Elective Care Project

NHS Grampian

Outline Business Case

23 July 2019

Contents

Introduction to the Outline Business Case

The Outline Business Case (OBC) for The Elective Care Project provides the information required to demonstrate to the Board and Capital Investment Group (CIG) that the Project is ready to proceed to the detailed design and Full Business Case (FBC) stage. It confirms that the Project represents value for money and that the procurement using the Frameworks Scotland 2 capital procurement model is likely to be efficient. It seeks to demonstrate that the Project will:

- meet the business need
- offer value for money
- be affordable and achieveable
- contribute to the Scottish Government's objectives

The OBC sets out the governance arrangements for the Project and the intended programme for procurement. There are six main sections of the OBC, as summarised below:

Executive Summary – provides a clear, concise summary of the key features of the OBC.

The Strategic Case – establishes the rationale and objectives for intervention, confirms that the rationale is still valid, confirms that the preferred option will offer solution(s) to the identified problem(s) and satisfies the Project's specific and Government objectives.

The Economic Case – documents the range of options that have been considered and provides information on the economic appraisal.

The Commercial Case – documents the procurement strategy and risks. Outlines preparation and arrangements for the construction contract.

The Financial Case – ascertains cost and funding options, requirements and implications.

The Management Case – outlines the Project's management plan for successful delivery, including identification of the delivery team and Project governance arrangements.

1. Executive Summary

1.1 Introduction

NHS Grampian, in response to the Scottish Government allocation of capital funding for the development of elective care centres in Scotland, undertook a broad process of engagement involving 22 clinical services, including primary care to ensure that the funding is targeted as effectively as possible.
The process developed a clear strategic context for transformation in elective care and a programme of redesign aimed at driving efficiency, and the delivery of “additionally” to meet anticipated need and demand for treatment in the future.

A preferred service solution was developed in the Initial Agreement, and identified the services that can most effectively benefit from capital investment as part of a longer term investment programme.

The Initial Agreement (IA) was approved by Scottish Government Health and Social Care Department (SGHSCD) on 26 September 2018 and no specific conditions were outlined in the approval letter.

The Outline Business Case has identified the development of the Elective Care Centre on the Foresterhill Campus with increase in imaging capacity at Dr Gray’s Hospital in Elgin.

These facilities will:

- Advance the agreed Foresterhill Campus Development Plan by creating an elective care focus on the Campus consistent with the clinical service blueprint
- Support the wider Elective Care Redesign Agenda
- Develop a “tiered” approach to elective care by stimulating the creation of community diagnostic and treatment hubs with the aim of retaining activity in the community and focusing the Elective Care Centre on activity which requires specialist skills and facilities
- Support the development of the NHS Grampian Strategy and Regional Workforce Plan

- Contribute to the reduction in backlog maintenance

1.2 The Case for Change

The vision for elective care is to deliver treatment and care as close to home as possible through the application of best practice, innovation and digital technology. Where treatment requires specialist skills and technology this will be undertaken in purpose designed facilities which will promote efficiency and the best patient experience possible.

In practical terms:

- High volume client interactions and procedures will be decentralised as far as possible – the ability to do this depends on clinical practice and technology at any particular time;Opportunities for diagnosis and treatment to be undertaken in the community will be exploited;
- Self management will be promoted to help individuals to manage their own conditions;
- Elective Care Centre facilities will be configured to support “one stop” treatment to minimise attendances and maximise efficiency; and
- Best practice standards of efficiency will be applied as a matter of course.

Table ES1: Services affected by this proposal

Services	
Urology	Day Surgery (General Surgery, ENT and OMFS)
Dermatology	Respiratory
Endoscopy	Radiology

The Strategic Case documents common service challenges which can be summarised as follows:

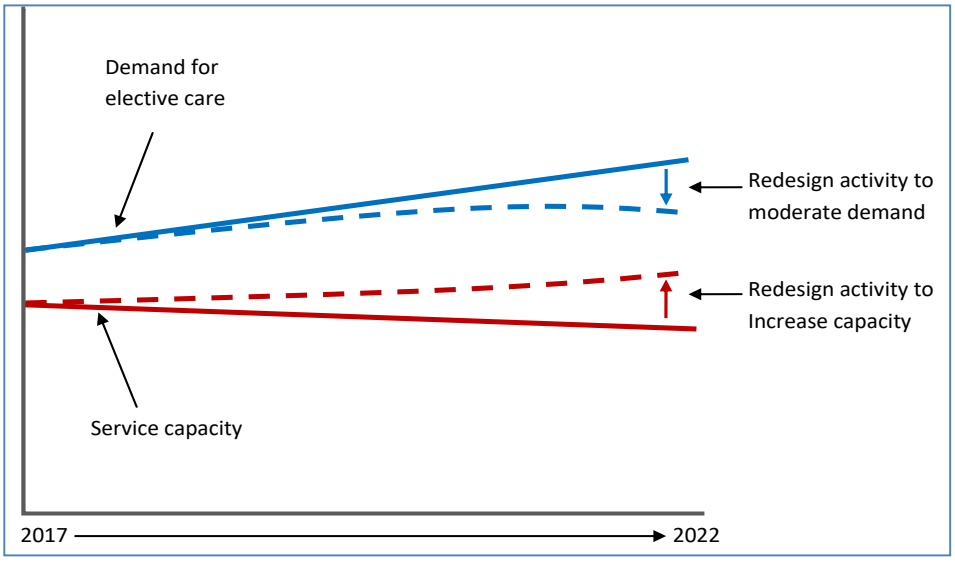
- Services are fragmented, not person-centred and result in avoidable attendances and admissions,
- Performance and quality targets are not being met, patients awaiting essential reviews are waiting beyond their recall dates,
- Physical capacity is unable to cope with current and predicted demand,
- Retention and sustainability of services and workforce is being adversely affected,
- Scope to improve service efficiency and performance is constrained,
- Access to and use of technology is sub-optimal,
- Haphazard and wasteful use of resource will be likely in order to meet future demand with current infrastructure e.g. through high-cost reliance on 3rd party providers and supplementary staffing, and
- Comparative analysis of other Board's infrastructure demonstrates lower availability of essential diagnostic facilities within Grampian than comparable Boards in Scotland.

1.3 Why is the proposal a good thing to do - Need for Change?

Figure ES1 summarises the context and aims of the elective care programme. Need and demand for elective care is increasing and there is continued pressure on capacity arising from workforce and financial resource challenges. The programme seeks to moderate demand by coordinating prevention, self management and realistic medicine initiatives i.e. to shift the demand curve, and increase capacity by improving efficiency, applying best practice and creating new capacity to meet the increasing levels of need and demand i.e. to shift the capacity curve.

The aim of the proposed capital investment is to create new capacity, and to configure this capacity in a way that supports maximum service efficiency and effectiveness.

Figure ES1: Illustration of the challenge and redesign efforts



1.4 Investment Objectives

Through the engagement process and consideration of the need for change, the Investment Objectives established for the Project are:

- Improve future service capacity by improving supporting asset base.
- Improve service performance and efficiency by optimising service redesign.
- Service redesign is enabled by use of, and access to, technology.
- Meet user requirements for service by being more person-centred.
- Improved services and sustainable workforce and equity of local access to treatment as far as possible and regionally where required, with harmonised access agreements across NoS Boards.
- Improved facilities in place to support modern outpatient care and optimised inpatient/day case activity.

1.5 What is the preferred solution?

The preferred service solution was confirmed in the Initial Agreement.

Table ES2: Preferred Service Solution

Components
Modern and fit for purpose outpatient and ambulatory care facilities, supporting a 'one-stop' model of outpatient provision: Urology, Respiratory and Dermatology
Investment in CT and MRI facilities
Co-location of both the facilities for day surgery and endoscopy in a single new bespoke facility
The development of the concept of Community Diagnostic & Treatment Hubs

Since this approval the IA the case for change, scope and policy and strategic context are substantially un-changed. Following discussion within NHS Grampian and more recently with the Elective Care National Programme Board two key refinements to the Strategic Case approved in the IA have been progressed and are described in this OBC:

- A proposal that one of the two Elective Care MRI scanners is located at Dr Gray's hospital in Elgin and the other in the Elective care centre and;

- The development of the concept of Community Diagnostic & Treatment Hubs will be subject to a separate business case and does not form part of the option developed and appraised in this case.

The Economic Case within this Outline Business Case (OBC) undertakes a detailed appraisal of the costs, benefits and risks of a short-list of implementation options illustrating how NHS Grampian (NHSG) has selected how the solution will be implemented and demonstrates the relative value for money of the chosen option. Those options are:

Table ES3: Implementation Options

Option	Description
Option 1a	Site Feasibility Option A (new bespoke facility on the Foresterhill Campus) - new road access arrangements + 2 MRIs @ Foresterhill Campus

Option 1b	Site Feasibility Option A (new bespoke facility on the Foresterhill Campus) new road access arrangements + 1 MRI @ Foresterhill Campus + 1 MRI @ Dr Grays Hospital
Option 2a	Site Feasibility Option B (new bespoke facility on the Foresterhill Campus) – retain existing road access arrangements + 2 MRI @ Foresterhill Campus
Option 2b	Site Feasibility Option B (new bespoke facility on the Foresterhill Campus) - retain existing road access arrangements + 1 MRI @ Foresterhill Campus + 1 MRI @ Dr Grays Hospital
Option 3a	Free standing building on ARI Site + 2 MRI @ Foresterhill Campus (2/3 storey)
Option 3b	Free standing building on ARI Site + 1 MRI @ Foresterhill Campus + 1 MRI @ Dr Grays Hospital (2/3 storey)
Option 4	Do nothing – Backlog Maintenance only in Existing Accommodation

Table ES41 summaries the appraisal of the options and demonstrates Option 1b: Site Feasibility Option A (new bespoke facility on the Foresterhill Campus) new road access arrangements + 1 MRI @ Foresterhill Campus + 1 MRI @ Dr Grays Hospital, as the preferred option.

Table ES41: Evaluation of Options

(Out of 100)	Option 1a	Option 1b	Option 2a	Option 2b	Option 3a	Option 3b	Option 4
Economic Appraisal	98	100	89	91	80	82	29
Risk Appraisal	81	82	81	81	78	79	73
Total Score	**179**	**182**	**170**	**172**	**158**	**161**	**102**
Overall Ranking	2	1	4	3	6	5	7

The preferred implementation option will deliver investment in an Elective Care Centre on the Foresterhill Campus including a mix of new build and refurbishment of existing infrastructure (including equipment) together with service reconfiguration across NHS Grampian including community settings.

1.6 Is the organisation ready to proceed with the proposal?

The Commercial Case sets out the proposed procurement arrangements for this Project, NHS Scotland Frameworks 2 (FS2). NHS Grampian will deliver the Project under an existing appointment. The Project Delivery Timetable is detailed in Table ES5.

Table ES5: Project Delivery Timetable

Master Programme	**Dated 4 June 2019**
Activity	**Key Milestones**
Stage 2	
Planned Completion	22.07.19
Contract Completion	21.06.19
SGHSCD CIG Meeting	13.08.19
OBC Approval (provisional)	23.08.19
Stage 3	
Commence Stage 3	26.08.19
RIBA Stage 4 Design	26.08.19 - 01.11.19
Agreement of Target Price	03.04.20
Issue a PMI/CE for Enabling Works	06.04.20
FBC Approval	May-20
Stage 4	
Mobilisation	29.06.20 - 24.07.20
Construction Start	27.07.20
Construction Completion	26.11.21
Bring into Operation	01.03.22

The Finance Case considers the affordability and financial consequences, of this Project. The capital investment required is outlined in Table ES6.

Table ES6: Summary of Initial Capital Investment

	Total OBC	Total IA
	£000's	£000's
Enabling Works	630	0
Construction Related Costs	39,619	37,598
Furnishing and Equipment	9,168	8,657
Project Development Costs	2,633	2,145
Commissioning Costs	100	100
Total Capital Investment	**52,150**	**48,500**
Community Hubs - Sep Business Case	3,500	3,500
Total Elective Care Programme	**55,650**	**52,000**
Sources of Funding		
SG Additional Capital Funding	55,650	52,000
Total Sources of Funding	**55,650**	**52,000**

The option for the development of Community Diagnostic and Treatment Hubs will be subject to a separate approval process, with the costs estimated at £3.5m.

The investment required (including the Community Diagnostic and Treatment Hubs) has increased by £3.65 million from that reported in the Initial Agreement. The increase related to the complexity of the site selected for the development and the additional equipping requirements associated with the developed brief.

Proceeding will be conditional upon confirmation from the Scottish Government that capital funding to the value of £55.65 million can be made available to support the Project.

The anticipated recurring revenue costs associated with the Project are set out in Table ES7 of £7.42 million.

Table ES7: Summary of Revenue Implications - First Full Year of Operation (2022/23)

	Total OBC	Total IA
	£000's	£000's
Revenue Costs		
Additional Depreciation	1,811	1,732
Additional Clinical Service Costs	2,980	2,100
Additional Non-Clinical Service Costs	1,329	698
Building Related Running Costs	1,296	924
Total Costs	**7,415**	**5,453**
Sources of Funding		
SG (Waiting Time Improvement Plan/Access Funding)	7,415	
Total Sources of Funding	**7,415**	

The annual running costs have increased by £1.95 million from that reported in the Initial Agreement. The increase relates to the addition of an outpatient theatre following activity modelling, the co-location of a decontamination unit with the endoscopy service and an increase in area (GIFA) following the development of an exemplar schedule of accommodation used for the Initial Agreement.

The recurring funding for the business case will form part of NHS Grampian's Waiting Times Plan which will incorporate the above requirement to fund the £7.4 million revenue consequence of the Elective Care development, together with the requirements to fund additional capacity in those services which do not form part of this project and where appropriate in those facilities vacated by the delivery of this Project. The Board is currently developing its case for continued funding for the 30 month period of the national Waiting Times Improvement Plan and to support investment in sustainable capacity beyond 31 March 2021.

NHSG has included £52 million, all subject to an additional funding allocation from SGHSCD in its Infrastructure Plan for this Project and will require this to be increased to £55.65 million to deliver the scope of the Project, inclusive of

Community Hubs. The revenue costs associated with the Project do not form part of the Board's financial plans for 2019/20 and future years, at this stage.

In assessing the overall affordability of the preferred implementation option NHS Grampian will require confirmation that additional capital and revenue funding will be made available to allow the preferred option to proceed.

The Management Case demonstrates that NHS Grampian has the appropriate Project Management and Governance arrangements in place.

1.7 Is this proposal still important?

In confirming the selection of the preferred service and site solution, the Project Board considered it against the original investment objectives, benefit criteria and the need for change identified by the Strategic Assessment. The proposal will develop a new Elective Care Centre on the Foresterhill Health Campus and improved imaging capacity at Dr Gray's Hospital in Elgin. The proposal is part of a wider elective care programme, linked to the North regional elective care programme. This will contribute to the creation of capacity to meet increasing need and demand for elective care treatment, by focussing the areas of investment which will provide greatest additionality.

2. The Strategic Case

2.1 Introduction to FBC Strategic Case

The Outline Business Case (OBC) was approved on 8th October 2019, refer to Appendix A (Approval Letter). NHS Grampian Project Board; accepts that the capital required to develop the community hubs will not be available through the Elective Centre Programme capital allocation. Notwithstanding this decision, the case for change remains unchanged and on that basis, NHS Grampian will sought alternative funding source and present it in a separate business case.

This section re-confirms the strategic context to this Full Business Case, which informs the project objectives and the planning assumptions. In summary it will seek to provide the following:

- Strategic context for the Elective Care Centre
- Re-confirm NHS Grampian's strategic vision; the preferred option
- Re-confirm the case for change and suitability of investment objectives, and
- Confirm that any changes to the strategic case do not alter the outcome of the OBC i.e. the preferred option is still aligned to the national and wider NHS Grampian Elective Care Redesign Programme.

2.1.1 Strategic Context and Overview

NHS Grampian provides all healthcare services for the population of Grampian (565,000), an area covering 3,000 square miles of city, town, village and rural communities. NHS Grampian also provides a wide range of acute services to the population of Orkney and Shetland, and specialist tertiary services for the whole of the North of Scotland, including Highland and Tayside.

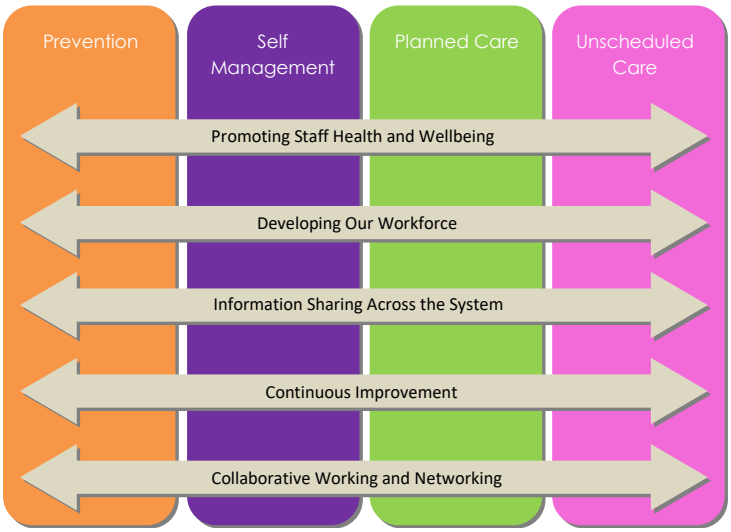
Health and care services, including community and primary care and social care for the region are provided in collaboration with three Health and Social Care Partnerships formally established in April 2016 and

managed by Integrated Joint Boards (IJB's). These are the Aberdeen City Health and Social Care Partnership, Aberdeenshire Health and Social Care Partnership and Moray Health and Social Care Partnership. The University of Aberdeen is also a key partner at Foresterhill Health Campus, sharing ownership of the site and working in collaboration with NHS staff in research, teaching and training.

The region's acute services are delivered from three main centres at the Foresterhill Health Campus, Aberdeen, Woodend Hospital, Aberdeen and Dr Gray's Hospital in Elgin, Moray. The Foresterhill Health Campus includes Aberdeen Royal Infirmary, Aberdeen Maternity Hospital, Royal Aberdeen Children's Hospital and Aberdeen Dental Hospital.

The driving force for service change and redesign in Grampian is outlined in the Grampian Clinical Services Strategy (2016-2021). The strategic themes including 'Planned Care' are outlined in figure 1.

Strategic Themes
Figure 1



NHS Grampian Response to National Agenda

NHS Grampian, in response to the Scottish Government allocation of capital funding for the development of elective care centres in Scotland, has undertaken a broad process of engagement involving 22 clinical services, including primary care, to ensure that the funding is targeted as effectively as possible. The process has developed a clear strategic context for transformation in elective care and a programme of redesign aimed at driving efficiency, and the delivery of "additionality" to meet anticipated need and demand for treatment in the future. The programme is consistent with the NHS Grampian Clinical Strategy in which elective care is a major theme, and also the developing regional approach to elective care as expressed in the draft North of Scotland Health and Social Care Delivery Plan.

For Planned Care, our ambition is for a wide range of treatment and care to be provided to patients on a planned basis i.e. non-emergency; to support patients to make decisions about their treatment; to make treatment and care more accessible in a wider range of locations closer to home; improve the efficiency of care; reduce the need for multiple attendances which add no value to the individual and better connect clinicians to improve the continuity of care. Patients will be assessed and treated in the right place, at the right time, and by the right person. This is to be achieved against a backdrop of ever increasing demand for higher quality care.

Examples of work in progress to make this happen includes:

- Moving towards the application of digital health technologies to help people manage their own conditions;
- Investing in the development of clear pathways and guidelines to improve the efficiency and effectiveness of treatment and care;
- Supporting primary and community based services to maximise treatment closer to home;

- Ensuring treatment and care is person centred and is organised around individual needs through the development of one stop or minimum stop clinics wherever possible;

- Improving diagnosis and treatment capacity for patients across the area; and

- Working with our partners to ensure sustainability of very specialist services in the North of Scotland.

2.1.2 Strategic Vision and Strategy

The vision for elective care is to deliver treatment and care as close to home as possible through the application of best practice, innovation and digital technology. Where treatment requires specialist skills and technology this will be undertaken in purpose designed facilities which will promote efficiency and the best patient experience possible.
What this vision means in practical terms is that:

- High-volume procedures will be decentralised as far as possible – the ability to do this depends on clinical practice and technology at any particular time,

- Self-management will be promoted to help individuals to manage their own conditions,

- Opportunities for diagnosis and treatment to be undertaken in the community will be identified and use maximised,

- Elective Care Centre facilities will be configured to support “one-stop” treatment to minimise attendances and maximise efficiency, and

- Best practice standards of efficiency will be applied as a matter of course.

2.1.3 Is the Case for Change Still Valid

The strategic case in terms of the scope, policy and strategic context remains unchanged from the OBC. The information provided at OBC stage has however been organised differently to make the case and its objectives clearer to the reader.

2.1.3 Preferred Service Solution

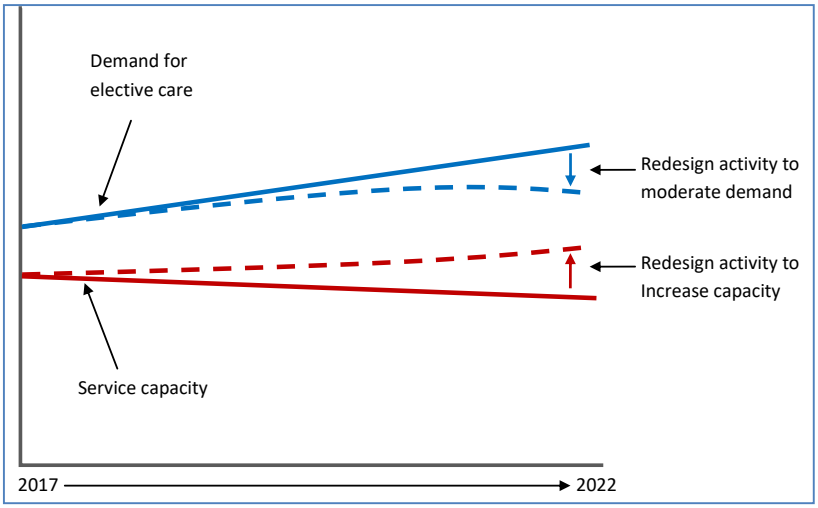
The preferred service solution at FBC stage is unchanged from the OBC with the noted exception of the Community Hub; separate business case and appropriate funding to complement the ECC.

2.2 Elective Care Redesign Programme Overview (including Demand and Capacity Modelling)

This section prefaces the Strategic Case and provides the reader with a high-level overview of the Grampian Elective Care Programme in order to set the scene for the investment proposal outlined in this Full Business Case (FBC).

The demand for elective care continues to increase and there is continued pressure on capacity arising from workforce and financial resource challenges. This is illustrated in Figure xx, which conveys the context and aims of the programme; to moderate demand by coordinating prevention, self-management and realistic medicine initiatives i.e. to shift the demand curve. This ECC will support the ability to increase capacity by improving efficiency; applying best practice and creating new capacity to meet the increasing levels of need and demand in future i.e. to shift the capacity curve.

Figure XX: Illustration of the elective care challenge and redesign effort



This FBC is a product of that broad process, which recognises that capital investment is only one aspect of how improvements can be delivered in Grampian. This section outlines those aspects of Elective Care redesign that will be enabled through the investment of capital and summarises the overall capital investment proposed in the OBC. As such, it identifies the services that can most effectively benefit from capital investment as part of a longer term investment programme working optimally across and between Primary and Secondary Care. The capital investment will provide additionality through the creation of new Elective Care facilities and innovative new community-based approaches to delivering care closer to home. Benefits will be realised by improving the efficiency of those services that will occupy the new facilities, and releasing “hidden” capacity across the system though the wider elective care redesign programme.

In addition to the direct benefits related to elective care the proposed capital investment will also yield significant added value to a wide range of other services i.e. the capital investment will:

- Complement the Elective Care redesign programme and help develop a “tiered” approach to elective care through the creation

of community diagnostic and treatment hubs. Retaining activity in the community and focusing secondary care Elective Care facilities on activity which requires specialist skills and facilities,

- Support the development of the NHS Grampian Clinical Strategy and Regional Workforce Plan,
- Advance the agreed Foresterhill Campus Development Plan by creating an elective care focus on the Campus consistent with the clinical service blueprint,
- Strengthen the research and development relationship between the University of Aberdeen and NHS Grampian through the creation of a clinical research facility (funding to be secured by the University), and
- Contribute to the reduction in backlog maintenance.

2.2.1 Regional Planning – MANJU TO UP_DATE

This FBC has been prepared against the background of the developing collaboration on elective care across the six NHS Boards in the North of Scotland. This emerging collaboration has a much broader remit than the services being considered for the capital investment in Highland, Tayside and Grampian and encompasses work to harmonise access policies and pathways, maximise the use of elective care capacity, and ensure that a network of mutual support is developed to manage peaks of activity. Whilst the aim of all of the Boards in the North is to deliver treatment and care as close to home as possible all elective care capacity, including the capacity delivered through this Elective Care Centre proposal, will move towards bring regarded as a combined resource for the population of the North of Scotland as a whole.

2.2.2 Process – MANJU TO UPDATE

The process to develop an Elective Care Programme and IA for capital investment started in March 2017 included 22 clinical services, with significant primary care involvement, circa 90 clinical engagement workshops, and nearly 500 clinicians, managers and public representatives. The products of this engagement process have included a clinical output specification for each service which sets out the key anticipated activity, workforce, patient pathway and facilities challenges. In addition, the common cross cutting themes have been developed into a system-wide redesign programme coordinated with the Grampian Clinical Strategy implementation process linked to the other strategic themes of prevention, self-management and unscheduled care. This “matrix” approach continues to develop.

Via this engagement, optimal and deliverable models for innovating in service delivery and for the achievement of additionality have been derived. These have been robustly appraised and ranked in order of what to implement soonest, as part of a phased approach to our programme of improvement in elective care. Importantly, these have helped us to articulate a future vision for elective services and the IA was a product of this clinical and public engagement. The IA identified the elective services that can most effectively benefit from capital investment as part of a longer-term investment programme, working optimally across and between Primary and Secondary Care.

The engagement process continues with the development of the Target Operating Model (TOM) aimed at applying best practice, quality and innovation to meet stretching targets for delivery. This work is based on the North of Scotland activity modelling process and the development of the TOM will increasingly be taken forward on a North of Scotland basis.

2.2.3 Capital Investment Priorities – MANJU TO UPDATE

The process identified a range of clinical services that require capital investment to maximise opportunities for efficiency and additionality over the next 10-15 years. The total capital investment requirements on the long-list of required improvements are unaffordable

.

An option appraisal was undertaken, consistent with the Scottish Capital Investment Manual (SCIM) approach, to identify which services were the highest priorities for investment in the short term. These high priority services are Dermatology, Respiratory, Urology, Radiology, Cardiology, Endoscopy, Day Surgery and Primary Care services and were the focus for the Initial Agreement. Within this is a requirement to develop diagnostic and treatment hubs in the community (Community Hubs) to support primary care access to modern facilities for the delivery of elective care. As outlined in section 2.1 of this OBC, this element of the programme will now be subject to a distinct standard business case to be delivered over the same overall timeframe as the Elective Care Centre Project.

Unlike other Elective Care Centre projects being taken forwards by other Boards, Orthopaedics and Ophthalmology are not considered as immediate priorities for capital investment in NHS Grampian. Orthopaedics has sufficient physical operative capacity but has workforce challenges which affect the ability of the service to meet demand. Ophthalmology has recently benefitted from investment related to enabling the Baird Family Hospital and ANCHOR Centre projects, which required the demolition and relocation of the existing Ophthalmology facilities on the Foresterhill Campus. This work took account of future demand up to 2035.

2.2.4 Proposed Physical Solution (MANJU TO UPDATE

The Foresterhill Campus in Aberdeen has a fully developed clinical services plan which has guided service reconfiguration and physical planning for the past 5-10 years. The plan has Board approval and is accepted by Aberdeen City Council as formal planning guidance.

Within this plan there is an area identified for elective and ambulatory care close to the main concourse and the new multi-storey car park on the Campus i.e. it was selected to provide easy access for patients whilst being close to significant clinical facilities including theatres and radiology.
The proposed physical solution also maximises the opportunities arising from other developments including the Baird and ANCHOR project which will deliver a new women's hospital and cancer centre. The accommodations released by this project i.e. theatres and some outpatient accommodation, will be incorporated into the Elective Care assumptions thereby maximising the impact of the investment.

The Elective Care Centre facilities will be developed partly by the renovation of an existing building which is vacant (apart from the newly relocated ophthalmology service, and partly by the construction of an adjacent and linked new building to create an integrated Elective Care Centre. The accommodation will provide flexible outpatient and procedure rooms and day surgery facilities with easy access to diagnostic radiology and endoscopy. NHSG are working with the University of Aberdeen possible alternative locations, elsewhere on the Campus, for clinical research facilities to promote inpatient research, and simulation teaching facilities these are likely to be delivered in 2023/4.

2.3 Approach to the next section – Louise & Fidelma

There are six services in involved in the Elective Care Centre development this section will take each in turn and re-confirm the questions in relation to the preferred solution:

- What are the current arrangements?
- Why is this proposal a good thing to do?
- What is the organisation seeking to achieve?

- Respiratory Services – Louise description of the services and how they benefit from the relocation into ECC

- Endoscopy Services – Louise ditto above

- Urology Services – Louise ditto

- Day Case Theatres – Louise Ditto

- Radiology – Including MRI at Dr Grays – Fidelma Ditto.

- Dermatology – Manju.

2.4 What and Why for each Service?

2.4.1 Services affected by this proposal

Table S1: Services affected by this proposal

Services			
1	Urology	4	Day Surgery (General Surgery, ENT and OMFS)
2	Dermatology	5	Respiratory
3	Endoscopy	6	Radiology

2.4.2 Key Redesign Principles - Louise

The six key principles, agreed by the Collaborative Founding Group, will inform the redesign of services within the Elective Care Project.

1. Patients should not be asked to travel unless there is a clear clinical benefit, and that any changes should not increase the workload for primary, secondary or social care in an unplanned/unresourced way.
2. All referrals should either be vetted by a consultant/senior decision maker or processed via a system wide agreed pathway.
3. Referral pathways (including self-management) should be clear and published for all to see
4. Each hospital and referral system should have a joint and clear understanding of demand and capacity
5. Each local system should have a clear understanding of access to diagnostics as part of pathway management
6. Improved and published metrics including how we record and measure virtual/ tele-health / tech-enabled care

2.5 Urology Services - LOUISE

2.5.1 Current Service Arrangements

The NHS Grampian Urology service manages patients of all ages with disease or dysfunction of the male and female urinary tract system and male reproductive organs. This includes diseases of the bladder and prostate, including continence, fertility, cancer and reconstruction of the genito-urinary tract.

Urology services are also provided to patients referred from NHS Orkney and NHS Shetland.

2.5.2 Current Service Model

The service operates a multi-professional team model delivered by a range of medical and nursing staff. Specialist nurses also provide a range of nurse led clinical services.

The service is predominantly located within the Foresterhill Health Campus with some selected services provided at Dr Gray's Hospital, Elgin and a small number of peripheral outpatient clinics based in four community hospitals across Grampian.

The provision of peripheral clinics enables some patients to be seen closer to home, however, the range of equipment available at these clinics is limited and patients often travel to ARI for diagnostic tests.

Vasectomy services are provided primarily in the community, by the primary care minor surgery network. Only a few complex cases are managed in the acute sector.

Out-patient clinics are delivered at five different sites at ARI; the availability of equipment in some locations does not allow for efficient patient assessment and diagnosis. This leads to return appointments

for additional tests and follow up appointments that would not be necessary in a ‘one-stop’ clinic environment.

Patients are generally referred directly by GPs, however referral may also be received by other specialty teams.

Figure S3 identifies the current locations from which urology service on the Foresterhill Health Campus is delivered. As demonstrated in the diagram the service is very fragmented and is spread over 12 locations, leading to inefficiency and ineffective utilisation of staff and resources.

Figure S3: Current Urology Service Locations in ARI

The current service configuration has a dedicated day case theatre and recovery area (ward 202). However unscheduled and elective patients are managed in a common area. This leads to challenges in ensuring

beds are available for elective care patients when required. Additionally, 'ward attenders' attend the in-patient ward for out-patient treatment which disrupts the ward routine.

