Reconfiguration of Endoscopy Services
Standard Business Case
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1 **Project Title and Introduction**

This Standard Business Case summarises the planned investment in the development of Endoscopy Services at Raigmore Hospital, Inverness.

The title of the project is as follows:

“Reconfiguration of Endoscopy Services”

This Business Case has been requested by Eric Green, Head of Estates (NHS Highland) to assist NHS Highland to consider the options for the development of the endoscopy services in line with the planned rationalisation of facilities at Raigmore Hospital, Inverness.

In summary this Business Case seeks to consider and address the following:

- Consideration of the existing Endoscopy facilities and its context for NHS Highland.
- Identification of the key objectives of the planned investment.
- Summary of the key constraints associated with the potential options.
- Summary of the scope.
- An economic review of 3 options, one of which is "Do Nothing".
- Schematic development of the preferred option, including estimated costs, strategy and programme.
- Overall affordability of the preferred option.
Executive Summary

This Standard Business Case (SBC) provides a detailed report on NHS Highland’s proposed investment in the endoscopy services provided throughout the Highland region.

This Business Case has been developed within the context of a separate major initiative currently being undertaken by NHS Highland comprising a substantial masterplanning exercise for the Greater Inverness Area where options for optimum future Healthcare provision in the Highlands are being considered.

The investment project is titled: ‘Reconfiguration of Endoscopy Services’ and this Business Case demonstrates that there is currently a need on both a strategic and operational level to improve the provision of endoscopy services in NHS Highland.

An assessment was undertaken in May 2010 by the ‘Joint Advisory Group (JAG) on GI Endoscopy’ at Raigmore Hospital and the reports highlighted the inadequacies of the endoscopy service, noting various deficiencies particularly in relation to SHPN and SHTM standards. NHS Highland have noted additional deficiencies associated with fire precautions, infection control standards, ventilation standards and patient dignity and privacy.

To address the deficiencies described above, a non-financial option appraisal was carried out which identified 3 options which could deliver the necessary improvements to the delivery of the endoscopy service at NHS Highland. These options were assessed by key stakeholders and weighted non-financial qualitative scores were derived for each option, including the “do nothing” option.

An economic appraisal was then undertaken to establish the feasibility of the options based on an assessment of capital costs, recurring revenue, non-recurring revenue costs and net present costs for each option. An Option 1 - Do Nothing has been costed for baseline purposes however this option is not viable because the various deficiencies would not be addressed. The options, non-financial qualitative scores, capital costs and Value for Money analysis are summarised in the table below. Additional details are provided in Section 7.

<table>
<thead>
<tr>
<th>No</th>
<th>Option</th>
<th>Qualitative Benefits Score</th>
<th>Capital Cost (£000’s)</th>
<th>Net Present Cost (£000’s)</th>
<th>NPC Rank</th>
<th>Cost/Benefit point (£000’s)</th>
<th>VfM Economic Ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Do Nothing</td>
<td>240</td>
<td>0</td>
<td>40,474.3</td>
<td>3</td>
<td>168.6</td>
<td>3</td>
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<tr>
<td>2</td>
<td>Expand in Current Location</td>
<td>630</td>
<td>1,990</td>
<td>38,034.9</td>
<td>2</td>
<td>60.3</td>
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<tr>
<td>3</td>
<td>Relocate into Ward 8</td>
<td>755</td>
<td>1,759</td>
<td>37,852.1</td>
<td>1</td>
<td>50.1</td>
<td>1</td>
</tr>
</tbody>
</table>
As this table indicates, the preferred option on both quantitative and qualitative outcomes is Option 3, which involves the endoscopy service at Raigmore Hospital relocating into Ward 8. This option requires the existing Ward 8 service relocating into Ward 9 & 10, following which there will be extensive refurbishment works in Ward 8 prior to a reconfigured endoscopy service taking occupation of the Ward.

The proposed investment will provide a necessary improvement in the patient experience through the provision of additional facilities such as changing rooms, consultation rooms, and additional recovery bays, all of which improve patient dignity and privacy, which are identified as core requirements of the reconfigured endoscopy unit.

The preferred option, Option 3, will be delivered as detailed in Sections 8 – 11 of this Business Case and with consideration to the ongoing Fire Precautions project underway in the Tower Block at Raigmore Hospital, and to the Greater Inverness masterplanning exercise being undertaken.

Subject to approval, the programme for the delivery of the reconfigured endoscopy service (option 3) will be in line with the dates tabulated below:

<table>
<thead>
<tr>
<th>Submission of Business Case</th>
<th>July 2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approval of Business Case</td>
<td>August 2013</td>
</tr>
<tr>
<td>Start on site (Ward 8)</td>
<td>October 2013</td>
</tr>
<tr>
<td>Completion date</td>
<td>April 2014</td>
</tr>
<tr>
<td>Services Commencement</td>
<td>April 2014</td>
</tr>
</tbody>
</table>
3 Strategic Context and Case for Change

3.1 Profile of NHS Highland and Raigmore Context

NHS Highland is one of the fourteen regions of NHS Scotland. It employs over 9,000 people, making it one of the largest employers in the region. Geographically, it is the largest Health Board, covering an area of 32,500 km² from Kintyre in the south-west to Caithness in the north-east, serving a population of over 300,000 people, and sees a proportion of its patients from the influx of tourists to the Highlands, which at certain times of the year, can double or even triple the local population.

NHS Highland provides strategic leadership and direction for NHS services and is accountable to the public and to the Scottish Government for all elements of the NHS system in the Highland and Argyll & Bute Council areas. NHS Highland works with partners to improve the health of local people and the services they receive and to ensure that national clinical and service standards are delivered across the NHS system. NHS Highland is working to improve services with the involvement and support of the public, partners in other NHS Boards, Highland Council, other independent and voluntary agencies.

The areas NHS Highland covers are benefiting from improved health services and so people are now living longer. It is estimated that by 2031 the number of people aged 75 or over in Highland will double. It is important to plan for this because older people tend to make more use of health and social services. As people age it becomes more likely that they may acquire one or more long-term condition(s) like asthma, chest problems, depression, dementia, diabetes and heart disease as well as having a greater risk of getting cancer.

Raigmore Hospital in Inverness is the district general hospital for patients in the North, Mid, and South East Community Health Partnership areas serving patients from its own and adjacent Community Health Partnership areas as well as those from adjacent Health Board areas.

3.2 Vision

NHS Highland has delivered significant achievements in recent years, treating more patients, and providing better, faster access to diagnostic and treatment services as well as achieving financial balance. The Board continues to seek improvement in the quality of patient care however and, in line with other NHS Boards, has a published Local Health Plan. This plan sets out a simple vision for the people of the Highlands:

“Quality care to every person every day”

NHS Highland, in common with all Scottish health boards, has an advantage in being responsible for the total health needs of the population and, for integrated care. This means it is responsible for the better health of communities through population wide and individually focused initiatives to maximise health and prevent illness; for better care of patients through quick access to modern services, in clean and infection free facilities, by well trained and courteous staff;
and for better value for the use of the public money spent by ensuring there is no waste and inefficiency, money is spent only on what is needed and has evident therapeutic benefits and variation from core care pathways is the exception.

The importance of keeping a balance between the three components of better health, better care and better value is fully recognised because they are intrinsically linked and together constitute an effective health system. Any one area cannot be prioritised over any other.

This approach is consistent with the objectives identified within the NHS Highland Local Delivery Plan 2012/2013. The Plan sets out the strategic direction for the Board, provides evidence of performance to date and describes the plans to address the national targets. The key objectives associated with the Local Plan 2012/2013 are provided under Section 3.3.3

### 3.3 NHS Highland Strategy

#### 3.3.1 General

The planned investment to enhance Endoscopy services at Raigmore Hospital is directly linked to effective delivery of future healthcare services in line with the local NHS Highland strategies (which are described below). These local strategies, in the form of the “Local Development Plan” (see below) have been developed to meet the overall delivery of the national strategies in line with the Scottish Government.

#### 3.3.2 National Strategies

The national strategies and recently published guidance which have influenced the development of the Local Development Plan and are therefore of relevance to the proposed investment include:

- The five Strategic Outcomes of the Scottish Government. (Wealthier and Fairer; Smarter; Healthier; Safer and Stronger, and Greener)
- The Healthcare Quality Strategy for NHS Scotland (the Scottish Government 2010)
- “A Sustainable Development Strategy for NHS Scotland’ (the Scottish Government)
- NHS Scotland Efficiency and Productivity Framework.
- The Scottish Patient Safety Programme launched in 2008
- “Delivering for Health” (2005)
3.4 Local Delivery Plan 2012/13

NHS Highland’s mission is to provide patient-centered services tailored to people’s needs in a systematic and consistent way providing quality care to every person every day. Our approach embraces the Healthcare Quality Strategy for Scotland and also takes account of the priorities within the NHS Scotland Efficiency and Productivity Framework for SR10. The described vision is to:

- Provide quality care at all times;
- Support people and communities to maximise their own health;
- Develop precisions driven services so that when people need care they experience timely, focused, effective services that minimise the duration and frequency of contact;
- Ensure that every health pound spent delivers maximum health gain.

The NHS Highland 2012/13 Local Delivery Plan focuses on the contributions to 4 national priority areas:

- Health inequalities
- Early years
- Tackling poverty
- Economic recovery

The investments proposed in this Standard Business Case will make a significant contribution to the goals of the NHS Highland Local Delivery Plan by sustaining and building upon the developments in acute care. In particular the investments will:

- Provide services and facilities which meet 21st century healthcare needs and are acceptable to both staff and patients.
- Ensure that services are continuing to progress towards the achievement of national standards.
- Provide an environment which enables staff development, recruitment and retention as well as community involvement and ownership.
- High quality, integrated, equitable, needs and evidence-based, and cost-effective
- Help reduce wastage and inefficiency across acute services
3.4.1 NHS Highland Quality Approach

The Quality Strategy sets out NHS Scotland’s vision to be a world leader in healthcare quality, described through 3 quality ambitions: effective, person centred and safe. These ambitions are articulated through 6 Quality Outcomes that NHS Scotland is striving towards, and to align their services with this, NHSH Highland have developed ‘The Highland Quality Approach’.

The Highland Quality Approach captures the spirit of how NHS Highland is working to improve care and outcomes for people in the Highland Region. It describes our ways of working, values and behavior. It recognises how important it is to improve the health of the population and get the experience of care right for individual people, every time. We will deliver this by focusing on providing person-centered care while at the same time eliminating waste, reducing harm and managing variation.

The Highland Quality framework is captured in the “blue triangle”. It has been designed to place the individual at the top, with all other activities supporting this purpose. In developing this approach NHS Highland have drawn from the best learning available, the key elements of the Highland Quality Approach, summarised in the blue triangle, include the organizational Mission, Vision and Values. It also describes how services and care will look in the future as well as how this approach is changing the way services and care is delivered.
By reviewing the above key elements which make up the Quality Approach, it is clear that investment in endoscopy facilities at Raigmore Hospital, will make a significant contribution to the mission, vision and values. In particular the investment will improve the overall care of the patient both in terms of quality of care and an improved environment.

