are fully briefed about risks in the project and are better placed to accept ownership and suitably mitigate and manage risks than what would normally be the case under a more traditional form of contract.

2.3 The table below shows how the project risks might be apportioned under a predominantly Public Capital Funded Procurement.

Table - Risk and Potential Allocation

Risk	Potential Allocation		
	ABUHB / VUNHST	SCP	Shared
Design			Y
Site Availability	Y		
Planning	Y		
Approval and Funding	Y		
Construction		Y	
Technical Commissioning		Y	
Operational Commissioning	Y		
Availability of Building		Y	
Operating Risk	Y		
Revenue Risk	Y		
Technological and Obsolescence	Y		
Legislative Change	Y		

2.4 The final risk allocation to be agreed for Stage 4 and will be developed between all parties during the Stage 3 FBC period.

3 REQUIRED SERVICES

3.1 The OBC states a requirement for the delivery of a Radiotherapy Satellite Centre (RSC) at Nevill Hall Hospital, Abergavenny under the NEC3 Engineering & Construction (ECC) Form of Contract (Option C) and Designed for Life: Building for Wales Framework.

3.2 A Schedule of Accommodation is available to support the functional content, based on Health building notes and latest available guidance. A full copy of the latest version of the Schedule of Accommodation is included as an appendix to the Estates Annex.

Design Considerations

3.3 A comprehensive Schedule of Accommodation has been prepared to inform the concept design for the RSC.

3.4 To this end 1:200 layout plans have been prepared in full consultation with the Velindre University NHS Trust (VUNHST)/Aneurin Bevan University Health Board (ABUHB) users and relevant stakeholder groups. The 1:200 plans illustrate the critical operational adjacencies in order to set the building footprint requirements and size and massing of the building for planning purposes.

3.5 In addition a site plan and elevations have been developed to inform the planning process. Further details relating to the specific design proposals are included in more detail within the Estates Annex.

ICT Infrastructure

3.6 ICT infrastructure requirements have been considered within the building with provision allowed for 2Nr IT hub rooms. This has been informed via an ICT Infrastructure Brief which has been prepared by ABUHB/VUNHST and shared with the design team. This is included within the Estates Annex. ICT design proposals will be further developed into a detailed design solution at Full Business Case Stage.

Equipment

3.7 The procurement of all Groups 2, 3 and 4 equipment, major medical equipment and ICT equipment for the RSC Project will be funded through Welsh Government capital funding and procured via the assistance of Shared Services Procurement Services.

3.8 Equipment costs have been calculated based on equipment lists provided by VUNHST. These will be developed in more detail at FBC stage as will the split between equipment which will be owned and maintained by VUNHST and that which will be owned and maintained by ABUHB.

3.9 VUNHST/ABUHB, supported by NWSSP Procurement Services, will procure all Group 2,3,4 equipment, medical and non-medical, through the IRS Contract or existing NHS frameworks. Where appropriate frameworks are not available, VUNHST/ABUHB will follow standard NHS and Trust procurement procedures and guidelines in line with the organisations respective SFI's.

3.10 VUNHST will be responsible for the specification, procurement, installation, commissioning, maintenance, replacement and disposal of all major medical equipment for the RSC. Table 3-1 provides a summary of the major medical equipment required for the RSC:

Table 3-1: Summary of the Major Medical Equipment Requirements

Department	Equipment	Number Required
Radiotherapy	Linear Accelerator	2
Radiotherapy	CT Simulator	1

3.11 VUNHST has previously developed a Programme Business Case to enable the effective procurement of an Integrated Radiotherapy Solution (IRS) for both nVCC and RSC which was presented to the Infrastructure Investment Board on the 24th of April 2019. This was approved and Welsh Government allocated resources to the Trust to take forward the procurement and OJEU was issued on 30th October 2019. The procurement is proceeding to plan with the issue of the ITPD on 30th March 2020 and Competitive Dialogue commencing on 15th June 2020.

3.12 The Integrated Radiotherapy Solution (IRS) procurement has commenced ahead of the approval of the nVCC and RSC OBC's to support vendor identification and specification information being fed into the Competitive Dialogue process of the nVCC and to inform the FBC of the RSC.

3.13 VUNHST will seek to procure an Integrated Radiotherapy Solution (IRS) utilising a competitive dialogue process. The solution will be delivered by a Prime Contractor arrangement and a robust goods and services contract of a minimum of 14 years is being developed. The procurement programme for major medical equipment has been set out to ensure the design interface risk is mitigated.

4 PROPOSED CONTRACT MECHANISMS

4.1 For the RSC development there will be no ongoing service and, therefore, no recurring charges by the SCP following completion of the hospital building.

Proposed Contract Length

4.2 The overall programme is designed to allow the building to be completed by the Summer of 2023.

4.3 In terms of programme management for Stage 3, the SCP will submit a draft programme to the Employer and Project Manager for consideration in relation to the programming of the works for stage 3 / FBC. The SCP will also submit an overall programme for the provision of the works at Stage 4, 5 and 6. It is noted, however, that this will still be indicative at this stage and subject to further development during the FBC period.

4.4 The programme will fully comply with the requirements of the NEC3 ECC contract and contain a reasonable programme of activities with a Completion Date for Stage 3/FBC identified. The accepted programme will be required to be issued by the SCP to the Project Manager on a monthly basis for acceptance. It will need to include a mark-up of actual progress achieved in the month, in order to monitor progress as work proceeds.

4.5 The above process will be replicated at the Stage 4 Contract Stage In order to robustly manage the programme to ensure timely delivery of the Project.

Proposed Key Contractual Clauses

4.6 The contract will be in accordance with the All Wales Designed for Life 4 Building for Wales Framework. The contract will be the NEC 3 Form of Contract. The conditions of contract are the core clauses and the clauses for main Option C: Target Contract and Secondary Options – X1, X2, X4, X5, X7, X15, X16, X18, Y(UK2), Y(UK3) and Z of the NEC Engineering and Construction Contract (April 2013), The additional Z clauses comprise the standard Designed for life: Building for Wales Framework amendments.

4.7 This contract is based on the following key principles:

- Clarity – The Contract is written in plain language
- The Risk Register is a key project and contract management tool
- Foresight and Early Warning Notifications
- A Target Cost and Cost not to be exceeded
- Timely two-way communication
- Compensation Events
- Monthly Accepted Programme is sued as a key project and contract management tool

4.8 Key external professional roles appointed on behalf of the Employer include, direct client appointments for the Project Manager and Supervisor. A Cost Advisor will also be appointed to support the Project Manager and Health Board.

Personnel Implications (including TUPE)

4.9 It is anticipated that TUPE (Transfer of Undertaking and Protection of Employee) will not apply to this investment as there is no change to the employing organisation. However there may be an implication for some staff in terms of change in location of employment. This will be managed using the VUNHST management of Change Policy.

5 PROCUREMENT STRATEGY

5.1 The [SJR5] RSC development, post OBC approval, will fall within the terms of the new All Wales Designed for Life 4 Building for Wales Framework.

5.2 Shared Services – Facilities – Estates Development Framework managers have participated in the development of the Outline Business case and have also facilitated an AEDET review of the design.

5.3 ABUHB has appointed External Project Managers and External Cost Advisers.

5.4 In terms of procurement, getting to the Target Price agreement is the most difficult stage of the whole Designed for Life: Building for Wales Framework process. There are conflicting objectives and the process requires firm management and significant negotiation.

5.5 The Target Price will be established towards the end of the FBC stage. Prior to this "a price not to be exceeded" will have been agreed between ABUHB and the SCP and will be included in the FBC submission to Welsh Government. While approval to the FBC is awaited, the total of the prices for the Stage 4 Contract will be finalised and agreed and all necessary contractual documentation drawn up in readiness (once approval is received) for a speedy exchange of contracts and start on site.

Design Completion

5.6 It is a requirement of the Designed for Life Framework that 70-80% of the design (for each element including engineering services) should be progressed and completed at FBC. This has been clarified to mean the achievement of RIBA Stage 4. It does not mean 70-80% cost certainty as this should have been achieved earlier in the process. It is expected that good co-ordination of the building enclosure, structure and engineering services are part of this requirement.

5.7 The purpose of the requirement for 70-80% design completion is to ensure that robust market testing of works packages can take place to ensure that the "price not to be exceeded" in the FBC is sound and that everyone can have confidence in it. This level of design should also ensure there are no delays to construction activity because of incomplete or uncoordinated design proposals.

5.8 It is difficult to measure design completion. However, to assist this, the SCP will be required to provide detailed design sub-programmes linked back to the Accepted programme and the RBA plan of Work Stages showing design activities carried out by the design team within the supply chain. The supply chain comprises: architects, Civil and Structural Engineers and Building Service Engineers. The provision of such programmes will assist in identifying the key deliverables in achieving 70-80% design completion. In addition, an assessment of the design fee expended at completion of FBC as a proportion of the total fee will provide a supplementary "rule of thumb" guide as to whether the targeted level of required design completion has been achieved.

Target Price

5.9 The key to compiling the Target Price / total of the Prices is clearly stated in Clause 52.1 of the NEC3 Engineering & Construction Contract, which states that Defined Cost includes only amounts calculated using:

- Rates and percentages stated in the Contract Data
- Competitively targeted prices
- Other amounts at open market rate

5.10 With deductions for all:

- Discounts
- Rebates
- Taxes which can be recovered

5.11 The percentages stated in the contract Data would be:

- Direct Fee
- Subcontracted fee
- Working Area overheads
- Manufacture and fabrication overheads
- Design overheads

NEC Contract Data Rates and Percentages

5.12 At framework level, rates for the following cost centres have already been agreed:

- All pre-construction staff involved in taking forward the design to approval of Full Business Case. These rates will be adjusted annually in accordance with the Average Earnings Index, as confirmed by NWSSP-FS.
- All working Areas based staff – These rates will be used to cost Preliminaries. These rates will be adjusted annually in accordance with the Average Earnings Index, as confirmed by NWSSP-FS.

Competitively Tendered Prices

5.13 The elements essential to the successful conclusion of this process are dependent upon sufficient time being allowed for:

- Design to advance to a minimum of 70-80% completion;
- Comprehensive and complete tender documentation to be prepared;
- Tenderers to prepare their bids;
- Proper evaluation and negotiation with tenderers.

Open Market Rates

5.14 It is widely accepted that there will be elements of the work that are not competitively tendered. However, the extent of elements not competitively tendered will be limited to no more than 30% of the total target price. The SCP will be required to demonstrate to the Cost Advisor that "open market rates" are comparable to those that could be obtained in competitively tendered circumstances. This can be clearly demonstrated by benchmarking against other SCP's or projects or by demonstrating how best value for money will accrue to the project.

Procurement Procedure

5.15 At commencement of FBC stage, a procurement strategy will be produced by the SCP and agreed with the Project manager. This will identify how the project is to be broken down into work packages and how each is to be procured. The Procurement Procedure or Strategy will be required at commencement of FBC. This is especially important where in-house organisations are to be utilised that may not be subject to market testing. Failure to follow this procedure may result in Disallowed Cost being levied upon the SCP.