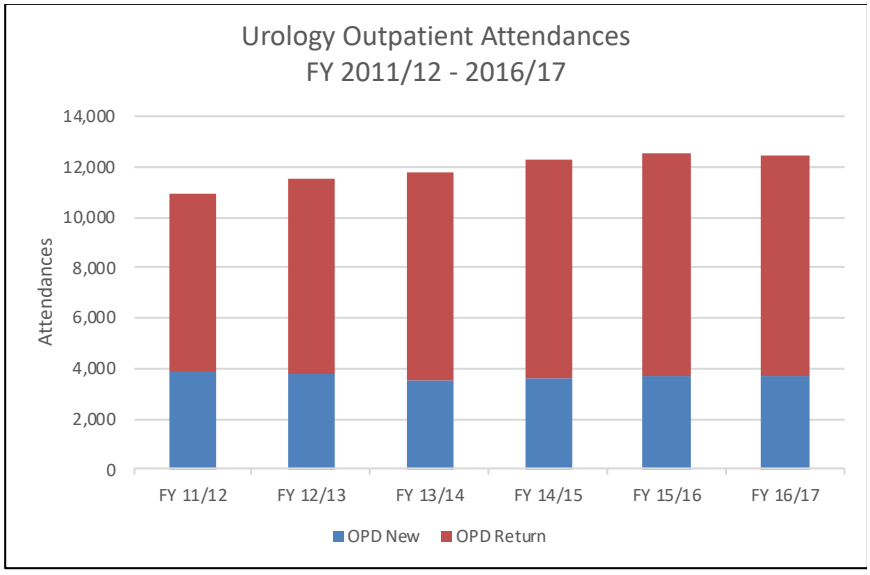
The dedicated UCAN Centre is a small suite adjacent to the inpatient ward 209. It is a friendly, welcoming environment where patients and relatives can come for support and browse comprehensive educational material. It also has a private area for medical and nursing staff to discuss treatment plans etc. with patients. The Urological Cancer charity known as UCAN was launched in 2006 with a vision to create a centre of excellence for Urological cancers in the North of Scotland. It has since had major campaigns on health awareness and early detection of cancer. Since UCAN was formed it has raised millions of pounds and has funded the Urology robotic surgery in Aberdeen.

2.5.3 Current Patient Activity, Demand and Capacity – GRAHAM OSLER / MANJU

2.5.3.1 Out-patients

Graph S1 identifies how urology outpatient activity has increased since 2011/12. Total activity has remained fairly static over the last 3 years, there is however a waiting list, refer to Graph S6.

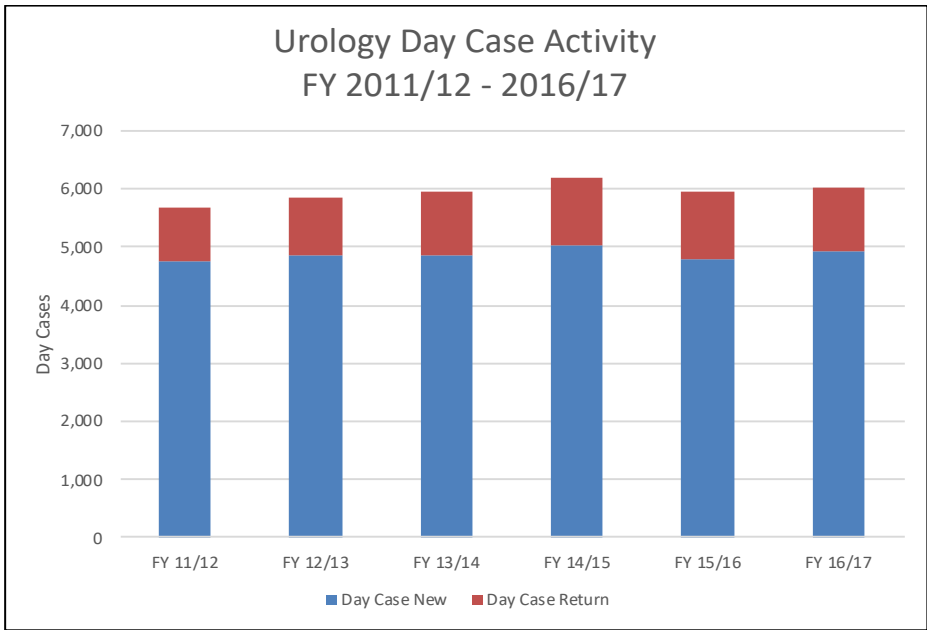
Graph S1 Urology Outpatient Attendances



2.5.3.2 Day Case

Graph S2 identifies how urology day case activity has increased between 2011/12 and 2016/17. Total activity has remained fairly static over the last 3 years, there is however a waiting list, refer to Graph S7.

Graph S2: Urology Day Case Activity 2011-2017



2.5.3.3 BADS Performance

Indicators for activity considered suitable for day surgery (British Association of Day Surgery) suggest that urology BADS performance is good at 84.3% which compares favourably with the Scottish peer performance of 82.5%. This performance could be directly related to having the dedicated Urology Day Case Unit (ward 202).

2.5.4 Case for Change - LOUISE

The NHS Grampian Urology service currently delivers a wide range of services but has an ambition to redesign and improve services to increase the range of services delivered in an ambulatory setting and to increase the number of patients being seen, diagnosed and treated on the same day 'one stop' service.

Challenges associated with the current service model:

- Out-patient clinics are dispersed across five generic clinics locations. Some locations do not have access to all necessary diagnostic and treatment facilities
- In-patient accommodation has a mix of unscheduled and elective care co-located within the same ward. Ward attenders attend for out-patient treatment which disrupts the ward routine and is not conducive to the delivery of an efficient and person centred care model
- Current Urology Day Surgery area is being used to deliver procedures that could be undertaken in an ambulatory setting
- Pressure on day-case beds and recovery areas in ward 202 creates a poor environment for patient treatment

Table S2 below summarises key elements of the need for change.

Table S2: Need for Change

Need for Change	Benefit
Increase ability to provide comprehensive investigation and diagnosis (one-stop clinics) at new outpatient appointments	Improved efficiency and the delivery of a service that is patient centred. Shorter waits across total pathway with reduced requirement for multiple appointments. Improved use of nursing resource.
Appropriate facilities to manage 'ward attender' activity	More appropriate care environment. Improved support for self-care. Enables conversion of some unscheduled activity to elective due to prompt, rapid management
Improve communication	Greater levels of shared care,

between primary and secondary care. Improvements in responding to referrals for advice, introduction of active clinical referral triage	better patient experience. Improved patient safety.
Patients seen in a timeous fashion following referral, consistent with waiting time targets	Improved match of resources to patient need. Ensure patients are seen within target time. Improved patient quality of life. Retain patient independence.

The increase in demand for Urology services and advances in diagnostics and treatment is driving the need to further transform the urology service model. Additionally, Table S3 highlights the current service risks to be managed.

Table S3: Current Service Risks

Current Service Risks	
Capacity	Out-patients: Very high-volume clinics delivered in facilities that are not fit for purpose; this contributes to inefficiency and the ability to meet waiting time targets Day Case: Insufficient access to diagnostic endoscopic capacity (space and staff) resulting in prolonged waiting times Radiology: Insufficient access to interventional radiology due to radiology vacancies
Prolonged patient pathway due to access to diagnostics	Pathology reporting time Delays in imaging can result in emergency patient presentations Inability to coordinate multiple diagnostic interventions,

	prolonging the care pathway

2.5.5 Future Demand Projections

The demand for urology services is linked to a number of factors including:

- Demography
- An increased number of older people in population
- Increased requirement to monitor patients with anomalies detected through screening programmes
- Increased requirement to provide one-stop integrated treatment and procedures in an out-patient environment.

Service investment will increase the total system capacity across NHS Grampian and this will provide the catalyst to drive further improvements to support predicted future demand and meet waiting time targets.

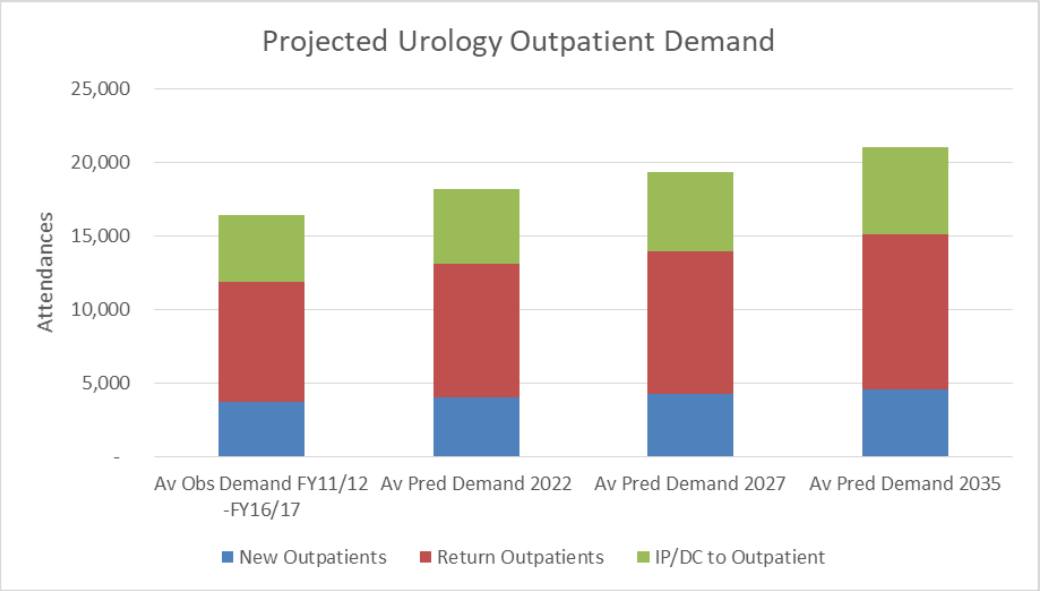
The development of a comprehensive ambulatory urology service has been identified as one of the local clinical service priorities for elective care in NHS Grampian. The service is currently very fragmented; this results in patients commonly being seen in the wrong location. To optimise care the new ambulatory facilities will accelerate the implementation of new models of care as part of wider system reform.

2.5.6 Future Out-patient Demand Projections (GRAHAM)

Future urology out-patient demand takes account of demographic growth but does not yet fully outline the impact of delivering a one stop model of care.

The Graph S3 below shows the projected increase in demand in the urology out-patient service reflecting the estimated shift of procedures from a day case to ambulatory setting. However the the new and return activity shown is without any adjustment for the new service model.

Graph S3: Projected Urology Out-patient Demand



New outpatient demand is expected to increase from an average observed demand of 3,686 attendances in 2017 to an average predicted demand of 4,533 in 2035.

Based on the current model of care, return out-patient demand is expected to increase from an average observed demand of 8,218 attendances in 2017 to an average predicted demand of 10,583 in 2035. The planned redesign should moderate this with the aim of achieving the Scottish upper quartile new to return ratio.

The accommodation schedule also assumes that the urology out-patient services will relocate from all five clinic locations into the single urology ambulatory unit. There is an anticipated increase of 4,500 procedures rising to 5,910 procedures by 2035 that, these procedures will relocate from the ward 202 day case setting to the new Urology Ambulatory Unit, in the Elective Care Centre.

In identifying the number of urology out-patient rooms required a detailed analysis of patient pathways was undertaken and assumptions

made regarding the rooms they would utilise and the likely duration within each room.

Room availability based on 2 sessions per day, 5 days per week, 49 weeks per year, 85% utilisation.

Table S4 summarises the ambulatory care urology suite room requirements in 2027 and 2035.

Table S4: Urology Ambulatory Suite Room Requirements

Room Type	2027 Capacity	2035 Capacity
Outpatient rooms	5.88	6.39
Procedure/ treatment room	1.55	1.69
Lithotripsy	0.58	0.63
Cystoscopy	0.97	1.05
Urodynamics	2.09	2.27
Ultrasound	1.93	2.10
Total	**12.99**	**14.12**

The schedule of accommodation provided takes account of this predicated demand for space and the accommodation provided will have multi-purpose use to maximise flexibility and room utilisation. Future service expansion beyond 2035 is likely to be delivered by extending the working day and or week.

It is anticipated that 70% of patients will be seen in ‘one-stop’ clinics with only 20% of this group requiring a return appointment. The remaining 30% will follow a traditional out-patient journey; these patients will be more complex in their presentation and follow-up will often be required. It is however anticipated that the new model of care will allow the urology service to achieve a new to return ratio that is

within the upper quartile for Scotland. These assumptions are based on visits made by the clinical team to Guys Hospital, London and Ayr Hospital who are already operating the one-stop care model.

Table S5 outlines the activity that will relocate from a number of existing service locations, including the out-patient clinics, ward attender's and urology Ward 202 day case unit to the urology ambulatory unit when the service is redesigned in 2022 following commissioning of the new Elective Care Centre. Table S5 demonstrates the predicated growth in demand for ambulatory procedures based on past demand and demographic change till 2035.

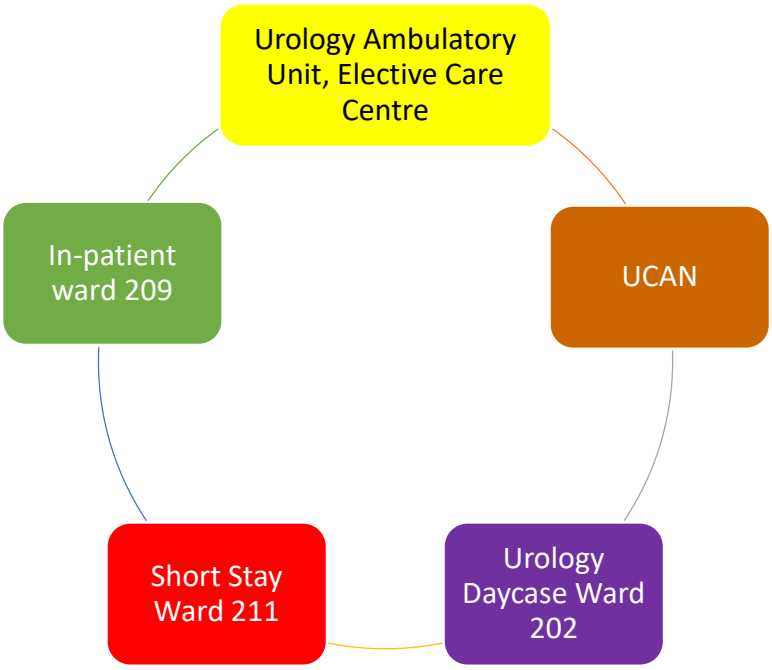
It is worth noting that the number of procedures and investigations outlined in Table S5 does not correlate with the predicted procedures indicated is Graphs S4 and S5. This is because a considerable number of patients have more than one investigation prior to treatment.

Table S5: Anticipated Ambulatory Procedure Activity

Ambulatory/Clinic Procedure	2018 activity	2022 activity	2027 activity	2035 activity
Lithotripsy	600	701	748	813
Cystoscopy	4510	5272	5622	6110
Prostate biopsy	600	701	748	813
Urodynamics	3275	3828	4082	4437
Ultrasound	5413	6328	6747	7333
Total	**14398**	**16830**	**17947**	**19506**

Figure S4 below shows that the re-designed service solution reduces the service locations from 12 to 5 with ambulatory, day and in-patient services provided in distinct patient pathways. There are also a range of urology services delivered from Dr Gray's Hospital, Elgin which will be unaffected by this development,

Figure S4: Proposed Future Urology Service Locations at ARI

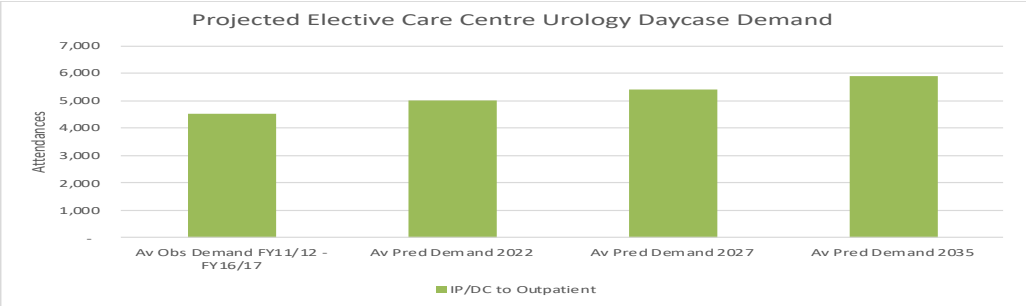


2.5.7 Future Ambulatory and Day Case Demand Projections

Future projected urology demand takes account of demographic growth and assumes that 75% of current urology day case activity will move to the Ambulatory Urology Unit Elective Care Centre. The remaining 25% of activity will remain in the Ward 202 Day Case Unit for patients that require a general anaesthetic to be cared for safely.

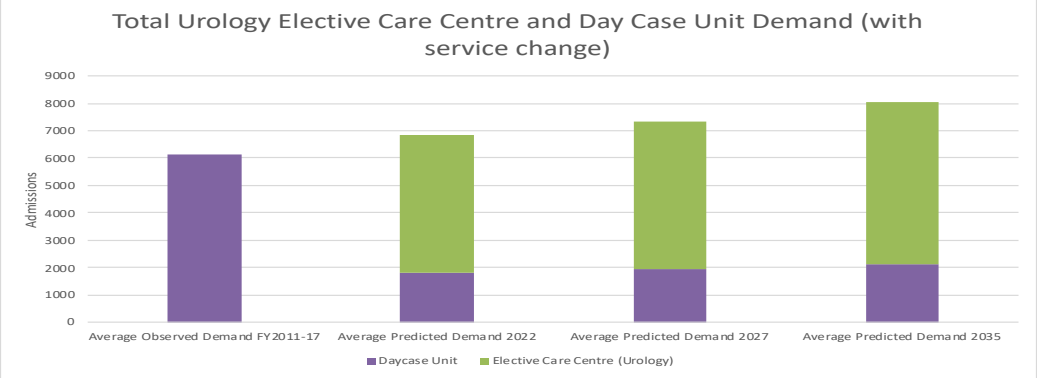
This equates to 4,500 procedures relocating from the Ward 202 Day Case Unit and the in-patient ward 209 to the Urology Ambulatory Unit in the Elective Care Centre when it becomes operational in 2022.

Graph S4: Projected Urology Ambulatory Demand



Graph S5 below shows the anticipated total urology demand in both the Ward 202 Day Case Unit and the Urology Ambulatory Unit in the Elective Care Centre between 2022 and 2035. Graph S5 also indicates the level of activity that will relocate to an ambulatory setting from a day case setting.

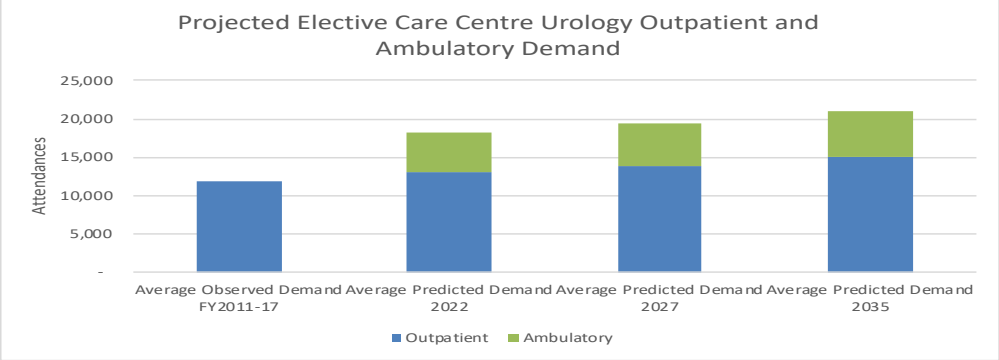
Graph S5: Projected Urology Day Case Demand Relocating to an Ambulatory Setting



This increases the number of ambulatory care procedures from an average observed demand of 6,000 in 2017 and 8,028 in 2035, accepting that a percentage of patients will remain in the day case pathway where a general anaesthetic is clinically indicated.

Graph S6 outlines the anticipated activity within the Urology Ambulatory Unit in the Elective Care Centre by adding the ambulatory procedures and out-patient activity.

Graph S6: Projected Urology Ambulatory Unit Demand



The preferred service solution will increase capacity and efficiency and allow separation of ambulatory procedures from the current in-patient and day surgery pathways, ensuring elective patients are seen in an efficient manner and in the right care pathway. In addition, it will free up space in the day and in-patient units to accommodate predicted increases demand in these care pathways. The Urology Ambulatory Unit will co-locate the currently dispersed urology out-patient, diagnostic and treatment clinics including e.g. cystoscopy, lithotripsy, urodynamics, prostate clinics including biopsy, erectile dysfunction, bladder installation treatments and UCAN follow up. The co-location of these ambulatory activities will allow a more streamlined, efficient multi-professional approach that will result in patients often being seen in a 'one stop' model of care, reducing the need to attend follow-up appointments and for some, the uncertainty of waiting for results at a follow up appointment.

2.5.8 Other Factors Affecting Activity, Demand and Treatment by 2020/2025

The following will be factored into the overall Urology redesign plan and the service model adapted as each progresses:

- Introduction of HPV vaccine for boys
- Increasing use of radiology guided biopsy prior to renal surgery
- Change in prostate cancer pathway proposed with the introduction of an MRI prior to biopsy for prostate cancer to ensure greater

accuracy in sampling, improved clinical outcomes and a shorter total pathway

- Reduced tolerance of incontinence by public leading to increased demand for surgical intervention.

Re-design Activities

The following list highlights some of other redesign activities to be implemented as part of the wider elective care redesign activities:

- The use of appointment prompt text messaging in conjunction with patient focussed booking should reduce DNAs
- Implementation of 'Attend Anywhere' alongside tiered healthcare delivery venues such as community diagnostic hubs and virtual consulting could reduce the need for patients to travel and make the service closer to or within the patient's home more achievable
- Availability of new LASER technology to enable prostate laser ablation and a reduction in traditional surgical treatment
- Introduction of Prostate-specific membrane antigen (PSMA) – PET scanning for prostate cancer
- Introduction of Urolift (already approved by NICE in England) – a minimally invasive (banding) procedure which prevents excess prostate tissue obstructing the urethra (shift to day case from theatre)
- Improvements in IT and communication will facilitate virtual clinics
- Introduction of a dedicated lithotripter to Aberdeen to enable treatment of stones locally.

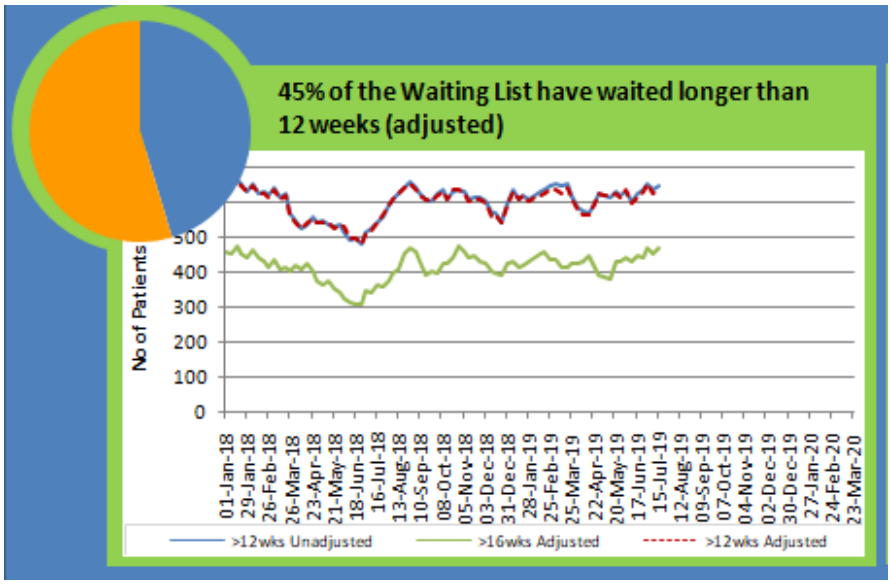
2.5.9 Urology Waiting Times

Urology faces forecast increases in demand, as is shown earlier in this section, see Graph S3. The quality, availability and suitability of out-patient space and ease of access to diagnostics drives efficiencies and ensures the patient is the focus when compared to alternative modern models of outpatient care.

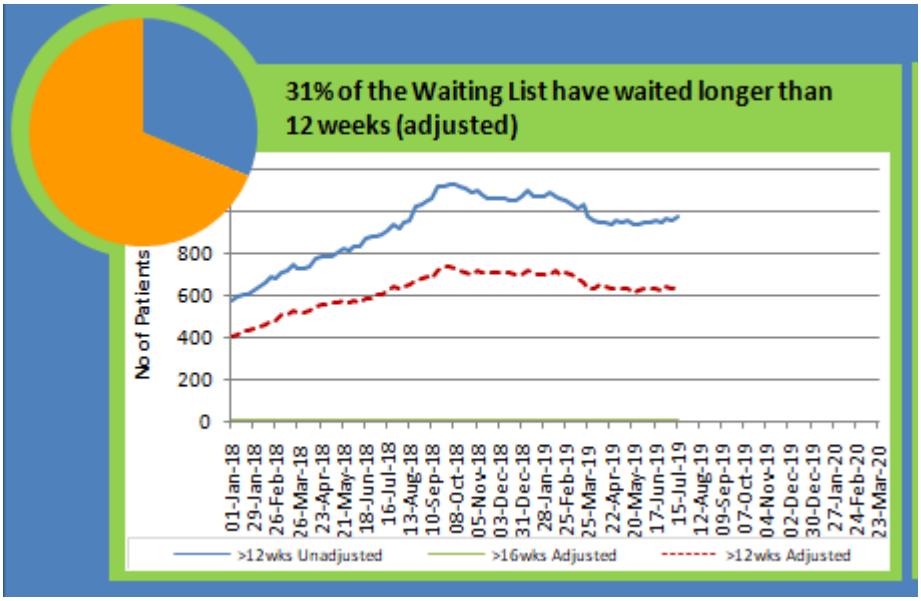
Graphs S7 and S8 outline the current urology out-patient and the elective in-patient/day case waiting times. Our activity assumptions from 2022 have assumed that by 2022 when the new service becomes operational that the service will be operating within the waiting time targets.

This assumption is based on NHS Grampian's aim for 2021 to continue working with the Scottish Government and deliver their waiting times plan which will see the current waiting list managed. The Urology service when moving to the Elective Care Centre will be working to make sure that patients are seen within the waiting time target in a sustainable manner.

Graph S7: Urology New Outpatient Waiting List



Graph S8: Urology Elective Inpatient/Day Case Waiting List



2.5.10 The Future

Providing services in an ambulatory care setting is now the preferred model of care for NHS Scotland where day case treatment should be the norm where treatment, investigations and/or appointments can be conducted safely on a day appointment basis. Most patients and families favour this approach to an inpatient attendance.

Ambulatory care is one of the areas of significant growth within hospitals, driven by advances in technology, instrumentation, non-invasive techniques and new pharmaceutical treatments.

All ambulatory urology accommodation will be integrated in one clinical area; this is the hallmark of one-stop services and improved service efficiency. As indicated earlier one stop appointments will reduce the need for follow up appointments, and technology allows a number of return appointments to be delivered virtually reducing the need for patient to attend the hospital and freeing clinic space

Urology day surgery will continue to be delivered from existing facilities in Ward 202. The Urology Service currently has a dedicated day case theatre suite which was recently upgraded as part of the recent NHS Grampian Backlog Maintenance Programme. The suite currently provides

accommodation for a number of ambulatory activities which will now be provided in their new Ambulatory Facility, which will free valuable theatre recovery space to accommodate increases in day surgery capacity. This will maximise efficiency and help shift the locus of care. 75% of the current Day Case procedures will relocate to the urology ambulatory unit in the Elective Care Centre the remaining patients will continue to be seen in the Ward 202, Day Surgery Unit where a general anaesthetic is clinically indicated.

Urology will deliver a redesigned service focused on admission avoidance. Where possible a “one stop” model of care will be delivered and an estimated 70% of patients will be seen at a ‘one stop’ clinic, 20% of these patients may require follow up. This will reduce the need for return appointments allowing new patients to be seen earlier, including early cancer detection assessment.

2.6 Dermatology Services - Manju

2.6.1 Current Service Arrangements

The NHS Grampian Dermatology service is led by Consultant Dermatologists and delivered by a team of doctors, nurses and administration staff. The main Dermatology accommodation is located in Burnside House, Foresterhill Health Campus in Aberdeen.

Services provided include:

- Phototherapy
- Laser treatment
- Biopsies
- Patch Testing
- Lesion
- Acne
- Hyperhidrosis
- Botox
- Microscopically controlled surgery to treat skin cancer, developed by general surgeon Fredric E Mohs (Mohs) (currently delivered by NHS Tayside)

2.6.2 Current Service Model

The dermatology service is based at Aberdeen Royal Infirmary and is supported by several peripheral clinics.

The Department has experienced significant medical staff shortages over recent years. Recruitment to Dermatology posts is a National problem.

In addition to the medical workforce, registered nurses, support the delivery of a range of services. Following specialist training, a number of ‘nurse led’ clinics have been introduced, these include:

- Laser service – in parallel with consultant outpatient clinics
- Acne service – in parallel with consultant service

- Patch testing
- Skin Cancer - including a nurse led biopsy service

The Grampian service is looking to redesign the skill mix to create capacity to better meet demand by:

- Increasing the number of specialist nurses
- Increasing nurse led clinics
- Providing a prescribing pharmacist to:
    - Enable the switch from branded biologic agents to biosimilar agents starting with adalimumab.
    - Review patients in the clinic setting starting with retinoid clinics, return appointments for specified conditions.
    - Use independent prescribing as part of clinical practice.
    - Enable formulary submissions for new medicines.
    - Write treatment guidelines/ shared care policies for the service.
    - Enable requests for off label/ unlicensed and non-formulary medicine use according to guidance and process.
    - Enable cost effective medicine use in the service including budget forecasting.
    - "Attend Anywhere" for peripheral clinics

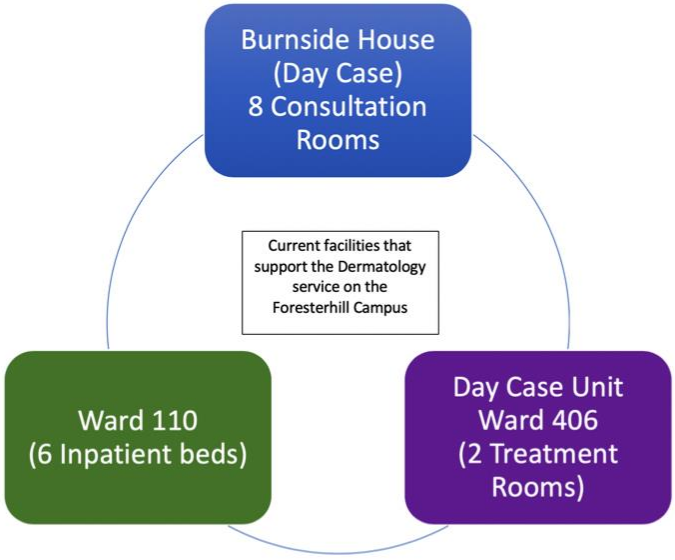
Dermatology has close links with plastic surgery where they provide a joint 'see and treat' service.

The majority of patients requiring dermatology assessment or follow-up are seen as out-patients. These clinics are held in Burnside House and Ward 406 ARI. This includes one 'one stop' skin cancer clinic per week. Peripheral clinics are currently delivered from Elgin.

Figure S5 identifies the current facilities that support the dermatology service on the Foresterhill Campus. The service is delivered from three

sites however while Burnside House is on the Foresterhill Health Campus it is remote from the other service locations ARI.

Figure S5: Current Dermatology Service Location on Foresterhill Health Campus



The current service configuration has six designated in-patient dermatology beds at Aberdeen Royal Infirmary which are located in Ward 110. A range of out-patient and day case activities are provided from ward 406, including e.g. phototherapy and patch testing.

Burnside House is on the Foresterhill Health Campus it provides mainly out-patient consultation and has limited space for day treatments or one-stop clinics. Currently staff work between Burnside House and ARI which is challenging with a small clinical team.