In addition to meeting the above quality objectives, investment in Endoscopy Services in the Highland region will help achieve various positive outcomes which are directly related to the 6 strategic objectives described within the NHS Highland Local Delivery Plan. A summary of these positive outcomes in described below:

- Improved health for the people of the Highlands through improved access to modern endoscopy facilities that have been planned and will operate in the context of a region-wide surgical and endoscopy care delivery model.

- Reduced waiting times for endoscopic review and intervention through: the creation of robustly challenged and justified additional endoscopy capacity; the optimal planning and utilisation of endoscopy activity.

- Reduced infection rates through; adherence to improved technical & space standards; improved building fabric & servicing; improved performance against National Cleaning Standards; enhanced patient journey/flow optimisation; reduced length of stay; enhanced endoscope cleaning/sterilisation/storage facilities; effective pre-admission assessment and screening.

- High quality services that are based on evidence based care and robustly evaluated through; extensive review and challenge of all care models; detailed capacity review and planning; optimal accrued benefits realisation monitoring; careful adherence to all current clinical and technical standards.

- Realisation of significant components of NHS Highland’s service modernisation programme through planning for these services in the context of region-wide care models; integrating services when it is clinically appropriate to do so; supporting the realisation of a wide range of performance and service-related targets; contributing to the development of generic models of care.

### 3.4.2 Greater Inverness Masterplan

Whilst at an early stage in development, NHS Highland is currently considering options for the reconfiguration and rationalisation of clinical services across NHS Highland. This strategic plan will involve a review of all NHS Highland buildings in the Inverness area, and may involve some services relocating from Raigmore Hospital in their entirety. This is most likely to include reconfiguration of clinical services within the Tower Block to achieve clinical services and adjacencies at their optimal locations.

NHS Highland have established that the current location of the Endoscopy services within the ground floor of the Tower Block, is not ideal and indeed there are a number of other clinical departments for which it would be more advantageous to be located in this position.
Initial optioneering has established that this ground floor location could be the future position for the Medical Critical Care Unit (CCU) and Cardiology Step-down. Whilst a future decision on this aspect has yet to be taken (and will form the basis of Outline Business Case development) the NHS Highland board have noted the preference to re-locate Endoscopy services away from the Tower Block.

3.5 NHS Highland – Endoscopy Services

3.5.1 Procedures

The main endoscopy procedures carried out by NHS Highland (principally at the Raigmore Unit) are summarised as follows:

- Gastroscopy – looking into the oesophagus and stomach through an endoscope introduced through the mouth
- Endoscopic Retrograde Cholangiopancreatography (ERCP) – allows visualisation of the main ducts draining the liver and pancreas and enables therapeutic procedures to be performed through an endoscope introduced through the mouth
- Endoscopic Ultrasound (EUS) – using ultrasound technology to provide images and information about the digestive tract or chest cavity through the use of an ultrasound transducer on the end of an endoscope that can either be introduced through the mouth or anus
- Bronchoscopy – enables a view of the major airways via an endoscope introduced through the nose
- Colonoscopy – looking into the large bowel through an endoscope introduced through the anus
- Enterscopy – enables a view of the proximal small bowel via an endoscope introduced through the mouth
- Flexible sigmoidoscopy – looking into the rectum and sigmoid colon (lower end of the bowel) through an endoscope introduced through the anus
- Cystoscopy – looking into the urethra and bladder through an endoscope introduced through the urethra

3.5.2 Geographical Locations and Facilities

Existing endoscopy services are delivered from a range of hospital locations and facilities across NHS Highland that includes:

- 2 x Endoscopy rooms in Raigmore Hospital, Inverness
- Main operating theatres, Raigmore Hospital, Inverness
- 1 x Endoscopy room in Caithness General Hospital, Wick
- Operating theatres in Caithness General Hospital, Wick
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- Operating theatre in the Belford Hospital, Fort William
- Operating theatre in The Dr MacKinnon Memorial Hospital, Broadford, Skye
- Cowal Community Hospital, Dunoon
- Lorn & Islands Hospital, Oban

Existing services are delivered through an endoscopy network that is designed to support local access to endoscopy services wherever possible but also that is reliant upon Raigmore Hospital in both a geographical and regional context. (Delivering services to patients for whom Raigmore is “local” but also to those who require the technical and clinical support afforded by a major acute hospital with attendant personnel and services)

Although the level of intervention will vary by patient, in general, within the endoscopy department – very much in line with the operating department - patients are received, reviewed, anaesthetised, investigated/operated upon and recovered.

Also, in a similar manner to the operating department, the service provides for emergency and elective patients who require investigation and/ or intervention within an endoscopy/ interventional environment and/ or anaesthesia, with facilities that allow functional groups to care for pre, intra and post-operative/ anaesthesia patients in a low risk environment.

3.6 NHS Highland Endoscopy Facilities - SHPN Compliance

The key area that demands investment across several facilities within the NHS Highland Region is with regard to the need to achieve compliance with modern Endoscopy standards including the separation of clean and dirty equipment, the associated “process flow” of equipment and particular ventilation requirements.

A JAG assessment undertaken in May 2010 identified that the facilities at Raigmore Hospital, Caithness, and Fort William do not meet the required standards for endoscopy services and are in critical need of upgrading in order to meet these recognised standards.

This Business Case focuses on the improvements required at the Raigmore Endoscopy Unit to achieve compliance, as described in the following section.

3.7 Current Raigmore Endoscopy Facilities

As the largest endoscopy facility within NHS Highland, although a component of a wider network of facilities conducting endoscopy, the Raigmore Unit has a central role in supporting endoscopy throughout NHS Highland.

Specifically, it is often used to address operational/delivery issues in other units and to conduct procedures which are identified as being more suitable to being carried out in NHS Highland’s major acute facility for clinical reasons. The result of
this is that the Raigmore Unit is often called upon to treat patients who are not attending for purely geographical reasons.

Endoscopy services in Raigmore are predominantly provided from the Day Case Unit which is located on the ground floor of the tower block. The accommodation includes the rooms listed below.

- 1 x Admission room
- 1 x Patient changing area with 5 cubicles
- 1 x Consulting room
- 2 x Endoscopy procedure rooms
- 1 x Scope store
- 1 x 8 Bay recovery area
- 1 x Pantry

There is currently no provision for staff to change and work flows within the existing area are poor. e.g. pre and post procedural patients as well as those in outdoor and theatre clothing are mixed together, often passing each other or finding themselves in the same waiting area. In most cases, the current accommodation is considerably less area than is specified in the relevant SHPN.

### 3.8 Inadequacies of the Existing Endoscopy Facilities

A Joint Advisory Group (JAG) on GI Endoscopy assessment in 2010 and Raigmore Hospital Environmental Inspections (RHEI) highlighted the inadequacies of the service in their reports, with the key issue being that the current facilities fail to meet SHTM standards.

A summary of the key issues noted are provided as follows:

- Endoscopy services, in common with all diagnostic services, find themselves in a capacity challenged environment. The need to balance improved waiting times with an expanding screening programme and increased demands for complex interventional procedures is placing additional strain on endoscopy services within all secondary care providers. The provision of Endoscopy services is based upon a direct correlation between age & demand. Consequently, as the population demographics change, an increase in the number of patients will be seen. An extensive review of existing data was undertaken (to calculate existing and future global endoscopy capacity requirements) alongside a “horizon scanning” exercise (designed to ensure that future delivery issues are also considered). A high level summary of the endoscopy data analysis undertaken for the “Raigmore Day Services Project Supplementary Outline Business Case” is inserted below.
This summary shows that there are currently inadequate endoscopy facilities at Raigmore and this issue is likely to become more acute as demand rises in the future.

- Clinical information and service modelling data collated for the NHS Highland ‘Day Services’ Business Case (summarised above) identified a requirement for 4 x endoscopy rooms, in the future, with associated preparation, storage, utility and support areas. Further to this, the Business Case noted that the new facility should be as flexible as possible to meet as yet unknown future care needs and trends. Whilst it has been demonstrated that there may be a future requirement for 4 endoscopy rooms, it is considered that this could be initially made up of a 3 room reconfigured endoscopy facility with the potential for future expansion should this prove to be needed in the future.

- The facility is cramped with inadequate storage and poor workflows. Pre and post procedural patients as well as those in outdoor and theatre clothing are mixed together, often passing each other or finding themselves in the same waiting area. The patient journey requires review to bring about improvements in the service to safeguard patient privacy and dignity. There is no clear “journey” through the unit and due to the existing cramped conditions male and female patients are often mixed in the same area whilst awaiting endoscopic intervention in theatre attire – in complete contradiction to mixed sex guidance. The existing changing facilities for patients breach patient privacy and dignity and there is no gender separation.

- There are concerns over infection control issues around the current service delivery due to the lack of air changes in the procedure rooms and the inadequacy of the ancillary facilities such as DSR rooms and separation of clean and dirty equipment.

- Decontamination of the endoscopes is inadequate in the current facility and ideally this would be separated from the endoscopy procedure area.

- Post endoscopic recovery also occurs in a single mixed-sex recovery bay with shared toilet and shower facilities. There is currently no access to any single room accommodation and no single sex areas out with the main endoscopy rooms.
Mixing of pre and post endoscopy patients should be discouraged; alternative arrangements should be found for a second stage recovery area.

- In addition, the size and configuration of the unit, which makes it extremely difficult to maintain wider patient privacy/dignity issues at all times, e.g. aside from dress issues, endoscopy procedures frequently require bowel preparation and ready access to toilet facilities before and after procedures. The practice of providing bowel preparation in the recovery area is wholly unsuitable. It is impossible to achieve this within the current unit due to a relative lack of toilet facilities overall – a situation that leads to frequent embarrassing and distressing situations for all.

- As well as a lack of space to support effective clinical care it is also noted that the existing endoscopy unit does not have access to any defined staff changing space. As a consequence, male and female staff must change in a storage area within the ward which does not include toilets or showers, which creates an unacceptable situation.

In summary, existing endoscopy facilities at Raigmore Hospital are considered to have a number of existing inadequacies as follows:

- There is insufficient capacity to meet existing and future requirements/targets
- There is an inappropriate mixing of pre and post-endoscopic patients as well as men and women as a result of poorly designed flows
- Patient flow is very poor
- Endoscope decontamination does not meet current standards
- There is a lack of storage space for essential surgical supplies and consumables
- There is a lack of physical capacity to support effective pre-admission assessment
- There is no defined changing area for staff
- Existing facilities/services do not meet current technical standards
- It is difficult to undertake essential maintenance without a significant loss of available operating capacity due to the lack of endoscopy capacity
4 Investment Objectives

In order to identify investment objectives which also relate to the key strategies referred to throughout Section 3, a workshop was convened to establish and understand the key objectives associated with the reconfiguration of Endoscopy Services.