5.16 The Project Cost Plan will also be re-cast at this stage, to reflect the cost of the work packages (identified in the procurement procedure) from the previous elemental breakdown. Dependent upon the number of work packages subject to market testing the Project Risk Register may also need to be revised to suit.

5.17 Each of the works package elements in the Cost Plan should reflect the total expected cost of the works package aftermarket testing. They should not include any SCP design costs but may include subcontract design costs.

5.18 Sufficient time will be required to be built into the Accepted Programme for design to be advanced to a stage where clear and meaningful tender documentation can be drawn up to allow robust market testing to take place.

5.19 A minimum of three bids per works package should be obtained as part of the market testing process. The Health Board may insist on increasing the minimum number of bids in order to comply with their own procurement procedures. Bids will be opened jointly by the SCP and the Cost Advisor.

Evaluation

5.20 When the bids have been received they will be comprehensively evaluated, by the SCP and Cost Advisor, to ensure that like for like comparisons between tenders are being made. All bids will be "levelled" to achieve this and any adjustment will be made for any stated omissions or exclusions. The adjustments will be agreed with each works package subcontractor.

5.21 In the tender documentation the SCP will identify those "attendances" that it expects the bidding subcontractors to provide. All other attendances that are expected to be provided by the SCP to the subcontractors will be required to be priced for in the Contractors Preliminaries and not against the works

packages.

5.22 SCP Risk in respect of work packages should be allowed for in the risk register and quantified in the SCP quantified Risk build-ups. There will be no SCP Risk in Work Package Costs. Subcontractor risk assessments will be required to be covered in their bids.

5.23 It is accepted that some work packages may still require further design development to be undertaken after bidding. The design frees for this portion of work will need to be allowed for by the subcontractor in his bid submission or, if the work is to be designed by the SCP, suitable provision will alternatively be made in the SCP fees.

5.24 The cost of the outstanding work will also need to be assessed. Theoretically it should be no more than the difference between the Works package element cost and the bid submission received form the subcontractor. If more funding is required it should be drawn from the Cost Plan Design Reserve or from savings made elsewhere. Unless previously agreed with the Cost Advisor, the cost effect of Design development should not amount to more than 5% of the value of an individual works package or 2.5% of the total of all work packages.

Post Target Price Re-Tendering of Works Packages

5.25 On occasions it may be the case that some work packages are required to be re-tendered after the Target Price has been agreed (i.e. in the event of subcontractor insolvency). If a packages has to be re-tendered then it will be required to be undertaken in full agreement with the Project manager ad under the same process and implications as Pre-Target Price market testing.

Pain/Gain Share

5.26 In term of the framework, Pain Share rest 100% with the SCP at all stages.

5.27 During Stages 2 (OBC) & 3 (FBC), there is no Gain Share.

5.28 In terms of Stage 4 onwards (Construction and Project Closure), the Gain Share will be limited to the first 5% of any savings between the total of the Prices and the Price for Work Done to Date arising during Stages 4, 5 and 6 and will be equally apportioned 50:50% between the Health Board and the SCP. Savings over this amount (i.e. less than 95% of the) will accrue 100% to the Health Board. To summarise:

The *Contractor's* share percentages and the *share ranges* are:

Share Range	*Contractor's* Share Percentage
Less than 95%	Nil
From 95% to 100%	50%
Greater than 100%	100%

Outline Business Case: 2020

Radiotherapy Satellite Centre

Financial Case

FINANCIAL CASE

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1 INTRODUCTION

1.1 The case for a new Radiotherapy Satellite Centre (RSC) has been clearly articulated within the Strategic Case.

1.2 The Economic Case has identified the Preferred Option. Aneurin Bevan University Health Board (ABUHB) and Velindre University NHS Trust (VUNHST) has developed a proposal to develop an RSC on land under the ownership of the Health Board at Nevill Hall Hospital, Abergavenny. The Preferred Option provides a modern, fit for purpose environment that can evolve to meet future demands and developments as they emerge and support a process of continued clinical improvement.

1.3 The Commercial and Management Cases sets out the approach to the procurement processes, the partnership approach and the governance and management processes to deliver the Preferred Option.

1.4 The Financial Case demonstrates the affordability of the Preferred Option. The Case initially sets out the Financial Framework used for the development of the Financial Case. The Financial Case continues by setting out the approach to the establishment of the revenue and capital costs. It presents the methodology for capital cost development, identified by our Technical Advisors, and scrutinised by Shared Services Estates Division. The methodology for revenue cost development agreed with the Collective Commissioning Group (CCG), is also presented.

1.6 The Balance Sheet impact is also presented along with the modelled implications for capital charges.

1.7 The financial appraisal establishes the financial costs and funding requirements of the Preferred Option and demonstrates the affordability of the Project.

1.8 It should be noted that significant additional revenue costs will be required in excess of the revenue cost of the preferred option to provide additional Radiotherapy capacity to meet forecast demand if the proposed satellite unit does not progress. The majority of that activity will need to be provided via other Providers.

2 FINANCIAL FRAMEWORK

2.1 A Financial Framework has been developed for the RSC that focuses on the investment dependent costs in order to facilitate decision making. This Financial Framework has been developed and agreed with the Financial Leadership of Commissioners through the Collective Commissioning Group (CCG). The role and function of the CCG is presented in Sections 6 and 10. The Financial Framework is set out below.

2.2 Specifically, the RSC focuses on the investment decision to expand radiotherapy capacity in South East Wales. The Financial Framework established to support the investment decision has clarified that only the costs that are driven by this investment decision should be considered. Costs that are driven by demand for other services, and other factors, are a constant for all options and are, therefore, not presented.

2.3 The Collective Commissioning Group has agreed the baseline cost methodology for this element of the work. The costs produced from this methodology and proposed contractual arrangements were scrutinised at the CCG meeting on the 28 July 2020.

2.4 The approach the NHS Wales Finance Community has adopted has enabled a transparent and credible Financial Case to be developed and collaboratively endorsed.

2.5 The Financial Case highlights the cost impact over the following areas of expenditure within the Project:

- Capital costs;
- Recurring Revenue costs;
- Transitional (Non-recurring) Revenue costs; and
- Depreciation.

2.6 Fundamentally, the Financial Case outlines the full financial costs of the Project and the sources of funding, from the Trust's Commissioners and the Welsh Government, to meet them.

2.7 The next section of the Financial Case, Section 3, sets down the costing approach deployed in the development of the Project's Costs.

3 COSTING METHODOLOGY

3.1 This section of the Financial Case provides detail on the costing methodology employed to develop the cost estimates for the following areas:

- Construction and Equipment Capital Costs;
- Recurrent Revenue Costs;
- Transitional (Non-Recurring) Revenue Costs; and
- Depreciation.

3.2 The methodology is fundamental to support both the Health Board and the Trust in ensuring robust cost information is determined to underpin the RSC.

3.3 The costing methodology reflects a professionally and technically recognised approach to determining OBC cost information. The costings have been derived using the best available information and, in some instances, reflects current market prices. The costing methodology reflects an approach that is acceptable to Welsh Government and Shared Services.

3.4 The Trust has appointed Technical and Professional advisors to assist in the calculation of aspects of the costs relating to healthcare facilities at the different stages of cost planning. Further, the Revenue costs have been fully scrutinised by the CCG (see Section 6). The cost models described will continue to be reviewed and refined as further detailed work is undertaken to inform the Full Business Case.

Capital Costs

3.5 The preferred option is Option 3 the construction of a Radiotherapy Satellite Centre on the Nevill Hall Hospital site. The estimated outturn costs for the preferred option is £30.285 million excluding inflation, the detail of which is set out below:

	Option 3 - New Build (£)
Works Cost	15,337,624
Fees	2,751,814
Non-Works	2,859,000
Equipment	2,723,009
Contingency	1,707,310
Total Option Costs	**25,378,758**
VAT (net of reclaim)	4,906,774
Total Option Costs (including VAT)	**30,285,532**

**** Equipment costs exclude both Treatment Machines as these are being approved for procurement via a separate business case.***

3.6 A more detailed breakdown of the capital cost calculations is contained within the OB Forms in the Estates Annex. The costs shown exclude optimism bias which was calculated in line with HM Treasury Guidance for the Economic Case only.

3.7 In terms of design status BREEAM workshops have been undertaken and will continue to be reviewed and assessed throughout the project lifecycle. In the case of the preferred option, the project will be required to achieve a BREEAM 'Excellent' rating for industrial as a minimum, which remains within the acceptable benchmark standard for a new build project.

3.8 A risk register has been prepared for all of the options and developed in detail for the preferred option in order to inform the level of planning contingency required. The format of the risk register is consistent with the standard Designed for Life and the latest guidance for preparing Business cases. This will be further developed in due course for the Full Business case Stage by the External Project manager in conjunction with the Supply Chain Partner, Cost Advisor and Client Team.

3.9 Submission of the OBC to Welsh Government is currently programmed for the end of September 2020. Commencement of the Full Business Case (FBC) is currently planned to start in early 2021, concurrent with the Welsh Government OBC scrutiny and approval period.

3.10 The detailed cash flows for the preferred option is contained with the OB forms in the estates annex and is summarised below:

2019/20	2020/21	2021/22	2022/23	2023/24	2024/25
£0.370	£4.798	£5.238	£14.984	£4.709	£0.277

3.11 The OBC assumes all capital costs and inflation will be funded by Welsh Government in each of the years as per the above, in accordance with current Welsh Government policy.

3.12 The following key assumptions have been made in the capital case:

- Capital costs are reported at BCIS Pub Sec Index Level 250
- Costs included for Fees are based on typical rates assuming the scheme is procured through the Designed for Life: Building for Wales procurement programme
- Non-Works Costs are based on estimated capital costs that will be incurred in developing the scheme through to Operational Completion and include Enabling Works, Planning Fees, IT infrastructure, Artworks and Commissioning costs

- Equipment costs are based on a detailed schedule of equipment provided by VUNHST and exclude the two treatment machines, the procurement of which is currently being progressed as part of a much larger procurement for both the existing Velindre site and potentially the proposed new Velindre Cancer Centre. More information on this is provided in 3.13 to 3.16 below.

- A Contingency allowance of £1.707m has been included based on a quantified Risk Register. The Risk Register is included in the Estate Annex.

- VAT has been applied at the rate of 20% to all cost components. A modest reclaim of £169k has been assumed based on 100% recovery of professional fees only at this stage. Further advice on the VAT reclaim on supply chain partner costs will be sought as the FBC progresses.

3.13 Capital costs reflect the capital requirements of the Project that will be funded from a Capital Resource Allocation. In this instance the capital resource will flow to both organisations, VUNHST and ABUHB. The former will own and be responsible for the ongoing maintenance and replacement of almost all of the proposed equipment. ABUHB will own and be responsible for the proposed new building and associated site infrastructure works.

3.14 It is important to note that the VUNHST developed a Programme Business Case (PBC) to commence the procurement (via the use of a competitive dialogue procedure) of an integrated Radiotherapy Solution ahead of the approval of both the nVCC and RSC Outline Business Case. The PBC was approved by Welsh Government in August 2019 and includes:

a. Treatment Machines;
b. Radiotherapy Informatics Solution;
c. Oncology Information System (OIS);
d. Dosimetry; and
e. Ancillary equipment, IT and infrastructure.