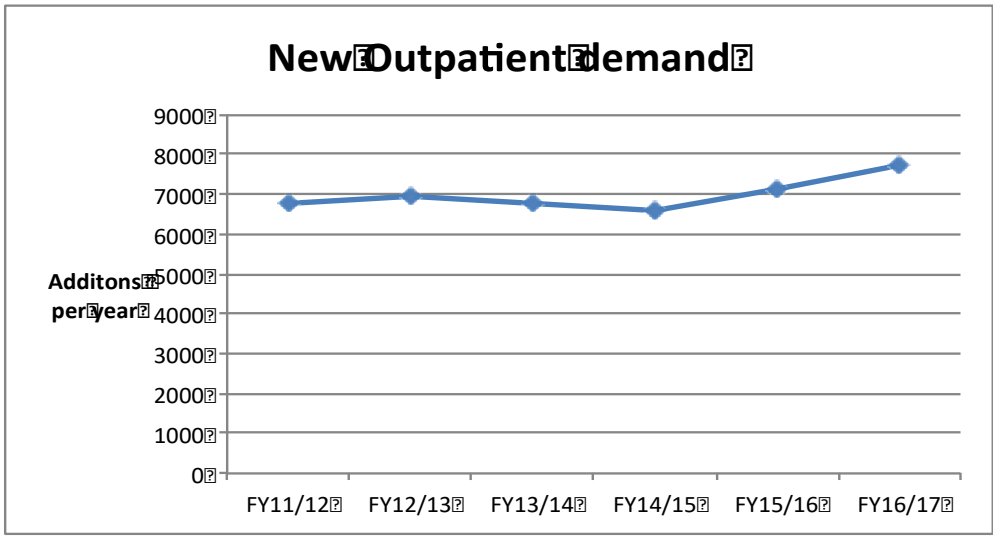
2.6.3 Current Patient Activity, Demand and Capacity

2.6.3.1 Out-patients

New out-patient demand has shown a 13.7% growth from 6,781 additions to the outpatient demand per year in 2011/12 to 7,709 in 2016/17.

Graph S9 identifies how dermatology out-patient demand has increased since 2011/12.

Graph S9 Dermatology New Outpatient Demand



The data does not present a complete picture of demand as the workforce shortages have skewed referral patterns, for example:

- General Practice are now referring a higher proportion of patients with suspected skin lesions to the plastic surgery service or GPwSI to help reduce demand on the service;
- General Practice referring only patients with urgent needs, therefore there an element of unmet need may exist;
- Under reporting of dermatology demand delivered by GPwSI i.e. the significant and increasing activity undertaken at Inverurie, Banchory, Westhill, Stonehaven and elsewhere is recorded in GP systems but not accounted for in reporting; and
- An increased use of the private sector by patients, especially for patch testing. This cohort subsequently attends NHS services for prescription medication.

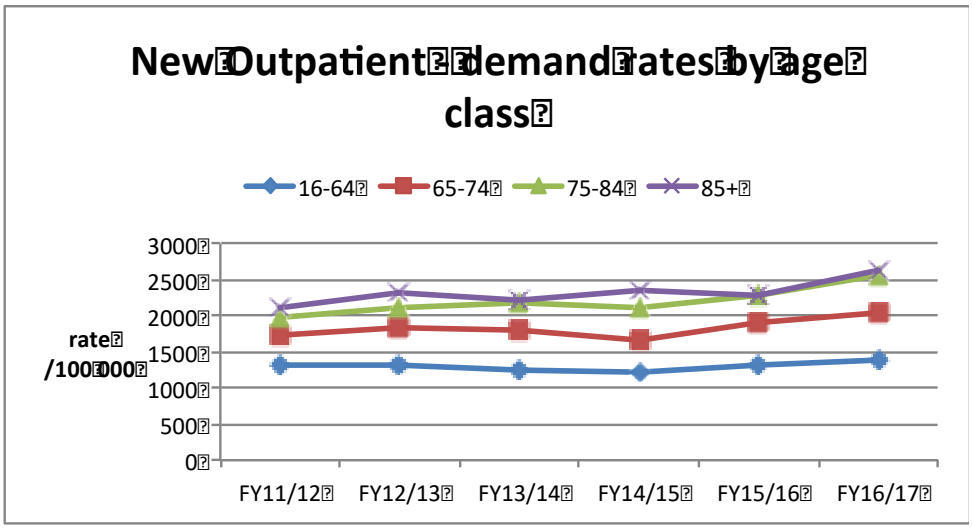
In addition, until recently, GPs removed pre-cancerous skin lesions with liquid nitrogen under the terms of the previous GP contract. This is no

longer specified in the new GP contract and could lead to an increase of referrals for this treatment.

There is a clear view that significant unmet need exists and that as workforce resources become available, referrals will increase to reflect actual demand.

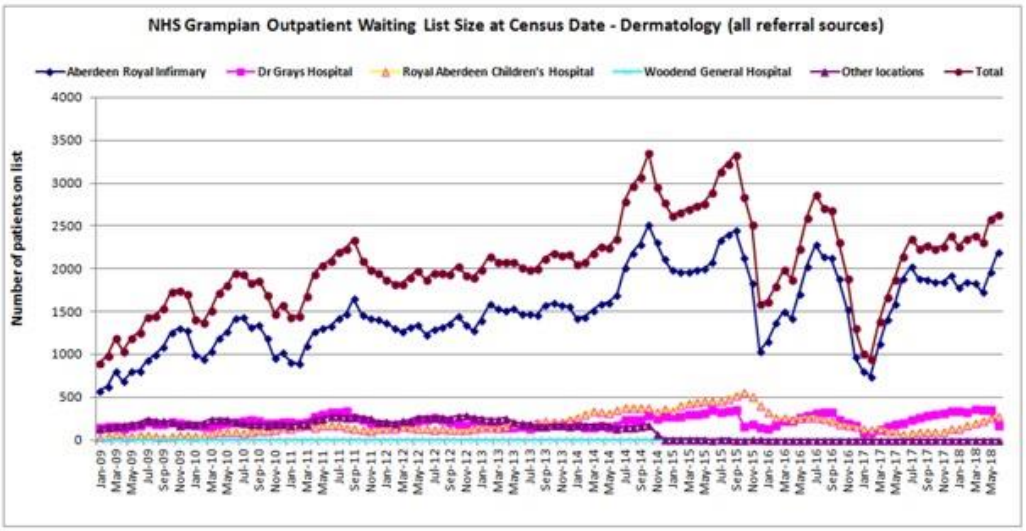
New out-patient demand rates by age class, per 100,000 populations have changed in line with the Graph S10. The largest growth has been in the 75-84 and 85+ age groups.

Graph S10 Dermatology New Outpatient Demand by Age Class



Graph S11 below outlines the out-patient waiting list size over the period 2009-2017. Over the last 3 years, the sharp fall in the waiting list size during the late winter months reflects the use of Medinet. Following these initiatives, the waiting list size increases to 2,000-2,500 patients.

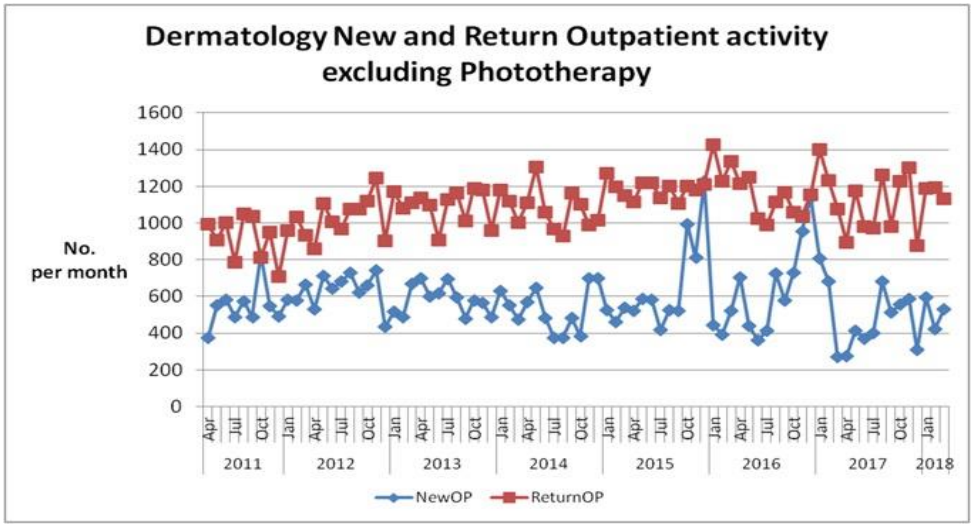
Graph S11: Dermatology Outpatient Waiting List



The overall number of new patient referrals to the dermatology service does not appear to have increased in the past five years for the reasons stated previously.

Graph S12 shows that around 17,000 clinic appointments are available per year; 6,000-7,000 for new patients and 9,000-11,000 for return appointments.

Graph S12: Dermatology New and Return Outpatient Activity (exc Phototherapy)



2.6.4 Case for Change

The dermatology service has encountered significant challenges over the past few years, particularly in relation to its ability to meet waiting time targets mainly due to workforce challenges as outlined earlier.

In an attempt to mitigate these issues better support is required to enable patients to improve their ability to self-manage and, to assist primary care in improving the quality of referrals and ongoing patient management in the community. These key work streams will be addressed as part of the wider service re-design agenda.

Factors such as achievement of waiting time targets, the national prioritisation of out-patient redesign and dermatology consultant shortages further supports the need for change.

Table S6 summaries key elements of the need for change:

Table S6: Need for Change

Need for Change	Benefit
Workforce sustainability	- Reduced costs (Medinet & locum) - Meeting waiting time targets - Consistency and continuity of services - Development of new services - Participation in clinical trials and research - Reinstatement of peripheral clinics
Co-located services	- Delivery of more ‘one-stop’ services - Improved efficiency - More collaborative working - Improved capability and expertise

Implementing technology enabled services	- Improved system-wide knowledge and relationships leading to reduced referrals - Greater use of tele-medicine reducing the number of return appointments
Enhancing multi-disciplinary team relationships	- Redesigned and optimised patient pathways - Increase in patient self-management - Optimised use of NHS staff - Improved understanding of service scope and delivery
Optimisation of service delivery team	- Agreed performance metrics and better ability to match capacity with demand - Ensuring that the right people are doing the right job
Improving opportunities for quality improvement	- Space to develop ideas - Implementing local innovations
Improve patient experience	- Improve access to skilled dermatology nurses - Optimise patient facing time - Releasing time for patient facing activities

The case for change can be further highlighted in terms of current service risks in Table S7 below:

Table S7: Current Service Risks

Current Service Risks
Service sustainability
Staff recruitment and retention
Service reputation
Sustainability of multi-disciplinary team
Inability to provide internal urgent/emergency advice at ARI
Workforce resilience

2.6.5 Future Demand Projections

The demand for dermatology services is linked to a number of factors including:

- Demography;
- Exposure to sun;
- An increased number of older people in population.

Service investment will increase the total system capacity across NHS Grampian and this will provide the catalyst to drive further improvements.

2.6.6 Future Outpatient Demand Projections

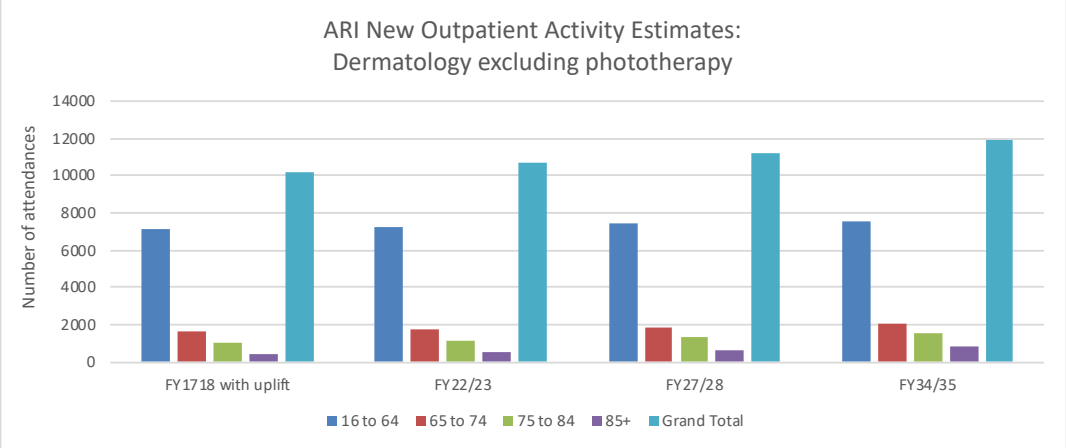
Future dermatology out-patient demand within the Elective Care Centre takes account of demographic growth and assumes 85% room utilisation. In addition, the current rate of referrals has been suppressed due to staff shortages this can be evidenced by the rate of new dermatology referrals in Grampian compared to Scotland as shown in Table S8 below:

Table S8: Grampian Referral Rate

Age Class	Grampian Rate	Scotland rate
16-64	10.1	23.2
65-74	16.1	35
75-84	23.1	45.6
85+	27.8	50.2

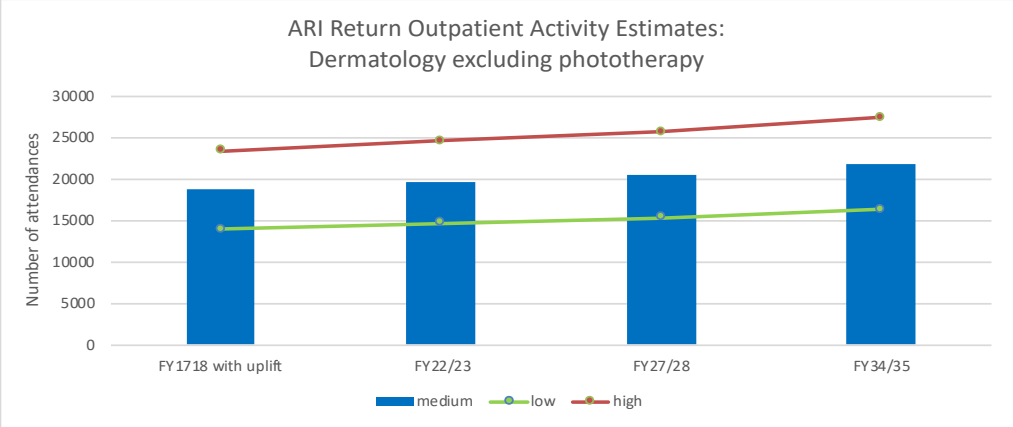
In determining future demand, it has been assumed that the Grampian referral rate would increase to the Scottish rate; resulting in an additional 7,000 new referrals each year. This suggests a re-stated base year activity of 10,000 new appointments rising to 12,000 by 2035 as shown in Graph S13.

Graph S13: Projected Dermatology New Out-patient Activity Estimates



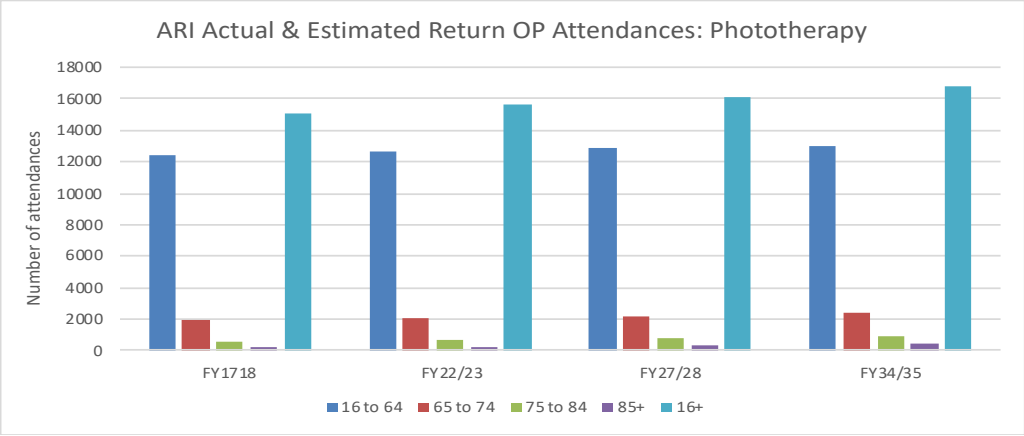
Return out-patient demand is expected to increase at a rate of 1.83 for each new appointment. This rate is midway from the optimum rate (1.38) and current rate (2.3). Graph S14 shows dermatology estimated return out-patient activity at ARI (excluding phototherapy).

Graph S14: Estimated Dermatology Return Outpatient Activity (ARI)



Analysis of phototherapy demand was undertaken separately as this has not been affected by the suppressed demand. Phototherapy is expected to increase from over 14,000 to over 16,000 attendances per annum as shown in Graph S15.

Graph S15: ARI Actual and Estimated Return Attendances - Phototherapy



In identifying the number of dermatology out-patient rooms required the following assumptions were made:

- Growth in new appointments to address suppressed demand and demographic change;

- Return appointments based on rate of 1.83 per new;

A detailed analysis of patient pathways was undertaken and assumptions made regarding the rooms they would utilise and the likely duration within each room

Room availability based on 210 minutes per session, 2 sessions per day, 5 days per week 49 weeks per year with utilisation of 85%.

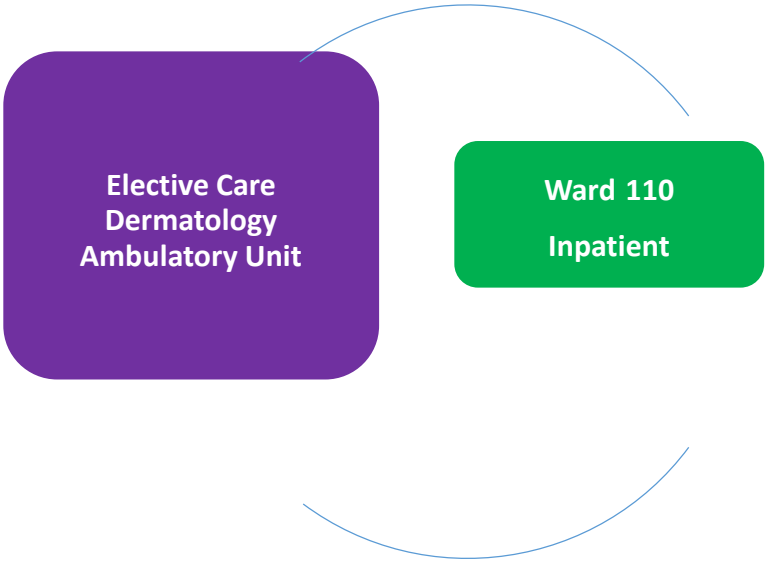
Table S9 summarises the ambulatory care dermatology suite room requirements at 2027 and 2035.

Table S9: Dermatology Ambulatory Suite Room Requirements

Room Type	Number
Consulting rooms	8 (7.96)
Procedure	2 (2.78)
Laser	1 (0.36) capacity of 3rd procedure room
Treatment spaces	6 (6.05)
Phototherapy	3 (2.18)

The schedule of accommodation provided takes account of this predicated demand for space and the accommodation provided will have multi-purpose use to maximise flexibility and room utilisation. Future service expansion beyond 2035 is likely to be delivered by extending the working day and week.

Figure S6: Proposed Future Dermatology Locations at ARI



2.6.7 Other Factors Affecting Activity, Demand and Treatment By 2020/20

2.6.7.1 Developmental Technology

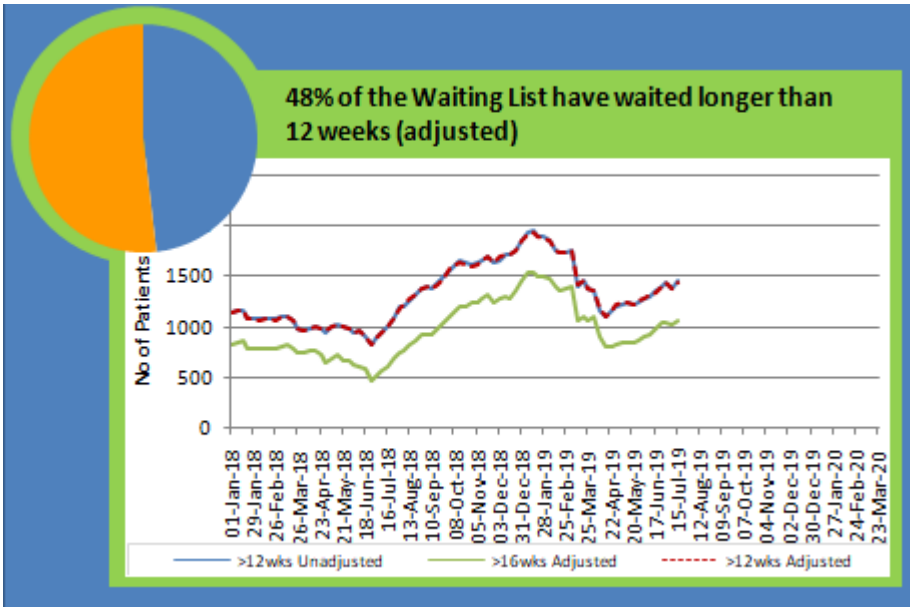
Likely Technical Advances:

- A number of new medications are available to treat psoriasis and eczema
- The use of appointment prompt text messaging in conjunction with patient focussed booking should reduce DNAs
- Implementation of 'Attend Anywhere' alongside community diagnostic hubs and virtual consulting could reduce the need for patients to travel and make the service closer to the patient's home more achievable
- Improvements in IT and communication will facilitate virtual clinics

2.6.8 Dermatology Waiting Times

Graphs S16 shows current dermatology new outpatient waiting times for Grampian.

Graph S16: Dermatology New Outpatient Waiting List All Sites



2.6.9 The Future

Currently, the service model does not enable one-stop clinics and this has a significant impact on efficiency and the patient experience. The ability to review patients in out-patients followed by examination and treatment in the co-located dermatology suite will reduce the need for follow-up appointments and therefore service demand.

The future service model will enable enhanced system-wide collaboration that will improve the patient pathway, deliver care in the right time and right place and ensure that care delivery is provided by the most appropriate professionals.

More capacity in the community will allow patients to be treated closer to home with only those who would benefit from specialised care being referred to the consultant service at ARI.

Discussion between NHS Grampian, NHS Tayside and NHS Highland are being pursued to consider how a more regionally based model could support improved service delivery, better outcomes for patients and sharing of expertise across the North of Scotland (NoS) NHS Boards. This may also positively impact on the training and placements for registrars, nurses and physician associates.

The dermatology service is already involved in clinical trials and research, there is an ambition for this to be expanded in future.

The dermatology service aims to:

- Provide equity of access to services and choice about where patients are seen
- Deliver care as close to home as possible
- Treat patients as a day case wherever possible
- Provide and maintain a safe environment for patients, visitors and staff
- Deliver holistic assessment, treatments and care, whilst considering the physical, psychological, spiritual and social needs of each patient
- Continue to develop and evaluate standards for treatment and care
- Encourage patients to participate in decision making, planning and evaluating their care
- Ensure that privacy and dignity is maintained
- Provide support and encouragement to all staff in the development of their role and utilising opportunities for education and training
- Ensure that all aspects of the service work in an integrated manner with patients and staff moving between each in a seamless manner
- Provide facilities that are appropriate to the needs of patients
- Meet service demand and see patients in a timely manner

2.7 Endoscopy Services

2.7.1 Current Service Arrangements

The Endoscopy Service is managed by the Gastroenterology Service on behalf of NHS Grampian. The service provides both an elective and unscheduled service for inpatient and day case patients. Delivery of the endoscopy service involves close working between the Gastroenterology and General Surgery departments.

The Endoscopy service has four key functions:

- Diagnostic/ Investigative Endoscopy
- Interventional Endoscopy
- Emergency and Unscheduled Endoscopy
- Delivery of the bowel screening programme

Currently, endoscopy services are provided from a number of locations across NHS Grampian, Table 10, describes all sessional activity, elective and unscheduled.

Table S10: Endoscopy Services

Location	Range of Services	Sessions per week
Aberdeen Royal Infirmary	• **General Endoscopy** • Endoscopy • Endoscopic retrograde cholangio-pancreatography (ERCP) • Percutaneous endoscopic gastrostomy (PEG) • Bowel Cancer Screening • Endoscopic Ultrasound (EUS) • Inpatient/emergency • General Anaesthetic (GA) list	 22.00 3.00 2.00 4.00 2.00 7.00 0.25
Aberdeen Community	• Ambulatory Endoscopy (provided by 3rd party)	10.00

Health & Care Village		
Dr Gray's Hospital, Elgin	• Inpatients/Day Case/Outpatients • Endoscopy	
Community Hospitals:		
Aboyne Hospital	• Ambulatory Endoscopy	0.50
Chalmers Hospital, Banff	• Ambulatory Endoscopy	1.00
Peterhead Community Hospital	• Ambulatory Endoscopy	2.00
Kincardine Community Hospital, Stonehaven	• Ambulatory Endoscopy	0.50

The ability to deliver endoscopy services at Community Hospitals enables care closer to home; these arrangements will be retained in future.

The spread of elective work across three locations within ARI (Endoscopy Unit, Radiology Department and Theatres) is inefficient and has a detrimental impact on the allocation of workforce.

<u>Positives in relation to current arrangements:</u>

- Cohesive team
- High quality of service
- Elective and emergency activity is split
- Good quality endoscopy equipment
- Training of Registrars, GPs, Nurse Endoscopists, Endoscopy Nurses and Medical Students
- Good involvement in research activity
- Good teamworking between surgical and medical teams
- Effective communication between booking team and Endoscopists

<u>Challenges in relation to current arrangements:</u>

- Lack of capacity within the system (workforce and facilities)

- Increasing demand for complex/interventional endoscopic procedures which requires extra time, specialist skills and equipment
- Under investment in specialised equipment for ERCP/EUS
- Elective and urgent/emergency ERCP patients are on a single list. This increasingly leads to cancellation of elective patients to accommodate urgent inpatients based on clinical need.

2.7.2 Current Service Configuration

Elective endoscopy is delivered from three different areas within ARI:

- Main endoscopy unit in the Rotunda, East End ARI
- A fluoroscopy/endoscopy room within the radiology department
- An endoscopy room within the main theatre suite

A number of procedures require the endoscopy and radiology teams to work closely together, for example:

- Insertion of PEG feeding tubes
- Supporting ERCP

2.7.3 Specialist Technical Infrastructure Requirements

NHSG has an aspiration that the endoscopy facilities fully compliant with JAG (Joint Advisory Group) standards.

Medical Physics input to endoscopy services is essential.

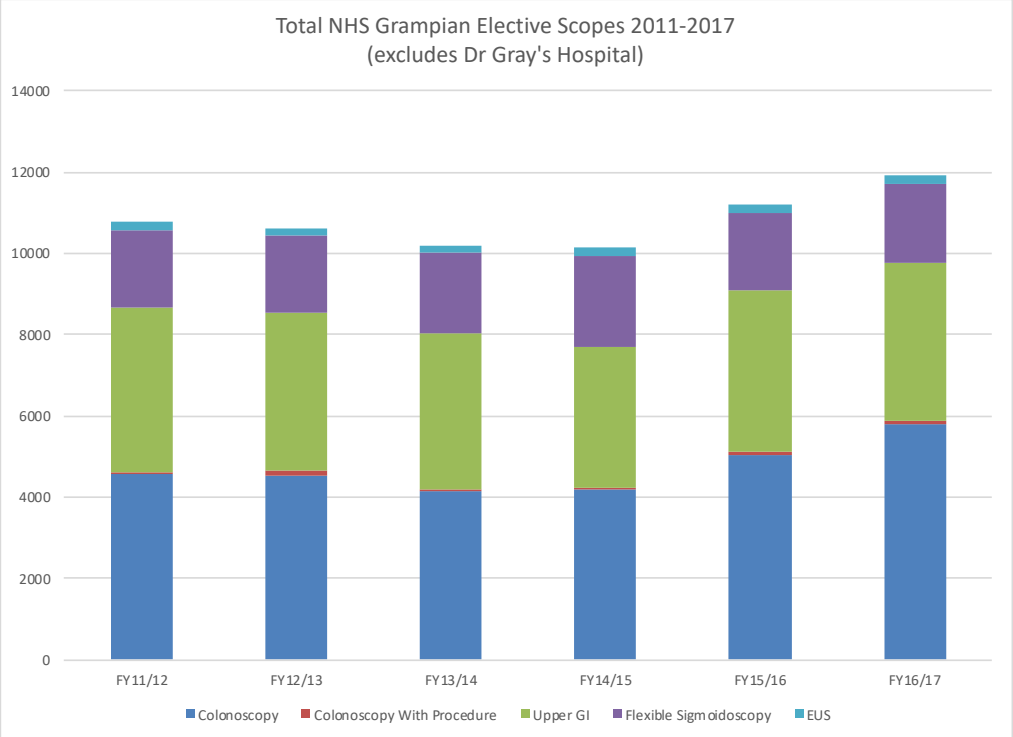
2.7.4 Impact of Current Service Configuration

- The requirement to staff four separate endoscopy locations within ARI across three separate zones is inefficient and difficult to sustain
- Significant numbers of breakdowns within interventional radiology due to the age of the equipment
- Long travel distances between the Short Stay Ward and the theatre endoscopy area
- Lack of appropriate patient facilities (e.g. toilet) in theatre endoscopy room
- Insufficient storage within the endoscopy unit

- Existing endoscopy rooms are under-sized or inappropriately configured
- Inadequate access to patient toilets in the endoscopy unit
- Poor staff accommodation

Graph S17 identifies the total NHS Grampian elective endoscopic activity (excluding Dr Gary's Hospital), by procedure over the period 2011 to 2017.

Graph S17: Elective Scopes in Grampian (excluding Dr Gray's)



Activity has increased noticeably since 2014/15. The reason it not completely clear but may be partially a result of improved bowel screening campaigns and an improved uptake of bowel screening following the introduction of the new, easier to use, Faecal Immunochemical Test (FIT) bowel screening test introduced in 2017, replacing the previous guaiac Faecal Occult Blood (gFOB), bowel screening test.

2.7.5 Case for Change

The aim of this investment is the creation of a single endoscopy unit which brings together services from three sites on the Foresterhill Health Campus to provide an efficient, streamlined service that is able to meet predicted demand over the period to 2035. Additionally, it is intended that the endoscopy unit is collocated with the day surgery unit to optimise efficiency in terms of patient arrival and reception and recovery and discharge. The need for change and the services risks are summarised in Table S11 and S12.

Table S11: Need for Change

Need for Change - Endoscopy	Benefits
Increase slots per day through improved patient flow	• Shorter waiting times • Improved efficiency • Improved clinical outcomes • Improved patient experience
Co-locate ARI elective endoscopy rooms within a single unit; including interventional and general anaesthesia capacity	• Shorter waiting times • Less complex scheduling • Improved team working
Improve efficiency: - • Improve storage within unit • Consolidate rooms in one location for improved use of nursing workforce • Improve patient flow and reduce delays between patients	• Reduced waiting times • Increased sustainability in nursing workforce • Increased opportunities to develop nursing team and improve skills • Improved patient experience
Improve patient experience: - • Create an integrated endoscopy facility • Improve male/female segregation • Provide better access to disabled facilities (changing etc)	• Less unproductive time between patients • Compliance with JAG standards • Improved patient safety

• Improve environment for patients with dementia/learning disability • Provide bariatric capacity • Provide appropriate counselling rooms	
Improve patient experience: - • Create an integrated endoscopy facility • Improve male/female segregation • Provide better access to disabled facilities (changing etc) • Improve environment for patients with dementia/learning disability • Provide bariatric capacity • Provide appropriate counselling rooms	• Less unproductive time between patients • Compliance with JAG standards • Improved patient safety
Improve staff changing and rest facilities	• Improve staff working conditions • Compliance with health and safety requirements • Improved team working

Table S12: Service Risks

Issue	Service Risk
Workforce	• Staff recruitment and retention
Service capacity	• Insufficient capacity to meet service demand leading to increased waiting times and delays in commencing treatment for some patients
Service targets	• Inability to meet national targets and standards

Facilities	• Inadequate facilities which compromises the patient experience
Research	• Ability to participate and expand research activity is compromised by service demand and facilities

2.7.6 Future Service Demand

The demand for future elective endoscopy services is linked to a number of factors including:

- Demography
- An increased number of older people in population
- Increasing levels of obesity (Cancer, Non-alcoholic fatty liver)
- Alcohol consumption
- Diet and nutritional intake
- Bowel Cancer Screening Programme
- Increased requirement to monitor patients with anomalies detected through screening programmes

Endoscopy services have been identified as one of the local clinical service priorities for elective care in NHS Grampian; they have significant current pressures and have a high prospect for improving clinical quality.