The outcome of the workshop has established the project investment objectives as being the following:

- Deliver a more effective and efficient clinical service, and improved health for the people of the Highlands through improved technical & space standards, where achievable, and enhanced patient journey/flow optimisation

- Maximise the opportunity arising from the reconfiguration of the existing endoscopy services through delivery of endoscopy services in a more efficient form and, where possible, increasing capacity of the existing services (notwithstanding the above, it is essential that the project costs are kept within the phased funding profile as this is essentially what will drive and limit the scope of the project).

- In any reconfiguration, consider the potential for a future increase in demand through inclusion of additional ‘future expansion’ space.

- Provide ease of access to services (closer to point of requirement) - provide good accessibility for patients – physical, transport, parking, availability, availability of services, information

- Improve potential for retention and recruitment of staff, by improving working conditions

- Improve quality of the environment for patients and staff including functional suitability, natural light & ventilation, safety & security, statutory compliance and environmental

- Implement the transition to the new services without compromising patient care and disrupting staff from their normal duties
5 **Key Constraints**

5.1 **Financial**

The reconfiguration of Raigmore's endoscopy services is closely linked with the development of the decontamination facilities within NHS Highland. A total funding package of £4m has been allocated for both the Decontamination facilities and the reconfiguration of Raigmore’s endoscopy services.

Of that £4m, an allocation of £1.759m has been earmarked for the reconfiguration of the existing endoscopy facilities at Raigmore Hospital, which must include for all ancillary and enabling works.

The project funding has been allocated on the basis of all spending taking place by the end March 2014.

5.2 **Programme**

The key time constraints with the proposed project include:

- The programme is dictated by the funding profile indicated in the section above, and accordingly the project must be completed by the end of March 2014.

- Where appropriate, the design and construction programme will be require to be phased to cater for any initial enabling work to facilitate the reconfiguration plans.

- Where the plans affect stakeholders on other wards (be it a temporary or permanent affect) a period will be required to facilitate communication and consensus.

5.3 **Site and Associated Works**

In considering the site location for the proposed facility and the associated works and impact on the adjacent areas, the following points have been collated and will need to be considered as part of any decision process.

- Subject to agreement on the location of the endoscopy unit, the construction works areas will be adjacent to 24 hrs live "acute" clinical services and consequently significant disruption to patient care and staff is a risk, and this must be avoided.

- It is anticipated that the endoscopy services will be provided within existing hospital accommodation. In this situation there may be a need for enabling work to accommodate the displaced services.

- Once any reconfiguration of existing accommodation has been undertaken in readiness for the endoscopy services, the planned move will require to undertaken in a very short timeframe to minimise disruption to existing services.
Compliance with the general requirements for contractors working at Raigmore Hospital in line with the approved policy: “Hospital NHS Highland Control of Contractors Policy”.

The construction works will need to be undertaken with due consideration to infection control issues. During the design stages of the project, HAIScribe assessments will be undertaken as appropriate.

5.4 Design and Quality Constraints

Detailed consideration of the current and predicted workloads within the endoscopy service will be undertaken in the preparation of the proposals for the new facilities. This detailed consideration and analysis will inform the accommodation schedule as well as meeting the objectives of the work flow processes which will be delivered in the proposed project.

In addition to the above stipulations, the new endoscopy facilities will be required to comply with the other relevant and specific healthcare design guidance contained in the following documents:

- SHPN 52 (Part 2) - Accommodation for Day Care Endoscopy Unit (Jan 2002)
- SHPN 52 (Part 1) - Accommodation for Day Care Day Surgery Unit (Jan 2002)
- SHPN 13 (Part 3) - In relation to scope storage
- JAG Guidance (www.thejag.org.uk) and NHS Highland comparison document
- Delivering Quality & Value, Institute for Modernisation & Improvement (2006)
- SHFN 30, Version 3, Infection Control in the Built Environment, Health Facilities Scotland (January 2007)
- The Disability Discrimination Act (2005)
- Health & Safety at Work Act (1974)
- COSHH Regulations (2002) as amended
6 Summary of Scope and Service Requirements

6.1 Proposed Model of Care

Whilst the potential model of care to be adopted within the new facilities is described in detail within specific endoscopy service documents this section provides a high level summary, so as to provide an overview of the planned function of the facility.

The facility will be staffed by teams of admin staff, nurses and other clinical specialists who will provide bookable session support to a wide range of visiting clinicians who will be required to conduct an extensive range of endoscopic investigations/procedures.

The Endoscopy Facility proposed will provide the accommodation that these visiting specialists require to meet the needs of a widening range of patients with different care needs, who require to access any one or more of a wide range of endoscopic investigations and who may previously have required a more invasive and/or in-patient based service.

These patients will range from young fit adults (including a small number of adolescents who have been assessed as appropriate to attend an adult facility) through to the frail elderly and/or infirm who may have mobility issues and previously have required in-patient admission.

The facility will not manage any children and the unit’s operational policy will discourage their attendance as visitors.

It is proposed that the future model of care will facilitate new (as yet not considered) ways of working, including the introduction of management pathways for all patients and the more efficient and appropriate use of all resources both within endoscopy and wider clinical services. This underlines the requirement for optimal flexibility in the design of all facilities.

6.2 Standard Process Flow & Service Delivery

The standard anticipated patient pathway is summarised below:
All patients will arrive and be administratively “clerked in” in the admin area within an “external zone”.

They will be asked to wait in the external waiting area, still within this “external zone”.

When appropriate they will be taken to a “transitional zone” for clinical review/procedure preparation. This may include clinical consultation, physical examination, changing into theatre gowns and for some patients bowel preparation. Consequently this “transitional zone” is seen as a critical design challenge as it must deliver a range of functions, whilst remaining as flexible as possible to prevent protracted waits and maintaining privacy and dignity at all times.

Once fully prepared, patients will be taken to the endoscopy procedure room where the endoscopy will be performed. Within the endoscopy room the patient, clinical staff and all required equipment (Including suitably cleansed endoscope) come together for the first time and the procedure is completed.

Upon completion of the procedure patients will be transferred to the “combined stage 1 / 2 recovery” area which will be where early recovery takes place whilst they are still lying on a trolley. Patient will have the opportunity to leave the trolley and get their clothes back on before proceeding to the discharge area.

Whilst within the recovery area it is frequently necessary to have a further clinical consultation/discussion which requires privacy before final discharge – which again underlines another important function of the “transitional zone”.

Once all care has been completed the patient will leave the unit via the same entrance, passing through the external waiting area if necessary.
6.3 Accommodation Requirements

6.3.1 Accommodation

A schedule of accommodation is included in Appendix E, and in summary as a minimum the new endoscopy service delivery model will require the following accommodation:

- 1 x Admission room
- 3 x Consulting interview room
- 1 X Discharge consulting room
- 3 x Endoscopy procedure rooms
- 1 X Bowel prep room with WC
- 1 x Clean equipment store
- 1 x 8 Bay recovery area
- 1 x Pantry
- Separate Male/Female changing rooms with WC
- Separate Male/Female staff changing rooms

This accommodation requirement is based on the data analysis which was undertaken by Buchan & Associates for the "Raigmore Day Services Project Supplementary Outline Business Case" and which is presented for reference under Section 3.8.

The factors considered in support of this accommodation requirement include

- Historical & future growth/demographic trends.
- Current treatment times, space, occupancy levels and planning assumptions.
- Waiting time targets
- Existing unmet needs
- The impact of staffing changes/redesign
- The impact of technology/new treatment regimes
7 Economic Case

7.1 Overview

This section summarises the options considered by the stakeholders, and the subsequent undertaking of an economic appraisal to establish the preferred option by way of a value for money review.

7.2 Consultations

Various consultations have taken place to consider options for the proposed investment. The following representatives have been consulted:

- Head of Estates - Eric Green
- Endoscopy Service Manager – Donna Janssens
- Clinical Lead for Endoscopy – James Docherty
- Senior Estates Engineering Adviser - Colin McEwen
- NHS Highland Clinical Adviser - Doreen Bell
- NHS Highland Infection Control Representative - Alison McLean
- NHS Highland H&S Representative - Rosie Brunton
- Frameworks Partners and Advisers - including Turner & Townsend and Thomson Gray
- The Highland Council Building Control - Angus McGruer
- Scottish Fire and Rescue Service - Andy Knox
- Scottish Fire and Rescue Service (Inverness) - Derek Wilkie

7.3 Options

7.3.1 Background

A number of workshops were convened to explore the potential options available for improving the delivery of the endoscopy service, and bringing it in line with current healthcare standards as set out in Section 5.4. Following discussion and consideration 3 options were identified as providing a potential way forward as summarised in the following section.

7.3.2 Selected Options for Review

The short list of potential options which emerged from the process and will be further investigated in this Business Case were as follows:
Option 1: Do Nothing

In this option, the endoscopy service would continue to be delivered from its existing location with no new investment to the facility or the service delivery. Only costs associated with backlog maintenance would be allowed.

JAG assessment highlighted the short comings in this option, and as detailed previously the current facility does not meet the standards set out in a number of areas.

Option 2: Expand in Current Location

This Option would involve the retention of the Endoscopy services within their current location (the ground floor of the Tower Block) but expansion within a final larger footprint (greater than Option 3) to accommodate the increased accommodation requirements.

This option would require the need to utilise some additional space on the ground floor currently taken by the Child Ward accommodation.

Option 3: Relocate into Ward 8

The endoscopy unit would relocate into the existing Ward 8 which would be refurbished to accommodate the endoscopy clinical service within the boundaries and constraints of the existing building footprint. Delivering this option will involve the Gynaecology/Breast Surgery service which is currently located in Ward 8 co-locating with the Obstetrics service located in Ward 9. This will also require the accommodation of 21 administration staff in Ward 8.