3.15 This PBC confirmed the need for VUNHST to deliver a modern Radiotherapy Solution that is more resilient and has greater capability and capacity to enable the Trust to continue to treat increasing numbers of referrals from secondary care. These referrals often require increasingly more complex Radiotherapy Treatments. The procurement is also needed as part of the nVCC's normal equipment replacement cycle.

3.16 This PBC explored a range of options to identify a solution that both supports the urgent need to commence a procurement to mitigate service delivery risks, whilst supporting the key dependencies of the TCS Programme; specifically, the nVCC OBC and the Radiotherapy Satellite Centre (RSC) OBC.

3.17 In addition to the resource identified above, Cognitive by Design will require further investment to fully deliver the digital benefits for Cancer Services

patients. This will be done through the usual NHS Wales Capital Investment process.

Recurring Revenue Costs

3.18 Revenue costs reflect the revenue requirements of the project associated with the infrastructure and relevant clinical costs.

3.19 Costs have been determined using appropriate baseline information 2019-20; financial information from Technical and Professional advisors and the professional knowledge of the in-house hard and soft facilities management (FM) team(s).

3.20 Hard and Soft Facilities Management costs reflect the requirements of the services the Health Board is expected to provide, the various contractual and healthcare related standards requirements and on the additional sqm of the Preferred Option.

3.21 Rates costs have been based on the information in the 2017 Rating List for hospitals provided by the Valuation Office Agency.

3.22 The estimated Rateable Value (RV) is multiplied by the multiplier, which is an estimate currently linked to September's Retail Price Index (RPI) figures, which is due to switch to Consumer Price Index (CPI) figures.

3.23 Equipment maintenance has been costed using baseline financial information projected using professional advice and in the context of Advisor input. This will be further informed by the FBC by the IRS (Integrated Radiotherapy Solution) Procurement.

3.24 Information Management & Technology (IM&T) and maintenance has been assessed on the 'hospital building related' requirements of the Project and mainly covers the hospital digital infrastructure.

3.25 All the costs have been identified and verified using assumptions generated from the input of external advisors as well as Trust personnel and scrutinised by the CCG.

Transitional (Non-Recurring) Revenue Costs

3.26 Costs associated with the delivery of the Project have been established using information from the in-house team and Specialist Advisors.

Depreciation

3.27 Depreciation has been determined using the equipment bill of quantities and the estimated useful life of the asset in accordance with NHS Finance guidance.

3.28 The detailed costs derived from this costing approach are set down in Sections 4 to 10.

4 RECURRING REVENUE COSTS

Methodology & Approach

4.1 The section outlines the recurring revenue costs associated with the operation of the Preferred Option.

4.2 As discussed earlier in the Financial Framework Section (Section 2), recurring revenue costs cover the infrastructure related costs and includes the financial impact of the increases in demand and growth of Radiotherapy services and clinical services that are met by the RSC.

4.3 The following options considered were as follows

- Outsourcing of activity to English Providers
- Activity delivered as part of an expansion of the new Velindre Cancer Centre
- Development of a Radiotherapy Satellite Centre at Nevill Hall Hospital, Abergavenny (Preferred)

4.4 Each option is predicated on the delivery of the following level of activity:

Table 4-1: Activity Case Mix

Treatment Type	No of Fractions
Prostate Fractions	7,434
Breast non-DIBH	3,234
Breast DIBH	3,234
Palliative Treatment	1,699
Total	15,600

4.5 The activity assumptions are consistent with the activity growth projections in the new Velindre Cancer Centre OBC.

4.6 To aid transparency the cost of the options are presented initially with the additional revenue costs of the 'Preferred' option being subsequently presented. The total Recurring Revenue costs of the Preferred Option are then presented.

4.7 The revenue cost assumptions are outlined below:

Table 4-2: Revenue Cost Assumptions

Revenue cost assumptions

- Recurring revenue costs associated with the services within the scope of the project are presented at 2019/20 prices.
- Inflation has been excluded.
- Transitional Revenue Costs are excluded from this section and presented in Section 5.
- Depreciation is excluded from this section and presented in Section 7.

Recurring Revenue Costs

4.8 The recurring revenue costs of each of the options is as follows

Table 4-3: Recurring Revenue Costs

	Option - Outsource	Option - nVCC	Option - NHH RSC (Preferred)
	£	£	£
Workforce			
Radiotherapy Delivery		1,140,166	1,276,039
Medical Physics Delivery		509,208	526,394
Facilities		66,554	72,858
IT		0	16,223
Pharmacy		0	8,738
Pay		**1,715,928**	**1,900,252**
Non Pay			
Utilities		62,209	95,276
Hard FM		49,505	69,207
Rates		62,536	62,536
Soft FM		62,901	9,137
Consumables		75,000	75,000
Patient Transport		10,000	5,000
Equipment Maintenance		264,390	264,390
IM&T Maintenance		27,097	27,097
Pharmacy		0	708
Travel		34,319	38,005
Non Pay		**647,955**	**646,355**
Cost of Outsourcing	10,866,325		
Financing - TCS MIMs		1,200,000	
TOTAL COST	**10,866,325**	**3,563,884**	**2,546,607**
Remove TCS MIMS (see note)		-1,200,000	
TOTAL COST (COMMISSIONERS)	**10,866,325**	**2,363,884**	**2,546,607**

4.9 Note: MIMs costs have been removed from the costs attributed to commissioners as these would be borne directly by Welsh Government.

4.10 A full cost analysis of each option is set out in Appendix 1

4.11 For the nVCC and RSC options, recurring revenue costs reflect expenditure which the Trust and ABUHB will incur on an on-going basis to maintain the infrastructure and deliver the clinical services at point of commissioning. The

Financial Case assesses these costs associated with the implementation of the proposed project. It is important to note that the revised expenditure reflects the requirements to meet the forecast level of activity upon the opening of the RSC in June 2023.

4.12 The following tables analyse the costs over the major cost headings for the preferred option:

Table 4-4: Recurring Revenue Costs

	NHH RSC Preferred Option
	£
Workforce	
Radiotherapy Delivery	1,276,039
Medical Physics Delivery	526,394
Facilities	72,858
IT	16,223
Pharmacy	8,738
Pay	**1,900,252**
Non Pay	
Utilities	95,276
Hard FM	69,207
Rates	62,536
Soft FM	9,137
Consumables	75,000
Patient Transport	5,000
Equipment Maintenance	264,390
IM&T Maintenance	27,097
Pharmacy	708
Travel	38,005
Non Pay	**646,355**
TOTAL COST	**2,546,607**

4.13 The Baseline Recurring Costs have been agreed with the CCG.

Table 4-5: Recurring Pay Costs

	£
Workforce	
Radiotherapy Delivery	1,276,039
Medical Physics Delivery	526,394
Facilities	72,858
IT	16,223
Pharmacy	8,738
Pay	**1,900,252**

4.14 The proposed Radiotherapy and Medical Physics staff are to be employed by VUNHST with the skill mix provided at Appendix 1.

4.15 The proposed facilities staff will be employed by ABUHB and represent the cost of portering, domestics, security and other facilities support staff.

4.16 The proposed IT staff will be employed by ABUHB and will support the operation of the IT systems in the RSC.

4.17 The proposed pharmacy staff will be employed by ABUHB and represent the staff costs to support the RSC onsite Omnicell.

4.18 The pay costs above and the Recurring, Non-Pay Costs below have been agreed with the CCG as fair and reasonable.

Table 4-6: Recurring Non Pay Costs

	£
Non Pay	
Utilities	95,276
Hard FM	69,207
Rates	62,536
Soft FM	9,137
Consumables	75,000
Patient Transport	5,000
Equipment Maintenance	264,390
IM&T Maintenance	27,097
Pharmacy	708
Travel	38,005
Non Pay	**646,355**

Utilities, Hard FM and Soft FM Costs

4.19 The total costs of utilities, Hard FM and Soft FM are presented in the table below:

Table 4-7: Utilities, Hard FM and Soft FM Costs

	£
Non Pay	
Utilities	95,276
Hard FM	69,207
Soft FM	9,137
Total	**173,620**

4.20 The costs have been calculated with reference to the proposed floor m2 and EFPMS benchmarks and have been agreed with the CCG as fair and reasonable.

Equipment Maintenance and IM&T Maintenance

4.21 The total costs of Equipment Maintenance and IM&T Maintenance are presented in the table below:

Table 4-8: Equipment Maintenance and IM&T Maintenance

	£
Equipment Maintenance	264,390
IM&T Maintenance	27,097
Total	**291,487**

4.22 The Medical Equipment Maintenance costs have been calculated based on the schedule of Equipment set down in Economic Case. These costs reflect the requirements associated with the additional Medical Equipment with new infrastructure. The costs will be be refined when the IRS procurement provides actual costs.

4.23 The maintenance costs for IM&T have been calculated based on the schedule of equipment set down in Economic Case.

4.24 IM&T costs relate to the support required for the infrastructure to support the clinical services, major clinical equipment and the RSC.

4.25 This approach been agreed with the CCG as fair and reasonable.

Other Non-Pay Costs

4.26 The total costs of other Non-Pay costs are presented in the table below:

Table 4-9: Other Non-Pay Costs

	£
Rates	62,536
Consumables	75,000
Patient Transport	5,000
Pharmacy	708
Travel	38,005
Total	**181,249**

4.27 Business rates are determined based on the rateable value of the premises. This is independently assessed by the Valuation Office Agency, who maintains a hospital framework in place for 2017 Rating list.

4.28 The forecast rates have been established using the estimated rateable value. It was highlighted that this cost head is beyond the direct control of ABUHB and VUNHST.

4.29 Other non-pay costs have been agreed with the CCG as fair and reasonable.

Other Costs

4.30 Section 7 provides more detailed analysis of the key areas of expenditure for the cost heads of:

- Buildings and equipment depreciation (Section 7)

5 TRANSITIONAL REVENUE COSTS

Overview

5.1 Non-recurring revenue costs reflect expenditure that the Health Board and Trust will incur in order to deliver the Project but will not recur over time. They are largely one off, up-front costs. Non-recurring costs are to be incurred to facilitate Pre Commissioning.

5.2 Velindre has discussed the profile of pre-commissioning costs, specifically on the 3-6 month maximum lead in time for recruitment of posts. The proposed costs remain on a staggered basis based on market availability of staff, associated programmes and procurements that enable the Satellite Centre and lead in training times. This position will continue to be scrutinised as part of the commissioner review and internal Velindre Project management review. The estimates, however, at present remains the OBC proposed costs.

5.3 The table below sets out the pre-commissioning costs (in year charges described), assuming a 23/24 commencement:

Table 5-1: Transitional Revenue Costs

	2022-23
	£
Phasing	712,000

6 SCRUTINY PROCESS

Overview of Scrutiny Process

6.1 In order to enable constructive financial consultation and engagement during the process, the case was considered by the Collective Commissioners Group (CCG).