New elective endoscopy facilities will accelerate the implementation of new models of care as part of wider system redesign. The new endoscopy unit will bring together the current three elective locations in ARI into one streamlined unit which also makes provision for EPCP and Bronchoscopy.

Demand for future elective endoscopy is based on past demand and likely demographic growth with a utilisation rate of 90% to 2035.

It has been assumed that new endoscopy unit will operate 2 sessions per day, 5 days per week and 49 weeks per year.

Additionally, it is intended that the endoscopy unit is collocated with the day surgery unit to optimise service efficiency including e.g. reception and arrival and also patient recovery and discharge.

Current endoscopy services delivered at Dr Gray's Hospital, Elgin will continue as will endoscopy services provided at the Aberdeen Community Health Village; Aboyne Hospital; Chalmers Hospital, Banff; Peterhead Community Hospital and Kincardine Community Hospital, Stonehaven.
The total projected NHS Grampian elective demand is shown in Graph S18 and Table S13 they demonstrate the increasing demand over the period to 2035, by procedure.

Graph S18: Projected Grampian Endoscopy Demand 2022 – 2035

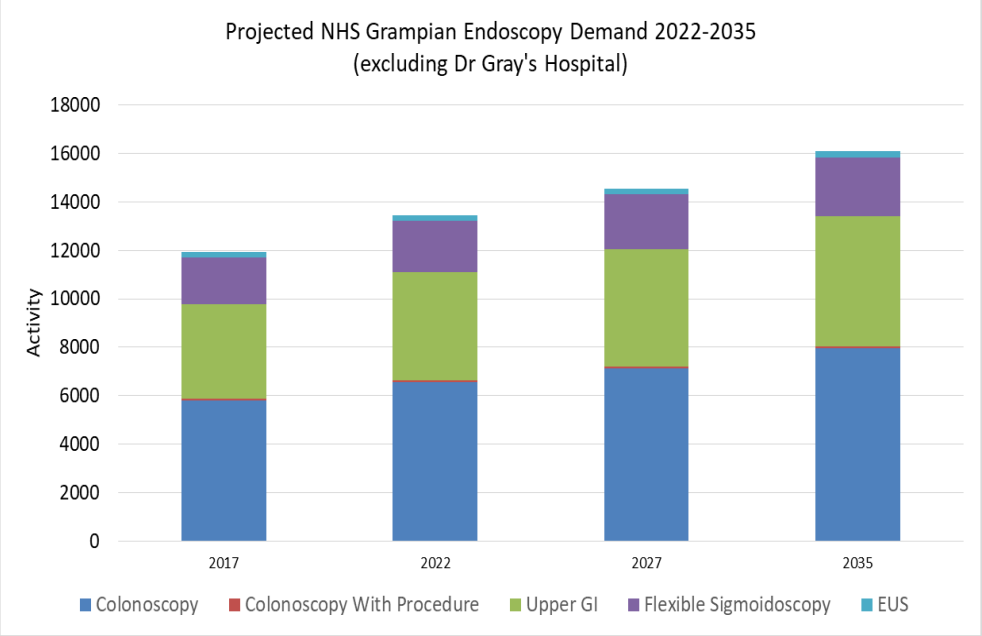


Table S13: Projected Elective Endoscopy Activity to 2035

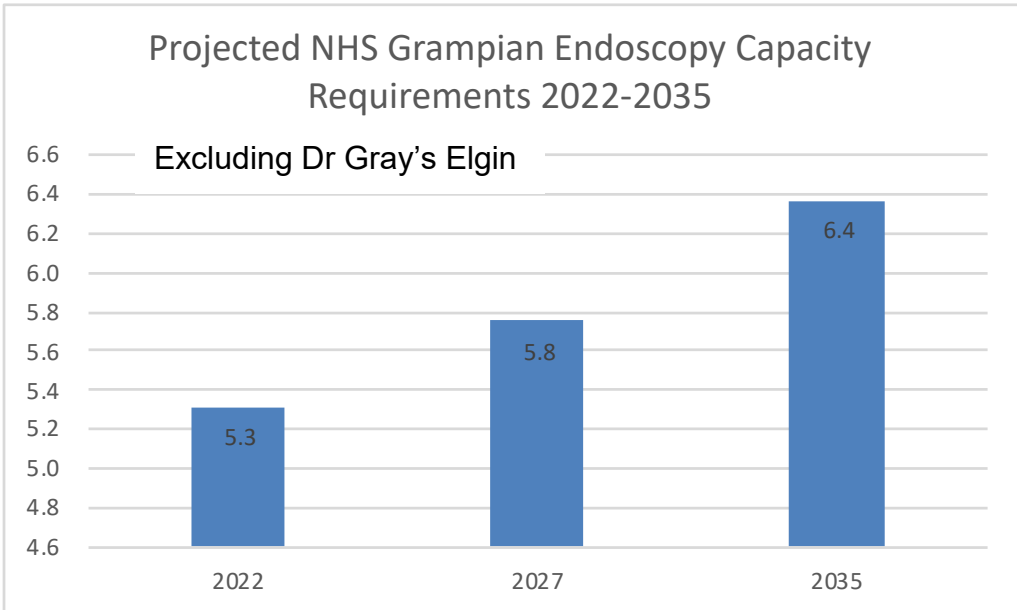
	2017	2022	2027	2035

Upper GI Endoscopy	3870	4450	4830	5365
Colonoscopy	5887	6635	7215	8045
Flexible Sigmoidoscopy	1960	2140	2265	2430
ERCP	488	540	590	665
Bronchoscopy	722	768	850	918

Including the endoscopy capacity provided elsewhere in NHS Grampian, 6.4 general endoscopy rooms will be required to deliver the forecasted elective activity to 2035, refer to Graph S19.

Taking account of the ongoing capacity at Dr Gray's Hospital and other Community Hospitals, 5 elective endoscopy rooms will be provided within the Elective Care Centre along with an ERCP room, a Bronchoscopy room, recovery and a collocated local decontamination suite to optimise throughput and service efficiency.

Graph S19: Projected Endoscopy Capacity Requirements 2022 - 2035



Graph S19 demonstrates the need for 6.4 elective endoscopy rooms by 2035, plus an additional one room at Dr Gray's Hospital in Elgin. Of the 6.4 rooms, 5 are required at ARI with the other 1.4 rooms located in a range of community locations in Grampian, refer to Table 1.

In addition, to the 5 elective endoscopy rooms provision has been made to accommodate the ERCP and bronchscopy activity in the new endoscopy unit in the Elective Care Centre.

Unscheduled endoscopy services will continue to be provided from the endoscopy room in the Matthew Hay Building, ARI.

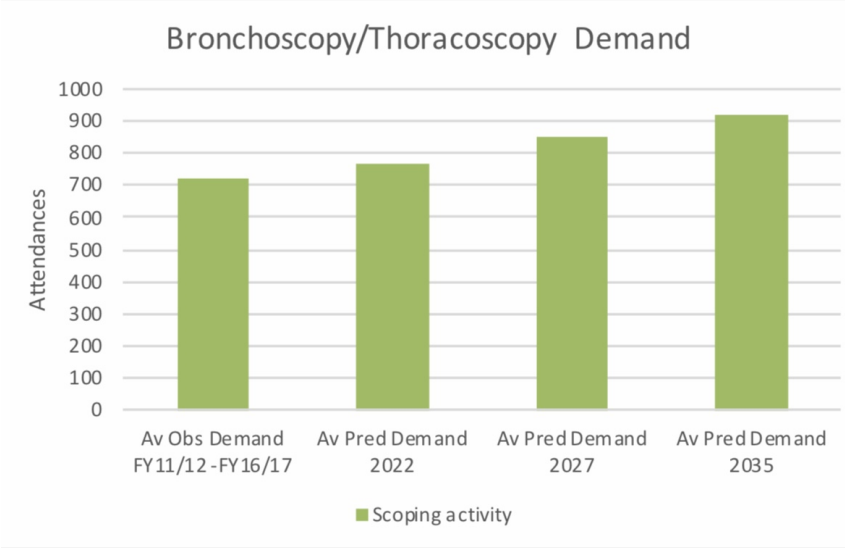
2.7.7 ERCP

Endoscopic retrograde cholangio-pancreatography (ERCP) will be delivered form the endoscopy unit . The projected activity is outlined in Table S3. The projected ERCP room capacity required increases from 0.4 rooms in 2022 to 0.6 rooms in 2035; the residual capacity will be used to provide additional capacity to meet peaks in general endoscopy activity.

2.7.8 Bronchoscopy

A specialist bronchoscopy/thoracoscopy room will be provided within the endoscopy unit to support the elective respiratory service. The forecasted activity is described in Graph S20 and Table S13. The resulting room capacity requirement increases from 0.5 rooms in 2022 to 0.6 rooms in 2035. Co-locating all scope rooms in one location will improve patient safety, maximise workforce utilisation and removes the need to duplicate accommodation such as recovery room facilities.

Graph S20: Projected Bronchoscopy/Thoracoscopy Activity



2.7.9 Likely Technical Advances

In general, there will be an increased in the use of IT to support self-booking of appointments, self-check-in and self-pre-assessment for low-risk patients.

- Improved ultrasound functionality (software improvements)
- Continued developments in ERCP equipment leading to more procedures being undertaken via endoscopy rather than surgical intervention
- Use of nasal endoscopy, will reduce requirement for specialist room
- Increased use of capsule endoscopy
- Ability to use propofol during endoscopy procedures

2.7.10 Other Factors Affecting Activity, Demand and Treatment by 2020/2025

- Increase in elderly population
- Shifts in regional service delivery
- Development of new treatments and technologies
- Impact of screening programme changes
- Workforce planning and availability

2.7.11 Philosophy of Care

The Endoscopy Unit will support the philosophy of elective care and the overall objectives of the Elective Care Centre. Specifically, it will:

- Improve and enhance all existing endoscope journeys through a redesign of processes, services, staffing and accommodation
- Ensure that patients are always cared for in the most appropriate locations by the most appropriate staff groups
- Enable the separation of elective care from unscheduled care for relevant specialties
- Minimise non-value adding process steps through ensuring that patients only access staff, services and process elements if there is a benefit
- Minimise duplication of effort and resources whilst ensuring longer-term sustainability through optimising and consolidating physical accommodation
- Reduce journey times through optimising physical adjacencies within the endoscopy unit and support areas
- Support a concentration and critical mass of relevant expertise to enhance interventions and on-going clinical management and support

2.7.12 The Future

The preferred service solution as outlined in the IA will include the provision of a endoscopy unit within the elective care centre which will provide bespoke facilities that will optimise the patient pathway and flow for elective endoscopy services, bringing services currently located in

three ARI sites into one single coordinated unit. This will improve productivity and deliver a better patient experience.

The collocated day surgery and endoscopy unit will support the philosophy of elective care and the overall objectives of the elective care centre. Specifically, it will:

- Ensure that patients are always cared for in the most appropriate location by the most appropriate staff groups
- Improve and enhance the patient journey by redesign of processes, services, staffing and accommodation
- Minimise non-value adding process steps through ensuring that patients only access staff, services and process elements if there is a benefit
- Minimise duplication of effort and resources whilst ensuring longer-term sustainability through optimising and consolidating physical accommodation
- Reduce journey times through optimising physical adjacencies within the operating department/endoscopy/support areas and between these and related areas
- Support a concentration and critical mass of relevant expertise to enhance interventions and on-going clinical management and support
- Meet referral demand and see patients in a timely fashion.

2.8 Day Case Surgery – MANJU / DUFF

2.8.1 Current Service Arrangements

The current service model provides general surgical, ENT and OMFS day case procedures in generic surgical facilities that also provide capacity for emergency cases. The prioritisation of emergency surgery often leads to elective cases being cancelled at short notice which adversely impacts on patient expectations and waiting times.

The model of care within generic operating theatre facilities is not optimised for day case surgery e.g. patient flows; this can have an adverse impact on operational efficiency and the patient pathway.

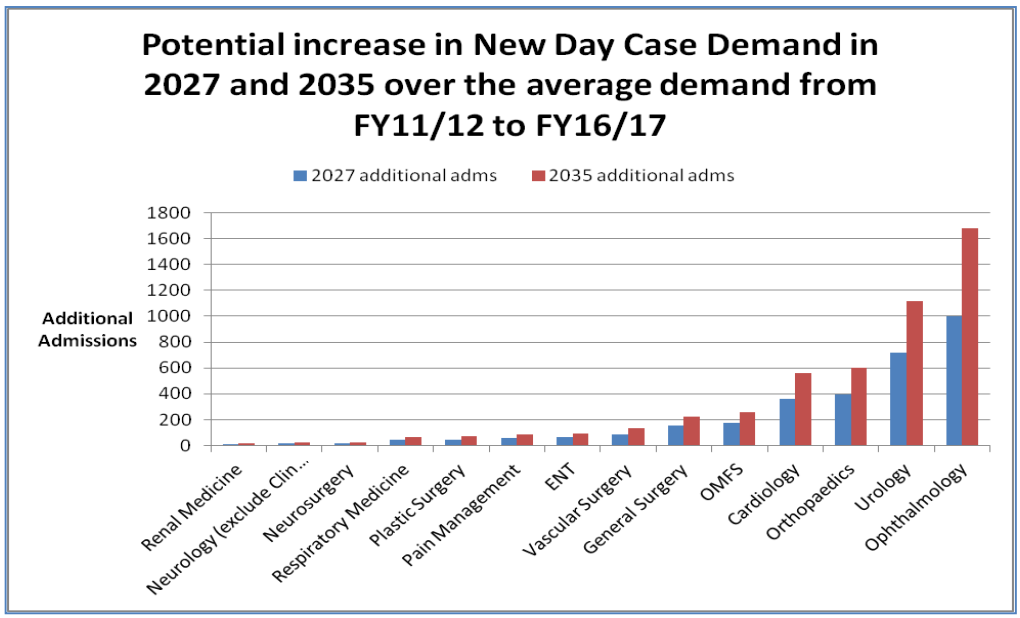
It is accepted that acute hospitals should seek to shift as much inpatient activity to a day case or outpatient setting as is clinically appropriate. One determinant of performance in this regard is compliance with BADS (British Association of Day Surgery) targets. Table S14 below shows recent performance at key Grampian Hospitals. More re-design work is required in all settings but the most potential for improvement is at Aberdeen Royal Infirmary which currently achieves 66% BADS compliance, the aim is to achieve BADS compliance for each procedure target.

Table S14: BADS procedures per hospital location and whether Day Case or Inpatient

Hospital	Day Case / Inpatient	Non-BADS Procedure	BADS Procedure	Total Procedures
Aberdeen Royal Infirmary	Day Case	2163	5908 (66%)	8445
	Inpatient	3163	3033	5822
Dr Gray's Hospital	Day Case	1117	2056 (82%)	2448
	Inpatient	451	463	1640

Woodend General Hospital	Day Case	776	1825 (76%)	3165
	Inpatient	2119	546	2101

Graph S21: Potential Increase in New Day Case Demand: 2027 & 2035



Graph S21 shows the specialties that have the greatest potential for an increase in day case surgery over the period 2027 to 2035. The specialties with the most potential day case growth include Ophthalmology, Urology, Orthopaedics and Cardiology. With the exception of Urology (discussed later) these specialties do not form part of this business case, the reasons are outlined briefly below:

2.8.2 Orthopaedics

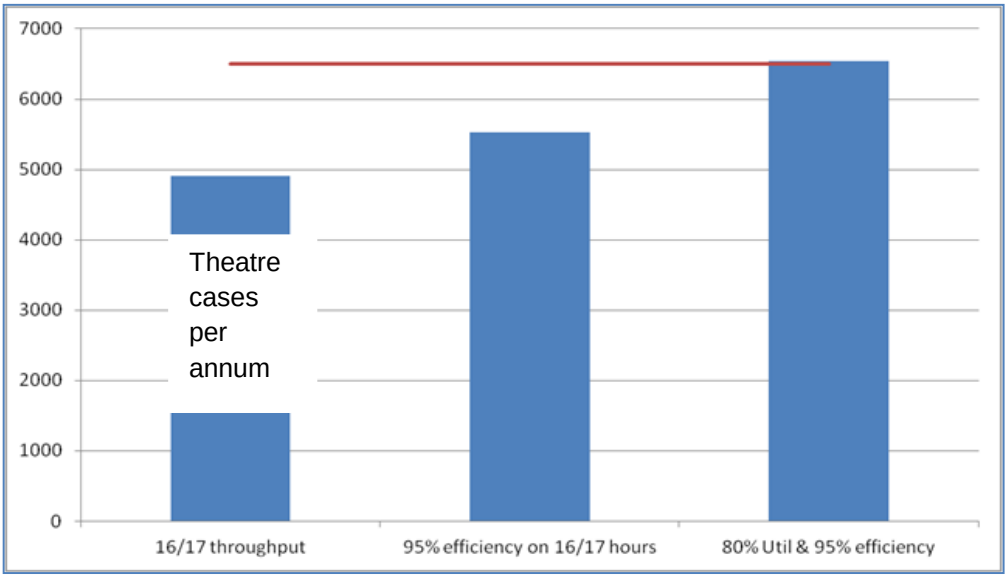
The proposed investment for elective care in Grampian is influenced by previous infrastructure developments. For example, NHSG has previously invested in dedicated Orthopaedic elective infrastructure on the Woodend Hospital site and has achieved physical separation between elective and unscheduled patient pathways for this service. This investment included increasing the number of dedicated elective

Orthopaedic theatres at Woodend Hospital from four to six in 2014. A number of other Boards are yet to achieve this and will seek to achieve similar elective and unscheduled flow separation via the elective care investment process. It is envisaged that the provision of elective Orthopaedic surgery on the Woodend site will require to be sustained for at least a further 10-15 years, or until long-term planning aspirations for the re-provision of the majority of the Aberdeen based surgical inpatient facilities are realised.

An assessment has been made of the potential capacity of the Woodend Hospital theatre estate versus the projected demand in 2027, excluding considerations pertaining to bed availability and staffing constraints. This shows that the current six theatres, if sufficiently staffed, would have enough capacity to meet the 2027 and 2035 demand projections. Calculations show that demand could be met in 2027 by running the six theatres at Woodend Hospital for a combined total of 80% of their five-day week at 95% efficiency. This is illustrated in Figure S27.

Graph S22: 2027 Demand and Capacity – Woodend Hospital Theatres

Red Line = 2027 Theatre Demand



The main current constraints on the Orthopaedic service operative capacity are heavily linked to workforce supply as opposed to physical infrastructure. The main consideration which poses risk to resilience of the physical theatres at Woodend Hospital is the outdated air-flow system servicing two adjacent theatres. This system requires to be run at high capacity to achieve acceptable air flow and is outdated, with the potential to fail critically and remove both theatres from service. NHSG has recently appointed Thomson Gray to undertake a survey of 36 theatres across Grampian to assess their functional suitability and current condition to inform infrastructure and backlog maintenance planning over the next 10-15 years.

2.8.3 Ophthalmology

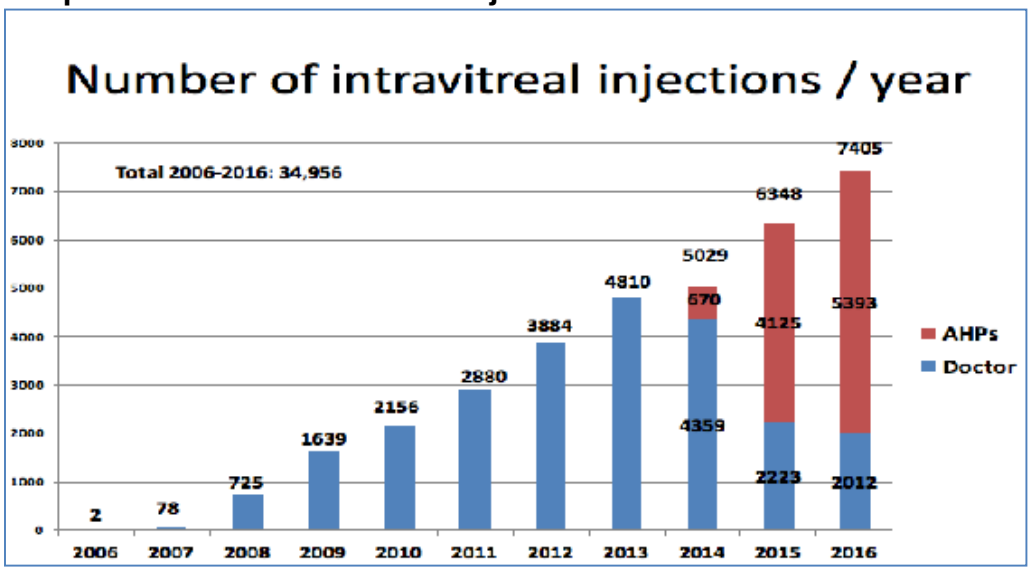
This proposal is also influenced by extant local plans for investing in Ophthalmology. NHSG has recently advanced plans to re-provide the ARI based Ophthalmology out-patient department in a refurbished location within existing space which is being redesigned to support modern ambulatory care.

Cataract capacity delivered via the planned new procedure room and limited GA theatre access required will be approximately 3000 cases per annum, with scope to optimise performance further to approximately 3500 through increased productivity. In broad terms this will initially provide sufficient physical capacity to meet demand beyond the 5 year horizon. This facility is being developed with built-in infrastructure to establish a second dedicated cataract procedure room when required. This will allow further expansion of the physical operative capacity to cope with demand up to and beyond the 2027 modelling horizon, subject to workforce and revenue constraints. The new facility has been operational since early July 2018 and will further support the future-proofing of this important and high-volume specialty through providing one additional cataract procedure room.

There remains, of course, a significant workforce and revenue challenge associated with establishing such a further facility. NHSG is fully engaged in informing and developing local and national efforts to define optimal pathway standards for cataract procedures.

An important and wider redesign imperative associated with elective Ophthalmology is the requirement to future-proof for the increasing numbers of return outpatients who require repeat intra-vitreal biologic treatments for treatment of age-related macular degeneration (AMD). Graph S23 outlines this imperative.

Graph S23: NHSG Intravitreal Injections Per Year



Graph S23 shows the exponential increase in the delivery of intra-vitreal injections over the last 10 years in NHSG and underlines the importance of planning for elective care needs in a manner that considers the non-operative and sight-saving needs for this growing patient group, as well as the service operative demand and capacity.

There is considerable scope for the development of community-based provision of these treatments, shifting from being acute-based, and potential to involve existing competent practitioners in new ways in order to support this. This issue will be further considered as part of the separate discussions regarding the role of Community Hubs in Grampian.

2.8.4 Cardiology

During the Initial Agreement phase of the project, the pressure on Cardiology was highlighted as a service priority for NHSG. It was agreed with the Elective Care National Programme Board that this was not a priority for elective care funding, this priority continues to be progressed by NHSG.

In addition, to these specialties four other specialties make up the remaining key surgical specialties:

- Vascular Surgery
- Oral, Maxillofacial Surgery (OMFS)
- General Surgery
- Ear, Nose and Throat Surgery (ENT)

2.8.5 Vascular Surgery

Vascular Surgery performance is a priority for NHGS Grampian. It was however agreed at Initial Agreement stage with the National Programme Board that Interventional Radiology improvements will not be delivered as part of the Elective Care Project. Interventional Radiology (IR) continues to be an NHSG priority and work to improve IR treatment capacity is being considered separately by NHSG. In addition, there have been changes in the way varicose vain treatments are delivered meaning that these treatments can now be undertaken for the most part in an outpatient procedure room and not a theatre environment.

As outlined in Graph S21 the three remaining priority surgical specialties are the focus of this development, they include Oral, Maxillofacial Surgery (OMFS), General Surgery and Ear, Nose and Throat Surgery (ENT).

2.8.6 Current Service Model

The current service model provides general surgical, ENT and OMFS day case procedures in generic surgical facilities that also provide capacity for emergency cases. The prioritisation of emergency surgery often leads to elective cases being cancelled at short notice which adversely impacts on patient expectations and waiting times.

The model of care within generic operating theatre facilities is not optimised for day case surgery e.g. patient flow; this can have an adverse impact on operational efficiency and the patient pathway.

Positives in relation to the current day surgery service model:

- Dedicated and skilled staff
- 6:4:2 system implemented to ensure that sessions which are to be cancelled are notified 6 weeks in advance
- Staff flexibility and good will
- Patient pre-assessment means that all patients requiring elective surgery arrive appropriately prepared

Challenges associated with the current day surgery service model:

- Theatre sessions cancelled due to shortage of theatre nurses and non-availability of beds
- Insufficient segregation of elective and unscheduled procedures resulting in cancellation of elective procedures at short notice
- Sub-optimal patient flow causes delays in transferring patients to and from theatre
- Staff shortages does not leave sufficient time to plan and implement operational improvements

Currently operating theatre services are delivered from the following 22 theatres at Aberdeen Royal Infirmary:

- Main Theatres - 17 theatres and a recovery area (this includes 3 emergency theatres)
- Surgical Short Stay Unit/23 hour - 2 theatres, 2 procedure rooms and a recovery area
- Level 0 theatre – 2 theatres and a recovery area
- Ward 202 – Urology Day Case theatre & recovery/ward area

2.8.7 Case for Change

The aim of this investment is the creation of dedicated day surgery facilities to meet the predicted day surgery demands for ENT, General Surgery and OMFS, so that:

- The BADS target for each procedure is achieved, as appropriate
- Elective day surgery is separated from in-patient and non-elective surgery to optimise throughput and improve waiting times

Creating appropriate capacity and the right environment of care will support achievement of surgical waiting times for these specialties over to period to 2035, this is summarised in Table S15. Table S16 indicates the service risk to be managed.

Additionally, it is intended that the day surgery unit is collocated with the endoscopy unit to optimise service efficiency including e.g. reception and arrival and also patient recovery and discharge.

Table S15: Need for Change

Need for Change	Benefits
Increased efficiency of the operating theatre patient flow	• Improved efficiency, Improved use of operating time • Better patient experience
Fewer cancelled procedures by increased segregation of elective and unscheduled pathways	• Improved clinical outcomes • Improved efficiency • Better patient experience

Day unit available for day case surgery only	• Increase day case rates • Reduced costs

Table S16: Current Service Risks

Issue	Service Risk
Capacity to meet demand	• Access to sufficient capacity to support service demand, including the provision of dedicated elective surgical capacity
Workforce	• Workforce challenges and the future ability to support service needs as a result of retirement, recruitment difficulties and the ability to retain staff
Teaching and learning	• Ability to provide effective undergraduate and postgraduate teaching and the provision of appropriate facilities to support learning

2.8.8 Future Service Demand

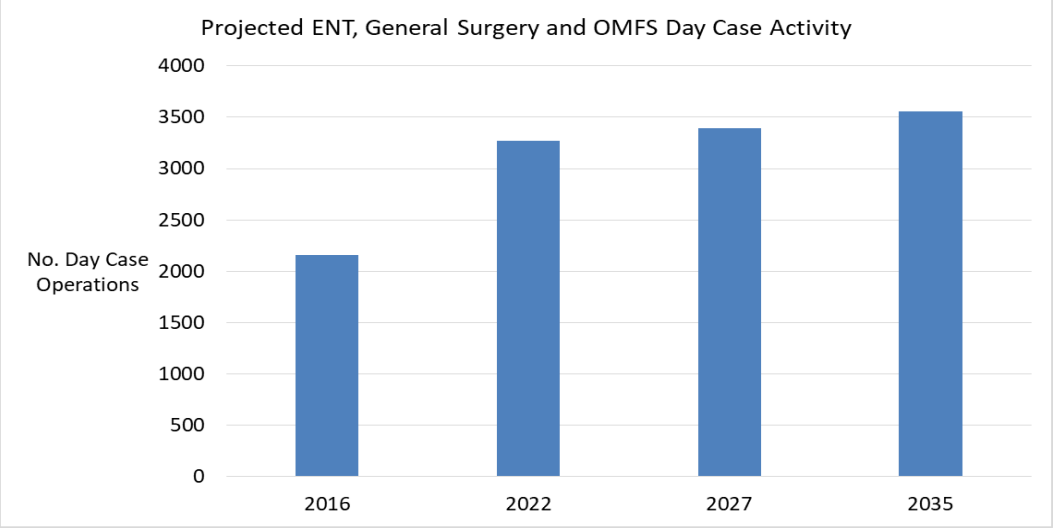
Future demand for day surgery services is linked to a number of factors including:

- Demography
- An increased number of older people in population
- Increasing levels of obesity

New day surgery facilities will accelerate the implementation of new models of care as part of wider system reform that includes additional services within local communities. This is being taken forward within the elective care project through additional investment in Community Hubs which will improve access to care sustainably and substantially e.g. GP minor surgery, attend anywhere and phlebotomy services.

Future day case demand within the Elective Care Centre takes account of demographic growth and assumes achievement of BADS day case targets for each appropriate procedure for general surgery, ENT and OMFS. This increases the number of day case procedures from 2,156 in 2016 to 3,557 in 2035, as indicated in Graph S24.

Graph S24: Projected ENT, General Surgery, OMFS Day Case Activity 2016 - 2035



Three operating theatres will be required to deliver the forecasted activity within the Elective Care Centre. In planning for capacity, an improvement in operational efficiency has been assumed; this has been based broadly on the average best in Scotland for the three specialties. The working assumptions relating to this calculation are outlined in Appendix L.

Under-utilisation of the unit could be between 0.2 and 0.8 depending on the level of improved efficiently achieved once the unit is operational. Any under utilisation will allow other smaller specialties to provide their day surgery activity from the unit, including some or all of the specialties listed in Table S17.

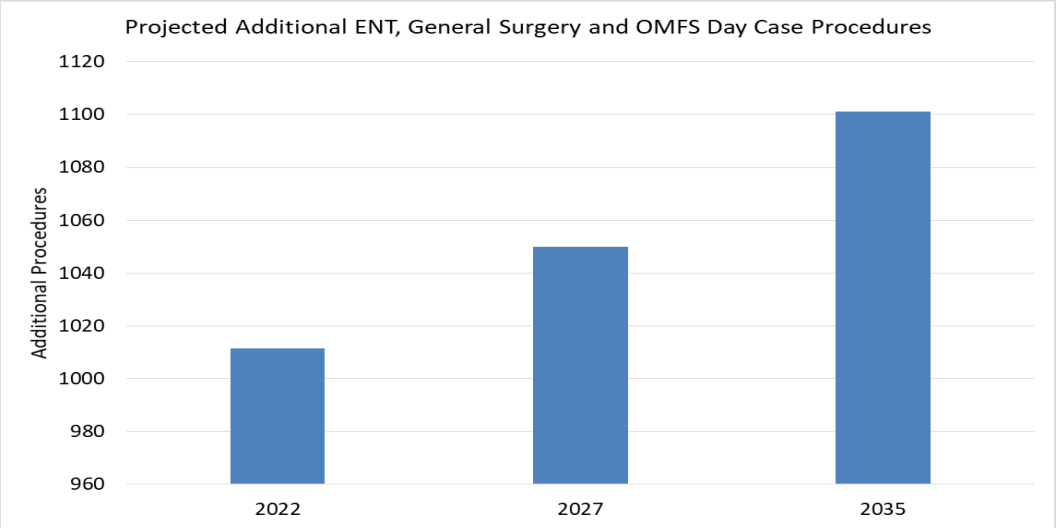
Table S17: Predicted 2022 Activity Assuming Achievement of 100% BADS

Specialty	Annual Day Case Activity	Theatre Accoomodation Requirement
Cardiology	141	0.1
Ophthalmology*	734	0.25
Renal Medicine	110	0.03
Vascular Surgery	466	0.3
Total	**1451**	**0.78**

*Patient requiring a general anaesthetic that can't be accommodated in Ophthalmology Ambulatory Unit at ARI.

Graph S25 demonstrates the projected additional day case procedures that will be achieved by achieving BADS targets for these specialties 2022-2035.