7.4 Benefits Criteria

Key stakeholders have given further consideration to the Investment Objectives (as described in Section 4) in order to establish the relative value of each objective, and to be used as a basis of comparison between respective options. The following table summarises the work undertaken:
## Reconfiguration of Endoscopy Services
### Standard Business Case

<table>
<thead>
<tr>
<th><strong>Investment Objective</strong></th>
<th><strong>Relative Value</strong></th>
<th><strong>Main Beneficiaries</strong></th>
<th><strong>Potential Criteria</strong></th>
<th><strong>Benefits</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Provide facilities which significantly reduce risk of spread of infection compared to status quo</td>
<td>High</td>
<td>Staff &amp; Patients</td>
<td>How well will the option have a positive impact on infection control</td>
<td></td>
</tr>
<tr>
<td>2. Effective and efficient clinical services</td>
<td>High</td>
<td>Patients</td>
<td>How well does the option meet key strategic objectives and part of the NHS Highland Delivery plan</td>
<td></td>
</tr>
<tr>
<td>3. To provide optimal adjacencies between the rooms to allow optimal patient flow.</td>
<td>High</td>
<td>Staff &amp; Patients</td>
<td>How well does the option improve adjacencies to facilitate improve service flow</td>
<td></td>
</tr>
<tr>
<td>4. Provide easy access to services (closer to point of requirement)</td>
<td>Medium</td>
<td>Patients</td>
<td>How well will the option provide good accessibility for patients – physical, transport, availability of services.</td>
<td></td>
</tr>
<tr>
<td>5. Retention and recruitment of staff</td>
<td>Medium</td>
<td>Staff</td>
<td>How well will the option improve working conditions.</td>
<td></td>
</tr>
<tr>
<td>6. Quality and functional efficiency of physical environment</td>
<td>Medium</td>
<td>Staff &amp; Patients</td>
<td>Quality of the environment for patients and staff including functional suitability, natural light &amp; ventilation, safety &amp; security, statutory and environmental compliance.</td>
<td></td>
</tr>
<tr>
<td>7. Service capacity once the option is implemented</td>
<td>Medium</td>
<td>Staff &amp; Patients</td>
<td>Will the option allow the service to treat additional patients</td>
<td></td>
</tr>
<tr>
<td>8. Continuity of Service during implementation of the option.</td>
<td>Medium</td>
<td>Staff &amp; Patients</td>
<td>Disruption to the service during the course of the refurbishment works must be minimised.</td>
<td></td>
</tr>
</tbody>
</table>
7.5 Non-Financial Benefits Appraisal

7.5.1 Introduction

Following consultation with the project stakeholders, a set of non-financial benefits criteria was developed based on:

- The project objectives
- The benefits criteria used for similar projects

The workshop identified eight benefits criteria which were then applied by the stakeholder group to score the options. The six benefits criteria are illustrated in the table included within section 7.4, namely:

- How well will the option have a positive impact on infection control.
- How well does the option meet key strategic objectives and part of the NHS Highland Delivery plan.
- How well does the option improve adjacencies to facilitate improve service flow.
- How well will the option provide good accessibility for patients - physical, transport, parking, availability of services.
- How well will the option improve working conditions.
- Quality of the environment for patients and staff including functional suitability, natural light & ventilation, safety & security, statutory and environmental compliance.
- Will the option allow the service to treat additional patients.
- Disruption to the service during the course of the refurbishment works must be minimised.
- New developments must meet NHS Highland asset management objectives to use space efficiently.

The scoring of the options against these benefits criteria is designed to assess the extent to which the potential solutions meet the objectives of the proposed investment.

Scoring provides a means to assess how each of the options compares both in relation to the optimal position (i.e. meeting all the criteria on its own merits as well as in relation to the other options) provides a means by which the overall value for money delivered by the short-listed options can be assessed.
7.5.2 Scoring the Options

A scoring assessment was convened on 10th July 2013 with the Endoscopy Services staff lead. The results of the assessment were subsequently submitted to key stakeholders and endorsed by all parties.

The scoring assessment delivered the following results:

<table>
<thead>
<tr>
<th>Option</th>
<th>Weighted Benefits Score</th>
<th>Consensus Optimistic Pessimistic</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Do Nothing</td>
<td>240</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>2 Expand in current location</td>
<td>630</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3 Relocate into Ward 8</td>
<td>755</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

In summary, the non-financial benefits assessment has shown the following:

- As would be expected Option 1 (no change) by definition completely fails to meet the investment objectives noted in Section 4 and is not a viable option.
- Option 2 (retain and expand in current location) obtains a score of 670. This reflects the fact that the existing location would provide a larger ward area for refurbishment however disruption would be substantial during the works.
- Option 3 (relocate to Ward 8) substantially delivers the best value in terms of the non-financial benefits and there is a consensus that this is the preferred option.

7.6 Cost Estimates, including Assumptions

7.6.1 Overview

This section presents the economic implications of the investment (both capital and revenue) and also provides the economic appraisal of the short-listed options. The outputs from the cost models identified in this section form the basis of both the financial and economic appraisals of the short-listed options. Each of the short-listed options has been costed with due consideration of the changes associated with each option and any changes in cost have been clearly identified and explained. The following categories of cost have been considered for each option.

7.6.2 Capital Cost Estimate for Each Option

The capital costs have been considered and prepared using the capital requirement of each option which has been identified by the external professional cost advisors. These capital costs have been calculated using the brief and plans for each option. The following summarises the main capital assumptions.
Costs have been calculated at March 2013 (Q1 2013) prices.

Capital costs have been prepared using Healthcare Premises Cost Guides (HPCG's) adjusted to reflect the type and nature of the works.

Include building, infrastructure and service costs.

Includes equipment within the estimates for group 1 & fitting of equipment in group 2 but it has been assumed that most equipment will transfer with the staff moving around the building.

Includes estimates for all fees.

Quantifiable risk contingency allowance.

VAT has been added to the total capital cost but there may be an element that is recoverable on certain items of refurbishment.

VAT recovery is excluded from the costs with the exception of design fees which will be fully recoverable.

Details of the development of the capital costs for each option can be made available upon request. In summary, following adjusted capital costs, estimates (including VAT) were established for each option as follows:

<table>
<thead>
<tr>
<th>Option</th>
<th>Initial Capital Cost Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Option 1 – Do Nothing</td>
<td>No capital cost</td>
</tr>
<tr>
<td>Option 2 – Expand in Current Location</td>
<td>£1,990,000</td>
</tr>
<tr>
<td>Option 3 – Relocate into Ward 8</td>
<td>£1,759,000</td>
</tr>
</tbody>
</table>

### 7.6.1 Recurrent Revenue Costs

This section identifies the recurrent revenue costs associated with each of the short-listed options.

A baseline cost for the current service has been calculated and used as a benchmark against which any changes could be considered – this is the revenue cost associated with the ‘do nothing’ in Option 1.

In this financial case, the recurrent revenue costs include all costs associated with running the current services with the existing staff within the constraints of the ground floor of the tower block (Surgical Endoscopy) and Ward 11 (Medical Endoscopy) facilities. The costs include capital charges (depreciation) where appropriate.
Details on the assumptions used in the models for revenue forecasts, and the results for the recurrent pay costs, non-pay costs, property costs and property income are included in Appendix D. A summary table is included below for reference which includes all of the various streams of revenue costs, and therefore the overall recurring revenue impact of the options is:

<table>
<thead>
<tr>
<th>Summary of recurrent revenue impact £000’s</th>
<th>Option 1 – Do Nothing</th>
<th>Option 2 – Expand in Current Location</th>
<th>Option 3 – Relocate into Ward 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capital Charges</td>
<td>0.0</td>
<td>42.9</td>
<td>37.9</td>
</tr>
<tr>
<td>Pay costs</td>
<td>758.6</td>
<td>777.4</td>
<td>777.4</td>
</tr>
<tr>
<td>Non Pay Costs</td>
<td>460.5</td>
<td>460.5</td>
<td>460.5</td>
</tr>
<tr>
<td>Property costs</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Gross Recurrent Costs</strong></td>
<td><strong>1,219.1</strong></td>
<td><strong>1,275.8</strong></td>
<td><strong>1,275.8</strong></td>
</tr>
<tr>
<td>Income</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Net Recurrent costs</strong></td>
<td><strong>1,219.1</strong></td>
<td><strong>1,275.8</strong></td>
<td><strong>1,275.8</strong></td>
</tr>
</tbody>
</table>

The costs shown in the above table relate to the first full year of operating.

Option 1 has the lowest net revenue cost of £1,219.1 with Option 2 & 3 being equal second with a cost of £1,275k although the difference from option 1 is marginal and due to the capital charge calculation as pay and non pay costs are the same across these two options.

### 7.6.2 Non-Recurrent Revenue Costs

A number of non-recurrent (transitional) costs have been identified to allow the options to go ahead.

Exact costs are difficult to calculate and have not been produced fully at this time although the following table identifies the issue and notes the best estimate of cost available at this time. The fourth item (alternative temporary location for work to continue in Option 2) is likely to be the most significant cost that could be required.
### Reconfiguration of Endoscopy Services
#### Standard Business Case

#### 7.6.3 Capital Charges

The capital charges for the options in this case are based on the estimates for capital expenditure adjusted for optimism bias with a different asset life attached to each of the separate elements of the capital investment - 60 years for the building shell, 40 years for service installations and 23 years for external installations. There are no land changes in any of the options.

In line with the current guidance, capital charges do not include a rate of return calculation.

The results of the capital charge calculations are summarised below:

<table>
<thead>
<tr>
<th>Capital Charges £000’s</th>
<th>Option 1 – Do Nothing</th>
<th>Option 2 – Expand in Current Location</th>
<th>Option 3 – Relocate into Ward 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depreciation</td>
<td>0.0</td>
<td>42.9</td>
<td>37.9</td>
</tr>
</tbody>
</table>
The ‘do nothing’ attracts the lowest capital charges as a result of there being no capital spend associated with this option – any backlog maintenance work required is likely to be non-recurrent revenue. Option 3 (relocate to Ward 8) is the next lowest at £37.9k per annum.

7.6.4 Optimism Bias

Optimism bias is the systematic tendency for appraisers to be overly optimistic about the key elements of the project.

The two main reasons for optimism bias in estimating capital costs are:

- Limited definition of the scope and objectives of the proposals due to incomplete identification of the requirements resulting in the possible omission of costs at the initial stages of the project
- Slippage in the timescales of the project with schedules not being maintained

These factors are quite separate from the quantifiable risk contingencies which are built into the estimated capital costs for each option which relate to the construction risks associated with each option.

An exercise was undertaken to calculate optimism bias using the HM Treasury guidance with the mitigated level of bias for each option being applied to the capital figures shown in the above table. The results of this Optimism Bias exercise are included in Appendix D for reference.

7.7 Risk Workshop and Assessment

7.7.1 Overview

The key stakeholders have undertaken an initial Risk Workshop to establish the principal risks associated with the proposed investment.

7.7.2 Risk Types

The key stakeholders have undertaken an initial Risk Workshop to establish the principal risks associated with the proposed investment. Whilst there will be many risks to the project, the key stakeholders have considered what they perceive to be the main risks which are considered to contribute collectively to the majority of the risk value (approximately 80%). A summary of the key risks identified is provided below:

- Use of existing ventilation/new ventilation (where appropriate) - confirmation and strategy and scope, and any works associated with using the existing ventilation such as cleaning.
- Lack of full access to Ward 8 due to clinical use prevents a full inspection of the existing services and building fabric/service risers etc. to inform the redesign.
- Existing building fabric/condition is not as assumed, for example the windows, floor screeds. Additional costs could be incurred.

- Capacity of existing IT passive equipment to cater for additional IT demands.

- The isolation of electrical boards and fire alarms may affect other areas beyond Ward 9.