6.2 The work of the CCG has dovetailed into the Collaborative Cancer Leadership Group (CCLG) that has brought together representations from Chief Executives, Directors of Planning and Directors of Finance to develop seamless cancer services across South East Wales and improve cancer outcomes for our collective catchment population.

6.3 The narrative below presents the scrutiny process undertaken by CCG.

Collective Commissioning Group

6.4 The CCG built on existing collective commissioning arrangements to lead the financial scrutiny of the OBC for the RSC.

6.5 This group consisted of senior finance officers and commissioners from the stakeholder Health Boards.

6.6 As stated previously, the OBC for the RSC will focus on the additional infrastructure and clinical costs directly attributable to the RSC.

6.7 The main objective of the CCG is to confirm the financial affordability settlement in relation to the additional costs in relation to the RSC and its distribution across commissioners.

6.8 The key agreements to date include:

- Agreement of the Financial Framework to enable the construction of the OBC Financial Case
- Gaining a shared understanding of the need for a RSC;
- Discussing the OBC options;
- Sharing the approach to the Financial Case;
- Discussing the Preferred Option
- Approach and methodology for finalising and agreeing a financial affordability settlement in relation to the RSC OBC
- The cost headings (and their presentation) to be included in the OBC, ensuring transparency and agreement of the financial investment set down:
  - Velindre clinical costs
  - Health Board service costs
  - Facilities Management (Soft FM/Hard FM/Utilities);
  - Medical and other equipment;
  - IM&T;
- The cost baseline relating to the agreed cost headings;

- Inflation mechanism;
- Approach to risk;
- Approach to rates; and
- Agreement of a methodology to distribute the additional cost across Local Health Boards.

7 DEPRECIATION

7.1 Depreciation reflects the recurring annual impact of capital expenditure over its assumed useful life. The costs described earlier in the capital section of this chapter will require to be recorded as assets and, therefore, the depreciation impact of each is considered.

7.2 The 'asset lives' for the up-front capital expenditure are outlined in the table below:

Table 7-1: Asset Life Assumptions

Asset type	Estimated useful life for depreciation
Buildings and infrastructure	60 years
Treatment Machines	10 years
Other radiotherapy equipment	7 – 10 years
Diagnostics equipment	7 years
IM&T equipment	5 – 6 years
Other equipment	10 years

7.3 The funding for depreciation costs is planned to be sourced from the Welsh Government.

8 BALANCE SHEET IMPACT

Accounting Treatment

8.1 Under the proposed funding arrangements the RSC will be ‘on balance sheet’ from a Health Board and Trust perspective.

9 DISTRIBUTION OF COMMISSIONER REVENUE COSTS

Distribution of Recurring Revenue Costs

9.1 The Collective Commissioning Group have considered and agreed the approach to the distribution of revenue costs to inform the OBC process.

9.2 The methodology was developed through the following stages

- Identification of recurring revenue costs in the establishment of the RSC
- ABUHB costs to be recharged to Velindre under a Service Level Agreement.
- Velindre to charge HBs under LTA arrangements
- Identification of the proposed activity casemix at the RSC
- Calculation of the income to Velindre of the proposed activity casemix using the new Velindre Contractual LTA Framework.

9.3 The key assumption used is activity undertaken at the RSC will be chargeable as any other Velindre activity.

9.4 On this basis the new Velindre Contractual LTA Framework would generate a full cost tariff of £2,846,378 to Velindre from commissioners using the agreed casemix.

Table 9-1: Activity Casemix

Treatment Type	No of Fractions
Prostate Fractions	7,434
Breast non-DIBH	3,234
Breast DIBH	3,234
Palliative Treatment	1,699
	15,600

9.5 When the full cost tariff is compared to the RSC cost proposal, it shows that the cost proposal is 89% of the full cost tariff.

Table 9-2: Tariff Income compared to RSC costs

	Recurring Revenue Costs £000
RSC Cost proposal	2,546,607
Tariff Income at Full Cost Rates using activity casemix	2,846,378
Comparator as % of Full Cost Tariff	89%

9.6 Actual costs are to be charged under the LTA Framework mechanism on activity residency with the costings underpinning the Velindre Contractual Framework being updated to reflect the 89% stepped cost.

9.7 On a notional basis, the RSC cost proposal split by commissioners using the percentages shares in current LTA arrangements would result in the following

Table 9-3: Indicative Split of Commissioner Costs

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Commissioners	Split %	Recurring Revenue Costs £
Swansea Bay UHB	0.64%	16,298
Aneurin Bevan UHB	39.25%	999,543
Cardiff & Vale UHB	28.69%	730,622
Cwm Taf Morgannwg UHB	27.78%	707,447
Hywel Dda UHB	1.51%	38,454
Powys THB	2.14%	54,497
WHSSC	0.00%	0
Total Recurring Revenue Costs	**100%**	**2,546,607**

9.8 To ensure full cost recovery by VUNHST under the LTA contractual framework, the full and marginal rates in the LTA mechanism would need to be re-costed to include the RSC development.

Transitional Revenue Costs

9.9 The commissioner shares have been utilised to distribute the transitional (non-recurrent) revenue costs of the Project over Commissioners.

Table 9-1: Transitional Costs

	Split %	2022-23 Costs £
Swansea Bay UHB	0.64%	4,557
Aneurin Bevan UHB	39.25%	279,460
Cardiff & Vale UHB	28.69%	204,273
Cwm Taf Morgannwg UHB	27.78%	197,794
Hywel Dda UHB	1.51%	10,751
Powys THB	2.14%	15,237
WHSSC	0.00%	0
Total Transitional Revenue Costs	**100.00%**	**712,000**

Cost Inflation and Risk Sharing

9.10 The CCG has agreed an approach to risk sharing where the cost base will be reviewed prior to commissioning the RSC.

9.11 The CCG has agreed to an appropriate inflation mechanism, whereby the agreed commissioner quantum will be uplifted using CPI.

9.12 It was agreed that further scrutiny of the costs base will be required over the Project life and finally prior to commissioning of the new Centre. At this time, any costs that have increased outside of ABUHB and VUNHST's control would require separate discussion.

9.13 The CCG has agreed that the costs identified and scrutinised are appropriate indicative costs and the assumptions are fair and reasonable. As identified above, it is recommended that the costs be reviewed at FBC stage and prior to commissioning. It is acknowledged that OBC approval will result in the risks being borne by VUNHST and/or ABUHB as appropriate (unless a case is made otherwise as identified below).

9.14 In that regard, Commissioner funding for professionally supported cost increases, outside of Velindre's control, should not be unreasonably withheld. It was agreed that rates should be specifically mentioned as areas for review given they are beyond the ability of the Trust to control. Further, cost drivers such as pay awards, mandated standards and unavoidable external policies would also be accepted as reasonable factors for post approval support. The revenue costs flowing from the IRS Procurement are also identified in this regard.

9.15 It has been agreed that the cost distribution will apply to these, and any future variant of the OBC cost, unless Commissioners collectively agree to the application of another method at some point in the future.

9.16 The preferred option results in an NHS saving of £1.2m costs for MIMs financing payments. Commissioner Health Boards will appreciate Welsh Government consideration of a proportion of this avoided cost be made available to mitigate the recurrent revenue costs of the preferred option.

10 FUTURE COMMISSIONING ARRANGEMENTS

Collective Commissioning Group

10.1 The Financial Framework, presented in Section 2, identified that the RSC OBC has focused on the additional costs of this new building and service at a projected level of activity outlined in Section 9. The actual level of activity and casemix required will be addressed through the commissioning and planning cycle irrespective of the provision of a new building.

10.2 It is necessary to highlight that, although not a decision dependent factor, the additional variable clinical costs of demand, and the associated approach to provide further additional resources through a new Commissioning LTA Framework, are important business factors that require determination and collaborative commissioning agreement. This process will be managed through the Collective Commissioning Group (CCG).

10.3 The OBC is predicated on the implementation of the new VCC contractual framework which is currently being implemented with commissioners.

11 SUMMARY OF FUNDING REQUIREMENTS AND SOURCES

11.1 The Health Board and Trust has had active dialogue with other Health Board commissioners and the Welsh Government regarding the funding arrangements for the Project.

11.2 It is assume the preferred option capital costs of £29.577 million will be funded by Welsh Government from public sector capital.

11.3 The table below provides an overview of total recurring revenue costs for the Project of **c£2.546m** in 2023/24, the first full of operation for the RSC.

Table 11-1: Summary Recurring Revenue Requirements

	£	Funding Source
Workforce	1,900,252	Commissioners
Non Pay		
Utilities	95,276	Commissioners
Hard FM	69,207	Commissioners
Rates	62,536	Commissioners
Soft FM	9,137	Commissioners
Consumables	75,000	Commissioners
Equipment Maintenance	264,390	Commissioners
IM&T Maintenance	27,097	Commissioners
Other	43,713	Commissioners
TOTAL COST	**2,546,607**	

11.4 Recurring revenue costs will be funded by Commissioners on an actual usage basis under the new contractual mechanism. However, it is planned that the Welsh Government will fund the increased buildings and equipment depreciation.

11.5 Pre-commissioning transitional costs (in year charges described), assuming a 23/24 commencement have been identified as follows:

Table 5-1: Transitional Revenue Costs

	2022-23
	£
Transitional Costs	712,000

12 CONCLUSION

12.1 In developing the Financial Case, ABUHB and VUNHST has worked closely with its specialist advisors, Commissioners and the Welsh Government to agree the Financial Framework to be adopted and present a robust assessment of the overall capital and revenue consequences of the proposed Project.

12.2 In assessing affordability, the Health Board and Trust has carefully considered the timing of expenditure up to 2023/24 and how this will impact on commissioners and other stakeholders, including the presentation of the professionally agreed approach to the distribution of the agreed revenue costs.

12.3 It should be noted that significant additional revenue costs will be required in excess of the revenue cost of the preferred option to provide additional Radiotherapy capacity to meet forecast demand if the proposed satellite unit does not progress. The majority of that activity will need to be provided via other Providers.

13 APPENDICES

For Information

The following appendices are available in support of this case**.** Information in support of the capital costs is included in the Estates Annex

Appendix Reference	Title
OBC/FC1	Recurring Revenue: Pay Costs

Appendix 1

OBC/FC1 Recurring Revenue Pay Costs

Costings	Option - nVCC		Option - NHH SRU	
Radiotherapy Delivery	**WTE**	**£**	**WTE**	**£**
Consultant	1	110,359	1	110,359
Medical Sec	1	26,805	1	26,805
Senior Leader	0	0	1	65,883
Advanced Practitioner	2	97,052	2	97,052
Superintendent Radiographer	1	57,119	1	57,119
Senior Therapy Radiographer	6	291,156	7	339,682
Treatment Radiographer	8	324,224	8	324,224
Treatment Radiographer	5	162,230	5	162,230
Radiotherapy Helpers	1	21,464	2	42,928
Review Assistant	1	26,805	1	26,805
Clerical Officers - Booking Clerk	1	22,952	1	22,952
	27	1,140,166	30	1,276,039
Medical Physics				
Senior Leader	1	79,877	1	79,877
Clinical Scientist	1	57,119	3	171,357
Treatment Machine or Computer Engineer	6	291,156	4	194,104
Dosimetrist	2	81,056	2	81,056
	10	509,208	10	526,394
Facilities Staff				
Porters	0	0	1	28,656
Domestics	0	0	2	32,978
Linen	0	0	0.1	3,098
Administrative Support	0	0	0.1	4,253
Security	0	0	0.2	3,872
	0	66,554**	3.4	72,858
IT				
Staff to Provide SLA	0	0	0.5	16,223
Pharmacy				
Pharmacists		0		8,738
TOTAL		**1,715,928**		**1,900,252**

Note : ** nVCC apportioned cost

Outline Business Case 2020

Radiotherapy Satellite Centre

Management Case

MANAGEMENT CASE

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1 INTRODUCTION

Approach

1.1 To achieve an effective implementation and full benefits realisation the Project must manage, co-ordinate and oversee the delivery of all Project activities and key deliverables over the lifecycle of the Project. The Radiotherapy Satellite Centre (RSC) is a crucial pillar of the Transforming Cancer Services (TCS) Programme and is essential in order to meet projected demand and deliver care closer to home.