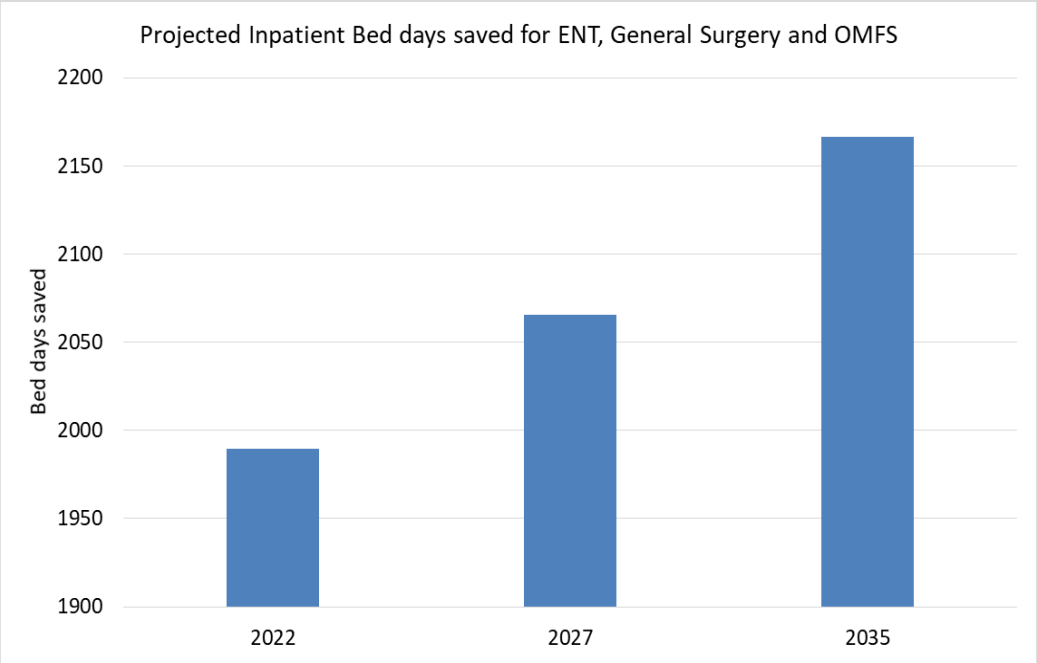
Graph S25: Additional General Surgery, ENT & OMS Day Care Procedures between 2022 and 2035



Achievement of the BADS targets in this new day surgery unit will result in circa 2000 saved bed days each year, additionally, it will release

space the main theatre suite. The released theatre and ward space will provide capacity to accommodate the predicted demographic increase in the demand for elective in-patient and non-elective surgery. Graph S26 demonstrates the projected bed days saved 2022-2035. The existing short stay theatre suite will be decommissioned as a consequence of this development and the planned relocation of gynaecology services to the new Baird Family Hospital, scheduled to be commissioned in 2023.

Graph S26: Projected In-patient Bed Days Saved in General Surgery, ENT and OMFS 2022 - 2035



2.8.9 Developmental Technology

In addition, to the proposed changes to the patient pathway which will drive service improvement other technology changes will also generate improvement including e.g. an increase in the use of IT to support self-booking of appointments, self-check-in and self-pre-assessment for low-risk patients and the availability of electronic patient records, the ability to record digital images, videos and operative sketches, and e.g.:

- Increased use of LASERs for kidney stones and use of minimal invasive procedures in the treatment of benign prostate hyperplasia within Urology
- Further development of laparoscopic and endoscopic surgery

2.8.10 The Future

The preferred service solution as outlined in the IA will include the provision of a day surgery unit within the elective care centre which will ensure clear separation of elective and unscheduled care and create bespoke facilities that will optimise the patient pathway and flow. This will improve productivity and deliver a better patient experience.

Investment in the day surgery unit facilities will release inpatient bed days through converting short say and inpatient activity to an ambulatory care model. In doing so, elective care centre activity will be protected creating certainty of capacity and operational delivery; this will reduce the likelihood of list cancellation and reduce waiting times for patients.

The collocated Day Surgery and Endoscopy Unit will support the philosophy of elective care and the overall objectives of the Elective Care Centre. Specifically, it will:

- Ensure that patients are always cared for in the most appropriate location by the most appropriate staff groups
- Enable the separation of elective care from unscheduled care, for relevant specialties
- Improve and enhance the patient journey by redesign of processes, services, staffing and accommodation
- Minimise non-value adding process steps through ensuring that patients only access staff, services and process elements if there is a benefit
- Minimise duplication of effort and resources whilst ensuring longer-term sustainability through optimising and consolidating physical accommodation

- Reduce journey times through optimising physical adjacencies within the operating department/endoscopy/support areas and between these and related areas
- Support a concentration and critical mass of relevant expertise to enhance interventions and on-going clinical management and support
- Meet referral demand and see patients in a timely fashion.

2.9 Respiratory Medicine Services - LOUISE

2.9.1 Current Service Arrangements

The NHS Grampian respiratory medicine service provides diagnostic, treatment and advisory services for patients with conditions affecting the respiratory tract and related systems.

Respiratory medicine is a significant area of activity for both primary and secondary care services in NHSG. Commonly encountered respiratory conditions include:

- Chronic obstructive pulmonary disease (COPD) and asthma – predominantly treated in primary care with an important link to secondary care for specialist expertise, diagnosis and management of advanced disease and acute exacerbations
- Infection of the respiratory system (such as pneumonia)
- Sleep disordered breathing
- Cystic fibrosis
- Non-cystic fibrosis bronchiectasis
- Lung cancer and mesothelioma
- Interstitial lung disease
- Pleural disorder

The function of the service is to:

- Participate in the Respiratory Medicine Managed Clinical Network (MCN) and work with primary and community health services to support effective management of respiratory disorders in community settings
- Deliver a multi-disciplinary service across NHSG (such as cancer and interstitial lung disease)
- Provide patient education and support as necessary

- Provide patients with streamlined outpatient services, delivering a number of specialist clinics
- Provide day treatment provision for a wide range of respiratory disorders
- Provide inpatient services for both elective and emergency admissions, including assessment, diagnosis, treatment and rehabilitation
- Provide a respiratory medicine consultation service to patients with respiratory disorders admitted to other specialties e.g. surgery and medicine
- Closely work with other specialties such as oncology and palliative care
- Deliver a pulmonary function service
- Deliver specialist diagnostic tests such as bronchoscopy

2.9.2 Current Service Model

The service operates a multi-professional team model that includes a range of medical, nursing (including specialist nursing), health scientist and allied health professional staff, and input from clinical psychology.

The specialist nurses provide nurse led clinical services for cystic fibrosis, sleep apnoea and some other long-term conditions. The physiotherapist leads on the oxygen service and pulmonary rehabilitation.

The service is predominantly delivered from Aberdeen Royal Infirmary (ARI) but clinics are also provided at Dr Gray's Hospital (Elgin), Chalmers Hospital (Banff) and Peterhead Community Hospital. A limited number of home visits are undertaken by respiratory nurses.

The ARI respiratory medicine service delivers:

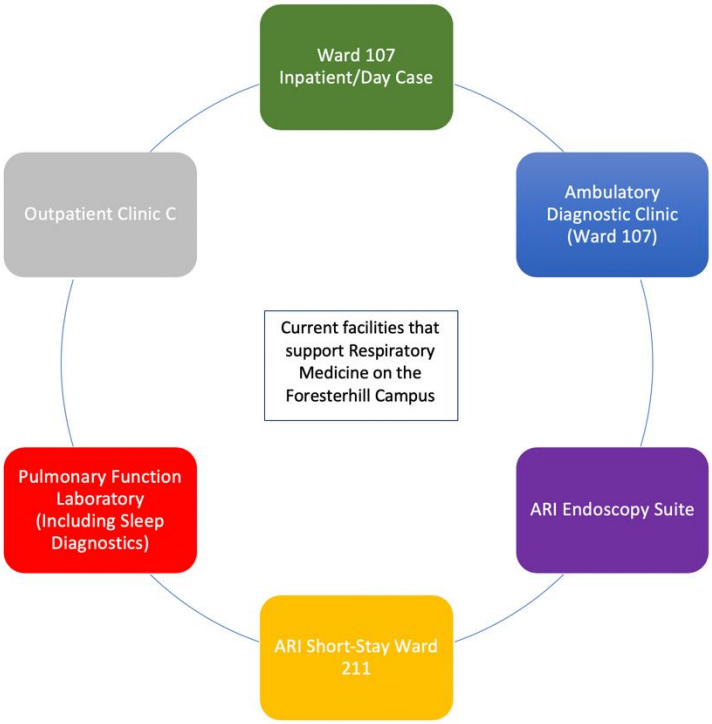
- Attend anywhere' for a proportion of return patient appointments
- A weekly one-stop ambulatory diagnostic clinic in Ward 107

- Outpatient clinics from Clinic C at Aberdeen Royal Infirmary
- Oxygen clinics including a Grampian-wide domiciliary service
- Tele-respiratory clinics that serve Orkney and Shetland
- In patient/day patient services at ARI from Ward 107
- Pulmonary function assessment in the pulmonary function laboratory
- Sleep diagnostics in the pulmonary function laboratory
- Bronchoscopy in the endoscopy clinic with patients attending the short stay unit for admission and recovery

Recent review of patient pathway and flow indicates that referrals normally originate from GPs, but may also be received from community advanced nurse practitioners or other medical or surgical teams. Referral for electronic requested advice accounts for approximately 20% of total referrals and typically half of this converts to an out-patient appointment.

Figure S7 identifies the current facilities that support the respiratory service on the Foresterhill Health Campus. As demonstrated in the Figure S7 the service is fragmented and the physical spread of locations leads to inefficiency and ineffective utilisation of staff and resources. This reflects the incremental evolution of the service which was previously; in-patient and out-patient dominated and not designed to deliver a modern model of ambulatory based service.

Figure S7: Current Respiratory Service Location at ARI



Out-patient clinics are provided at Clinic C in Aberdeen Royal Infirmary; this is on a shared basis with other specialties and there are no dedicated rooms. The configuration and capacity of the department limits the ability to provide one-stop multi-professional working. The outpatient radiology department is in relatively close proximity.

The pulmonary function laboratory is located in the east end of ARI. The location is in good proximity to the out-patient clinic, it is however, a challenging walk for some respiratory patients which can result in delays at clinic as patients move between locations. There is no space for a trolley/bed and therefore some patients cannot be accommodated within the lab. Walk testing is carried out in the main east end corridor which is very busy and unsuitable for this type of assessment.

Access to undertake bronchoscopy in the existing endoscopy suite is sub-optimal. Recent pressures have led to a reduction in sessional access for the respiratory service, which is impacting on activity levels.

Additionally post bronchoscopy recovery involves patients being transfered between the existing endoscopy suite and the short stay unit which is 3 floors below.

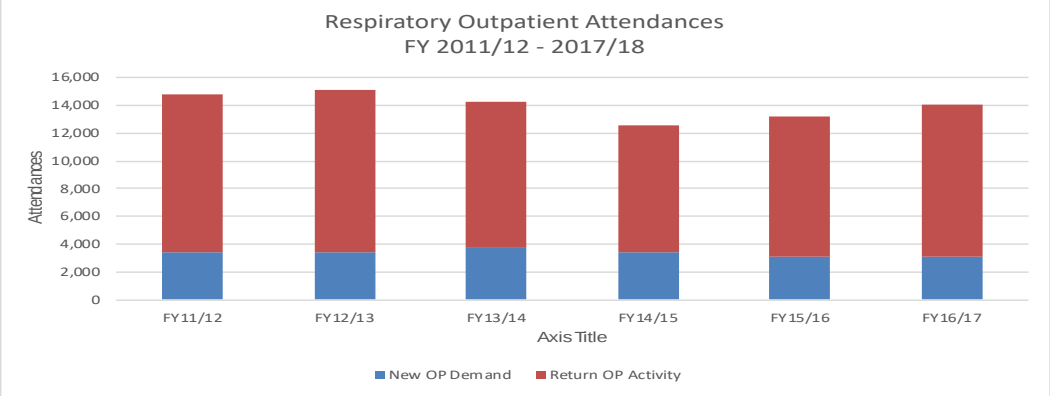
An integrated unit would optimise patient flows , improve efficiency and patient experience.

2.9.3 Current Patient Activity, Demand and Capacity

2.9.3.1 Out-patients

Current data available indicates that new and return outpatient activity has remained relatively static in recent years. Graph S27 below identifies respiratory outpatient attendances between 2011/12 and 2016/17.

Graph S27: Respiratory Outpatient Attendances 2011-2017



2.9.3.2 Day Case

Bronchoscopy and thoracoscopy will be delivered from the new endoscopy unit, please refer to section 2.7.8.

2.9.4 Case for Change

The respiratory service has been identified as one of the local clinical service priorities for elective care in NHS Grampian; it has significant current pressures and has a high prospect for transforming clinical quality. New facilities will enable the implementation of new models of care as part of wider system reform.

The multi-professional nature of the service supports accurate diagnosis and access to a wide range of treatment and support services for patients. However, the inability to co-locate services to one efficient, patient centred multi-professional patient flow is hampered by current accommodation constraints. One-stop clinics cannot be scheduled due to the dispersed nature of the service, this results in new out-patients being referred for multiple tests before returning for a review appointment with the consultant to confirm their diagnosis and discuss management.

Return out-patient demand is expected to fall significantly once facilities that enable one-stop clinics are available. This would substantially reduce the number of return out-patient appointments; however, one stop visits will be much longer than the current model as patients will be scheduled for multiple consultations with a variety of clinician's e.g. respiratory consultant, advanced nurse practitioner, respiratory physiologists and possibly a psychologist.

Challenges associated with the current service model:

- Inability to offer a one-stop out-patient service resulting in up to 5 appointments for various tests and consultations
- Physiology department is too small and cannot accommodate a trolley, and is separate from the out-patient clinic
- Bronchoscopy/thoracoscopy, limited to 2 sessions per week due to constraints with location, space and staffing
- Ad hoc in-patients who require a bronchoscopy cannot be accommodated due to fixed access to scoping facility
- Lack of appropriate day treatment space (Ward 107) for pleural patients, intravenous infusions and biologics
- Lack of a local C-PET service

A key objective of the respiratory service is to avoid and inpatient admission by introducing a scheduled see and treat clinic; converting an unscheduled admission to an elective activity. Many patients with cystic fibrosis and bronchiectasis are currently admitted as an inpatient and would benefit from this rapid integrated ambulatory care service. It is estimated that around 90 patients per year could follow this process with an estimated saving of over 800 bed days.

This potential reduction in bed days equates to approximately three in-patient beds per day. The current respiratory in-patient ward, will on average 'board' five patients due to operational pressures. Reducing the number of unscheduled respiratory admissions would make a significant difference for patients and the service.

The respiratory service transformation includes designing improved information for self-management and sign-posting and developing supportive activities in the community (talking therapies). The respiratory service redesign aims to deliver an outpatient new: return ratio with upper quartile performance, benchmarked against the *NHS Scotland District General Hospital* peer group (1:1.8).

Service investment will enable service transformation and increase the total system capacity across NHS Grampian; this will provide the catalyst to drive further improvements.

Table S18 below highlights the main elements in the case for change:

Table S18: Need for Change

Need for Change	Benefit
A clean procedure space to develop a rapid access/ 'urgent' day service	Quicker access for patients, improved efficiency, reduced length of stay, improved patient

	experience
Improved day case facilities/staffing	Increased capacity, faster diagnosis, greater compliance with standards
Improved access to diagnostics, (presently booking patients in for separate appointments for tests, and then for repeat appointment to discuss test results)	One stop clinics, reduced number of appointments, improved efficiency, better patient experience and earlier diagnosis
Fit for purpose out-patient environment with MDT capacity	Reduce repeat appointments, greater efficiency, MDT decisions can be made on the same day and availability of functional equipment.
Improve workforce sustainability and levels of health scientist staffing	Improved testing of better quality leads to improved health outcomes for patients
Ability to offer a full elective care service (inpatients and outpatients)	Reduce emergency admissions Improve waiting times Improve patient experience

Admission prevention and the conversion of unscheduled activity to scheduled by improving access to out-patients is driving the need to further transform the model of service delivered.

The case for change can be further highlighted in terms of current service risks in Table S19 below:

Table S19: Current Service Risks

Current Service Risks	
Demand exceeds capacity	Inability to meet out-patient waiting time standards Patients waiting longer for diagnosis; delay may lead to deterioration in patient's condition
Workforce	The development of nurse specialist roles is positive; however, capacity is low and there are challenges during period of absence or vacancy Recruitment of replacement staff involves a period of intensive training. Low levels of healthcare scientists are in post compared to other Scottish Health Boards. There is only one training location in Scotland (Glasgow) which disadvantages NHS Grampian for recruitment in to this role Consultant staff sustainability and recruitment.
Adverse Impact of Unscheduled Care on the Elective Pathway	Long elective waiting times can result in deterioration in patient health and lead to increased emergency admissions

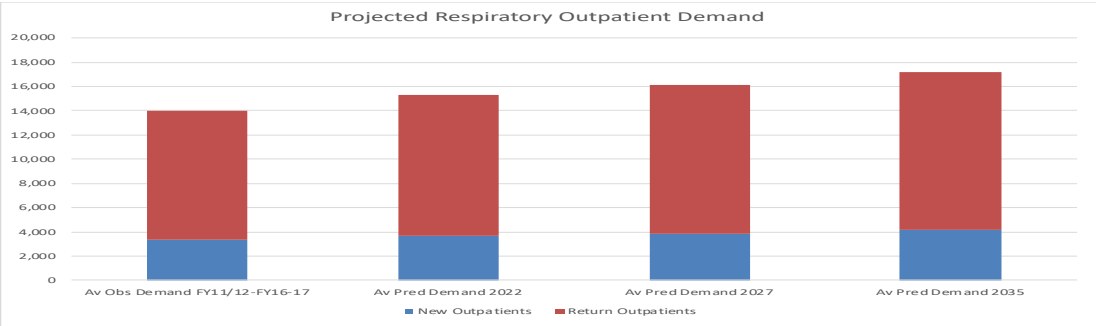
2.9.5 Respiratory Medicine Future Service Demand Projections

The demand for respiratory services is linked to a number of factors including:

- Demographics - demand for the service has a direct association with an elderly population;
- Lifestyle – obesity, a sedentary lifestyle and anxiety can all affect respiratory health. Over time, a reduction in smoking will lower demand for some services;
- An increased requirement to provide one-stop integrated treatment and procedures in an outpatient environment.

Future respiratory out-patient demand within the Elective Care Centre takes account of demographic growth, a shift of scoping activity and respiratory physiology all provided within a single ambulatory care setting. Graph S28 below shows the projected Respiratory out-patient demand. The projected return activity, however, does not yet reflect the likely reduction in return out-patients that will occur one one-stop clinics are introduced. It is anticipated that this improvement will result in the achievement of an improved new to return ratio consistent with the upper Scottish quartile.

Graph S28: Projected Respiratory Outpatient Demand



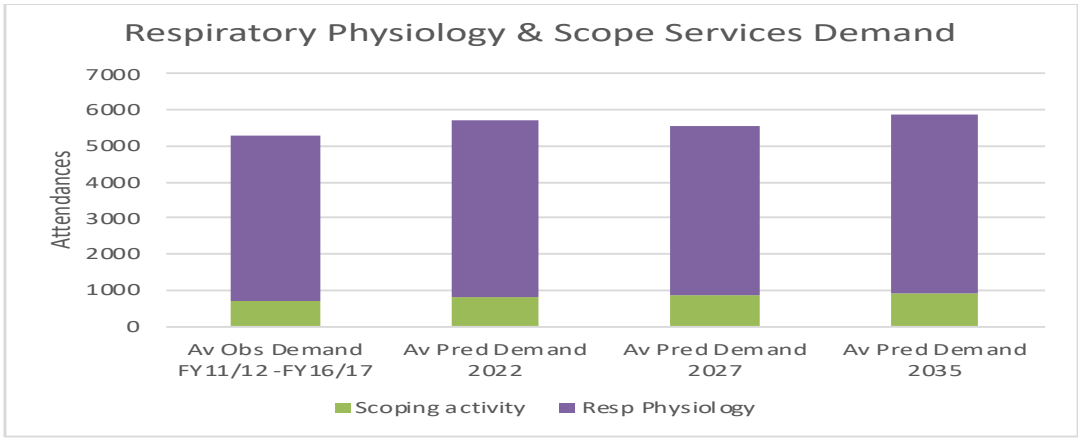
New outpatient demand is expected to increase from an average observed demand of 3,361 attendances in 2017 to an average predicted demand of 4,130 in 2035.

2.9.6 Respiratory Scope and Physiology Services

It is anticipated that scope procedures will increase from 722 in 2022 to 918 by 2035; this will be a shift from the current day case (ward 301/302)

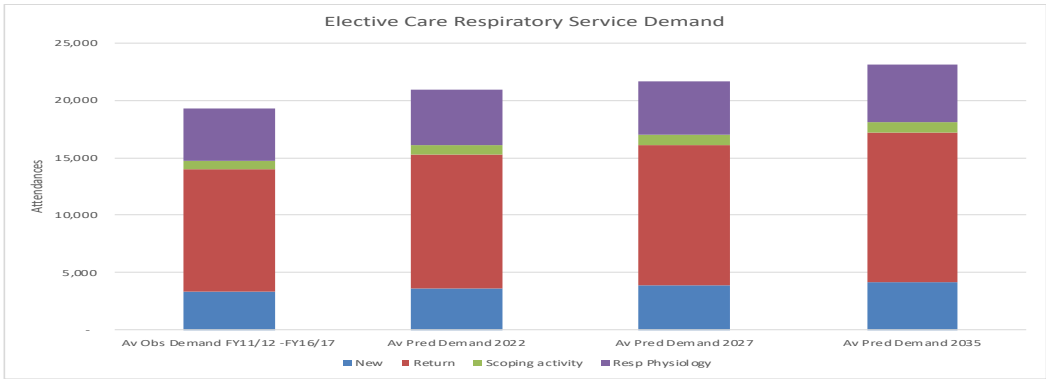
unit to the endoscopy unit in the Elective Care Centre. The 'scope' activity is discussed in section 2.7.8. Physiology activity is projected to increase from an average observed demand of 4,558 in 1-17 to an average predicted demand of 4,957 in 2035. Graph S29 shows the predicted future demand for "scoping" activity and the physiology service.

Graph S29: Respiratory Physiology and Scope Service Future Demand



Graph S30 shows the total projected elective care activity that will be accommodated within the Elective Care Centre.

Graph S30: Projected Respiratory Total Elective Care Demand



A detailed analysis of patient pathways was undertaken to identify future respiratory service capacity. Assumptions were made regarding

room utilisation. Room availability is based on 2 sessions per day, 5 days per week, 49 weeks per year, at 85% utilisation.

Table S20 outlines the ambulatory care respiratory suite capacity requirements at 2027 and 2035.

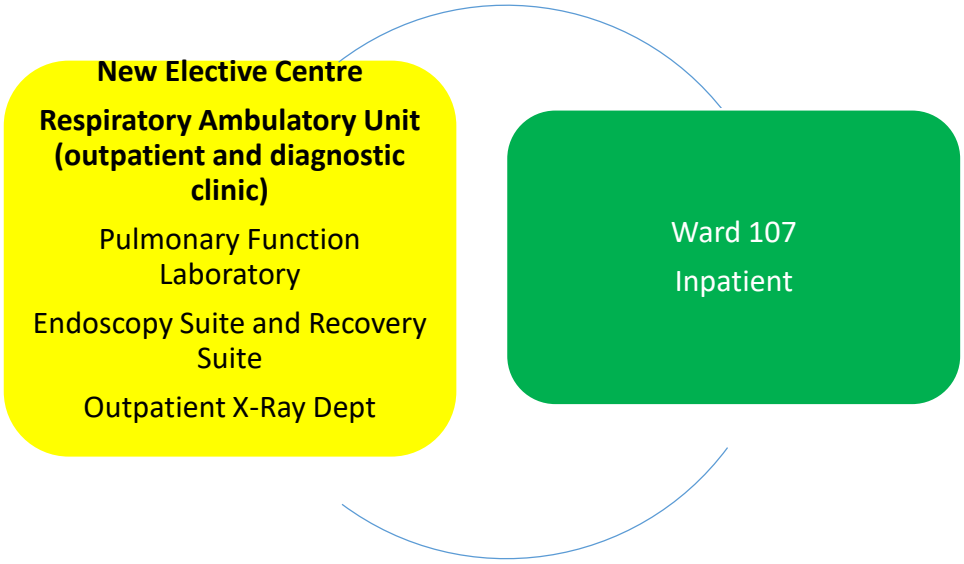
Table S20: Respiratory Ambulatory Suite Room Requirements

Room Type	2027 Capacity	2035 Capacity
Outpatient consulting and examination rooms	6.03	7.42
Bronchoscopy room	located in Endoscopy Unit	
Spirometry/physiology	4.17	4.45
Treatment room	0.62	0.66
Total	**11.59**	**13.35**

Further efficiencies will be realised through improved patient flows and the implementation of new models of care in a more optimised clinical environment. Future service expansion beyond 2035 will be delivered through extending the working day and week.

The Respiratory service delivered over two areas, refer to Figure S8. The previous fragmented service will be brought together in the new Elective Care Centre allowing an optimised patient flow and improved use of resources; the new service solution reduces the service locations and provides distinct patient pathways.

Figure S8: Proposed Future Respiratory Service Locations at ARI



Many patients attending the respiratory service will have a long-term condition and restricted mobility. Plain film x-ray is used extensively in their diagnosis and treatment and imaging facilities must be adjacent to the department. The imaging suite in the Elective Care Centre will provide plain film imaging refer to section 2.10.5.

2.9.7 Factors Affecting Activity, Demand and Treatment by 2020/2025

The following developments will be examined and included into the Respiratory redesign plan and the developing service model:

- New drugs are being introduced which have resulted in increased use of infusions and biologics
- Digital inhalers will monitor patient compliance and improve control; leading to less adverse events and reduced need for clinical review
- Direct access to imaging by primary care will reduce the number of patients referred to the department for initial diagnosis
- The use of appointment-prompt text messaging in conjunction with patient-focussed booking should reduce DNAs

- Implementation of ‘Attend Anywhere’ will reduce the need for patients to travel and deliver the service in the patient’s home, at their primary care or at community hubs, more frequently.

2.9.8 Other Factors Affecting Activity, Demand and Treatment by 2020/2025

- Increased life expectancy for patients with long-term conditions e.g. cystic fibrosis, creates a cumulative effect on demand
- Increased patient expectations
- Sleep apnoea referrals are increasing by approximately 10% per year

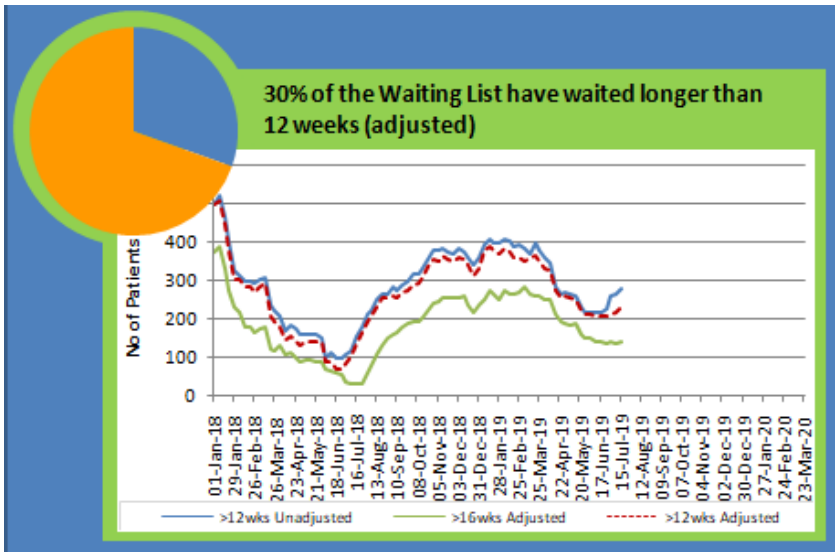
Table S21: Demand, Trend and Impact

Demand	Trend	Impact
Increasing levels of breathlessness in population	Easier to use inhalers Primary/secondary prevention	More patients managed in primary care
Media campaigns promoting the early detection of cancer	Increased use of imaging	Increased referrals More monitoring of incidental findings
Increased patient expectations	More people seeking a Consultant opinion and/or scan	Increased referrals More monitoring of incidental findings
Smoking cessation	Reduced level of smoking in the population	Fewer cases of lung cancer/lung disease – long term

2.9.9 Respiratory Current Waiting Times

Graphs S31 outlines the current respiratory new out-patient waiting times. It indicates that 30% of patients are currently waiting more than 12 weeks for a new outpatient appointment in Grampian.

Graph S31: Respiratory New Out-patient Waiting List for Grampian



2.9.10 The Future

The proposed model of care will bring together clinical services strengthening and enhancing the ability to provide quality services.

The respiratory ambulatory unit will deliver a redesigned service focused on admission avoidance. Where possible a one stop model of care will be delivered preventing multiple appointments and ensuring earlier diagnosis and treatment.

Additionally, the unit will provide a rapid integrated ambulatory care service which will offer ‘see and treat’ clinics that promote early treatment and admission avoidance.

The new facilities will be designed to provide capacity to meet predicted demand and meet waiting time targets

All core ambulatory respiratory medicine accommodation (out-patient and respiratory laboratory) will be integrated in one clinical area. There will be a close adjacency to plain film x-ray and the bronchoscopy room within the endoscopy unit. Technology will increase the number of return appointments that will be delivered virtually.

The service will work with community partners to provide care closer to home e.g. community physiotherapy, community pharmacists, dietetics and psychology services; this will be augmented with support and training for teams working in the community.

2.10 Radiology Sevices - Fidelma

2.10.1 Current Service Arrangements

The NHS Grampian Radiology service provides:

- A diagnostic imaging and reporting service;
- Support for image-guided diagnostic/therapeutic procedures;
- Interventional radiology for inpatients, day patients and outpatients.

NHS Grampian's approach to service delivery is to enable the highest standards of care to be delivered at all stages of referral, assessment, diagnosis, treatment and recovery. Care should be safe, efficient, compassionate and person-centred.

The NHS Grampian Radiology Service delivers the modalities listed in Table S22. Provision for the first three of these modalities has been made in the Elective Care Centre.

Table S22: Radiology Modalities in Grampian

Radiology Modalities
General Radiological Imaging
Computed Tomography (CT)
Magnetic Resonance (MR)
Interventional Radiology
Nuclear Medicine (includes PET CT)
General Ultrasound
Fluoroscopy
Cardiac Catheterisation
Barium Studies

The remaining modalities not included in the Elective Care Centre but remain a priority for NHS Grampian, with investment being taken forward via other funding routes, where appropriate.

NHS Grampian future state vision includes improved access to diagnostic tests such as MRI and CT scanning, which are key to many treatment pathways and is predicted to experience demand growth in excess of population growth. Investment in facilities and associated workforce at designated locations across Grampian is anticipated to positively impact on treatment times and outcomes, as well as future-proof service delivery, removing, in due course, the requirement for 3rd party imaging providers.