### 7.8 Economic Appraisal

#### 7.8.1 Overview

A discounted cash flow for each of the three options has been undertaken over 40 years using a discount rate of 3.5% for years 1 to 29 and 3.0% for years 30 onwards in line with the guidance within the HM Treasury green book and from SGHD. The Net Present Value (NPV) and Equivalent Annual Cost (EAC) have been calculated for each option.

The EAC is used as a comparison of options where there are different life spans as the output is an annual figure which is easily compared.

<table>
<thead>
<tr>
<th>NPV &amp; EAC £000’s</th>
<th>Option 1 Do Nothing</th>
<th>Option 2 Expand in Current Location</th>
<th>Option 3 Relocate into Ward 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net Present Value (NPV)</td>
<td>40,474.3</td>
<td>38,034.9</td>
<td>37,852.1</td>
</tr>
<tr>
<td>Equivalent Annual Cost (EAC)</td>
<td>1,655.1</td>
<td>1,555.3</td>
<td>1,547.9</td>
</tr>
<tr>
<td>Ranking</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

Analysis of the net present values (NPV) indicates that Option 3 produces the favoured option in terms of EAC. Option 1 is the least favourable and this reflects the higher lifecycle costs associated with doing nothing.

#### 7.8.2 Value for Money Analysis (VfM) - Cost Per Benefit Point

Value for money (VfM) is defined as the optimum solution when comparing qualitative benefits to costs. An analysis (below) has been performed on an economic annual costs basis in line with HM Treasury guidance. The VfM analysis compares the cost per benefit point of the options. The option that is preferable is the option that demonstrates the lowest cost per benefit point. The cost per benefit point is listed in the end column – VfM Economic Ranking.
7.8.3 Summary and Conclusions

Section 7 has set out in detail, the method by which the potential options were identified through consultation and subsequently assessed and scored against non-financial benefits before the cost impact of the options was compiled. In summary:

- Option 1 does not have any cost attached and does not deliver any benefits.
- Option 2 does deliver benefits on a qualitative assessment however the capital cost is high and the benefits delivered are less than Option 3.
- Option 3 has scored highest of the 3 potential options on a non-financial and a financial assessment.

The conclusions to be drawn from the value for money analysis are as follows:

The ‘do nothing’ option 1 does have the lowest capital requirement, recurrent and non-recurrent revenue impact but the highest lifetime costs. This option is not capable of delivering the objectives of the development requirements and is only used as a baseline for measuring the other options.

Option 3 has the second lowest capital requirement and the second lowest recurrent revenue impact. The non-recurrent revenue impact is approximate only but the £15k identified for Option 3 will be significantly less than the non-recurrent cost of providing an alternative location within Option 2 to allow the works to go ahead. Option 3 also has the lowest lifetime costs.
8 Development of the Preferred Option

8.1 Summary Description

The scoring exercises undertaken on the options, as detailed in Section 7 identified that Option 3 is the preferred option. There is a clear preference in the non-financial benefits scoring, and the capital costs incurred are deemed to provide Value for Money.

Option 3 comprises:

- The full refurbishment of Ward 8 (currently Gynaecology / Breast surgery) to create the new endoscopy services unit within the boundaries and constraints of the existing building footprint.

- The Gynaecology/Breast Surgery service (which is currently located in Ward 8) co-locating with the Obstetrics service located in Ward 9. This will require a number of building fabric and services changes to Ward 9 and 10 to facilitate the move.

8.2 The Site

The site identified for the preferred option is Ward 8 which is located on the ground floor of Raigmore Hospital, and is currently occupied by the Maternity service. The intention is that the Maternity service would vacate Ward 8 through utilisation of additional space in Ward 9, which is also part of the Maternity service.

8.3 Site and Constraints

The preferred site is Ward 8 which is within a live acute hospital. There are a number of constraints associated with working in this type of environment and significant disruption to patient care and staff must be avoided.

As Ward 8 is an option being considered for the location for the new endoscopy facility, a significant element of refurbishment will be required. It is intended that all new and existing installations (the latter where viable) would be compliant with the relevant guidance. It was noted that there would likely be certain derogations associated with existing services such as ventilation (not within the endoscopy rooms but within the administration and circulation areas) where the cost of replacement would be prohibitive in that it would divert funds away from the improvement of the core service provision.

8.4 Design Development

An initial layout of the planned new Endoscopy Services within Ward 8 has been produced to address the adjacency principles and ensure the floor plan considers ‘patient flow’ from the outset. An illustration of the plan is included below, and an accommodation schedule is included under Appendix E. Many of the site development constraints will still have to be addressed as the design develops.
The following factors still require to be investigated for this investment to correctly identify the most economical and efficient solution.

- Key considerations during the design stage will include:
  - Maximise use of existing fabric and services
  - Value engineering of proposals
  - Efficient construction techniques
  - Reduce construction duration
  - Minimise disruption on the Raigmore Hospital site

### 8.5 Clinical and Design Brief

#### 8.5.1 Design Requirements

The procedural nature of the endoscopy facility is often unpleasant therefore when designing the facilities, the patient experience should be considered along with that of their relatives and carers. The emphasis is on providing comfortable, pleasant but safe accommodation for patients. Particular care should be given to providing a therapeutic environment, whilst considering the needs of staff and the impact that working conditions have on job satisfaction, recruitment and retention.
All of the accommodation should be designed to support easy way finding and to make the endoscopy experience – which can be a worrying and traumatic event – as pleasant as possible whilst maintaining patient privacy, dignity and anonymity.

NHS Highland intend to adopt practices, within the new facilities which will enable patients who pass through the unit to follow a natural flow, meaning that:

- They will not routinely return to clinical areas that they have previously been in;
- Men and women in theatre clothing will never be awake in the same area;
- Patients in outdoor and theatre clothing will not mix; and
- Everyone in theatre clothing will not have to access/make use of any “public/shared areas” (including corridors and waiting spaces).

- It will incorporate a single reception area that will be staffed for an extended day, acting as a central focus for administrative functions and single point of contact for the unit.

- As decontamination is to be provided outwith the endoscopy unit it will be necessary to provide local storage cabinets for prepared endoscopes in sufficient quantity to complete a full days activity as well as the space required to manage immediate post use management/storage prior to transfer to the specified decontamination area. It is noted that the scope storage must meet the standards laid down in SHPN 13 (Part 3).

- The single reception area will include associated waiting space and WC facilities for relatives and visitors at provided in the area preceding Ward 8

- There will be discrete access points for different patient/staff groups, supplies, etc to prevent, as far as possible, inappropriate mixing of people, services, etc

- There will be a (limited) staff changing and rest areas as well as toilets & support areas as necessary

- There will be storage areas that may be provided centrally and/or throughout the facility as appropriate to minimise travel distances.

- There will be 3 x endoscopy rooms and the clinical areas required to support the level of endoscopy activity that can be managed through these 3 rooms

- All patient rooms and those areas where staff will spend longer periods of time must have access to natural light.
8.6 **Service Continuity – during the construction period and migration**

The procurement strategy and construction development will ensure that full existing endoscopy services are maintained throughout the project life cycle. This will be achieved through the development of the new services in Ward 8, with full commissioning and testing, prior to a final equipment and staff transfer from the existing endoscopy location.

8.7 **Workforce Strategy**

The provision of the new facility will lead to more efficient work practices and patient flow and there may be a potential need to add to the current endoscopy workforce. As a different configuration will be used for the work flow, one full time Band 2 employee may be required. Section 7.6.3 captures the revenue costs associated with the forecast additional workforce.

8.8 **Facilities Management**

NHS Highland Estates have been included in the process of options appraisals and benefits analysis. Their input into the scoring process and their contribution to the design development of the preferred option ensures that the new facility will align with the facilities management standards and processes which are in place at Raigmore Hospital.

The refurbishment of the existing fabric and services within Ward 8 will reduce the burden of maintenance on the NHS Highland Estates team through the installation of new products and materials where necessary.
9 Commercial Case

9.1 Introduction

A number of procurement options could be utilised. However, based on the nature of the development, and in consultation with NHS Highland it is proposed that the project will be most suitable, for a capital funded project using the HFS “Frameworks Scotland 2” contract, and using the New Engineering and Construction Contract (NEC 3 - Option A, C or E). Key features of the contract are:

- The parties are encouraged to work together as partners in an open and transparent approach and to ensure that this partnering ethos is maintained
- There is a ‘Gain/Pain share’ mechanism to act as an incentive to the delivery team, by rewarding good performance and penalising poor performance
- A clear and transparent system is ‘on the table’ to enable negotiation to take place on prices
- A level of ‘price certainty’ is determined
- All price thresholds are set using quantitative risk analysis
- It is a variant of Maximum Price/Target Cost (MPTC) approach
- A key principle of the NEC3 Option C contract is the payment of ‘Defined Cost’ and an open book accounting philosophy. These require a robust, reliable and transparent system to record staff time and manage the invoicing process.
- Payments are made to the PSCP as per agreed Valuation Certificates. Costs are held as Assets under Construction until the asset becomes operational at which point the costs are transferred to completed assets and become subject to depreciation.

9.2 Contractual Arrangement

The contractual approach for delivery of this investment is based on the requirements of “Frameworks Scotland” using an NEC form of contract with the delivery of the design and construction of the scheme, by the PSCP.

The PSCP would be appointed on an Option C Target Price approach where the apportionment of risks and liability thereof, will be agreed prior to the finalisation of the Target Price.

This contractual approach has been implemented successfully on the ‘Fire precautions upgrade project’ which is underway in the Tower Block at Raigmore Hospital, and the contractual arrangements for the endoscopy service relocation will reflect these arrangements.
9.3 Risk

The proposed procurement route is to utilise the 'NEC Option C Target Price' contract. This contract provides a mechanism for risk management through the joint development of a 'target cost' by the PSCP and the PSC Cost Advisor. This Option utilises a priced risk register which

9.4 Implementation Timescales

Constraints with funding allocation require that the project is completed by April 2014. To achieve this, a design and construction programme will be developed by the PSCP and agreed with the project team once the Business Case has been approved and an instruction to proceed has been given.
10 Financial Case

10.1 Overview

This section presents the financial implications of the proposed investment both capital and revenue.

10.2 Summary of Capital Costs

The capital costs have been considered and prepared using the capital spend requirement of each option, as advised by the Thomson Gray, the PSC Cost Advisor on the project.

The anticipated Capital Cost for the proposed investment is £1.759m including risk and VAT.

10.3 Revenue Impact

The comparable analysis of the revenue costs associated with the preferred option demonstrates that there is a slight increase to the revenue costs in comparison with the baseline 'Do nothing’ option, however significant benefits are delivered as detailed in Section 7.

10.4 Summary of Other Recurring Revenue Costs

Full details of the recurrent revenue costs are available on request. This captures capital charges, recurrent pay costs, recurrent non-pay costs, recurrent property costs, and recurrent property income, where applicable.