1.2 In response to this need, Aneurin Bevan University Health Board (ABUHB) and Velindre University NHS Trust (VUNHST) have developed, in partnership, a Project Management capacity and capability to effectively facilitate the delivery of the RSC Project. This has included appointing and integrating a number of skilled and experienced project officers to meet the current and future demands of the RSC Project.

1.3 The RSC Project has not only developed its Project Management capacity and capabilities, it has also developed governance structures and processes, partnership arrangements and identified key deliverables to facilitate the delivery of the RSC Project.

1.4 This OBC Management Case therefore sets out the management arrangements which will successfully deliver the RSC Project to time, cost and quality. The Management Case will outline the following arrangements:

- Project Management Arrangements;
- External Advisors;
- Use of Specialist Advisors within NHS Wales;
- Project Partnership Arrangements;
- Procurement and Contracts Management;
- Change Control;
- RSC Project Plan;
- Benefits Realisation;
- Communication and Engagement;
- Risk Management Plan; and
- Arrangements for Post Project Evaluation.

1.5 The Management Case will provide assurance on the capacity and capability of the Project Management arrangements to deliver the Projects objectives.

2 PROJECT MANAGEMENT ARRANGEMENTS

Project Roles and Responsibilities (The People)

2.1 The Health Board and Trust have invested in developing an effective Project Leadership Team (that form the core of the RSC Project Management Arrangements). The RSC Project Board, and the associated Project Team Management capacity and capability, will facilitate the effective delivery of the RSC Project operationally.

2.2 The key individual roles and responsibilities required to support the delivery of the RSC Project are set out in table 2-1 below:

Table 2-1: RSC Project Leadership Team

Role	Name/Status	Responsibility
Senior Responsible Owner (SRO) **ABUHB**	Nicola Prygodzicz	The SRO is accountable for the success of the RSC Project. The SRO is responsible for enabling the organisation to exploit the new environment resulting from the RSC Project, meeting the business needs and delivering the required levels of performance, benefit, service delivery and value. The SRO owns the vision for the RSC Project and is required to provide clear leadership and direction and secures the investment required to set up and run the Project throughout its lifecycle and beyond.
Project Director **ABUHB**	Andrew Walker	The Project Director reports to the SRO and is operationally accountable for project delivery of the RSC including the operational delivery of the RSC Procurement through the appropriate processes which he will lead. The Project Director will provide leadership and positive team working to create an environment that facilitates effective project delivery.
Director of Commercial and Strategic Partnerships **VUNHST**	Huw Llewellyn	The Director of Commercial and Strategic Partnerships is the Project Director for the TCS Digital and Equipment Project and along with the RSC Project Director will ensure that the interface between the RSC Project and the TCS Digital and Equipment Project is effective. The Director of Commercial and Strategic Partnerships will advise on the commercial, partnership, management, financial and economic aspects of the Project process and provide strategic advice to the RSC Project and on its interface with the nVCC Project.

TCS Service Director **VUNHST**	Andrea Hague	The Trust Director of Service Improvement will be responsible for leading a group of operational managers in order to ensure that a service and operational focus is maintained in all aspects of the RSC project. The post holder will be responsible for identifying, developing, agreeing and delivery of all operational and clinical aspects of the Velindre Service at the RSC. This will include workforce, operational procedures and processes, facility requirements for interface management and commissioning.

2.3 Senior Clinical Leadership is provided to the Project through two key posts; one from each of the partner organisations.

Table 2-2: RSC Project - Clinical Leads

ABUHB Clinical Lead	Ian Williamson	The Health Board will appoint a clinical lead who will be responsible for leading a group of clinicians to ensure that a 'local' clinical focus is maintained in all aspects of the RSC project and that patient experience and quality is always a primary consideration.
VCC Clinical Lead	Tom Crosby	The Trust will appoint a clinical lead who will be responsible for leading a group of clinicians to ensure that a 'specialist' clinical focus is maintained in all aspects of the RSC project and that patient experience and quality is always a primary consideration.

2.4 These officers will comprise of the RSC Project Board along with other colleagues from the Health Board and Trust as set down below:

Table 2-3: RSC Project Board

Name	Role
Nicola Prygodzicz	Executive Director of Planning, Digital and IT, ABUHB (Chair)
Andrea Hague	Director of Service Improvement, VUNHST (Deputy Chair)
Andrew Walker	Strategic Capital and Estates Programme Director, ABUHB
Huw Llewellyn	Director of Commercial and Strategic Partnerships, VUNHST
Ian Williamson	Lead Clinician, ABUHB
Prof. Tom Crosby	Lead Clinician, VUNHST

Robert Holcombe	Assistant Director of Finance, ABUHB
Lorraine Morgan	Programme Manager – Strategic Capital and Estates, ABUHB

2.4 The Officers above will be supported by a Project Team including a range of "Technical" ABUHB and Velindre Clinical and Technical Leads, as set out below, as well as a team of External Advisors (see Section 3).

Table 2-4: RSC Project Team

Name	Role
Andrew Walker	Strategic Capital and Estates Programme Director ABUHB (Chair)
Andrea Hague	Director of Service Improvement, VUNHST (Deputy Chair)
Lorraine Morgan	Programme Manager – Strategic Capital and Estates, ABUHB
David Osborne	Finance Lead, VUNHST
Phil Meredith	Finance Lead, ABUHB
Robert Holcombe	Assistant Director of Finance, ABUHB
Jacqui Couch	Clinical Transformation Manager, VUNHST
Bernadette McCarthy	Radiotherapy Services Manager, VUNHST
Kelly Jones	Capital Accountant, ABUHB
Steve Gardiner	Assistant Project Director nVCC (Technical), VUHNST
Glenn Evans	Strategic Estates Manager, ABUHB
Phil Richards	ITC Lead VUNHST
Tony Millin	Head of RT Physics, VUNHST
Mark David	Operations Manager, VUNHST
Jane Williams	Workforce Lead, VUNHST
Chris Lines	Comms Lead, VUNHST
Claire Harding	Comms Lead, ABUHB

Project Management (The Methodology)

2.5 The delivery of the Project will be managed in accordance with the PRinCE2 ('Projects in a Controlled Environment') methodology suitably adapted for local circumstances in order to meet the needs of this Project. The Project management arrangements will therefore be driven by outputs, or in the PRINCE2 terminology, "Products". All products will be formally signed off by the RSC Project Board before being approved (if appropriate) by the TCS Programme Delivery Board or the Health and Trust Boards as appropriate.

2.6 The Infrastructure Project Execution Plan (PEP) includes all the management controls required to ensure the RSC Project, and its contracted firms, meet their fiduciary obligations with respect to the development of the Business Cases, the implementation of the Project, and the management of the Project within a framework of acceptable risk.

2.7 The RSC Project is predicated on the following principles:

- Decisions on the strategic direction and future needs of health care are only made after appropriate consideration;
- The views and interests of patients, staff and all stakeholders are considered;
- Appropriate behaviour with respect to the codes of corporate governance and policy;
- Guidance and good management practice; and
- Open and regular reporting of Project progress and performance.

2.8 To ensure the quality of the outputs are maintained and the objectives are met, the Project Execution Plan will be managed and undertaken on the basis of:

- Proven methodologies and standards;
- Effective monitoring procedures;
- Effective change/issues/problem management;
- Review and acceptance procedures; and
- Appropriate documentation and record keeping.

Project Governance and Management

2.9 Key to the success of the RSC Project is the Project Governance and Management inputs required for the co-ordination of sub projects and their outputs, reporting progress against plan, approvals and escalations of risks and issues. The Governance and Management processes have been designed to allow for key approvals to occur at the most appropriate level.

2.10 Of particular importance is the dovetailing of the TCS Programmes, and its constituent Projects, governance arrangements, with both ABUHB's and VUNHST Corporate Governance arrangements and that of Welsh Government's

sponsorship, scrutiny and approvals process. In particular, this will allow for rapid approvals and the effective escalation of risks and issues to a level where senior sponsors can intervene as necessary to support the delivery of this important project**.**

2.11 This section provides an overview of all aspects relating to the Project Management structure and individual roles and responsibilities.

2.12 The Project Governance Arrangements are organised over three levels, namely:

- ABUHB and VUNHST Boards (Corporate) – **Level 1**
- TCS Programme Delivery Board – **Level 2**
- RSC Project Board – **Level 3**

2.13 The Project structure ensures clear accountability and also deploys mechanisms to facilitate decision making, communication and alignment. The Governance Arrangements are set down within the TCS Programme Board, TCS Programme Scrutiny Committee, RSC Project Board and RSC Project Team Terms of Reference.

Project Management: Roles and Responsbilities

2.14 The shared Project Management and Administration roles and responsibilites for the RSC Project are set out in Table 2-5 below.

Table 2-5: Project Management and Administration Specific Roles and Responsibilities

Role	Responsibility
Project Manager (PM)	The Project Manager has overall responsibility for the delivery of all sub projects within the identified portfolio. To ensure that they are delivered to time, cost and quality. Key to the success of this role is the efficient and effective use of project resources, and the identification and management of, interdependencies, risks and issues, and benefits delivery.

Role	Responsibility
Project Co-ordinators (PC)	The Project Co-ordinator(s) will provide high quality Project support and administration services to the Project. This will include co-ordinating meetings, capturing issues, decisions and actions. To act as a configuration management librarian and to oversee all document control during project delivery.
Project Administration (PA)	The Project Administration duties include all aspects of facilitating a project: scheduling meeting times and locations, taking meeting minutes, capturing action points and arranging training for project staff. In addition, the project administrators participate in budget administration, providing analysis and maintaining project records and facilitating procurement.

2.15 The costs of the Project Management have been included within the RSC Project capital costs.

3 EXTERNAL ADVISORS

3.1 The preparation of the OBC will be supported by an External Project Manager and External Cost Advisor both of which have been appointed from the All Wales Designed for Life: Building for Wales Framework.

3.2 The Project Manager (Gleeds Management Services) will perform the role in accordance with the Outline Schedule of Duties for Project Managers, as defined at Framework level, unless otherwise amended and agreed with the Health Board. This role encompasses a project management role of the technical aspects of the business case process and subsequent design, procurement, construction and project closure stages under the NEC3 Form of Contract.