2.10.2 Current Service Model

The multi-disciplinary Radiology department is composed of the following workforce:

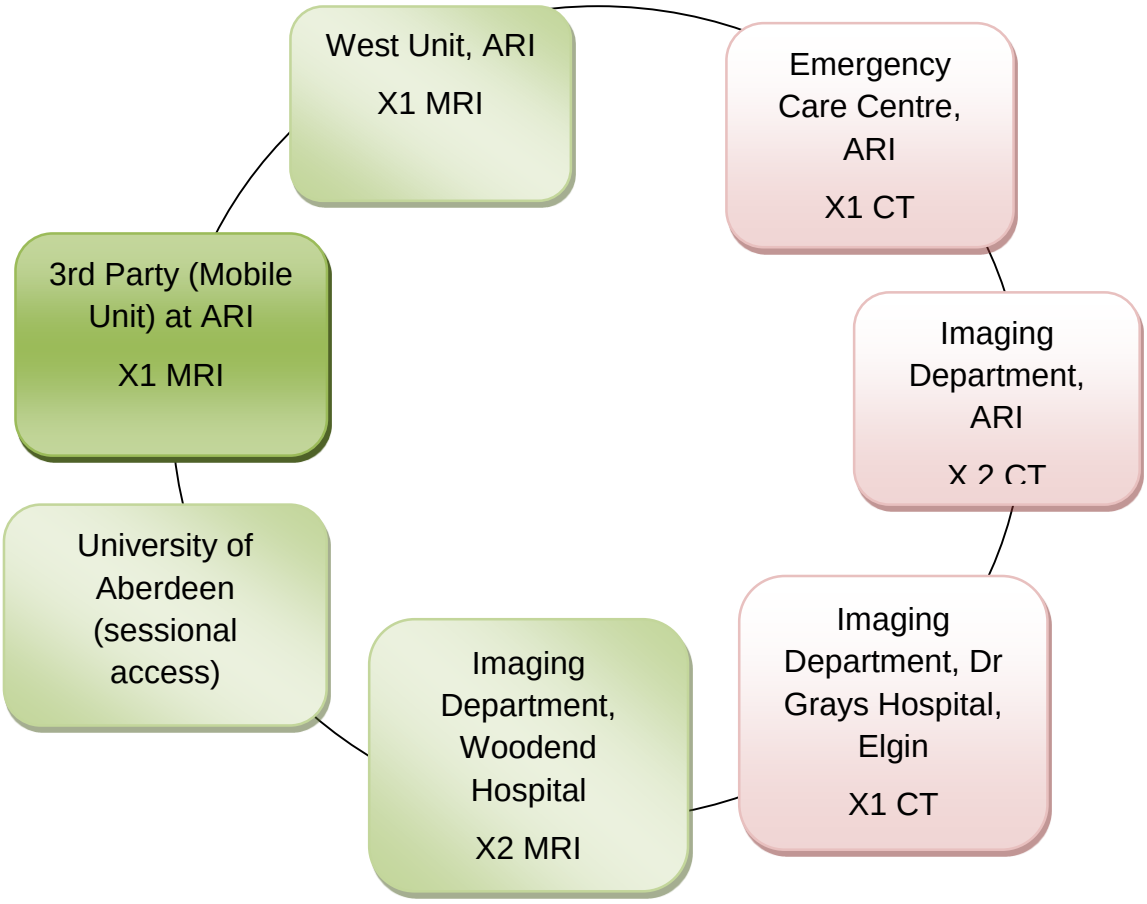
- Radiologists
- Radiographers
- Registered Nurses
- Healthcare Support Workers
- Support staff

In common with many other departments, there are a number of vacancies across all professional groups which may compromise service delivery. Additionally, a growing and significant component of the Radiologist role involves preparation for, and participation in local and regional multi-disciplinary team (MDT) meetings; currently in the region of about 20 per week.

In addition, to services delivered to the Grampian population, a remote reporting and monthly visiting radiologist service is provided for the Orkney and Shetland Isles via a Service Level Agreement (SLA).

Radiological services are delivered at several locations; please refer to Figure S9 below which outlines the current provision for CT and MRI across Grampian.

Figure S9: Current location of MRI and CT Scanners across Grampian



In addition, general elective radiology services are also provided at Woodend Hospital, Dr Gray's Hospital, Elgin and multiple locations within Community Hospitals across NHS Grampian.

Patients are referred to Radiology by GPs, hospital doctors, advanced practitioners (nurses, AHPs) and other health professionals e.g. general dental practitioners and registered chiropractors for general radiography and ultrasound. Direct referrals are accepted from GPs when considered appropriate by a radiologist prior to specialist clinical opinion for the following modalities:

- Plain x-ray
- CT head for headaches
- CT chest/abdomen/pelvis for suspected cancer

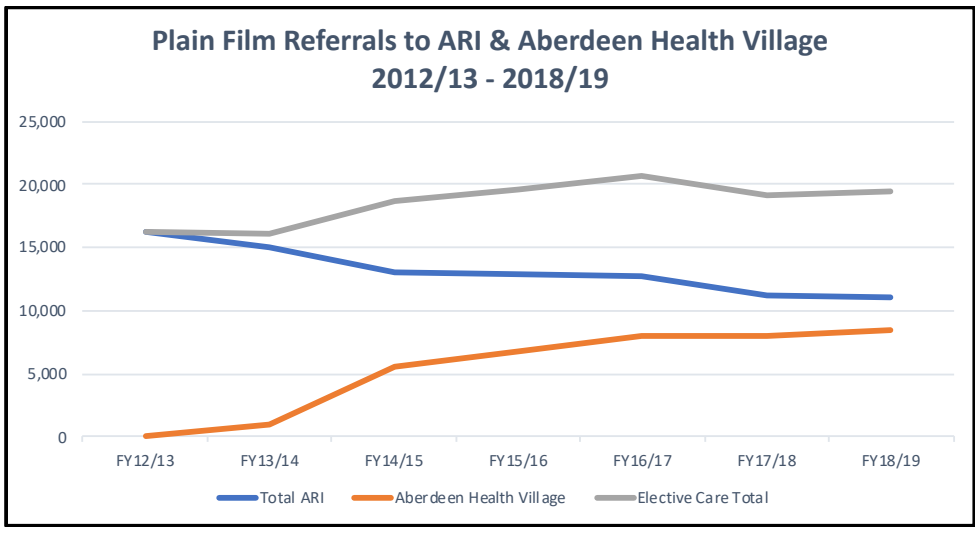
- MRI excluding cervical /lumbosacral spine (currently being reviewed)

2.10.3 Patient Activity, Demand and Capacity

2.10.3.1 Plain Film X-Ray Modality

Since the opening of the Abedeen Health Village in 2014 a significant proportion of elective plain fiilm x-ray referrals have relocated to this new facility. Overall, plain film referrals have remained fairly constant since FY15/16, refer to Graph S32. The location of treatment has however changed, with a considerable percentage of patients now being referred to the Community Health Village, in Aberdeen.

Graph S32: Plain film Referalls to ARI and the Health Village 2013 - 2019



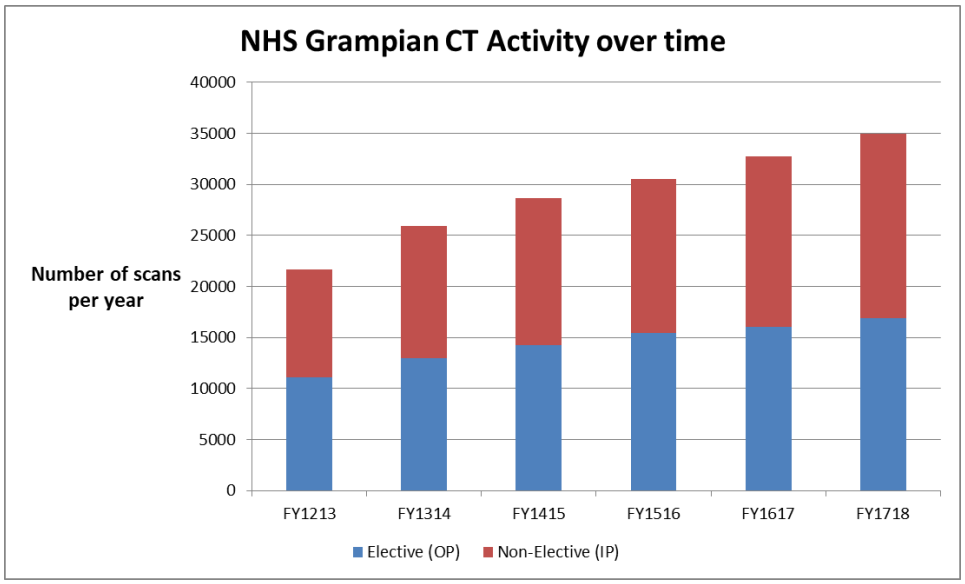
Plain film x-ray continues to be used extensively in the diagnosis and management of health conditions; many elective care specialties on the Foresterhill site rely on easy access to plain film x-ray. This is particularly relevant to respiratory medicine which will be accommodated within the Elective Care Centre (ECC). Transformation of the respiratory medicine service is facilitated by relocation to the ECC along with the elective plain film radiology service, upon which it is co-dependent.

Additional benefits of this move are that the elective radiology suite, at the East end of ARI can be decommissioned and that patient journey time to rheumatology (another high-volume user, sited next to the ECC) is decreased.

2.10.3.2 CT Modality

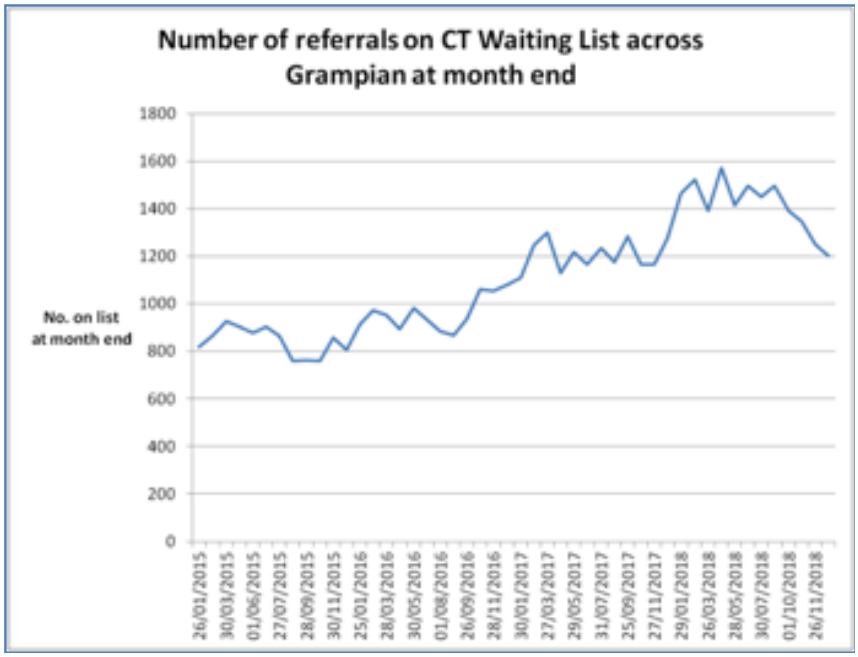
There have been an increasing number of referrals for CT since 2013 as a result of widespread emerging clinical advantages of this modality.

Graph S33: Total CT Referrals in Grampian 2012 – 2018



Graph S33 shows that just over 50% of all CT referrals are elective, the remainder are non-elective. Referrals for CT have continued to rise over recent years. This is a consequence of increased demand, the number of referrals on the CT waiting list at month end grew from 800 in January 2015 to 1,200 in January 2018. Graph S34 demonstrates the impact of this rising demand on the waiting list which will continue to rise until either demand is modified or capacity is increased.

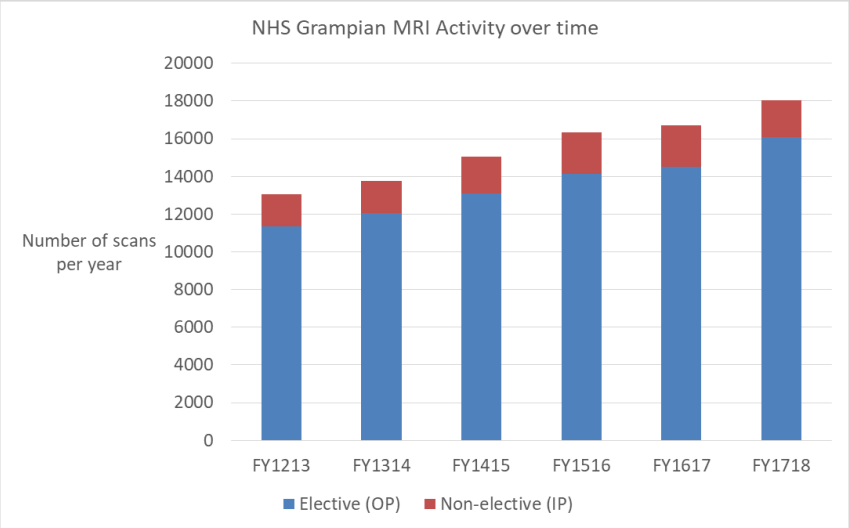
Graph S34: Number of Referrals on CT Waiting List across Grampian at Month end



2.10.3.3 MRI Modality

There has been a steady increase in MRI referrals since 2012 as a consequence of widespread clinical advantages of this modality. Demand has been accelerating more rapidly than would be indicated by population increase alone, and new applications and increased therapeutic use has been considered when projecting future requirement for MRI. Graph S4 demonstrates that nearly 90% of MRI referrals are elective, this trend has continued over recent years

Graph S35: Total MRI Referrals in Grampian 2012 – 2018



Graph S35 show that referrals for MRI have continued to rise over recent years. This is a consequence of increased demand. The demand on MRI services has seen the number of referrals on the MRI waiting list at month end grow from 1,000 in January 2015 to almost 3,000 in January 2018. Graph S36 demonstrates the impact of this rising demand on the waiting list which will continue to rise until either demand is modified or capacity is increased. Table S23 below demonstrates that in January 2019 only 48% of patients were being seen within the 42 day referral to test target.

Graph S36: Number of Referrals on MRI Waiting List across Grampian at Month end

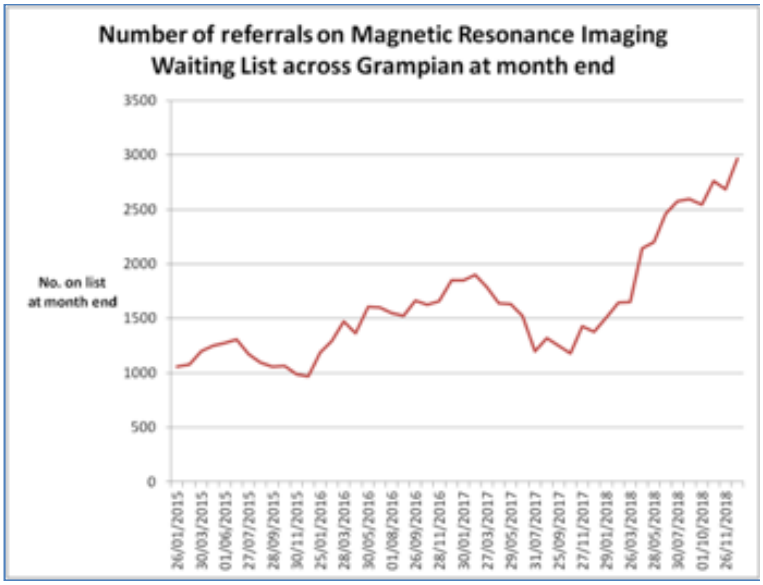


Table S23: Grampian MRI Waiting List – January 2019

Patients still waiting – at Month End – January 2019 – MRI
NHS Grampian (including Elgin)

This is the number of patients waiting, but not yet reported/verified, listed by period (days) since the date of receipt of referral for the test, as at the last day of the month

0-7 days	8-14 days	15-21 days	22-28 days	29-35 days	36-42 days	43-49 days	50-56 days	57-63 days	64-70 days	71-77 Days	78-84 Days	85-91 days	92 days and over
444	385	252	282	85	76	231	229	257	200	208	166	172	200

Total 3187

52%

2.10.4 Case for Change

A key aim of this investment is the creation of additional Radiology capacity to meet future elective care diagnostic demand, so that patients can be seen within 6 weeks of referral. The case for change recognises the existing challenges resulting from: services delivered over multiple sites and recruitment and deployment issues, which limit efficiency and synergy. Increasing patient expectations and lack of equipment resilience also have an impact on service delivery and in turn patient care. The creation of “one stop” clinics changes the timing of demand for radiology, resulting in scheduling challenges. The case for change is summarised below in Table S24. The inclusion of CT and MRI capacity in the Elective Care Project will allow for creation of capacity to meet increasing need and demand for elective care treatment and ensure the patients are seen in a timely fashion.

Table S24: Need for Change and Benefits

Need for Change	Benefits
• Efficiency – patient pathway improvement	• Improved elective care pathway • Care closer to home • Improved patient experience
• Straight to best test at right time for best result	• Reduce waste • Improved patient experience

• Patient safety –correct accommodation • Capacity to care for specific patient groups	• Patient safety • Patient experience • Better use of staff • Efficiency
• Correct capacity in the right place • Future proof to take advantage of emerging technologies/ therapies • Need to create flexible/multi-use capacity	• Efficiency • Staff Morale/recruitment and retention • Increase department profile • More agile working
• Additional MDT Space – physical and virtual	• Improved MDT working • Better patient outcomes • Better work environment
• Improved joint working of IT systems	• Efficiency • Patient experience • Staff experience
• More use of patient focused booking/direct access for some more standard modalities • Use technology to support	• Improved waiting times

The increase in demand and rising workload for Radiology services, coupled with advances in diagnostic testing, is driving a need to transform the model of service delivery underpinned by modernised processes and efficiencies. The Case for Change can be further highlighted in terms of current service risks, refer to Table S25.

Table S25: Service Risks

Issue	Service Risk
• Workforce Sustainability	• The dispersed radiology delivery model across can create difficulties in maintaining a sustainable workforce • Recruitment and retention of staff • Workforce demographics
• Growing demand exceeds physical capacity	• Earlier detection of cancer is necessitating more monitoring and increasing demand for follow-up tests • National screening programmes have led to an increased demand for imaging examinations; associated incidental findings require follow-up investigations • Increased day case demand (particularly surgical) escalates the urgency of radiological examinations to enable admission avoidance • Department is reactive rather than proactive in demand management
• Equipment Resilience	• Limited capacity can lead to booking cancellations in the event of equipment breakdown
• Clinical Effectiveness	• Referred patients who have not been identified through screening or directed through the 'urgent suspected cancer route' are at risk of waiting longer to be scanned even though symptomatic • Clinical advances implemented elsewhere are not being initiated in Grampian due to staff shortages and the constraints of the department

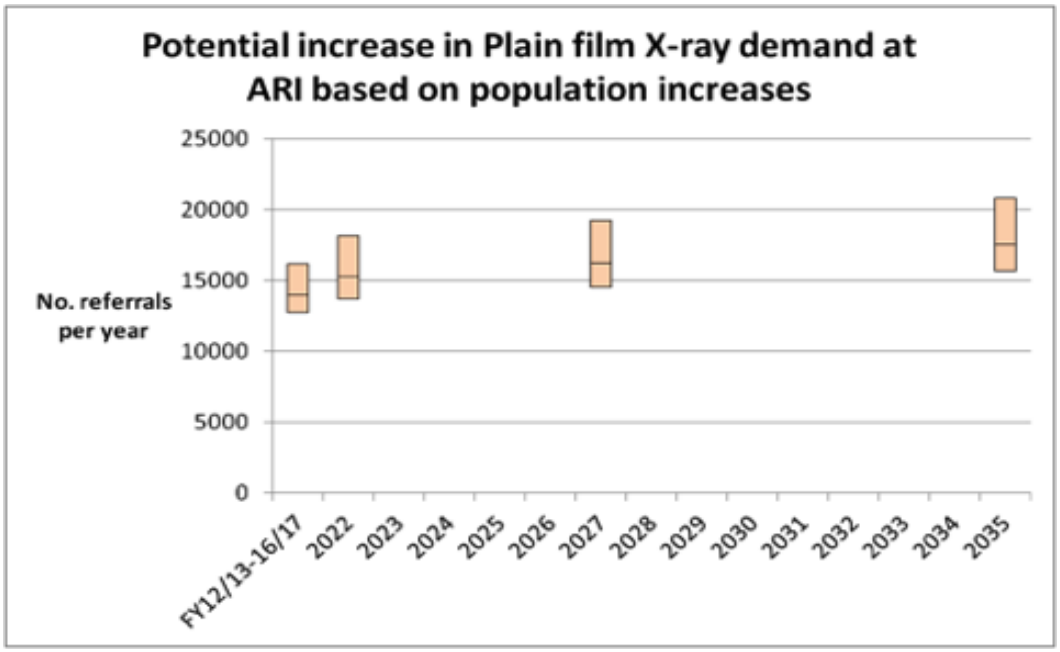
• Increased complexity (of examination or procedure)	• New techniques and imaging technologies often require additional scanning time which reduces machine throughput and scans per session
• Process inefficiency	• Unscheduled and elective care patients are waiting in the same queue for some scans. This can result in the cancellation of elective work and extended lengths of stay for inpatients.

2.10.5 Future Demand Projections

2.10.5.1 Plain Film Radiology

Graph S37 below demonstrates the predicated demand for plan film radiology to 2035, based on recent demand and population forecasting. It suggests some increase in demand over the coming years. This can be managed by retaining the two elective care plain film rooms at ARI (planned for Elective Care Centre), by increasing the number of sessions and session length, and by directing referrals to other plain film capacity across Grampian. The two elective care plain film rooms will support the Respiratory Clinic (in the Elective Care Centre), the adjacent Rheumatology Clinic (in Ashgrove House) and other elective out-patient services across ARI.

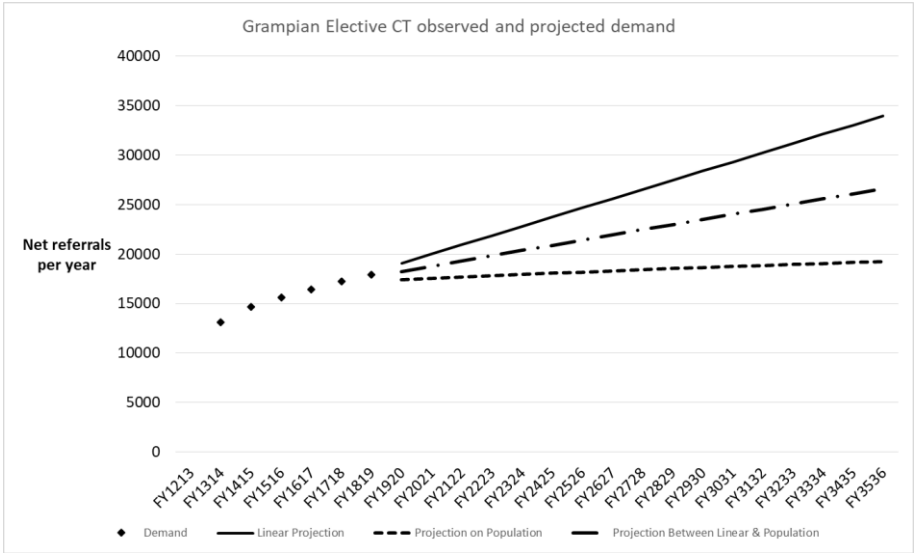
Graph S37: Plain Film Demand at ARI based on Projected Population Increases



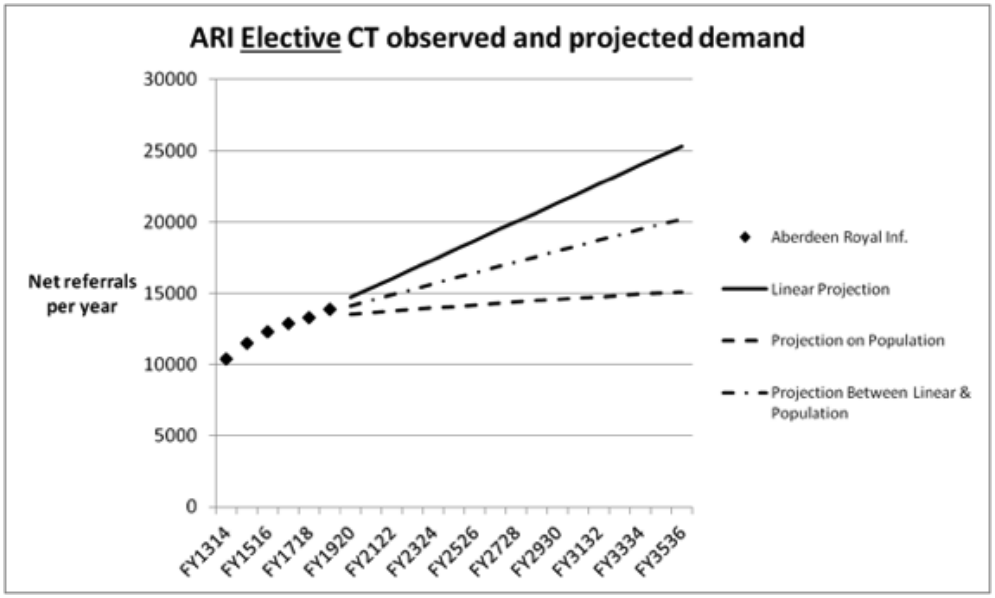
2.10.5.2 CT Future Demand Projections

Future CT demand reflects more than population forecasts. Demand is growing more rapidly than demographic change alone predicts and therefore other factors, such as increase in CT-based procedures and future requirements of primary care, must be taken into account.

Graph S38: Grampian Elective CT Observed and Projected Demand



Graph S39: ARI Elective CT Observed and Projected Demand



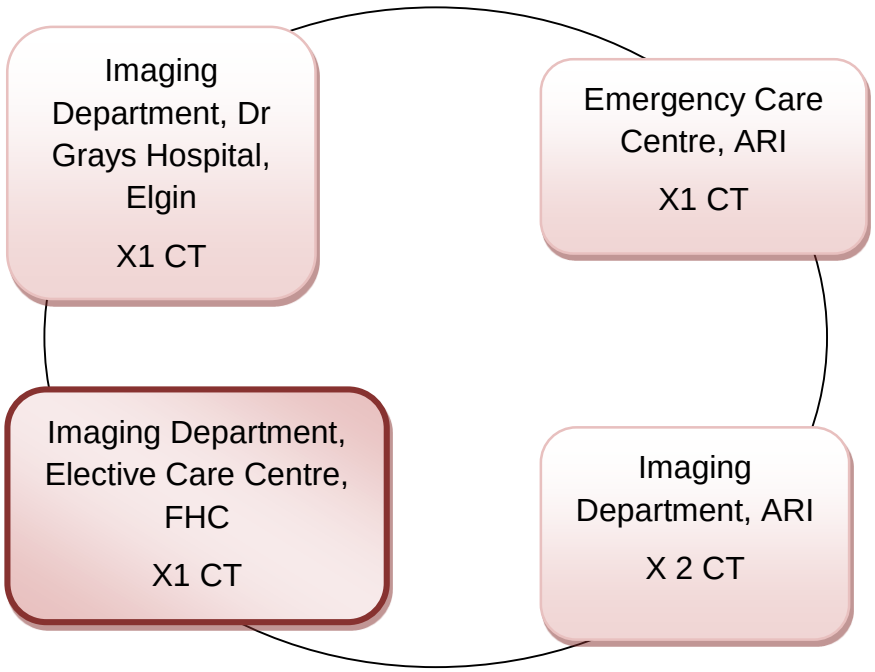
Elective CT scanner demand is growing more rapidly than the impact of demographic change. Graph S38 outlines the likely trajectory of the growth for elective CT in Grampian and Graph S39 outlines the likely growth trajectory for elective MRI at ARI over the coming years. Following discussion with clinical colleagues we have planned for growth midway between the projection on population and the linear projection, using the following planning assumptions:

- Assumed minutes per scan 15 minutes
- Daily operating hours (5 days/week) 10 hours
- Operational weeks per year 50 weeks
- Utilisation (%) 90%
- Operating minutes per year 135,000 minutes
- Scans per machine 9,000 scans

This level of growth indicates demand for a total of 5 CT scanners in Grampian to 2035. There are currently 4 scanners in Grampian, refer to Figure S9. Graph S38 indicates a requirement for 2.95 elective CT scanners by 2035. Graph S39 demonstrates that 2.2 CT scanners will be required to deliver the elective CT scanning workload on the ARI site

and the remainder at Dr Gray's Hospital in Elgin As a consequence one additional elective care scanner is required to accommodate growing demand until 2035. The additional scanner provided in the Elective Care Centre, Imaging Department will be dedicated to dealing with elective care referrals. If the trajectory of growth has been underestimated it is anticipated that extending the length of the working day or number of operational days per week will be used to increase CT scanning capacity.

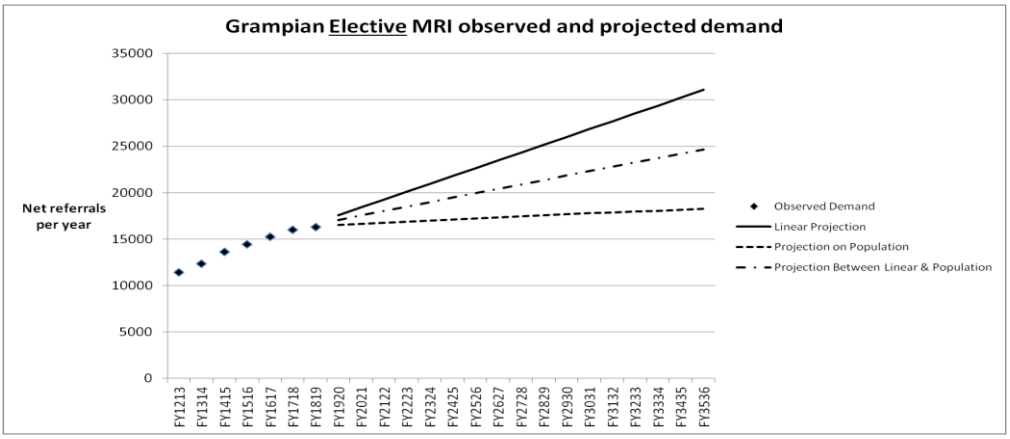
Figure S10: Proposed Location CT Scanners across Grampian



2.10.5.3 MRI Future Demand Projections

As with other Cross-Sectional Imaging, MRI demand is based on more than population forecasts, as demand is growing more rapidly and therefore other factors must be taken into account, refer to Graph S40.

Graph S40: Grampian Elective MRI Observed and Projected Demand



MRI scanner demand is growing more rapidly than the impact of demographic change. In determining future capacity the midpoint between population projections and linear growth has been used along with the following planning assumptions:

- Assumed minutes per scan 45 minutes
- Daily operating hours (5 days/week) 12 hours
- Operational weeks per year 50 weeks
- Utilisation (%) 90%
- Operating minutes per year 162,000 minutes
- Scans per machine 3,600 scans

Applying the above assumptions to the projected demand there is a requirement for 7.5 MRI scanners within NHS Grampian to deliver the projected workload over the coming years.

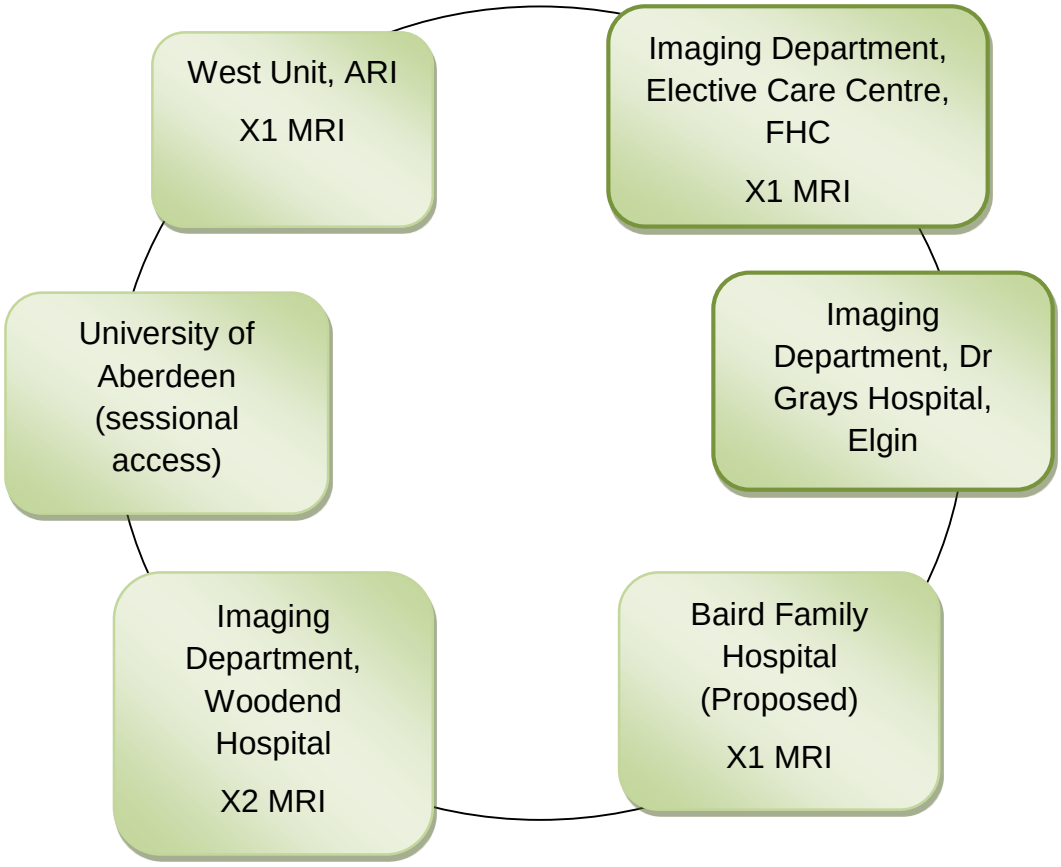
There are currently 4.5 MRI scanners, this includes the mobile unit which is currently procured from a 3rd party and a sessional access to an MRI owned by the University of Aberdeen.