Including all of the various streams of revenue costs, the overall recurring revenue impact of the options is detailed in Section 7.6.1.

10.5 Impact on Balance Sheet

The Capital Cost of the development will appear on the Board’s Balance Sheet as a Fixed Asset and will be depreciated over the life time of the asset.

10.6 Overall Affordability including VfM analysis

Value for money (VfM) is defined as the optimum solution when comparing qualitative benefits to costs. The VfM analysis compares the cost per benefit point of the short listed options. The option that is preferable is the option that demonstrates the lowest cost per benefit point and in this case this is Option 3.

Option 3, the preferred option is the most affordable option and the one that delivers the best value for money solution as identified in the table set out below.
## Reconfiguration of Endoscopy Services
### Standard Business Case

<table>
<thead>
<tr>
<th>Affordability and VfM analysis</th>
<th>Qualitative Benefits Score</th>
<th>Net Present Value (NPV) (£000’s)</th>
<th>Cost per Benefit point (£)</th>
<th>VfM Economic Ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Option 1 – Do Nothing</td>
<td>240</td>
<td>£40,474.3</td>
<td>168.6</td>
<td>3</td>
</tr>
<tr>
<td>Option 2 – Expand in Current Location</td>
<td>630</td>
<td>£38,034.9</td>
<td>60.3</td>
<td>2</td>
</tr>
<tr>
<td>Option 3 – Relocate into Ward 8</td>
<td>755</td>
<td>£37,852.1</td>
<td>50.1</td>
<td>1</td>
</tr>
</tbody>
</table>
11 Management Case

11.1 Overview

This section summarises the planned management approach setting out key personnel, the organisation structure and the tools and processes that will be adopted to deliver and monitor the scheme.

11.2 Summary of Procurement Method

As noted previously the preferred solution will be the procurement of the scheme under HFS Frameworks.

11.3 Project Management and Methodology

The approach to the management of the project is based on the principles and requirements of Health Facilities Scotland 'Frameworks Scotland' under an NEC 3 route. In brief, this involves the appointment of a Contractor or “Principle Supply Chain Partner” (PSCP) who will be responsible for delivery of the scheme (including the design and construction) using his own supply chain.

NHS Highland will appoint an independent Project Manager and Cost Manager to manage the contract under NEC 3 and provide advisory services in respect of the scheme being delivered by the PSCP.

11.4 Project Framework

![Project Framework Diagram]
11.5 **Communications and Engagement**

In terms of the development of the project to date, the Outline Business Case has been developed through consultations with a number of internal and external stakeholders as listed in Section 7.2. Communication with these stakeholders will continue through the project life cycle of the investment. Communication and engagement will also extend to sub-contractors, consultants and suppliers as appropriate to help deliver the investment in line with the strategy set out within this document.

11.6 **Project Programme**

A programme for the project has been developed based on assumptions regarding this Business Case approval. A summary of the identified target dates is provided as follows:

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Submission of Business Case</td>
<td>July 2013</td>
</tr>
<tr>
<td>Approval of Business Case</td>
<td>August 2013</td>
</tr>
<tr>
<td>Start on site (Ward 8)</td>
<td>October 2013</td>
</tr>
<tr>
<td>Completion date</td>
<td>April 2014</td>
</tr>
<tr>
<td>Services Commencement</td>
<td>April 2014</td>
</tr>
</tbody>
</table>

11.7 **Reporting**

The Project Manager will submit monthly reports to NHS Highland for review and discussion at the Asset Management Group meetings. The report will encompass:

- Executive summary highlighting key project issues
- A review of project status including:
  - Programme and Progress
  - Key Issues
  - Cost
  - Health and Safety

Project Team Meetings will be scheduled monthly to maintain clear communication amongst the stakeholders, and provide a forum to discuss any arising issues and provide enough information to allow key decision makers to direct the project. Further to this, the Cost Advisor will submit monthly cost reports to record cost movement against projected cash flow.
11.8 **Change Management**

In line with standard project management processes, the Project Manager will be responsible for maintaining strict control of the project and managing changes as they arise. This will be managed in close communication with the NHS Highland representatives, and with reference to the Cost Adviser to ensure budgetary implications are considered.

A “change control process” will be employed to initiate, monitor and control change (and associated costs). This will include the use of change control forms to seek approval from NHS Highland, for changes before such changes are implemented, Instructions shall be issued to the PSCP where appropriate and in accordance with the contract.

11.9 **Risk Management**

The key stakeholders have undertaken an exercise to establish the key risks associated with the proposed investment. Key business, service, environmental and financial risks have been established. A risk register will be developed, based on the preferred option. It is intended that detailed consultation will take place to understand the clear allocation of risk between the parties and the required actions.

The project team will manage these risks through a series of workshops to establish, monitor and mitigate these risks as the project develops.

The standard format for the Framework Scotland Joint Project Risk Register will be implemented as a Risk Management tool and register.

11.10 **Post Project Evaluation**

Project evaluation provides an opportunity for the project team and stakeholder groups to reflect on the lessons learnt at various stages of the project. The purpose of such evaluation is to apply the positive aspects of the project to future projects, and likewise remove where possible the negative aspects or aim to mitigate the impact where these cannot be removed. The evaluation will review the project holistically and will include discussion on the following:

- Comments on consultants appointments
- Comment on project schedule
- Comments on cost control
- Change management system
- Major source(s) of changes/variants
- Overall risk management performance
- Overall financial performance
• Communication issues

• Organisational issues

The post project evaluation exercise will ideally be facilitated through workshops and open and frank discussions with the project stakeholders, the outcome of which will be documented in a report to NHS Highland, following 6 months of beneficial occupation of the new facility.
Conclusion

Independent and objective assessments of the current Endoscopy Service being delivered at Raigmore Hospital in line with the guidelines published by the Joint Assessment Group on GI Endoscopy (JAG) have highlighted that the endoscopy service at Raigmore Hospital falls short of acceptable standards. Although the achievement of JAG standards is not a regulatory requirement or a directive issued by the NHS, it is an accurate reflection of the service delivery quality expected, and a benchmark for endoscopy units throughout the UK.

Further to the JAG standards, Sections 1 – 6 of this Business Case clearly demonstrates that the current endoscopy service does not meet the strategic objectives of NHS Highland, and this situation will be compounded over the coming years as the anticipated population increase in the Greater Inverness area increases, with a consequential rise in demand for endoscopy procedures.

Investment is necessary to meet the acceptable standards in endoscopic procedures, and to ensure quality in the delivery of patient care, patient dignity and privacy in the endoscopy unit.

Following the decision to improve the endoscopy service, a comprehensive review of the available options was undertaken, to assess and score each potential option and form a clear and transparent consensus as to what the preferred investment would be.

The preferred option, Option 3 (Re-locate into Ward 8) is detailed within this business case document. The process undertaken to arrive at this option, whilst ensuring that value for money is delivered through the investment and the stated benefits are realised, is detailed in Sections 7 – 11.

The benefits which will be delivered through the resultant investment will provide facilities which will enable the endoscopy unit to achieve compliance with modern clinical standards.

Subject to approval of this Business Case, this investment project will be initiated by NHS Highland in line with the programme dates set out in Section 11.6 to achieve the financial spend profile which requires that the funding is expended by April 2014.
Appendix A – Reconfigured Endoscopy Layout
### Appendix B – Accommodation Schedule

<table>
<thead>
<tr>
<th>Room Name</th>
<th>Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consulting Interview</td>
<td>8.3</td>
</tr>
<tr>
<td>Reception / Waiting</td>
<td>39.9</td>
</tr>
<tr>
<td>Reception / Staff Base</td>
<td>29.0</td>
</tr>
<tr>
<td>Records / Store</td>
<td>8.3</td>
</tr>
<tr>
<td>Bowel Prep Room</td>
<td>15.8</td>
</tr>
<tr>
<td>Bowel Prep WC</td>
<td>5.0</td>
</tr>
<tr>
<td>Consulting Room 1</td>
<td>9.1</td>
</tr>
<tr>
<td>Consulting Room 2</td>
<td>9.2</td>
</tr>
<tr>
<td>Consulting Room 3</td>
<td>9.1</td>
</tr>
<tr>
<td>Office</td>
<td>11.8</td>
</tr>
<tr>
<td>Equipment Store</td>
<td>11.7</td>
</tr>
<tr>
<td>Male Changing</td>
<td>14.8</td>
</tr>
<tr>
<td>Male Changing WC</td>
<td>3.6</td>
</tr>
<tr>
<td>Male Waiting / Holding</td>
<td>7.6</td>
</tr>
<tr>
<td>Female Changing</td>
<td>15.4</td>
</tr>
<tr>
<td>Female Changing WC</td>
<td>3.6</td>
</tr>
<tr>
<td>Female Waiting / Holding</td>
<td>8.6</td>
</tr>
<tr>
<td>Clean Equipment Store</td>
<td>17.3</td>
</tr>
<tr>
<td>Dirty Equipment Store</td>
<td>4.6</td>
</tr>
<tr>
<td>Staff Room</td>
<td>10.8</td>
</tr>
<tr>
<td>Nurse Base</td>
<td>4.7</td>
</tr>
<tr>
<td>Nurse Base Store</td>
<td>2.7</td>
</tr>
<tr>
<td>Disposal</td>
<td>4.8</td>
</tr>
<tr>
<td>OSR</td>
<td>5.6</td>
</tr>
<tr>
<td>Female Staff Changing</td>
<td>11.5</td>
</tr>
<tr>
<td>Female Staff Shower / WC</td>
<td>4.5</td>
</tr>
<tr>
<td>Male Staff Changing</td>
<td>5.8</td>
</tr>
<tr>
<td>Male Staff WC</td>
<td>2.3</td>
</tr>
<tr>
<td>Endoscopy 3</td>
<td>27.6</td>
</tr>
<tr>
<td>Endoscopy 2</td>
<td>29.8</td>
</tr>
<tr>
<td>Endoscopy 1</td>
<td>27.3</td>
</tr>
<tr>
<td>Waste Store</td>
<td>9.8</td>
</tr>
<tr>
<td>Recovery</td>
<td>95.0</td>
</tr>
<tr>
<td>Pantry</td>
<td>4.1</td>
</tr>
<tr>
<td>Recovery WC / Shower</td>
<td>5.8</td>
</tr>
<tr>
<td>Recovery WC</td>
<td>2.1</td>
</tr>
</tbody>
</table>

**Total Net Area** 505.8

**GROSS TOTAL** 720.0
## Reconfiguration of Endoscopy Services

### Optional Appraisal Weighted Scores

<table>
<thead>
<tr>
<th>Option Nr</th>
<th>Option Description</th>
<th>Score</th>
<th>Weigh</th>
<th>Total</th>
<th>% of Potential Max Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Do Nothing</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>2</td>
<td>Expand in current location</td>
<td>3</td>
<td>2</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>168</td>
<td>30</td>
<td>46</td>
<td>100</td>
</tr>
<tr>
<td>3</td>
<td>Relocate into Ward 8</td>
<td>3</td>
<td>5</td>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>168</td>
<td>116</td>
<td>50</td>
<td>100</td>
</tr>
<tr>
<td>4</td>
<td>Maximum Points</td>
<td>10</td>
<td>10</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>202</td>
<td>150</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

### Weighed Scores

<table>
<thead>
<tr>
<th>Service Capacity once option is implemented</th>
<th>Continuity of Service during implementation of option</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>10</td>
<td>10</td>
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<tr>
<td>10</td>
<td>10</td>
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<tr>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>10</td>
<td>10</td>
</tr>
</tbody>
</table>

### Non-Financial Benefits Appraisal

Weighed Scores

- Do Nothing: 24%
- Expand in current location: 33%
- Relocate into Ward 8: 79%
- Maximum Points: 100%
Appraisal D – Financial & Economic Assessment

Section 7 – Financial and Economic Appraisal – v1 15th July 2013

7.6.1 Overview

This section presents the financial implications of investment (both capital and revenue) and also provides the economic appraisal of the short-listed options. The methodology and assumptions applied to derive the comparative cost implications of the options are outlined below.