3.3 The Cost Advisor (Lee Wakemans) will oversee the financial management of the capital expenditure, in conjunction with the Health Board Finance Directorate. They will monitor project costs, implement rigorous verification and checking of all costs presented by the SCP, and deliver a project from a Health Board perspective which is affordable and provides value for money.

3.4 In addition to the above a Health Care Planner (Archus) has been appointed to lead the preparation of the OBC Economic Case. Capita will fulfil this role, they have been appointed via the All-Wales HCP Framework. In May 2020, the Project were informed that Capita were unable to provide Business Case Support from the middle of June 2020. Alternative arrangements with Archus have been made to maintain continuity to this important role.

3.5 The RSC Project Director will provide lead and co-ordinate the Trust Advisors.

4. USE OF SPECIALIST ADVISORS WITHIN NHS WALES

4.1 The RSC Project utilises the advice of a number of specialist advisors provided via the NHS Wales Shared Services Partnership (NWSSP) and other areas of the NHS in Wales.

4.2 These include the following:

- NWSSP – Specialist Estates Services;
- NWSSP – Procurement Services;
- NWSSP – Legal and Risk Services;
- Health Education and Improvement Wales (HEIW); and
- NHS Wales Informatics Service (NWIS).

4.3 Discussions have been held with NWSSP – Procurement Services and the NHS Specialist Estates Services regarding the professional relationship, and management processes, required to support the Project. It is important that these two key National Services are fully aligned with the RSC Project. The quarterly TCS briefings and advisory sessions with Shared Services are intended to continue throughout the process to ensure appropriate engagement with the TCS Programme and their constituent projects.

4.4 Processes have been included within the TCS Programme and RSC Project to enable these important relationships to be managed and co-ordinated.

5 PROCUREMENT AND CONTRACT MANAGEMENT

5.1 The delivery process is a 'team' effort with the RSC Project Team leading the operational processes. The Project Team will co-ordinate the External Advisory Teams.

5.2 The roles and responsibilities of each of the elements of the Project Team are set out below:

- ✓ **The RSC Project Team:** responsible for leading the process on behalf of the Project Board. The Team consists of both Health Boards and Trust decision-makers who will be responsible for shaping the scheme within Project Scope and Brief and have delegated authority to take key operational decisions during the process.

- ✓ **The External Advisory Team:** responsible for providing technical / specialist knowledge and "specialist" expertise to the Trust team to enable them to secure the optimal solution.

- ✓ **Trust and Health Board Service Representatives:** responsible for providing the Team with professional and operational information, advice and guidance. The Health Board Service Advice is pivotal in providing consolidated views on the various solutions put forward by the SCP. For example, different design solutions that may impact patient flows, clinical adjacencies, infection control etc.

- ✓ **Trust Clinical Assurance Representatives:** The Trust Clinical Assurance Representatives will ensure that a clinical focus is maintained in all aspects of the RSC project. Thus, ensuring that patient experience and quality of care is always a primary consideration in the planning of the RSC.

5.3 Details of roles and staff likely to be involved in the dialogue process are set out in Figure 5-1 overleaf:

Figure 5-1: Project Governance Arrangements

RSC PROJECT TEAM

Andrew Walker: Strategic Capital and Estates Programme Director, ABUHB
Andrea Hague: Director of Service Improvement, VUNHST
Lorraine Morgan: Programme Manager – Strategic Capital and Estates, ABUHB
David Osborne: Finance Lead, VUNHST
Phil Meredith: Finance Lead, ABUHB
Robert Holcombe: Assistant Director of Finance, ABUHB
Jacqui Couch: Clinical Transformation Manager, VUNSHT
Bernadette McCarthy: Radiotherapy Services Manager, VINSHT
Kelly Jones: Capital Accountant, ABUHB
Steve Gardiner: Assistant Project Director nVCC (Technical), VUNHST
Glenn Evans: ITC Lead, VUNHST
Phil Richards: ITC Lead, VUNHST
Tony Millin: Head of Radiotherapy Physics, VUNHST
Mark David: Operations Manager, VUNHST
Jane Williams: Workforce Lead, VUNHST
Chris Lines: Comms Lead, VUNHST
Claire Harding: Comms Lead, ABUHB

EXTERNAL ADVISORY TEAM

Gleeds Management Services
Lee Wakemans
Capita
NHS Shared Services

CLINICAL ASSURANCE

Dr. Jaz Abraham: Medical Director
Ian Williamson: Project Clinical Lead (ABUHB)
Prof. Tom Crosby: Project Clinical Lead (Trust)

PROJECT SUPPORT

Project Manager
Project Co-ordinator(s)
Project Administrator

HEALTH SERVICES "SPECIALIST" TEAM

Andrea Hague: Director of VCC
Bernadette McCarthy: Radiotherapy
Tony Millin: Physics and Equipment
Arnold Rust: Radiation Protection
Karen Jones : Infection Control
Technical Support Managers
Mark David: Operations Manager
Phil Richards: ITC Lead
Steve Gardiner: Assistant Project Director nVCC (Technical)
Jayne Williams: Workforce Lead

6 CHANGE CONTROL

Introduction

6.1 This section of the Management Case sets out the approach to Project change control.

Change Control

6.2 The Change Control process is managed by the Project Management Team. The Change Control comprises of:

- Change Control Management Document - which gives guidance of version control in regards to documents and the change control procedure;
- Change Management Log - captures all version controlled Project documents/products;
- Change Form - formal process staff are required to follow to request change to a version controlled document/products; and
- Change Log - this captures all change requests.

6.3 The Project Team, and external contractors, are expected to comply fully with the Change Control Procedure.

Change Control Principles

6.4 The Change Control and Management principles of the framework agreed to date are, to:

- Recognise the need to maximise the benefits of the change for patients, who should be at the heart of the changes made;
- Take advantage of the time required to complete the development to start the change process immediately and avoid risks related to a 'big bang' approach;
- Test and prove the changes through careful piloting of any aspects of the new models and processes that can be implemented before the new facility is finally commissioned;
- Work in partnership with staff and other stakeholders both within and outside RSC to engage all those involved in the delivery of care in the change process; and
- Focus on staff skills and development required so staff are both capable and empowered to deliver healthcare effectively and to a high-quality standard in the new facility through new models of care.

6.5 Once the RSC OBC has been approved, these principles will be revisited and confirmed. The Change Control Principles will be communicated to all staff as part of the launch of the change control management process.

The Project Change Management Approach

6.6 The Project Management Team has designed a change management approach that encompasses the framework and principles outlined above.

6.7 The implementation of a change management process will progress well in advance of FBC approval.

6.8 Where proposed changes to service impact on the workforce the NHS Wales, Organisational Change Policy will apply. This national document makes clear the onus upon the service to consult with staff affected and their individual employment rights.

The Change Control Plan

6.9 A Change Management Plan will be developed. Once the OBC has been approved three actions will occur:

- The Core Plan will be reviewed to identify other relevant areas that need to be included;
- Detailed plans will be set up for each of the tasks in the Core Plan; and
- An overall timetable will be developed and the high level milestones communicated as part of the launch of the Change Management Plan.

6.10 The table overleaf sets out the core plan and the main tasks identified to date.

Table 6-1: Change Management Plan

Area	Planned tasks
Planning phase	✓ Appoint key Project roles and Change Managers, confirming responsibilities and leadership ✓ Confirm stakeholders and interested parties both within and outside ABUHB and VCC ✓ Develop core plan in more detail, identifying high level milestones for the Change Management Plan, mapped to the overall Project Plan ✓ Confirm involvement of HR, managers and other individuals/groups in the process
Communications and stakeholder engagement	✓ Confirm communications lead and protocols (route and timing of approval of communications) ✓ Develop communications routes, including face to face briefings bulletins, intranet pages ✓ Formulate and agree key communications messages against high level milestones ✓ Set up stakeholder map and engagement plan ✓ Launch change Programme ✓ Ongoing communications work
Training and development	✓ Complete detailed workforce planning to identify 'shadow' structures, roles and competencies for those roles ✓ Work with staff through workshops and other training to clarify the workings of the new Service Models and how these will impact in practice ✓ Identify training and development required to fulfil roles and competencies ✓ Develop training plan, aligned to pilot work and overall milestones in implementation plan ✓ Link training and development into communications plan
Piloting	✓ Identify and confirm areas where piloting of new models and practice will be implemented ✓ Confirm schedule of pilot work, mapped against high level project and change management milestones ✓ Agree feedback arrangements from pilots and how this links into training/development, communications and overall change management plan ✓ Execute pilots, feedback and report progress
Full Implementation	✓ Identify scheduling/phasing of full implementation at VCC ✓ Using results of piloting and training work, develop detailed implementation and transition plan, mapped to project phasing ✓ Discussion and agreement with key staff ✓ Execute implementation and transition plans

7 RSC PROJECT PLAN

7.1 The project plan key milestones are set out in the following table, the Estates Annex includes the detailed programme:

Table 7-1: Project Plan Key Milestones

Milestone	Dates
Submission of OBC to Commissioners and Welsh Government	September 2020
Welsh Government Approval / FBC Commencement	January 2021
Enabling Works Commencement	January 2021
Submission of FBC to Welsh Government	September 2021
Welsh Government Approval / Start-on-site	November 2021
Completion	August 2023 (subject to confirmation of IRS Preferred Partner and commissioning period)

7.2 Discussions are ongoing with Welsh Government regarding this Project Plan and the key tasks required to be achieved in order to deliver it.

8 BENEFITS REALISATION

Introduction

8.1 This section of the Management Case will describes how the Trust will manage the delivery benefits associated with the RSC Project. It will cover the following areas:

- Benefits Realisation Strategy;
- Benefits Mapping and Assurance;
- Benefits Management Process;
- Benefits Realisation Plan; and
- Process for Managing and Monitoring Work.

Benefits Realisation Strategy

8.2 The TCS Programme team has been working closely with the Welsh Government and other partners to ensure that the management of the RSC Project benefits are robust. Much of this detail is contained within the Strategic Case of this OBC. This work has included the identification and quantification of Project Benefits where possible. This has then allowed for the quantified benefits to influence the Economic Case where the choice of the preferred option is made. The quantification of benefits relating to the RSC reflect the wider societal benefits within the wider TCS Programme. These are included only where they can be directly attributable to the provisioning of the RSC.

8.3 This Project is about the provisioning of the RSC to improve clinical outcomes. It delivers a key aspect of the clinical model and increases integration with local services and support for further research and education.

8.4 The use of a quantified benefits assessment methodology brings significant rigour to how the benefits have been assessed and informed the preferred option.

8.5 This brings into sharp focus the need to ensure that the Project maximises the delivery of the benefits associated with the RSC Project.

Benefits Mapping and Assurance

8.6 One of the most important features in benefits realisation is to ensure that the perceived benefits identified as part of the preferred option will deliver the Project Spends Objectives (PSOs).

8.7 As previously described in the Strategic Case, the benefits associated with the Project have been captured and presented.