Current demand indicates the need 5.5 scanners now. It is intended at the two MRI scanners being delivered as part of the Elective Care

Centre Project will be operational in 2021/22. They will allow the closure of the existing mobile unit. However by 2025 a total of three new MRI scanners will be required. The Baird Family Hospital MRI will require to be operational by 2025, if not before. By 2031 an additional MRI unit will be required, if the current working hours and activity assumptions are applied. By then it may be possible to change the throughput and or operating hours to reduce the need to procure another MRI scanner.

Figure S11 below outlines the proposed location of these MRI scanners.

Figure S11 Proposed location of MRI Scanners across Grampian



Three additional MRI scanners are required between now and 2025. One MRI scanner is being planned for the new Baird Family Hospital and will focus on paediatrics and neonates. The other two will be

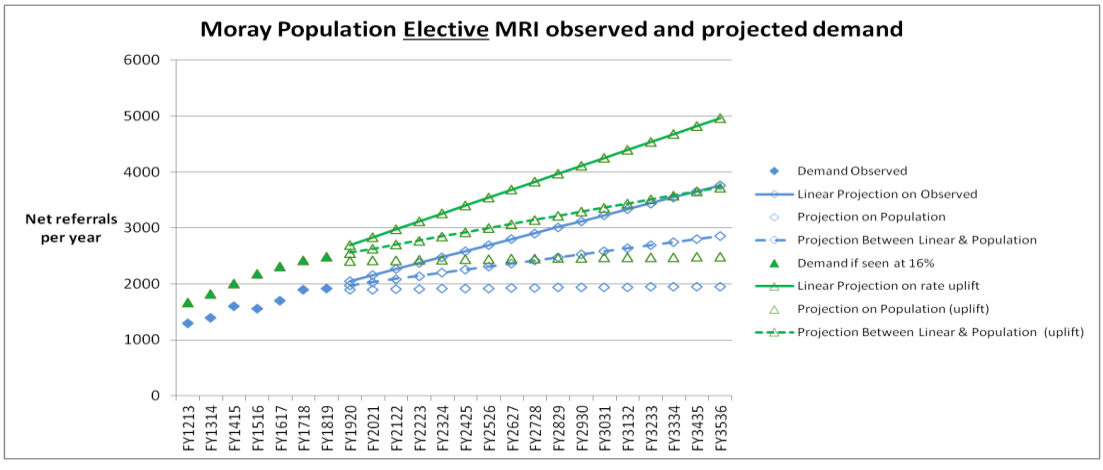
dedicated elective MRI scanners, one will be located in the Elective Care Centre in Aberdeen and the other at Dr Gray's Hospital in Elgin. The Mobile MRI Scanner, currently located at ARI, procured by NHSG from a 3rd party will no longer be required when the second of the three additional MRI scanners comes into full operation, hopefully in 2022.

In keeping with the National Clinical Strategy to deliver locally accessible services NHSG plans to locate one of the two additional elective care MRI Scanners in Dr Gray's Hospital in Elgin.

Graphs S41 and S42 demonstrate that the population of Moray and West Grampian generate referrals for MRI to keep a unit in Elgin fully occupied from 2021/22. This also provides the potential for some resilience from a regional perspective to patients on the east of Highland as part of future North of Scotland discussions with NHS Highland.

Patients from the Moray and West Grampian travel a long distance for MRI (up to 150 mile round trip). Expanding the imaging capacity at Dr Gray's Hospital would deliver care closer to home and reduce travel time and cost for this patient group.

Graph S41: Moray Population Elective MRI Observed and Projected Population



Graph S41 demonstrates that the current rate of Moray referrals is less than for the rest of the Grampian population. This is thought to be due to the distance to Aberdeen causing some patients and clinicians to avoid referral. Access locally should not disadvantage patients by altering appropriate diagnostic access and the rate should be the same as for the rest of NHSG. Graph S41 also demonstrates the impact of up-lifting the Moray value so that 16% of Grampian referrals would be from Moray, they have been at approximately 12.7% of Grampian referrals in the past 7 years.

This demonstrates that local demand would result in 75% occupancy in 2021/22 increasing to 87% occupancy in 2027. Including referrals for West Grampian as outlined in Graph S42 demonstrates that directing West Grampian elective patients towards Elgin rather that Aberdeen would ensure that the Elgin Elective MRI Unit would operate optimally from 2021/22. Figure S12 outlines that West Grampian catchment used for this calculation, denoted by the blue line (excluding NHSH patients).

Graph S42: Grampian 'West' Population Elective MRI Observed and Projected Demand

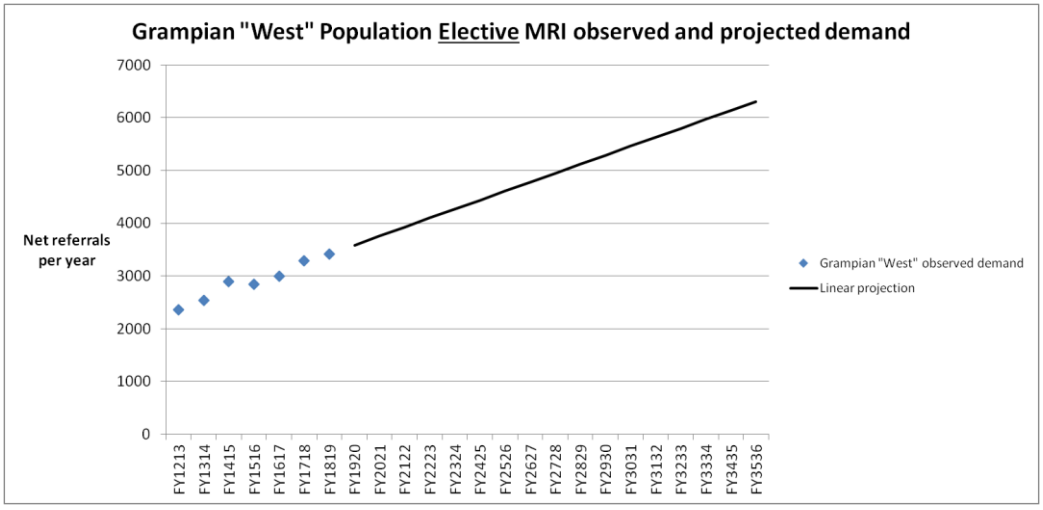


Figure S12: West Grampian Population for MRI at Dr Gray's, Elgin

2.10.6 The Future

The preferred service solution as outlined in the Initial Agreement included investment in elective CT and MRI capacity to support delivery of diagnosis and treatment time targets, ensuring that patients are seen within 6 weeks of referral. This section summarises why this is necessary and how NHSG proposes managing this demand over the coming years. Table S26 below describes current and predicated future activity to 2035.

Table S26: Projected Elective MRI and CT Activity to 2035

	2016	2022	2027	2035
CT	16 400	18 250	22 470	26 600

	2016	2022	2027	2035
MRI	15 270	17 065	20 895	24 650

2.11 Who will be affected?

NHSG provides secondary and tertiary services for people of all ages across the North East and North of Scotland.

Work continues with Boards in the North of Scotland following the implementation of the new regional planning arrangements in 2017. A North of Scotland Delivery Plan is in place, it includes the planning of services for the whole population of the North.

A considerable number of people will be positively affected by this proposal and their engagement in supporting and shaping how services are delivered now and in the future is very important to NHSG and to the success of this Project. To support appropriate involvement, a Communication and Involvement Framework has been developed and agreed by the Project Board, refer to Appendix B.

A Stakeholder Analysis has been undertaken and is included as Appendix C. This has influenced the development of an action plan outlining communication and engagement activities to ensure stakeholder involvement. Each action plan covers a six month period and will be reviewed and updated regularly by the Public Involvement Officer and Service Project Managers over the life of the Project. A copy of the existing Action Plan is included as Appendix D.

Considerable communication and engagement activities have been carried out by the Project Team, supported by the project's dedicated Public Involvement Officer. These activities are referred to in the Management Case.

A brief report which seeks to summarise communication and involvement to date is included as Appendix E.

Recognition has been given to the importance of undertaking an Integrating Service Change and Impact Assessment in accordance of guidance within CEL 4 (2010) Informing, Engaging and Consulting People in developing Health & Social Care, Scottish Government. A Health Inequalities Impact Checklist has been completed and reflects the priorities highlighted by key stakeholders during the consultation and briefing process.

2.12 Associated Buildings and Assets

The range of services included within this proposal operates from multiple locations across Grampian, indeed often from multiple locations on the same site, which limits efficiency and synergy. There are significant backlog maintenance pressures and constraints which place limitations on service scope to modernise and deliver innovative healthcare services. This is true of outpatient, inpatient, diagnostic and community-facing services.

In order to overcome the resulting service limitations linked to the present infrastructure significant refurbishment and new construction would be required. Indeed, some accommodation is not judged fit for continued usage as clinical space even if refurbished; this is particularly true of some outpatient clinic environs.

2.12.1 Accommodation condition and expenditure requirement

Table S27 outlines the current condition and performance of the accommodation likely to be affected by this capital development. The appraisals of the buildings noted below have been undertaken in accordance with the NHS Scotland property appraisal guidance “A risk based methodology for property appraisal”. These appraisals show that there are problems with the current accommodation in terms of physical condition, compliance with statutory standards, space utilisation and functional suitability. There is very little potential for developing either existing or new services within the existing facilities due to the physical condition of the existing facilities. The current

design and functional suitability seriously compromises the provision of modern health and care services from these buildings in line with forecasted activity demand and modern pathways of care.

Table S27: Current Accommodation

	Current condition and performance of the Estate based on NHS Scotland National Standards				
	Existing areas sq.m	**Physical Condition**	**Statutory Standards**	**Space Utilisation**	**Functional Suitability**
Endoscopy Suite	328	Not satisfactory	Not satisfactory	Fully utilised	Satisfactory
Short Stay Theatre Suite	609	Satisfactory	Not satisfactory	Over-crowded	Satisfactory
Wards 301/302	1503	Not satisfactory	Not satisfactory	Fully utilised	Satisfactory
Clinic C	275	Not satisfactory	Not satisfactory	Over-crowded	Not satisfactory
Pulmonary Function Clinic	102	Satisfactory	Satisfactory	Fully utilised	Satisfactory
Burnside House	509	Satisfactory	Satisfactory	Fully utilised	Satisfactory
Ward 406	617	Satisfactory	Not satisfactory	Fully utilised	Satisfactory
Clinic A	378	Satisfactory	Not satisfactory	Fully utilised	Satisfactory
Pre-Operative Assessment Clinic	461	Not satisfactory	Not satisfactory	Over-crowded	Not satisfactory

The assessment detailed in the Table S27 above shows that there are problems with the majority of the accommodation that supports these clinical services.

Additionally Table S28 shows that the backlog maintenance expenditure requirement recorded for these buildings is around £1.5m and that 33% of this backlog is assessed as being of significant or high risk.

Table S28: Backlog Maintenance (Prime Cost)

	Backlog Expenditure Requirement by Risk Profile				
	Low	**Moderate**	**Significant**	**High**	**Total**
Endoscopy Suite	£15,535	£12,230	£43,720	£8,100	£79,586
Short Stay Theatre Suite	£100,423	£13,715	£17,465	£2,055	£133,657
Wards 301/302	£70,591	£267,790	£119,547	£45,804	£503,732
Clinic C	£51,504	£150,882	£82,695	£2,220	£287,301
Pulmonary Function Test (PFT) Clinic	£4,831	£3,803	£13,596	£2,519	£24,749
Burnside House	£20,202	£18,315	£32,745	£0	£71,262
Ward 406	£21,823	£28,630	£26,033	£28,770	£105,257
Clinic A	£20,821	£14,094	£50,426	£9,335	£94,676
Pre-Operative Assessment Clinic	£34,188	£161,450	£28,305	£2,220	£226,163
Total	**£339,918**	**£670,909**	**£414,533**	**£101,023**	**£1,526,383**

This backlog maintenance expenditure requirement is defined as the basic cost of works to bring the buildings back to an acceptable condition. This definition is in accordance with the Health Facilities Scotland Guidance on backlog costing and, as such, it excludes VAT, contractor's preliminaries, temporary re-housing costs etc.

Experience of undertaking backlog works in existing hospitals has shown that the final outturn cost of such works can be significantly

higher than the basic backlog cost, often resulting in a doubling of the basic cost. To eradicate the backlog maintenance burden costs in these buildings would cost NHSG circa £3 million.

It should also be borne in mind that this backlog maintenance expenditure requirement is associated with the structure and physical condition of the buildings and, even if these monies were expended, it would not address the space utilisation and functional suitability issues which currently exist in the buildings.

2.13 Why is this proposal a good thing to do?

As outlined in Section 2.2, a key aim of the elective care investment is the delivery of additional capacity to support meeting demand for elective care in future. This proposal supports delivery of improved capacity for delivery of care and the embedding of both the National and aligned Grampian Clinical Strategies. Furthermore, aspects of this investment proposal will help to secure the ongoing sustainability of services within the North of Scotland (NoS).

As well as the direct benefits related to elective care, the proposed capital investment will also yield significant added value to a wide range of other services i.e. the capital investment will:

- Complement the Elective Care redesign programme and help develop a “tiered” approach to elective care through the creation of community diagnostic and treatment hubs. Retaining activity in the community and focusing secondary care Elective Care facilities on activity which requires specialist skills and facilities,
- Improved service performance and compliance with desirable Target Operating Models (TOM),
- Support the development of the NHS Grampian Strategy and Regional Workforce Plan,

- Advance the agreed Foresterhill Campus Development Plan by creating an elective care focus on the Campus consistent with the clinical service blueprint,

- Strengthen the research and development relationship between the University of Aberdeen and NHS Grampian through the creation of a clinical research facility (funding to be secured by the University), and

- Contribute to the reduction in backlog maintenance.

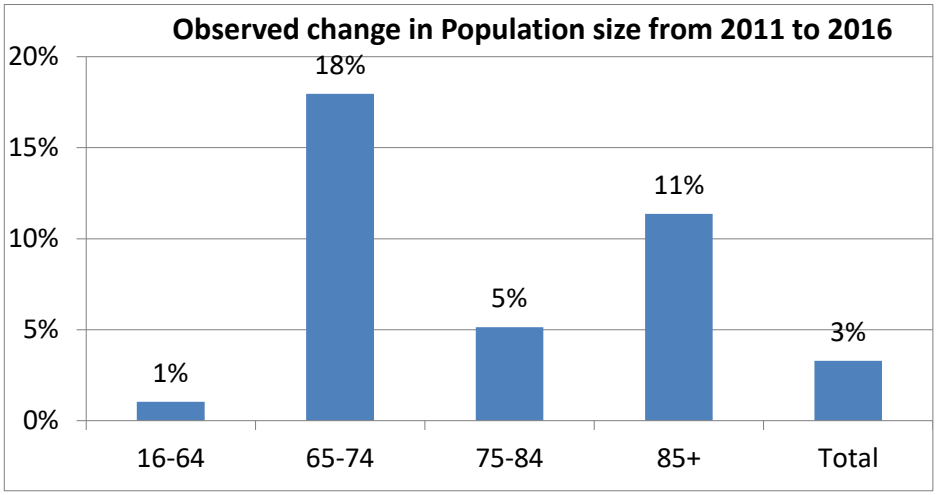
2.13.1 What is the need for change?

In clarifying the need for change, the process has involved extensive work by Health Intelligence colleagues to develop a detailed understanding of the challenges presented by demographic changes and associated increases in demand. With modelling undertaken on a local and Grampian basis, a clear picture has emerged of the need for change if NHS Grampian is to address the current and future need for elective care.

The information provided in sections 2.5 to 2.10 demonstrates outlines the implications for demand and capacity over the period to 2035 for the services included in this capital development.

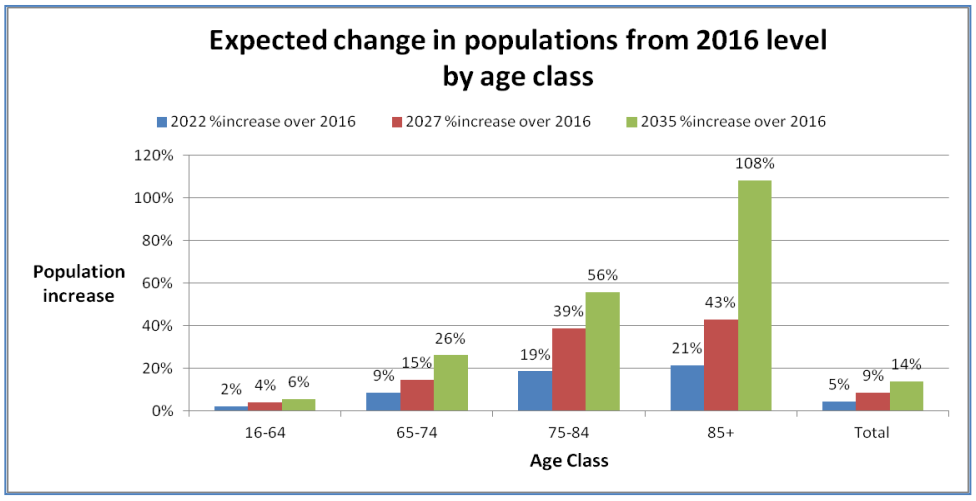
The changing demographic profile of Grampian is well publicised and our population, like the rest of Scotland, is ageing and growing. These changes are gradual and have been occurring for some time. Since 2011, the Grampian population has risen by 3.3%, an increase of 15,590 people. This increase is biased towards middle-age and older adults, where population groups between 65-74 and 75-84 years of age have grown by 18% and 5% respectively. Notably there has been an 11% increase in those aged over 85 years as is shown in Graph S43.

Graph S43: Grampian population increase between 2011/12 and 2016/17 by age band



Clearly this has an impact on health care need, particularly for conditions associated with ageing. In the past six years, specialties including Ophthalmology, Orthopaedics and Urology have seen considerable rises in demand for care and in some specialties; this increase will be magnified over the next decade.

Graph S44: Expected Change in Grampian Population Age Classes by 2022, 2027 and 2035



The expected population growth is outlined in Graph S44, which shows anticipated growth over the next five and 10 years and onwards to 2035.

This demonstrates the challenge ahead given that in 10 years there will be 39% more 75-84 year-olds and 43% more 85+ year-olds, with an even more extreme change projected by 2035. It also highlights that the predicted growth of those of working age is negligible in comparison. These age classes may be subject to further impact linked to changes to the global downturn in the oil industry.

2.14 What opportunities for improvement are there?

This section outlines the scope for improvement through improved regional collaboration and the optimising of services.

2.14.1 The Scottish Access Collaborative

This is a Scottish Government backed initiative which has established specialty sub-groups to share good practice and learning opportunities in relation to maximising service access with current resource. Through active participation in the collaborative there is scope to learn from impactful service improvements from elsewhere, and to contribute on the experience of the Grampian elective engagement process.

2.14.2 Implementing transformational aspects of the Target Operating Model (TOM)

Clinical teams have been asked to respond to capacity challenges by developing their own internal processes of challenge e.g. in relation to what could be done on a day case basis or might require a patient to be admitted prior to day of surgery. We have also recently benefitted from close working with the Scottish Government Access Team who have supported the development of a dedicated Day of Surgery Admission (DOSA) area, which is of sufficient capacity to widen this approach and modernise custom and practice across a broader range of services. Increasing DOSA rates is a key aim of the embedding the TOM.

2.14.3 Regional collaboration

Within the context of the NHS Highland OBC, plans are in development for an Elective Care Centre, close to Raigmore Hospital, which will bring additional operative capacity into the NoS for Cataracts, Hips and Knees. Planning is being progressed with NHS Highland in anticipation of optimal patient pathways across the North to support patients to have access to these new facilities. Work to determine the detail of these pathway developments is ongoing on collaborative basis, and there are regional working groups exploring regional sustainability and access issues for Orthopaedics and Ophthalmology. This increase in capacity in NoS for these key specialties clearly provides opportunity, with pathways and resource implications to be determined.

In addition, cross-board links with NHS Highland and NHS Tayside are developing in relation to many (sub) specialties including: Upper GI Cancer Surgery, Radiology, Dermatology, Cardiology workstreams and the developing region approach to Laboratory Services.

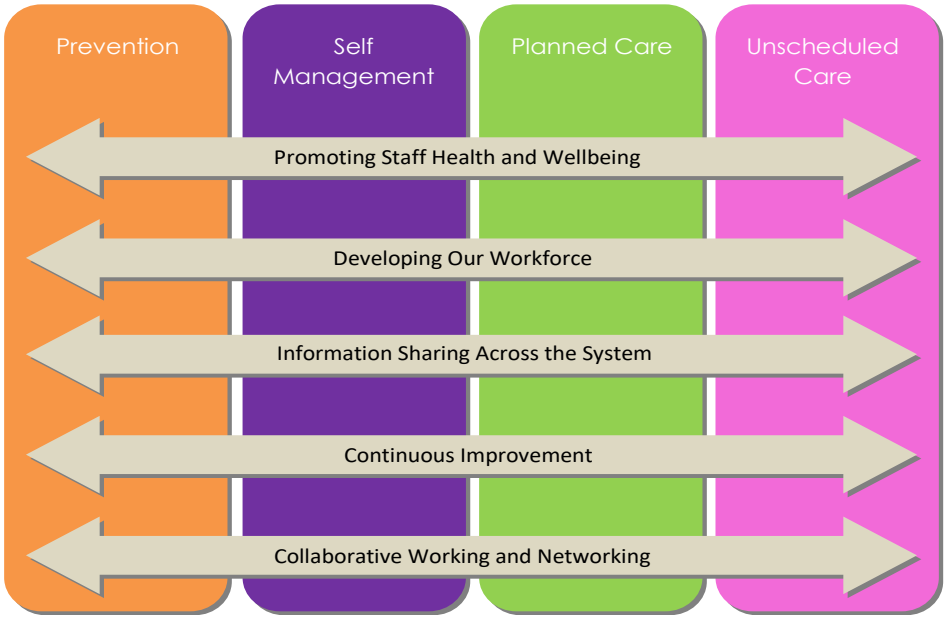
2.15 What other drivers for change are there?

The need for change from a strategic perspective was set out in the Health and Social Care Delivery Plan published in December 2016, which included a commitment to strengthen population-based planning arrangements for services, as part of the range of commitments to deliver the National Clinical Strategy (2016).

Contingent on any strategic redesign of elective services in Grampian is the requirement to align with the principles of the National Clinical Strategy and the Grampian Clinical Strategy (2016-2021). In addition, 'The Modern Outpatient: A Collaborative Approach' (2017-2020), and 'Realising Realistic Medicine' (2017) are highly relevant to planning future models of elective care.

Figure S13 outlines the strategic themes which are pivotal to the Grampian Clinical Strategy. The principles and delivery of these are central to our aims for developing elective services.

Figure S13: Strategic and Enabling Themes (Grampian)



2.15.1 Clinical Strategy

The NHSG Elective Care Programme recognises the need for a whole system view and approach to defining the optimal provision of elective care. Close engagement with our Acute, Primary and Health and Social Care partners, patient groups and the public is essential. The Elective Care Programme considers and reflects the themes and enablers listed in Figure S26 above, which are supportive of the Scottish Government's 9 national outcomes for Health and Social Care Partnerships (HSCPs) detailed in Table S29.

Table S29: 9 National Outcomes for HSCPs

Outcome 1	People are able to look after and improve their own health and wellbeing and live in good health for longer
	People, including those with disabilities or long-term conditions, or who are frail, are able to live, as far as reasonably practicable, independently and at home or in a homely setting in their community
Outcome 3	People who use health and social care services have positive experiences of those services, and have their dignity respected
Outcome 4	Health and social care services are centred on helping to maintain or improve the quality of life of people who use those services
Outcome 5	Health and social care services contribute to reducing health inequalities
Outcome 6	People who provide unpaid care are supported to look after their own health and wellbeing, including to reduce any negative impact of their caring role on their own health and well-being
Outcome 7	People using health and social care services are safe from harm
Outcome 8	People who work in health and social care services feel engaged with the work they do and are supported to continuously improve the information, support, care and treatment they provide
Outcome 9	Resources are used effectively and efficiently in the provision of health and social care services

This section further outlines a number of important issues which influence or impact on how the NHSG elective care programme is being progressed. These include consideration as to the requirement for capital investment in highest volume specialties, capacity challenges, and capital planning and governance arrangements.

Significantly, consideration is given to the range of relevant major strategic and capital projects underway or recently completed.

2.15.2 Workforce planning

The NHSG workforce plan (2017-2020) recognises the need for innovation in our models of healthcare delivery in the context of ongoing workforce supply constraints. The profile of our workforce is ageing, with 30% of Nursing and Midwifery aged over 50, 35% of Healthcare Scientists over 50% and 24% of Administrative staff aged over 55. A message heard consistently via our engagement process has been the requirement to innovate and adapt in relation to workforce strategy and availability. As described above, capacity constraints are heavily linked to workforce supply and frequently this is unrelated to the availability of financial resource.

In Grampian, there is a track record of innovating in workforce development, examples include the advancement of:

- The emerging Physician Associate (PA) role
- The Clinical Development Fellow (CDF) role
- Advanced Practice Nursing and AHP roles
- Return to practice programmes
- Developing the roles of Healthcare Support Workers
- Assistant Peri-operative Practitioners (new band 4 theatre roles)
- GPs with Special Interest

The delivery of timely elective services is linked inextricably to issues of workforce supply; this is particularly evident in relation to nursing workforce gaps in theatres and in critical care. As an organisation, NHSG has embarked on a programme of overseas links and recruitment efforts, which are showing some positive early signs. In the interim, the procurement of supplementary nursing workforce will be difficult to avoid, and is therefore being addressed in a planned way

via procurement routes in order to ensure quality, reliability and best value.

2.15.3 Capital Asset Planning

The preparation of capital plans to best enable elective care transformation will take account of other local asset developments, some of which will see services vacating current accommodation, which may in turn provide refurbishment opportunities in support of optimising elective care. Key examples are noted below:

2.15.3.1 The Baird and ANCHOR Project

The development on the Foresterhill Health Campus of a bespoke new facility supporting the delivery of maternity and predominantly women's health services is an important development for NHSG and the NoS. Services within the Baird Family Hospital. The human resource associated with these services will relocate into these new facilities along with the services.

These developments will have direct impact on aspects of the physical infrastructure and facilities at ARI. For example, in terms of removing a significant proportion of space from the current ARI outpatient and ward environs, short-stay theatre facilities, and releasing physical theatre capacity in the Main Theatre Suite. This release in unstaffed theatre capacity will equate to three theatres. The ANCHOR Centre will bring about the provision of new and dedicated facilities for the provision of ambulatory Oncology and Haematology services and will further reduce pressure on currently utilised areas within ARI.

It is important to note that some of the spaces that will be vacated are not suitable for future use as clinical facilities, though implications of vacated space will be considered in the context of refurbishment potential, should such options exist in support of transforming future elective care.

2.15.3.2 The future re-provision of Phase 2 ARI

'Phase two' houses all ARI-based surgical inpatient environs and is approaching the end of its lifecycle, a replacement has been anticipated for some time as being approximately 10-15 years out from being significantly near the end of its lifecycle in terms. This will be a major capital project and has been discussed with Scottish Government over recent years and service engagement has taken place in relation to future inpatient care requirements. The NHSG elective care programme compliments this earlier work to engage services regarding their vision of inpatient services beyond the 10-year horizon. The broadness of the elective engagement will serve to inform this development and any investment in elective care facilities on the Foresterhill Campus will as far as possible take into account future adjacencies and links.

2.16 Summarising the need for change

Table S30 below summarises the preceding narrative in relation to cause and effect of the need for change and the need for investment.

Table S30: Summary of the need for change

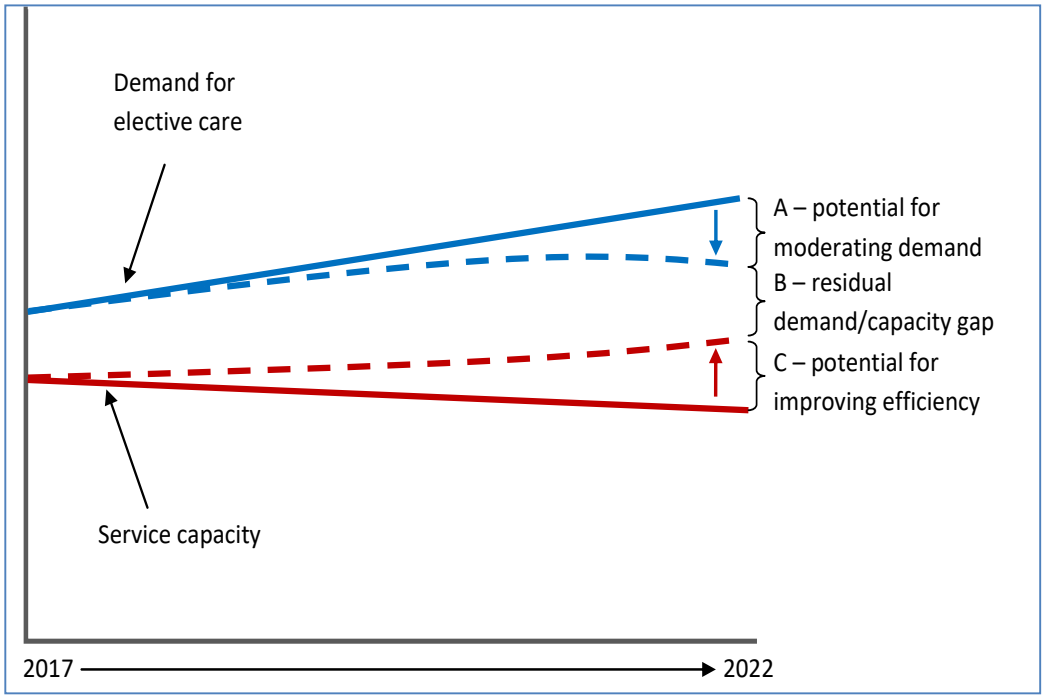
What is the cause of the need for change?	What effect is it having, or likely to have, on the organisation?	Why action now?
Current and projected future demand – linked to ageing population	Existing physical capacity is unable to cope with current demand, and future demand projections.	To improve service sustainability and access in future
Services are limited in their potential to implement desirable Target Operating Models	Service performance and efficiency is limited.	Continuation of current performance in unsustainable
Fragmented and ageing IT systems	Sub-optimal use of, and access to,	To maximise resource efficiency

What is the cause of the need for change?	What effect is it having, or likely to have, on the organisation?	Why action now?
and equipment, and cultural aspects of embracing new ways of working which are enabled by technology	technology.	and support modern care models
Dispersed service locations and accommodation with unsatisfactory physical condition	Services are not sufficiently person centred.	To improve service quality, outcomes, patient dignity and satisfaction.
Sustainability of services is proving more challenging in terms of e.g. attracting and retaining skilled workforce	Retention and sustainability of services and workforce in Grampian and NoS is challenged, with inequitable service access.	To promote equity of access and prevent situation from worsening in terms of staff availability, pressure, morale
Lack of suitability of accommodation, poor adjacencies, outmoded models of care	Avoidable admissions and outpatient attendances occur, or occur at wrong place/time.	Ongoing deterioration and performance impact unless acted upon

2.17 What is the organisation seeking to achieve?

This section develops the expression of the future state as outlined in the preface to the strategic case in section 2.2, which is envisaged in association with proposed preferred solution. The aims of elective redesign activities are illustrated in Figure S14 below, which demonstrates the required focus of efforts and initiatives to support the moderation of the future increase in demand, and the optimising of available resource and capacity.

Figure S14: Illustration of redesign efforts and residual/optimised gap



The proposed investment will be viewed as a first-phase of investment from a longer list of priorities which would enable additional elective capacity through the application of capital funding. This will be pivotal to reducing the demand and capacity gap which is highlighted in figure S14 as far as possible, and in optimising service delivery.

2.17.1 Principles of elective care

To help articulate a future vision for elective care, the Programme Board has agreed the following principles which underpin the strategic approach to transforming elective care. These key principles for the future delivery of elective services, listed in Table S31, were developed via the broader engagement process outlined in section 2.2.3.