The outputs from the cost models identified in this section form the basis of both the financial and economic appraisals of the short-listed options. The financial appraisal will be the driver for assessing affordability whilst the economic appraisal will determine value for money. It does not always follow that the option offering best value for money will also be affordable so that consideration of both appraisals is always necessary.

All current guidance has been followed in completing the financial and economic appraisals, principally the Scottish Capital Investment Manual (SCIM), the HM Treasury Green Book and supplementary guidance.

The financial model for each option considers a number of key outputs from other parts of the business case including workforce requirements, revised footprint and design and uses these outputs to estimate the capital and revenue implications for each of the options being considered.

Methodology for Financial Appraisal

Key Financial Assumptions

The financial model is driven by key assumptions which could have a material effect on the likely operating costs of the proposals eg

Endoscopy Services
Standard Business Case
47
Reconfiguration of Endoscopy Services
Standard Business Case

- Estimated capital costs
- Projected capital charges (depreciation)
- Additional revenue costs (pay, non-pay and income streams) associated with the services affected by all of the options
- Variations in revenue costs as a result of the options
- Variations in income streams

Costing Methodologies

Each of the short-listed options has been costed with due consideration of the changes associated with each option and any changes in cost have been clearly identified and explained.

The following categories of cost have been considered for each option –

<table>
<thead>
<tr>
<th>Baseline costs for –</th>
<th>Costs for each option –</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pay (workforce)</td>
<td>Pay (workforce)</td>
</tr>
<tr>
<td>Non Pay (associated with staff)</td>
<td>Non Pay (associated with staff)</td>
</tr>
<tr>
<td>Estates/Utilities (associated with the existing building)</td>
<td>Estates/Utilities (associated with the new building)</td>
</tr>
<tr>
<td>Income</td>
<td>Income</td>
</tr>
<tr>
<td>Capital Charges (depreciation)</td>
<td>Capital Charges (depreciation)</td>
</tr>
<tr>
<td>Phasing of costs</td>
<td>Phasing of costs</td>
</tr>
</tbody>
</table>

Short-listed Options
Option 1 - £'s
Option 2 - £'s
Option 3 - £'s

7.6.2 Capital Costs

The capital costs have been considered and prepared using the capital requirement of each option that has been identified by the external professional cost advisors. These capital costs have been calculated using the brief and plans for each option. The following table summarises the main capital assumptions.
**Reconfiguration of Endoscopy Services**  
**Standard Business Case**

**Capital cost assumptions**

- Costs have been calculated at March 2013 (Q1 2013) prices
- Include building, infrastructure and service costs
- Includes some equipment within the estimates but it has been assumed that most equipment will transfer with the staff moving around the building
- Includes estimates for all fees
- Quantifiable risk contingency is included
- Optimism Bias has been considered but due to the stage of the project has been fully mitigated
- VAT has been added to the total capital cost but there may be an element that is recoverable on certain items of refurbishment

Having applied the costing assumptions and methodologies to the options, the resultant capital expenditure, including VAT but excluding Optimism Bias, is shown below

**Capital cost summary (£000’s)**

<table>
<thead>
<tr>
<th></th>
<th>Option 1 – Do Nothing</th>
<th>Option 2 – Current location with expansion</th>
<th>Option 3 – Relocate to Ward 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Floor area ( £000’s)</td>
<td>0.0</td>
<td>839</td>
<td>740</td>
</tr>
<tr>
<td>Sub Total – Works costs</td>
<td>0.0</td>
<td>1,363.0</td>
<td>1,189.0</td>
</tr>
<tr>
<td>Fees ( £000’s)</td>
<td>0.0</td>
<td>270.4</td>
<td>248.0</td>
</tr>
<tr>
<td>Risk ( £000’s)</td>
<td>0.0</td>
<td>70.0</td>
<td>70.0</td>
</tr>
<tr>
<td>Sub Total ( £000’s)</td>
<td>0.0</td>
<td>1,703.4</td>
<td>1,507.0</td>
</tr>
<tr>
<td>Inflation (nil)</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Total excl VAT ( £000’s)</td>
<td>0.0</td>
<td>1,703.4</td>
<td>1,507.0</td>
</tr>
<tr>
<td>VAT 20% ( £000’s)</td>
<td>0.0</td>
<td>286.6</td>
<td>251.8</td>
</tr>
<tr>
<td>TOTAL ( £000’s)</td>
<td>0.0</td>
<td>1,990.0</td>
<td>1,758.8</td>
</tr>
</tbody>
</table>

**Optimism Bias**

Optimism bias is the systematic tendency for appraisers to be overly optimistic about the key elements of the project. The two main reasons for optimism bias in estimating capital costs are
- Limited definition of the scope and objectives of the proposals due to incomplete identification of the requirements resulting in the possible omission of costs at the initial stages of the project
- Slippage in the timescales of the project with schedules not being maintained
Reconfiguration of Endoscopy Services
Standard Business Case

These factors are quite separate from the quantifiable risk contingencies which are built into the estimated capital costs for each option which relate to the construction risks associated with each option.

In this exercise, optimism bias has been calculated using the HM Treasury guidance and the mitigated level of bias for each option has been applied to the capital figures shown in the above table.

This procedure includes –
• Setting the upper bound for optimism bias to be applied to the capital costs
• Determining the extent of mitigation of the upper bound in light of the specific factors that relate to this project.

Full details of the optimism bias assessments for the preferred option can be seen in the calculations (which are available upon request) and are shown in the format prescribed within the HM Treasury supplementary guidance. The assessment for the other option produced the same calculation for optimism bias.

In setting the upper bound, the following range of features have been assessed to determine the initial level of optimism bias to be applied –
• Build complexity
• Location
• Scope of scheme
• Extent of any service change
• Likely gateway review risk category

A summary of the upper bound assessment is provided in the table below.

<table>
<thead>
<tr>
<th>Contributory Factor</th>
<th>Option 1 – Do Nothing</th>
<th>Option 2 – Current location with expansion</th>
<th>Option 3 – Relocate to Ward 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Build complexity</td>
<td>3.0%</td>
<td>3.0%</td>
<td>3.0%</td>
</tr>
<tr>
<td>Location</td>
<td>6.0%</td>
<td>6.0%</td>
<td>16.0%</td>
</tr>
<tr>
<td>Scope of Scheme</td>
<td>1.0%</td>
<td>1.0%</td>
<td>1.0%</td>
</tr>
<tr>
<td>Extent of Service Changes</td>
<td>5.0%</td>
<td>5.0%</td>
<td>5.0%</td>
</tr>
<tr>
<td>Gateway RPA category</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td><strong>Upper Bound</strong></td>
<td><strong>15.0%</strong></td>
<td><strong>15.0%</strong></td>
<td><strong>25.0%</strong></td>
</tr>
</tbody>
</table>

The same result for the upper bound assessment of 15% has been found for options 1 & 2 with option 3 result being 25%. This is as a result of the options being broadly similar in their requirements, timing and phasing. The difference for Options 3 is that there is a far larger percentage of refurbishment required of Ward 8 to allow the move into it.

It is possible to mitigate optimism bias through a detailed assessment of the full range of factors set out in the supplementary guidance for mitigating optimism bias on health projects.

The final level of optimism bias and the extent to which the upper bound has been mitigated is shown in the table below.

<table>
<thead>
<tr>
<th>Mitigation of Optimism Bias</th>
<th>Endoscopy Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard Business Case</td>
<td>50</td>
</tr>
</tbody>
</table>
Reconfiguration of Endoscopy Services
Standard Business Case

<table>
<thead>
<tr>
<th></th>
<th>Option 1 – Do Nothing</th>
<th>Option 2 – current location with expansion</th>
<th>Option 3 – relocate to Ward 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Option specific upper bound</td>
<td>15.0%</td>
<td>15.0%</td>
<td>25.0%</td>
</tr>
<tr>
<td>Mitigation factor</td>
<td>100.0%</td>
<td>100.0%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Mitigated Upper Bound</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
</tbody>
</table>

The level of mitigation of 100% is the same for all options and this reflects the fact that this project has been in discussion for a significant length of time and that the plans and designs are in place and fully agreed with all stakeholders and contractors are known and appointed.

The resulting optimism bias adjustments have been applied to the capital costs for each of the options and the revised capital estimates are then used to calculate the capital charges associated with each option. These revised estimates of cost are also used within the economic appraisal.

The updated capital costs are shown below.

<table>
<thead>
<tr>
<th>Capital Costs including Optimism Bias - £000’s</th>
</tr>
</thead>
<tbody>
<tr>
<td>Option 1 – Do Nothing £000’s</td>
</tr>
<tr>
<td>Option 2 – Current location with expansion £000’s</td>
</tr>
<tr>
<td>Revised Capital costs incl optimism bias</td>
</tr>
</tbody>
</table>

7.6.3 Recurrent Revenue Costs

This section identifies the recurrent revenue costs associated with each of the shortlisted options.

A baseline cost for the current service has been calculated and used as a benchmark against which any changes could be considered – this is the revenue cost associated with the ‘do nothing’ in Option 1.

In this financial case, the recurrent revenue costs include all costs associated with running the current services with the existing staff within the constraints of the ground floor of the tower block (Surgical Endoscopy) and Ward 11 (Medical Endoscopy) facilities. The costs include capital charges (depreciation) where appropriate.