8.8 All Benefit Groups have been matched to a beneficiary, whether this be a patient, carer, ABUHB and Velindre University NHS Trust, other Local Health Boards, or

at a Governmental level or societal level.

Benefits Management Process

8.9 The Benefits Management Process takes due account of changes in the Project during the delivery phase which may impact on, or alter the anticipated benefits.

8.10 Benefit Reviews will be led by the SRO, and involve stakeholders, to establish the extent to which benefits have been realised to date, and are likely to be in the future.

8.11 The Benefits Management approach is a cycle of identification, planning, execution and review. Further details of each stage are provided overleaf:

Stage 1 Benefits Identification and Assessment: Selection of appropriate and significant benefits that makes the best use of scarce resources;

Stage 2 Benefits Realisation Planning: Rational decisions about how, when, and by whom benefits will be delivered, with clear ownership, accountability and timetable;

Stage 3 Execute and Deliver the Benefits Realisation Plan: Successful delivery of the Benefits Realisation Plan; and

Stage 4 Review: Input to a culture of continuous improvement either through incremental change to the existing system or by triggering the inception of new projects.

8.12 A Benefits Review for the RSC Project will also take place which will focus on Benefits Realisation.

Benefits Realisation Plan

8.13 A formal Benefits Realisation Plan has been prepared for the RSC Project. The plan is designed to enable benefits, and dis- benefits, that are expected to be derived from the RSC Project, to be planned for, managed, tracked and realised.

8.14 The Benefits Realisation plan will help demonstrate whether the scheme's investment objectives are able to generate the desired 'measures for success. This can be assessed by tracking the desired outcomes and subsequent benefits of the RSC Project.

8.15 As part of the information required for the OBC, benefits have been incorporated into a Benefits Realisation Plan which will detail the:

- Beneficiaries;
- Category of benefit;
- Baseline measure;
- Trajectory to target; and
- Benefit owners.

Process for Measurement and Monitoring

8.16 Measuring and monitoring the delivery of benefits is key in assessing the extent to which they are being delivered against the plan.

8.17 In some cases, measurement can be achieved through existing systems and information source. In some cases, however, this requires the establishment of new arrangements. It is, therefore, important that where new mechanisms are required, these are identified at an early stage.

8.18 Additionally, it should be recognised that only a proportion of the benefits will be 'hard' or quantifiable (e.g. additional activity delivered) with many requiring 'soft' or qualitative measures to assess their delivery. These qualitative measures are often the areas requiring the greatest level of bespoke development. Finally, the frequency of benefit monitoring will be established as part of this process.

8.19 For each benefit criterion considered, the Project Team were tasked with identifying and documenting:

- How would you know that the benefit has been achieved?
- Could both qualitative and quantitative measures be used?
- How will the partnership monitor the achievement of the benefit?

Identification of Potential Dis-benefits

8.20 In realising a benefit, it is recognised that as a consequence there is often a resulting negative impact or dis-benefit. Whilst these rarely outweigh the positive benefit it is important that dis-benefits are identified and any potential impact managed as part of the overall BRP.

8.21 For each benefit criteria considered, the group was tasked with identifying and documenting:

- What dis-benefits or problems could achieving the benefit cause?
- What negative impacts could there be on staff, patients or public?
- What impact could there be on organisational culture, strategy or structure?

8.22 All the benefits identified in the RSC Strategic Case and Economic Case must be accounted for within the benefits register. Certain quantified benefits are included within the Economic Appraisal for the preferred option.

9 COMMUNICATION AND ENGAGEMENT

Overview

9.1 Effective communication and engagement with all internal and external stakeholders is vital in the delivery of a successful Project.

9.2 Following the development of the Programme Business Case the TCS Programme has embarked upon a programme of engagement with numerous key stakeholders including:

- Patients, families and carers;
- People who may use service in the future;
- HBs, VCC, 3rd sector, HEIs etc.; and
- Potential strategic/commercial partners.

9.3 The TCS Programme, and the RSC Project, have delivered a Programme of Engagement during the development of this OBC and also engaged with the South East Wales Collaborative Cancer Leadership Group. This Collaborative Cancer Leadership Group chaired by Len Richards, Chief Executive of Cardiff and Vale UHB, also included Board Directors from Planning, Medical and Finance from all of the commissioning Health Boards in South East Wales.

9.4 A Communication and Engagement Plan has been developed and is being implemented and will be led by the TCS Programme Communications and Engagement Manager.

10 RISK MANAGEMENT PLAN

Introduction

10.1 This section of the RSC OBC sets out the Projects approach to risk management and presents:

- Risk Management Overview;
- Issue Management and Risk Management Philosophy;
- Recording and Assessment of Risk;
- Risk Management Framework;
- Responsibility for Managing the RSC Project Risk Register;
- Quantification of Project Risks;
- Risk Mitigation;
- Review and Escalation of Risk; and
- Issues Management.

Risk Management Overview

10.2 The RSC Project utilises its governance structure and arrangements to ensure the effective management of risk. The governance structures allow for risks to be escalated from the Project Teams and its sub groups, through to the RSC Project Board, and onto the TCS Programme Delivery Board and/or the ABUHB and/or Trust Board as appropriate.

10.3 All risk registers are updated dynamically, but are also formally reviewed on a monthly basis. A monthly risk report for the RSC Project will be submitted by the RSC Project Director to the SRO. This risk paper will highlight new risks, the movement in existing risks and issues and where appropriate it will recommend the closure of resolved risks or issues.

10.4 The TCS Programme Delivery Board, upon receiving the RSC risk register (via the RSC Project Director), will consider if the mitigating actions are sufficient and if the identified risks are receiving the right level of treatment. The TCS Programme Delivery Board will consider the escalation of RSC Project Risks onto the Trust Risk Register as appropriate. The remainder of this section sets out the detailed management of risks and issues.

Issue Management and Risk Management Philosophy

10.5 The RSC Project Board sees effective risk management as a positive way of achieving the Project's wider aims. The RSC Project Board regards risks as the mirror opposite of benefits. Inadequate risk management would therefore reduce the potential benefits to be gained from the delivery of the RSC Project.

10.6 Effective Risk Management supports the achievement of wider aims, such as:

- Effective Change Management;
- Enhanced use of resources;
- Better Project Management;
- Minimising Waste and Fraud; and
- Innovation.

10.7 The Project utilises the TCS Programmes Risk Management Framework to systemically identify, actively manage and minimise the impact of risk. This is achieved by:

- Identifying possible risks before they manifest themselves and put stringent mechanisms in place to minimise the likelihood of them materialising with adverse effects on the project;
- Putting in place robust processes to monitor risks and report on the impact of planned mitigating actions;
- Implement the right level of control to address the adverse consequences of the risks if they materialise into issues; and
- Having strong decision-making processes supported by a clear and effective framework of risk analysis and evaluation.

10.8 Once risks are identified, the response for each risk will be one or more of the following types of action:

- **Prevention**, where countermeasures are put in place that either stop the threat or problem from occurring, or prevent it from having an impact on the project;
- **Reduction**, where the actions either reduce the likelihood of the risk developing or limit the impact on the project to acceptable levels;
- **Transfer**, where the impact of the risk is transferred to the organisation best able to manage the risk, typically a third party (e.g. via a penalty clause or insurance policy, or contractual responsibility);
- **Contingency**, where actions are planned and organised to come into force as and when the risk occurs; and
- **Acceptance**, where the RSC Project Board decides to go ahead and accept the possibility that the risk might occur, believing that either the risk will not occur or the potential countermeasures are too expensive. A risk may also be accepted on the basis that the risk and any impacts are acceptable.

10.9 RSC Project Board will adopt a proactive approach to the identification, assessment and management of risks throughout the whole project lifecycle. The effective management of risk and the prevention of issues arising will support the

timely delivery of the RSC Project, by preventing delays, avoiding costs and ensuring quality is upheld.

10.10 The management of RSC Project risk will be in accord with the principles of the TCS Programmes Risk Management Policy.

Recording and Assessment of Risk

10.11 The RSC Project has a Risk Register that is a dynamic document which will be updated with all new identified risks being assessed. All risks will have an individual identifier, an assigned owner and be scored using the standard matrices to ascertain the risk rating colour.

10.12 It is worth reiterating that, as set out in the Commercial Case, a number of the risks associated with the procurement will be either wholly transferred or shared with the successful Contractor.

10.13 In developing the preferred solution, the Project examined three categories of risks for each option. These are set out in Table 10-1 below, together with a summary of how these were assessed.

Table 10-1: Risk areas

Area	Description	How assessed
Capital Risks	Capital risks relate to unknown or unidentifiable factors that increase the cost and time of the project construction.	Qualitative and quantitative risks assessed by Quantity Surveyor.
Optimism Bias	Optimism bias is the demonstrated Systemic tendency for appraisers to be over optimistic about key project parameters. This creates a risk that predicted outcomes do not fully reflect likely costs	Standard methodology to identify extent of optimism bias, with mitigating factors confirmed through RSC Project assessment
Revenue Risks	These are risks relating to everyday management encompassing cost and activity as well as external environmental factors	Risks identified, with quantitative and qualitative assessment through workshop

10.14 The risk values for the shortlisted options were identified and evaluated as part of the assessment process in choosing the preferred option in the Economic Section. Although the focus of this section is on the approach to managing the

risks of the preferred solution, the scope of Risk Management will continue to cover all three areas of risk.

Risk Management Framework

10.15 The RSC Project has a Risk Management Framework that focuses on effective identification, reporting and management of risks. There are three roles in the risk management process that are summarised in the table below.

10.16 The RSC Project Team will oversee the operation of the Risk Management Framework and will report to the Project Board.

10.17 Although overseeing the Risk Management Framework the Risk Management Lead will not be responsible for the actually taking forward risk mitigating actions. In most cases this will be the nominated risk owner. The risk management roles are set out in Table 10-2 below.

Table 10-2: Risk management roles

Role	Responsibility	Reporting & accountability
Risk Management Lead	Manages the process for identifying and addressing risk, maintaining the risk register on a day to day basis	SRO and Project Board
Risk Management Co-ordinated Assessment	Brings together key risk owners to co-ordinate the identification and assessment of risks plus the management of key risks	Project Team and Project Board
Risk Owner	Individual or group responsible for developing and implementing risk mitigation measures for individual risks they are responsible for	Risk management lead and Risk Management Sub Group

10.18 The Project Board have recognised and acted upon their responsibility for leading effective risk management throughout each stage of the RSC Project. This is particularly important at OBC stage, to ensure that the risks associated with the preferred solution have been identified and addressed. The paragraphs below set out the work completed to date, demonstrating the proactive approach to risk management.

Responsibility for Managing the RSC Project Risk Register

10.19 The RSC Project Director is accountable for ensuring that there is robust and proportionate risk management across the Project. To do this it is important that the relevant information on risk is available. The responsibility for managing the RSC Project Risk Register lays with the RSC Project Manager who will review the Risk Register and where necessary hold Risk Reduction Meetings as and when required. Otherwise, the Risk Register will be issued monthly with updated changes.

10.20 The Risk Register should be updated and reviewed continuously throughout the course of the RSC Project and capture the following information for each risk:

- Risk Register Risk number (unique within the Register);
- Risk type Author (who raised it);
- Date identified;
- Date last updated;
- Description (of risk);
- Likelihood;
- Interdependencies (between risks);
- Expected impact;
- Bearer of risk;
- Countermeasures; and
- Risk status (action status).

10.21 All the risks identified in the Strategic Case and Economic Case sections of the RSC Project OBC must be accounted for within the RSC Project Risk Register.

Quantification of Project Risks

10.22 Quantified risk has been developed in a number of areas within this OBC. Capital risks have been completed as part of the ongoing project management and regular reviews with the SCP and external advisors. The Capital Risk Register is included in the Estates Annex.

Mitigation of Risk

10.23 The RSC Project Board will have a dynamic risk register that will be formally reviewed monthly at the Project Board meetings. The RSC Risk Register must have mitigating actions associated with them. All risks will then be re-evaluated after considering the effect of the mitigating actions, resulting in a post mitigation risk score.

Review and Escalation of Risk

10.24 The Project Team will consider and mitigate risk and maintain those which can be actively managed by this Group. However, when a risk is deemed so

potentially severe post mitigation that it could impact on the overall delivery of the RSC (to time, cost or Quality) the risk will be escalated to the RSC Project Board for more senior oversight. The RSC Project Board will manage risk that directly affects their prescribed deliverables. The members of the RSC Project Board will review the Risk Register at each meeting adding, reassessing or closing risks as necessary and where consideration will also be given to the escalation of risks to the TCS Programme Delivery Board and/or the Health Board and/or the Trust Board as appropriate.

Issue Management

10.25 Issues are Risks that have materialised. Similar to risk, the RSC Project Board will hold an Issues Register and follow the same escalation path.

10.26 All issues should have an owner and an allied action plan and will be reviewed during all RSC Project Board meetings and are categorised as high, medium and low priorities.

10.27 Issues will be regularly reported to the RSC Project Board and escalated to the TCS Programme Delivery Board and/or Health Board and/or Trust Board as appropriate.

10.28 Issues that are outside the scope or authority of the RSC Project Board will be referred to the TCS Programme Delivery Board and/or the Health Board and/or the Trust Board as appropriate.

11 ARRANGEMENTS FOR POST PROJECT EVALUATION

Introduction

11.1 This section of the OBC sets out the plans to undertake a thorough Post-Project Evaluation (PPE). The areas covered are:

- The requirement for Post-Project Evaluation;
- Framework for Post-Project Evaluation;
- The Four Stages of PPE; and
- Management of the Evaluation Process.

The Requirement for Post-Project Evaluation

11.2 The requirement to carry out a post Project evaluation is essential in establishing if the RSC Project has been successful, has it met the, spending objectives and realised its expected benefits. Additionally, it is important that any lessons that have been learned can be factored into future projects.

11.3 A critical element of the Project closure activities will be the need to carry out a review of the RSC Project (Benefits Realisation).

Framework for Post-Project Evaluation

11.4 The RSC Project Board is committed to ensuring that a thorough and robust Post-Project Evaluation is undertaken at key stages in the process to ensure that positive lessons can be learnt from the RSC Project.

11.5 The purpose of Post Project Evaluation is to:

- Improve Project appraisal at all stages of a Project from preparation of the Business Case through to the design, management and implementation of the scheme. This is often referred to as the 'Post Project Evaluation" (PPE) and is typically carried out six months after completion; and
- Provide a longer-term assessment to appraise whether the RSC Project has delivered its anticipated improvements and benefits. This is often referred to as the 'Post Occupancy Evaluation' (POE) and can be carried out approximately 2-5 years after completion depending on the nature of the Project.

11.6 If properly planned and resourced, evaluation can produce significant benefits, which are summarised in the table 11-1 below.

Table 11-1: PPE Benefits

The benefits obtained	Who benefits
✓ Improve the design, organisation, implementation and strategic management of projects ✓ Ascertain whether the project is running smoothly so that corrective action can be taken if necessary ✓ Promote organisational learning to improve current and future performance ✓ Avoid repeating costly mistakes ✓ Improve decision-making and resource allocation (e.g., by adopting more effective project management arrangements) ✓ Improve accountability by demonstrating to internal and external parties that resources have been used efficiently and effectively ✓ Demonstrate acceptable outcomes and/or management action thus making it easier to obtain extra resources to develop healthcare services	✓ Health/Trust Board – in using this knowledge for future projects including capital schemes ✓ Programme Board – in using this knowledge for future projects including capital schemes ✓ Partners and local stakeholders – to inform their approaches to future major projects ✓ Lead organisations to test whether the policies and procedures which have been used in this procurement are effective

11.7 PPE also sets in place a framework within which the Benefits Realisation Plan can be tested to identify which benefits have been achieved and which have not. The key PPE stages applicable for the RSC Project are set out in the Table 11-2 below along with likely timing.

Table 11-2: Four Stages of PPE

Stage	Evaluation undertaken	When undertaken	Timing
1	Plan and cost the scope of the PPE work at the Project appraisal stage. This should be summarised in an Evaluation Plan.	Plan at PBC, fully costed at FBC stage	Completed before submission of FBC and included within FBC costs and FBC submission
2	Monitor progress and evaluate the Project outputs	On completion of the RSC	Within six to eight weeks of the completion RSC

Stage	Evaluation undertaken	When undertaken	Timing
3	Initial post-project evaluation of the service outcomes	After the RSC has been commissioned	Six months after commissioning of the RSC
4	Follow-up post-project evaluation (*or post occupancy evaluation - POE*) to assess longer-term service outcomes two years after the facility has been commissioned. Beyond this period, outcomes should continue to be monitored.	Typically at intervals of 2-5 years.	Two years after the commissioning of RSC

11.8 The detailed plans for evaluation at each of these four stages will be drawn up by the Health Board and Trust in consultation with its key stakeholders. The paragraphs below set out the types of issues considered at each stage of the review and the timescales for each stage.

The Four Stages of PPE

11.9 The guidance on PPE identifies four stages in the PPE process, which are discussed in the paragraphs below.

Stage 1: The Evaluation Plan

11.10 The Evaluation Plan is a requirement for the FBC and will be completed before the FBC is submitted and form part of the FBC document. The Evaluation Plan will:

- Set out the objectives of the evaluation, confirming what type of information it is designed to generate and for what purpose;
- Set out the scope of the evaluation to show the type of evaluation to be undertaken at the various stages of the project and the key issues to be addressed;
- Define the success criteria for assessing the success or otherwise of the Project;
- Define performance indicators/measures for these criteria;
- State the method(s) that will be used to obtain the information;
- Set out the team and its membership - who will be responsible for undertaking the evaluation and their respective roles;
- State the proposed membership of the Evaluation Steering Group;
- Identify the resources and budget for the evaluation, including the need for written reports and dissemination activities;
- Develop a dissemination plan for ensuring the results from the evaluation are used to re-appraise the Project; and

- Clarify the timing of the evaluation, with expected start and finish dates.

11.11 The Evaluation Plan will be developed in conjunction with the Benefit Realisation Plan and Risk Management Strategy, as all three strategies are closely related. This will help ensure that:

- The assessment of whether the Benefits expected from the Evaluation, including the risks of non-delivery of the Benefits, have materialised; and
- Changes in the Project objectives and other important parameters can be tracked and explicitly noted in the Evaluation Plan.

11.12 The Evaluation Plan will be a live document and kept under constant review.

Stage 2: Evaluation Requirements at the Implementation Stage

11.13 The Project will be monitored for time, cost and service performance. Other aspects of the Project which will be subject to monitoring include:

- The management procedures;
- The procurement process;
- The design solution; and
- The contractor's performance during the implementation and operational stages of the Project.

11.14 Monitoring reports will be produced at regular intervals to help the RSC Project Director determine whether Project Objectives are being met. These reports will be produced on a monthly basis.

11.15 The key issues to address at this stage will include:

- Was the project completed on time?
- Was it completed within the agreed budget?
- What were the reasons for any delay?
- What action would management recommend to prevent future problems?
- Has the estate maintenance backlog been eliminated as planned?
- Functional suitability of the building?

11.16 When the building has been completed, its construction record and functional suitability will be reviewed.

11.17 The issues identified in the review process up to this point, will form the basis of the Post-Project Evaluation Report for this stage.

Stage 3: Evaluation Requirement during the Operational Stage

11.18 Once services are being delivered in the RSC and a reasonable bedding-in period of some six to twelve months after commissioning of the RSC has been allowed,

a more wide-ranging Evaluation of the Costs and Benefits of the Project will be undertaken.

11.19 This Evaluation will build on the work carried out in Stage 2. It will involve reviewing the performance of the Project in terms of the Project Spending Objectives. These will have been defined clearly at Stage 1 of the evaluation process.

Stage 4: Evaluating Longer-term Outcomes

11.20 Further Post-Project Evaluation will be undertaken at a later stage to assess longer-term outcomes and/or the extent to which short-term outcomes are sustained over the longer term. By this stage, the full effects of the RSC including any clinical effects will have materialised.

11.21 As well as re-assessing the preliminary outcomes identified in the previous phase, the evaluation at this stage will address issues such as:

- Changes in operating costs;
- Changes in maintenance costs;
- Changes in risk allocation and transfer; and
- Changes in activity as expected.

Management of the Evaluation Process

11.22 The RSC Project Director will be responsible for ensuring that the arrangements have all been put in place and that the requirements for PPE are fully delivered. The Programme Manager (Strategic Capital and Estates) will be responsible for day to day oversight of the PPE process, reporting to the RSC Project Director, and the RSC Project Board.

11.23 The RSC Project Director will set up an Evaluation Steering Group (ESG), which will:

- Represent interests of all relevant stakeholders; and
- Have access to professional advisors who have appropriate expertise for advising on all aspects of the RSC Project.

11.24 A Project Manager will be appointed to co-ordinate and oversee the evaluation. It has not yet been confirmed whether the evaluation will be carried out by in-house staff, external advisors or a team comprising of both. Whichever configuration is chosen, the key principle will be that the evaluation is “arm’s

length" and objective. Therefore, the Evaluation Team will be unrelated to the RSC Project to promote a detached assessment.

11.25 The Evaluation Team will be multi-disciplinary and include the following professional groups, although the list is not exhaustive:

- Clinicians, including Consultants, Nursing Staff, Clinical Support Staff and Allied Health Professionals;
- Social care representatives;
- Healthcare Planners, Estates professionals and other specialists that have an expertise in facilities;
- Accountants and Finance specialists, IM&T professionals, plus representatives from any other relevant technical or professional grouping; and
- Patients and/or representatives from Patient and Public Groups.

11.26 The costs of the final Post-Project Evaluation will be identified at FBC State. These costs are therefore not currently included in the costs set out in this OBC.

Conclusion

11.27 The RSC Project has identified a robust plan for undertaking PPE in line with current guidance, which is fully embedded in the project management arrangements of the project. These plans have not yet been costed, but will be fully developed and the costs identified for inclusion in the FBC.

12. APPENDICES

For Information

The following Appendices are available in support of this Case:

Appendix Reference	Title
OBC/MC1	Estates Annex