The assumptions used in the models for revenue costs for each of the options are shown below.
Revenue assumptions

- Costs have been calculated at 2013 prices and using 2013/14 budgets
- Where relevant, whole time equivalents have been considered for staffing
- Pay costs are inclusive of employer on-costs and allowances for leave.
- VAT is included where appropriate
- Non pay costs are based on the current cost per bed for consumables
- Utility costs and non domestic rates have been excluded from all options as there is no change to the total floor area involved and therefore no increase/decrease in costs is expected
- Capital charges are based on the capital cost inclusive of the optimism bias calculations
- There are no income streams associated with the options

Capital Charges

The capital charges for the options in this case are based on the estimates for capital expenditure adjusted for optimism bias with a different asset life attached to each of the separate elements of the capital investment - 60 years for the building shell, 40 years for service installations and 23 years for external installations. There are no land changes in any of the options.

In line with the current guidance, capital charges do not include a rate of return calculation.

The results of the capital charge calculations are summarised below.

<table>
<thead>
<tr>
<th>Capital Charges - £000’s</th>
<th>Option 1 – Do Nothing £000’s</th>
<th>Option 2 – Current location with expansion £000’s</th>
<th>Option 3 – Relocate to Ward 8 £000’s</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depreciation</td>
<td>0.0</td>
<td>42.9</td>
<td>37.9</td>
</tr>
</tbody>
</table>

The ‘do nothing’ attracts the lowest capital charges as a result of there being no capital spend associated with this option – any backlog maintenance work required is likely to be non-recurrent revenue. Option 3 (relocate to Ward 8) is the next lowest at £37.9k per annum.

Recurrent Pay Costs

Within option 3, staff are moving from two locations in Raigmore - ground floor of the tower block and ward 11 - to an alternative location within a refurbished Ward 8 and therefore staff number changes are likely to be minimal. No reductions in staff are possible due to the co-location of these staff.

There are no changes required to the establishment for portering and domestic services staff as there is no change to the overall floor area of the hospital.

All staff costs are based on 2013/14 pay scales including employer’s costs and allowances for leave.
The results of the recurrent pay calculations are shown below.

<table>
<thead>
<tr>
<th></th>
<th>Option 1 - Do Nothing £000's</th>
<th>Option 2 - current location with expansion £000's</th>
<th>Option 3 - relocate to Ward 8 £000's</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surgical Endoscopy</td>
<td>690.9</td>
<td>690.9</td>
<td>690.0</td>
</tr>
<tr>
<td>Surgical Endoscopy - increase</td>
<td>0.0</td>
<td>18.8</td>
<td>18.8</td>
</tr>
<tr>
<td>Medical Endoscopy</td>
<td>67.7</td>
<td>67.7</td>
<td>67.7</td>
</tr>
<tr>
<td>Pay Total</td>
<td>758.6</td>
<td>777.4</td>
<td>777.4</td>
</tr>
</tbody>
</table>

**Recurrent Non Pay Costs**

The results of the recurrent non pay calculations are shown below – there are no differences between the options as there is no planned increase to the current activity levels.

<table>
<thead>
<tr>
<th></th>
<th>Option 1 - Do Nothing £000's</th>
<th>Option 2 - current location with expansion £000's</th>
<th>Option 3 - relocate to Ward 8 £000's</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surgical Endoscopy</td>
<td>437.9</td>
<td>437.9</td>
<td>437.9</td>
</tr>
<tr>
<td>Medical Endoscopy</td>
<td>22.6</td>
<td>22.6</td>
<td>22.6</td>
</tr>
<tr>
<td>Non Pay Total</td>
<td>460.5</td>
<td>460.5</td>
<td>460.5</td>
</tr>
</tbody>
</table>

**Recurrent Property Costs**

All property and utility costs (heat, light, power, rates, water rates, gas, oil and waste) associated with running the existing areas within the hospital have been excluded from all options as they are considered to be the same for all options – there is no overall increase to the floor area as a result of this project.

**Recurrent Property Income**

There is no income associated with the existing services or the new services.

**Summary**

Including all of the various streams of revenue costs, the overall recurring revenue impact of the options is shown below.
Reconfiguration of Endoscopy Services
Standard Business Case

Endoscopy Services
Standard Business Case

<table>
<thead>
<tr>
<th></th>
<th>Option 1 – Do Nothing £000’s</th>
<th>Option 2 – Current location with expansion £000’s</th>
<th>Option 3 – Relocate to Ward 8 £000’s</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capital Charges</td>
<td>0.0</td>
<td>42.9</td>
<td>37.9</td>
</tr>
<tr>
<td>Pay costs</td>
<td>758.6</td>
<td>777.4</td>
<td>777.4</td>
</tr>
<tr>
<td>Non pay costs</td>
<td>460.5</td>
<td>460.5</td>
<td>460.5</td>
</tr>
<tr>
<td>Property costs</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Gross recurrent costs</td>
<td>1,219.1</td>
<td>1,275.8</td>
<td>1,275.8</td>
</tr>
<tr>
<td>Income</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Net recurrent costs</td>
<td>1,219.1</td>
<td>1,275.8</td>
<td>1,275.8</td>
</tr>
</tbody>
</table>

The costs shown in the above table relate to the first full year of operating.

Option 1 has the lowest net revenue cost of £1,219.1 with Option 2 & 3 being equal second with a cost of £1,275k although the difference from option 1 is due to the capital charge calculation as pay and non pay costs are the same across these two options.

Non-Recurrent Revenue Costs

A number of non-recurrent (transitional) costs have been identified to allow the options to go ahead.

Exact costs are difficult to calculate and have not been produced fully at this time although the following table identifies the issue and notes the best estimate of cost available at this time. The fourth item (alternative temporary location for work to continue in Option 2) is likely to be the most significant cost that could be required.

### Summary of Non-Recurrent Revenue Impact - £000’s

<table>
<thead>
<tr>
<th></th>
<th>Option 1 – Do Nothing £000’s</th>
<th>Option 2 – Current location with expansion £000’s</th>
<th>Option 3 – Relocate to Ward 8 £000’s</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staff costs (clinical) – to enable moves</td>
<td>0</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td>Staff costs (non clinical) – to enable moves</td>
<td>0</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td>? extended days of working prior to move to allow for ‘closure’ for move period</td>
<td>0</td>
<td>0</td>
<td>15.0</td>
</tr>
<tr>
<td>Alternative working location during refurbishment of current</td>
<td>0</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td>Additional equipment/kit for third room if existing is non compatible (Olympus v Pentax)</td>
<td>0</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td>Total Non-recurrent costs</td>
<td>0</td>
<td>?</td>
<td>15.0</td>
</tr>
</tbody>
</table>

Economic Appraisal
A discounted cash flow for each of the three options has been undertaken over 40 years using a discount rate of 3.5% for years 1 to 29 and 3.0% for years 30 onwards in line with the guidance within the HM Treasury green book and from SGHD. The Net Present Value (NPV) and Equivalent Annual Cost (EAC) have been calculated for each option.

The EAC is used as a comparison of options where there are different life spans as the output is an annual figure which is easily compared.

The elements considered in the analysis are
- Initial capital expenditure for each option – exclusive of VAT but adjusted for optimism bias
- Any relevant lifecycle costs for building and engineering works
- Any relevant equipment lifecycle costs
- Total revenue costs for each option excluding capital charges
- Income
- Non-recurring revenue costs

The key assumptions used within the economic appraisal include

<table>
<thead>
<tr>
<th>Economic Appraisal Assumptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>The base year for the economic appraisal is the financial year 2013/2014</td>
</tr>
<tr>
<td>Economic appraisal period is over 40 years</td>
</tr>
<tr>
<td>Capital expenditure will be made over a single year (2013/2014)</td>
</tr>
<tr>
<td>Optimism bias has been included in the capital expenditure figures</td>
</tr>
<tr>
<td>All non-recurring costs are assumed to be incurred in Yr 1 as they are required at the time of the move to the new location for the Departments concerned</td>
</tr>
</tbody>
</table>

The results of the economic appraisal for the options are shown below.

<table>
<thead>
<tr>
<th>NPV and EAC outcomes - £000’s</th>
</tr>
</thead>
<tbody>
<tr>
<td>Option 1 – Do Nothing £000’s</td>
</tr>
<tr>
<td>Net Present Value (NPV)</td>
</tr>
<tr>
<td>Equivalent Annual Cost (EAC)</td>
</tr>
<tr>
<td>Ranking</td>
</tr>
</tbody>
</table>

The analysis of the net present values (NPV) indicates that Option 3 produces the favoured option in terms of EAC. Option 1 is the least favourable and this reflects the higher lifecycle costs associated with doing nothing.

Summary of Key Output from Financial and Economic Appraisals

The ‘do nothing’ option 1 does have the lowest capital requirement, recurrent and non-recurring revenue impact but the highest lifetime costs. This option is not capable of
delivering the objectives of the development requirements and is only used as a baseline for measuring the other options.

Option 3 has the second lowest capital requirement and the second lowest recurrent revenue impact. The non recurrent revenue impact is approximate only but the £15k identified for Option 3 will be significantly less than the non-recurrent cost of providing an alternative location within Option 2 to allow the works to go ahead. Option 3 also has the lowest lifetime costs.

10.1 Affordability

Option 3 has been identified as the preferred option as it meets the all of the overall benefits, affordability and economic tests to produce the best ‘Value for Money’ solution.

The preferred option 3 does require additional recurrent funding of £18k which will be funded from *within the current budget for Raigmore Hospital* and as a result the project is affordable from within the Board’s current Revenue Resource Limit.

**Impact on Balance Sheet**
The capital cost of this development will appear on the Health Board’s Balance Sheet as a Fixed Asset and will be depreciated over the life time of the asset.

**Impact on Statement of Comprehensive Net Expenditure**
For the preferred option 3, the additional recurrent revenue cost to be charged against the Health Board’s statement of operating costs is estimated at a net figure of £18k – this is for additional staff to work within the new layout of the Department where using the same staff across dirty and clean areas is no longer possible.

**Overall Affordability**
Option 3, the preferred option is the most affordable option and the one that delivers the best value for money solution as identified in the table set out below.

Value for money (VfM) is defined as the optimum solution when comparing qualitative benefits to costs. The VfM analysis compares the cost per benefit point of the short listed options. The option that is preferable is the option that demonstrates the lowest cost per benefit point and in this case this is Option 3.

<table>
<thead>
<tr>
<th>Option</th>
<th>Qualitative Benefits Score</th>
<th>Net Present Value (NPV) (£000’s)</th>
<th>Cost per Benefit point (£)</th>
<th>VfM Economic Ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Option 1 Do Nothing</td>
<td>358</td>
<td>£40,474.3</td>
<td>113.0</td>
<td>3</td>
</tr>
<tr>
<td>Option 2 – current location with expansion</td>
<td>349</td>
<td>£38,034.9</td>
<td>108.9</td>
<td>2</td>
</tr>
<tr>
<td>Option 3 – relocate to ward 8</td>
<td>622</td>
<td>£37,852.1</td>
<td>60.9</td>
<td>1</td>
</tr>
</tbody>
</table>

*Karen Underwood*
15th July 2013