Table S31: Principles of Elective Care

Elective Care Principles
Care is centred in the community setting as far as practicable and is provided as close to home as possible
Care and treatment is delivered as far as possible on a planned basis, is person centred and organised around individual needs
Primary Care colleagues are supported in having optimal access to diagnostics
Hospital attendances and admissions are minimised
Waiting times are equitable and optimised through efficient use of resource, technology and supporting processes
Services and workforce are planned locally and regionally, in order to sustain them in North Scotland
The promotion of self-management will have a significant impact on the relationship between the public and health & social care organisations

2.17.2 Investment Objectives

The strategic assessment for this programme identified the need for change. During the Initial Agreement stage of the project investment objectives were developed in consultation with stakeholders and agreed by the Elective Care Programme Board. The investment objectives are set out in Table S32.

Table S32: Investment Objectives

Effect of the need for change on the organisation:	What has to be achieved to deliver the necessary change? (Investment Objectives)
Existing physical capacity is unable to cope with current demand, and future demand projections.	Improve future service capacity by improving supporting asset base.
Service performance and efficiency is limited.	Improve service performance and efficiency by optimising service redesign.
Sub-optimal use of, and access to, technology.	Service redesign is enabled by use of, and access to, technology.
Services are not sufficiently person centred.	Meet user requirements for service by being more person-centred.
Retention and sustainability of services and workforce in Grampian and NoS is challenged, with inequitable service access.	Improved and sustainable equity of local access to treatment as far as possible and regionally where required, with harmonised access agreements across NoS Boards.
Avoidable admissions and outpatient attendances occur, or occur at wrong place/time.	Improved facilities in place to support modern outpatient care and optimised inpatient/day case activity.

2.17.2.1 Improve future service capacity by improving supporting asset base

Physical accommodation enables the transformation of elective care, to better meet demand. Capital investment is deployed as flexibly as possible through the creation of generic spaces which are future-proofed in terms of their potential to respond to changes in service and health care needs ahead.

2.17.2.2 Improve service performance and efficiency by optimising service redesign

Services innovate and adopt ways of working which support improved performance and efficiency. These optimised pathways are agreed in the form of Target Operating Models (TOMs). This will result in improving New: Return outpatient ratios, theatre productivity, reducing waits and achieving performance targets for day case surgery. Facilitating new and more person-centred models and locations of care delivery are key to this objective e.g. in ways which minimise requirements for patients admission or attendance at hospital.

2.17.2.3 Service redesign is enabled by use of, and access to, technology

The delivery of person-centred care will benefit from the adoption of innovative technologies. For example, this will support high quality information for patients and referrers along with the development of digital solutions which facilitate optimal triage and patient flows. It will enable modern models of patient assessment and follow-up.

2.17.2.4 Meet user requirements for service by being more person-centred

Care is more person-centred, close to home and effectively programmed to achieve maximum benefit from each interaction with services. A strategic priority for the NHSG elective care programme is to scope and determine a proposed model of community diagnostic and treatment hub(s), in support of locally delivered care, as specialist as necessary.

2.17.2.5 Improved and sustainable equity of local access to treatment as far as possible and also regionally where required, with harmonised access agreements in NoS.

High-quality elective care is available locally and regionally, it is hoped that capacity will over time support the repatriation of out-of-area activity, from e.g. Golden Jubilee National Hospital.

Services will benefit from improved training opportunities, recruitment and retention of essential current and future health staff, and equity of thresholds for service access across NoS is promoted.

2.17.2.6 Improved facilities to support modern outpatient care and optimised inpatient/day case activity

This envisages the provision of co-located services where consultation and essential diagnostic tests can be delivered via 'one-stop' models of outpatient care, and by taking every opportunity to shift care from unscheduled to schedule. This objective is complemented by the Modern Outpatient strategic approach and implementing such processes as e.g. patient-triggered review appointments.

Reducing the instances of unscheduled attendances at wards through planning the delivery of high-quality care, as far as possible on an outpatient or day case basis will help reduce avoidable admissions to hospital.

2.17.2.7 What are the benefits and risks to success?

This section outlines the expected benefits associated with the project at a high-level, and identifies key risks, their management and constraints which are of bearing on the project delivery.

2.17.2.8 What benefits are to be gained from this proposal?

The preferred implementation solution is detailed in the Economic Case. However, the anticipated service benefits are outlined below are, associated with our desired future state. These are in alignment with the elective care principles expressed in Table S31 and the Investment Objectives in Table S32.

<u>Development of one-stop model of outpatient and ambulatory care:</u>

The preferred solution will allow some of our specialities which face the greatest predicted increase in demand or have best opportunity to transform and future-proof models of care.

Facilities will support one-stop and programmed approaches to ambulatory care which minimise the requirement to attend hospital and

consolidate existing teams in ways which remove fragmentation, promote team working and enhance efficiency and productivity. This is particularly applicable to Dermatology, Urology and Respiratory services.

Increased efficiency and capacity for day case treatment and Endoscopy:

The creation of bespoke co-located facilities for day case surgery and Endoscopy will bring additional capacity to support efficient working and increased shift away from inpatient care. This will release 'hidden capacity', support reduced patient waits for treatment, increased compliance with key performance targets, and greater patient and staff satisfaction.

Development of alternatives to Hospital attendance/admission:

The concept of Community Diagnostic and Treatment Hubs has garnered much support via our engagement process, and requires significant work to articulate requirements, scope, number and locations. Following agreement at the April 2019 Elective care National Programme Board it was agreed that this element of the Grampian Elective care Project would be developed separately from the Elective Centre Project and be subject to standard business case. Their creation and benefit is anticipated to further minimise requirement for hospital attendance e.g. for medical procedures and treatments, phlebotomy, test results. One example would be for ophthalmology eye injections referred to at section 2.8.3 which would remove the need for a large and growing number of patients to attend hospital appointment. It is anticipated that these will significantly help bring primary and secondary care sectors closer in their ways of working to best support patients and optimally utilise resource.

This concept links well with the 2018 General Medical Services Contract in Scotland. One of the key changes is the introduction of the "Community Treatment and Care Service" for 2021, a joint HSCP/NHS

Board Service. The vision is that care will be delivered with a "collaborative approach and common vision". The need for Primary Care to build a wider multi disciplinary team is evident as well as a need to improve the Primary care and Secondary Care interface. The capital investment into community Diagnostic and Treatment Hubs would enable this change.

Improved access to diagnosis and treatment:

Our future state vision includes improved access to diagnostic tests such as MRI and CT scanning, which are key to many treatment pathways and is predicted to experience demand growth in excess of population growth. Investment in facilities and associated workforce at optimum locations across Grampian is anticipated to positively impact on treatment times and outcomes, as well as future-proof service delivery without requirement for 3rd party providers.

Improved service performance:

Implicit with all efforts to reduce the demand and capacity gap is the desire to ensure we provide treatments of clinical value in as timely a manner possible. Our proposal supports the improvement in service performance for many specialties, which is further described in terms of additionality in the Economic Case.

Improved separation of elective and unscheduled care:

Our vision for elective care includes the maximal conversion of unscheduled care into planned care. Providing appropriate infrastructure to support e.g. rapid access assessment clinics and alternatives to admission for treatments or procedures will optimise the delivery of elective and unscheduled care. This will also help negate the impact of surges in unscheduled care, which will less often result in any imposition on planned care.

Improved service and workforce sustainability:

Our proposal includes investing in services and facilities which face challenges in recruitment and retention locally and regionally, this will support making NHS Grampian and NoS employers of choice. A key priority has been to include elements of that solution which will enable the existing workforce to improve productivity without requiring workforce growth, taking a realistic approach and seeking to minimise revenue consequences.

This includes those aspects of our preferred solution which it has been suggested may not fit with the scope of the national programme. These are of particular importance locally and regionally, i.e. the Cath-Lab and IR Hybrid elements, which if unsupported will leave a critical need for investment in NHS Grampian/NoS.

Enhanced clinical research facilities:

Our proposal includes the development of new facilities for supporting clinical research, and jointly developing our capabilities in this regard in partnership with the University of Aberdeen. This would be achieved through the creation of a new world-class clinical research facility. The new facility would replace discipline-specific research facilities including a Cardiac research unit with equipment, a diabetes research facility for complex clinical studies), and facilities for oncological trials. The facility would be available to all those who participate in clinical research between NHSG and the University of Aberdeen. This would allow staff to undertake clinical research in the facility whilst having their main clinical or laboratory area on the integrated Foresterhill campus. It is envisaged that the full feasibility, benefits and affordability of this opportunity will be ascertained during the OBC completion, and expanded upon at that stage of the proposal.

Since IA approval we have identified with the University of Aberdeen an area in ARI that could provide the enhanced clinical research

facilities. This will not be progressed as part of the Elective Care Project.

Improved Achievement of Target Operating Models (TOMs)

As outlined in the preface to the strategic case, through the achievement of desirable TOMs at the system and specialty levels, steps can be taken to narrow the residual gap between elective care capacity and demand. Services will be supported to optimise performance as far as possible within current and anticipated future constraints. Informed by engagement, key features of a desirable TOM are outlined in Table S33.

Table S33: Target Operating Model Focus for Improvement

Target Operating Model Components
Increased use of referrer guidance and advice only referrals
Improved timeliness and quality of referrals
Reduced DNA rates
Optimised New: Return outpatient appointment ratios (upper quartile)
Modernised models of outpatient care e.g. One-stop and patient initiated
Embedded ERAS / Pre-habilitation approaches
Increased DOSA compliance
Increased achievement of BADS (British Association of Day Surgery) target compliance
Optimised theatre utilisation and productivity (e.g. upper quartile performance)
Reduced procedure cancellations
Optimised lengths of stay (e.g. upper quartile performance nationally)
Patient triggered / individualised follow-up
Improving patient experience and feedback

The SCIM process requires the development of non-financial benefit criteria, agreed by the Programme Board, against which service options for investment are scored. These are outlined in section 3.6.

Working with the project team and programme board, a register of benefits has been developed with the intention of supporting the rationale for investment through articulating the impact of the project. The benefits register can be viewed at Appendix G and with it a benefits realisation plan that supports the realisation of the benefits Appendix H.

2.17.3 What risks could undermine the proposals success?

The key service risks and proposed mitigation are identified, in the risk register, refer to Appendix I.

Effective management of project risks is essential for the successful delivery of any infrastructure project. A robust risk management process has been put in place and will be actively managed through the whole programme to reduce the likelihood of unmanaged risk affecting any aspect of the Project. Risk is managed within the Project Team and is led by the Project Director.

2.17.4 Are there any constraints or dependencies?

A number of constraints and dependencies are highlighted in Table S34.

Table S34: Constraints and Dependencies

Area	Constraint/ Dependency	Impact	Mitigation
Funding	Availability and allocation of additional capital funding to the Project	Proposal and associated strategic intent for elective care will not be deliverable	Project will only proceed further once funding is confirmed.
Funding	Revenue cost to support operational phase of the	Investment will not deliver the anticipated service benefit	Financial planning and additional

Area	Constraint/ Dependency	Impact	Mitigation
	project are not sustainable		funding is required.
Existing Infrastructure	Fitness of Purpose of Existing Infrastructure	Unanticipated cost of remedial work Inability to deliver demand moderation	Management of risk in physical solution development
Stakeholder	Delivery of elective care plan dependent on joint working between NHS Boards	Uncoordinated delivery of preferred service solution	Regular engagement and regional collaboration with North of Scotland Boards.
Stakeholder	Alignment of preferred service solution with national, regional and local priorities	Solution does not align to national aims and priorities	Regular engagement and cross check of proposed developments.
Stakeholder	Ensuring joint working with Health and Social Care partners	Incomplete scoping and developing priority areas of work e.g. establishing proposed models for sustaining and developing GP minor surgery	Regular engagement with representatives on key project groups.
Workforce	Recruitment and retention is not improved.	Full staffing, resulting in a better working environment and more patients able to be seen.	strategic initiatives to improve recruitment and retention
Service redesign	Service redesign does not optimise efficiency.	Efficiency is not optimised which could impact benefits anticipated	Programme of Service Review and Redesign has been identified.

Area	Constraint/ Dependency	Impact	Mitigation
Project Resources	The Board does not have the capacity or capability to deliver the Project.	The project is poorly specified and managed.	Appropriate Project Team identified and assembled, including external advisors.

3. The Economic Case

3.1 Introduction

The purpose of the Economic Case within this Outline Business Case (OBC) is to undertake a detailed analysis of the costs, benefits and risks of a short-list of implementation options illustrating how NHS Grampian (NHSG) has selected the implementation solution to be taken forward to the next stages of planning (the Full Business Case (FBC)). It demonstrates the relative value for money of the chosen option in delivering the required outcomes and services.

A short-list of options have been developed for assessment at this stage and reflect the solutions for delivering the preferred service solution. These are set out in Table E4 and Appendix K. Table E1 summaries the appraisal of the options and demonstrates Option 1b: Site Feasibility Option A (new bespoke facility on the Foresterhill Campus) new road access arrangements + 1 MRI @ Foresterhill Campus + 1 MRI @ Dr Grays Hospital, as the preferred option.

Table E1: Evaluation of Options

Score (Out of 100)	Option 1a	Option 1b	Option 2a	Option 2b	Option 3a	Option 3b	Option 4
Economic Appraisal	98	100	89	91	80	82	29
Risk Appraisal	81	82	81	81	78	79	73
Total Score	**179**	**182**	**170**	**172**	**158**	**161**	**102**
Overall Ranking	2	1	4	3	6	5	7

*See Table E4 for details of options

3.2 NHS Grampian Approach to Economic Case

At Initial Agreement (IA) stage NHS Grampian undertook an extensive engagement process to review current service arrangements and consider the need for change. The products of this process included a

clinical output specification for each service which sets out the key anticipated activity, patient pathways, workforce and facilities challenges, and a redesign programme.

The process outlined above has identified a broad range of areas that will benefit from capital investment. Recognising investment will be phased the appraisal in the Economic Case in the IA focused on where capital investment will address the greatest Elective Care priorities and deliver most additionally.

The preferred service solution set out in the Initial Agreement was Option 5, as set out in table E2.

Table E2: Preferred Service Solution

Components
Modern and fit for purpose outpatient and ambulatory care facilities, supporting a 'one-stop' model of outpatient provision: Urology, Respiratory and Dermatology
Investment in CT and MRI facilities
Co-location of both the facilities for day surgery and endoscopy in a single new bespoke facility
The development of the concept of Community Diagnostic & Treatment Hubs

The IA identified that the preferred service solution will deliver investment in an Elective Care Centre on the Foresterhill Campus including a mix of new build and refurbishment of existing infrastructure (including equipment) together with service reconfiguration across NHS Grampian including community settings.

The short-list of implementation options that have been developed for assessment at this stage reflect the physical solutions for delivering the preferred service solution.

Community Diagnostic & Treatment Hubs did not form part of this site option appraisal (see 2.1.1).

3.3 Do Nothing Option

A summary description of the do nothing option is presented in Table E3. The do nothing option will address essential backlog maintenance and support limited service re-design. This table summarises the impact of the do nothing option on NHS Grampian.

Table E3: Do Nothing

Strategic Scope of Option	Do Nothing
Service provision:	Existing service provision arrangements with no capital investment other than backlog maintenance to support service development. Limited moderation of the gap between service demand and capacity, inefficient and fragmented physical dispersal of services.
Service arrangements:	Existing service arrangements Limits the efficient deployment of workforce capacity and ability to address waiting time targets.
Service provider and workforce arrangements:	Existing workforce and current and further use of third party service provider arrangements with ongoing high levels of supplementary staffing, expenditure on private sector, use of mobile imaging etc. Continuing difficulty with staff recruitment and retention with risk of deterioration in staff morale. Opportunity for flexible use of staffing sub-optimal.
Supporting assets:	NHS Grampian owned equipment. Third Party Equipment Existing NHS Grampian facilities – multiple sites Backlog maintenance and poor functional suitability will needs to be addressed and equipment replacement requirements identified.

	Limits services abilities to achieve target operating models.
Public and service user expectations:	Efficient, effective person-centred care. Not achieved by this option.

3.4 Identification of a Short-List of Implementation Options

A process to examine physical solutions to deliver the preferred service solution has been undertaken. This included (i) establishment of a stakeholder group (workshop group) to identify and appraise the non-financial aspects of the options via workshops and (ii) a feasibility study of the physical suitability of a preferred site. The site suitability was confirmed. The participants, process and outputs, for the former are set out in appendix K.

The workshop group identified a long list of potential physical solutions and appraised these against (i) NHS Grampian's Strategic Objectives and Plans, (ii) the Investment Objective of the Project and (iii) Affordability, to identify a short list of options.

The short-list of options that emerged from this work are summarised as follows and developed in more detail in Appendix K:

Table E4: Short-List of Options

Option	Description
Option 1a	Site Feasibility Option A (new bespoke facility on the Foresterhill Campus) - new road access arrangements + 2 MRIs @ Foresterhill Campus
Option 1b	Site Feasibility Option A (new bespoke facility on the Foresterhill Campus) new road access arrangements + 1 MRI @ Foresterhill Campus + 1 MRI @ Dr Grays Hospital

Option 2a	Site Feasibility Option B (new bespoke facility on the Foresterhill Campus) – retain existing road access arrangements + 2 MRI @ Foresterhill Campus
Option 2b	Site Feasibility Option B (new bespoke facility on the Foresterhill Campus) - retain existing road access arrangements + 1 MRI @ Foresterhill Campus + 1 MRI @ Dr Grays Hospital
Option 3a	Free standing building on ARI Site + 2 MRI @ Foresterhill Campus (2/3 storey)
Option 3b	Free standing building on ARI Site + 1 MRI @ Foresterhill Campus + 1 MRI @ Dr Grays Hospital (2/3 storey)
Option 4	Do nothing – Backlog Maintenance only in Existing Accommodation

3.5 Identification and Quantification of Monetary Costs and Benefits of Options

3.5.1 Monetary Costs

3.5.1.1 Initial Cost Implications

Table E5 outlines the capital costs that have been identified for each option as Appendix J.

Table E5: Initial Cost Implication Summary – Short-Listed Options

	Option 1a	Option 1b	Option 2a	Option 2b	Option 3a	Option 3b	Option 4
	£000's	£000's	£000's	£000's	£000's	£000's	£000's
Opportunity Cost	221	221	221	221	221	221	0
Initial Capital Costs							
Construction Cost	22,716	23,825	22,716	22,503	22,601	22,734	1,386
Site Specific Costs	0	346	0	346	0	0	0
Prelims, Fees, On-Costs	3,807	3,917	3,807	3,678	3,797	3,667	222
Risk - Quantifiable	0	3,488	0	0	0	0	0
Risk – Non Quantifiable (optimism bias)	5,656	0	5,656	5,656	5,276	5,276	290
Enabling Costs	0	630	0	0	0	0	0
Equipment	6,892	6,892	6,892	6,892	6,892	6,892	161
Client Costs	1,369	1,369	1,369	1,369	1,369	1,369	97
Project Development	2,810	1,950	2,810	2,810	2,810	2,810	1,006
Commissioning Costs	100	100	100	100	100	100	0
Transitional Period Costs	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Cost of Embedded Accommodation	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Total Initial Cost Implications	**43,571**	**42,737**	**43,571**	**43,575**	**43,065**	**43,069**	**3,162**

The following reflects the approach taken in the development of this cost:

- Opportunity Costs: the sites proposed for this development are already in the ownership of NHSG on behalf of the Scottish Ministers, and as such, the use of the land for this Project represents an opportunity cost. The land of the Foresterhill Health Campus is

valued annually and has been pro-rated against the footprint of each option to identify the opportunity cost

- Initial Capital Costs - Construction Costs: have been refreshed to align with the refined scope and anticipated construction and completion programme by the Board's Joint Cost Advisor. The backlog maintenance costs are taken from the NHSG Backlog Maintenance Register
- Initial Capital Costs - Financial Risk: the preferred implmentation option has undergone detailed development and refinement of costs which are reflective of financial risks for this option. For the other options, Optimism Bias reflects non quantifiable risk and has been used to estimate a provision
- Initial Capital Costs - Equipment Costs: there is a need to provide new equipment. Equipment lists been developed from the Schedule of Accommodation (SOA) and exemplar Room Data Sheets (RDS) and will continue to be refined. Where possible, it is intended that existing equipment will transfer with services to assist in keeping the total cost of new equipment to a minimum. For each of the options, with the exception of do nothing, the same estimate of £6,892,000 excluding VAT has been included, based on the most recent prices
- Development Costs: costs associated with a Project Team, a set of advisors and the procurement process have been identified.
- Commissioning Costs: costs associated with the commissioning of the facilities have been identified. For each of the options, with the exception of do nothing, £100,000 has been included
- Embedded Accommodation: No embedded accomodation provided, all areas will be accommodated by NHS Grampian.

3.5.1.2 Recurring Revenue Cost Implications

Table E6 sets out recurring revenue costs that have been identified for each option. These represent the incremental additional costs of delivering services and running the new facility:

Table E6: Recurring Revenue Cost Implications

	Option 1a	Option 1b	Option 2a	Option 2b	Option 3a	Option 3b	Option 4
	£000's	£000's	£000's	£000's	£000's	£000's	£000's
Life Cycle Costs (Average)	1,986	2,000	1,986	1,986	1,985	1,985	56
Clinical Service Costs	3,360	3,360	3,360	3,360	3,360	3,360	0
Non-Clinical Service Costs	949	949	949	949	949	949	0
Building Related Running Costs	768	768	768	768	768	768	0
Net Income Contributions	0	0	0	0	0	0	0
Revenue Costs of Embedded Accommodation	0	0	0	0	0	0	0
Displacement Costs	0	0	0	0	0	0	0
Total Recurring Revenue Cost Implications	**7,062**	**7,076**	**7,062**	**7,063**	**7,061**	**7,061**	**56**

- Lifecycle Costs - indicative lifecycle costs for the maintenance and replacement of assets during the appraisal period for each option have been derived from established lifecycle models.
- Clinical Service Cost - area of change which is anticipated to have a material incremental financial impact for The Elective Care Centre relates the provision of additional imaging facilities and short stay theatre capacity.
- the Non-Clinical Support Service areas of change that are anticipated to have a material incremental financial impact refers to equipment maintenance and provision of a decontamination unit.
- Building Related Running Costs - as is the case with most new build projects that replace existing buildings, it is anticipated that there will be a net increase in building related running costs. The reason for this is in relation to the modern space standards that new buildings

are required to meet. The resulting increased floor area inevitably leads to increased costs for business rates, heating, lighting, cleaning, building maintenance etc

- Net Income Contribution (income generated from non-public sector organisation) - none is anticipated
- Embedded Accommodation – Revenue Costs – none is anticipated.
- Displacement Costs - none are anticipated

3.5.1.3 Service Redesign

This Project will facilitate service enhancement and significant service redesign. A service redesign agenda has been established and is being developed.

Three main categories of redesign have been identified by this group:

- consequence of the new buildings
- current service pressures
- predicted growth in demand

Some service changes will deliver efficiencies, however it is anticipated that some cost pressures may arise and these will have to be planned for and managed.

Only those cost pressures that are as a direct consequence of the new building have been included in the Economic Case of this OBC.

3.5.1.4 Optimism Bias/Financial Risk

Optimism Bias has been calculated for all but the preferred implementation option, in accordance with HM Treasury's guidance, as these options have not been developed following the initial identification. The preferred implementation solution option reflects the formal cost plan which includes inherent risk provision and an allocation arising from a costed Risk Register, Appendix N. The Optimism Bias templates for each option are included as Appendix M.

3.5.1.5 Monetary Benefits

No specific and material monetary benefit associated with the development of this facility has been identified for inclusion within the appraisal. Minor efficiencies and income streams are expected to be realised and used to offset minor recurring revenue cost pressures arising from the delivery of the preferred service option.

3.6 Non-Monetary Costs and Benefits

It is not possible to monetise all costs and benefits associated with the various implementation options for this Project but the following broad headings relate to the investment objectives and are reflected in the Benefits Register:

- Improved asset base to support service capacity (access to diagnosis and treatment) and optimise resource utilisation,
- Promotes service redesign which optimises planning, person centred care and improved patient flow,
- Maximum separation of elective and unscheduled patient flows,
- Improved access to diagnosis and treatment with reference to community inclusion and proximity to local services,
- Compatible with Foresterhill Master Plan/Development Framework ,
- Effective and Safe Service Delivery with optimal adjacencies and improved patient flows,
- Flexibility/Future Proofing,
- Physical access to the building by public transport/by car including parkingspaces/accessibility and good connectivity with optimal natural surroundings, and
- Promote sustainable service and workforce to deliver care as locally, and within NoS, as far as possible.

These were identified and appraised at the site option workshops involving a range of stakeholders including clinicians, service managers and Patient Representatives

The workshops process involved:

- reviewing and agreeing a set of non-financial benefit criteria and weighting these to reflect the workshop group's view of the relative importance of each criterion
- examining a short-list of options against the criteria and, following discussion, agreeing on how well each option could be expected to meet the criteria and then allocating a score (maximum 10 and minimum 0) for each option against each criterion
- computing an overall weighted benefit score (summated scores x weight) for each option. This weighted benefit score is simply a measure of how well the workshop participants considered each option was likely to deliver the benefits required from the Project
- reviewing the weighted benefits scores from the appraisal and, following discussion, agreeing that they represented an accurate assessment of the group's views of how well each option is likely to perform in terms of delivering the benefits required from the investment in the Project

The Benefit Criteria agreed and weighted to reflect the workshop group's views on the relative importance of each criterion are shown in the Table E7.

Table E7: Weighting and Ranking of Benefit Criteria for Option Appraisal

Benefit Criteria	Rank	Weight
Improved asset base to support service capacity (access to diagnosis and treatment) and optimise resource utilisation.	1	16
Promotes service redesign which optimises planning, person	2	14

centred care and improved patient flow		
Maximum separation of elective and unscheduled patient flows	3	12
Improved access to diagnosis and treatment with reference to community inclusion and proximity to local services	8	8
Compatible with Foresterhill Master Plan/Development Framework	8	8
Effective and Safe Service Delivery with optimal adjacencies and improved patient flows	3	12
Flexibility/Future Proofing	6	9
Physical access to the building by public transport/by car including parking spaces/accessibility and good connectivity with optimal natural surroundings	3	12
Promote sustainable service and workforce to deliver care as locally, and within NoS, as far as possible	6	9
Total Score		**100**

The ranking and scoring of each option undertake by the workshop group's are shown in the Table E8.

Table E8: Scoring and Ranking Non-Monetary Benefit Criteria against Options

		Option 1a	Option 1b	Option 2a	Option 2b	Option 3a	Option 3b	Option 4
Improved asset base to support service capacity (access to diagnosis and treatment) and optimise resource utilisation.	16.00%	4	4	4	4	3	3	0
Promotes service redesign which optimises planning, person centred care and improved patient flow	14.00%	5	5	5	5	5	5	1
Maximum separation of elective and unscheduled patient flows	12.00%	4	4	4	4	5	5	0
Improved access to diagnosis and treatment with reference to community inclusion and proximity to local services	8.00%	3	4	3	4	3	4	0
Compatible with Foresterhill Master Plan/Development Framework	8.00%	5	5	5	5	1	1	0
Effective and Safe Service Delivery with optimal adjacencies and improved patient flows	12.00%	4	4	3	3	3	3	1
Flexibility/Future Proofing	9.00%	3	3	3	3	3	3	0
Physical access to the building by public transport/by car including parking spaces/accessibility and good connectivity with optimal natural surroundings	12.00%	4	4	2	2	2	2	0
Promote sustainable service and workforce to deliver care as locally, and within NoS, as far as possible	9.00%	4	4	4	4	4	4	0
Total Weighted Score		**4.05**	**4.13**	**3.69**	**3.77**	**3.33**	**3.41**	**0.26**
Score (out of 100)		**81**	**83**	**74**	**75**	**67**	**68**	**5**
Rank		**2**	**1**	**4**	**3**	**6**	**5**	**7**

Applying the benefits criteria ranking demonstrates that Option 1b: Site Feasibility Option A (new bespoke facility on the Foresterhill Campus) new road access arrangements + 1 MRI @ Foresterhill Campus + 1 MRI @ Dr Grays Hospital, has the highest weighted score making it the preferred option using the non-monetary benefits score.

3.7 Non-Financial Risk Appraisal

The majority of risks associated with the short-listed options have been measured and quantified in monetary terms and included in the calculated Net Present Cost (NPC) of each option. Hence, the costs

used in the economic appraisal have been risk adjusted to reflect the main business, operational and project implementation risks including:

- planning, design and construction risks,
- commissioning risks,
- operational risks,
- service risks, and
- business risks.

Recognising that not all risks can be quantified in monetary terms, the non-financial risks associated with the short-listed options were identified and appraised at the workshops. Those identified were:

- Proposal will not receive approval - inconsistent with policy and plans,
- Facilities substantially fails to meet stakeholders expectations in terms of benefits,
- Sites inhibits future development,
- Solution does not provide adequate flexibility to meet future demand,
- Patient safety is compromised by access to service,
- Not deliverable within funding envelope,
- Accessibility for Urgent Access is compromised,
- Operational problems - road layout, car park management, buses etc,
- Impacts on Workforce Sustainability,
- Optimal Locality not Achieved e.g. community provision and closest to home, and
- Interdependencies with other Projects on Foresterhill Campus.

This appraisal was similar to that used for the non-monetary benefits involved:

- reviewing each of the short-listed options to identify potential non-financial risks,
- assessing each risk in terms of its likelihood and impact, and
- computing a risk score for each option by multiplying the likelihood and impact scores.

The Risk Register was considered as part of the work and all site related risks on the register have been captured by those used, those non-financial risks on the Risk Register and not covered by this appraisal relate to service delivery and could not be directly aligned to the site option appraisal approach previously agreed for this Project.

The results from the appraisal of non-financial risks are summarised in Table E9 and demonstrates that the do minimum scores worst with option 1b scoring best:

Table E9: Non-Financial Risk Appraisal

	Option 1a			Option 1b			Option 2a			Option 2b			Option 3a			Option 3b			Option 4		
	Impact	Likelihood	Risk Score	Impact	Likelihood	Risk Score	Impact	Likelihood	Risk Score	Impact	Likelihood	Risk Score	Impact	Likelihood	Risk Score	Impact	Likelihood	Risk Score	Impact	Likelihood	Risk Score
Proposal will not receive approval - inconsistent with policy and plans	5	2	10	5	3	15	5	2	10	5	3	15	5	3	15	5	3	15	5	4	20
Facilities substantially fails to meet stakeholders expectations in terms of benefits	4	2	8	3	2	6	4	2	8	3	2	6	4	2	8	3	2	6	4	5	20
Sites inhibits future development	3	1	3	3	1	3	3	1	3	3	1	3	4	3	12	4	3	12	3	4	12
Solution does not provide adequate flexibility to meet future demand	4	2	8	4	2	8	4	2	8	4	2	8	4	2	8	4	2	8	5	5	25
Patient safety is compromised by access to service	5	1	5	5	1	5	5	1	5	5	1	5	5	3	15	5	3	15	5	3	15
Not deliverable within funding envelope	3	3	9	3	3	9	3	3	9	3	3	9	3	2	6	3	2	6	3	3	9
Accessibility for Urgent Access is Compromised	5	2	10	5	2	10	5	2	10	5	2	10	5	2	10	5	2	10	5	2	10
Operational problems - road layout, car park management, buses etc	4	3	12	4	3	12	4	4	16	4	4	16	4	3	12	4	3	12	3	3	9
Impacts on Workforce Sustainability	3	3	9	3	3	9	3	3	9	3	3	9	4	3	12	3	3	9	2	2	4
Optimal Locality not Achieved e.g. community provision and closest to home	3	4	12	2	4	8	3	4	12	2	4	8	3	4	12	2	4	8	4	4	16
Interdependencies with other Projects on Foresterhill Campus	4	4	16	4	4	16	4	4	16	4	4	16	4	3	12	4	4	16	3	3	9
Score			**102**			**101**			**106**			**105**			**122**			**117**			**149**
Score (out of 100)			81			82			81			81			78			79			73
Rank			2			1			4			3			6			5			7

3.8 Net Present Cost of Options

3.8.1 Calculation of Net Present Cost

The financial evaluation, calculating net present cost, of each option is set in the context of the guidance provided in the SCIM. It incorporates a full analysis of the revenue and capital costs for each option.

A Generic Economic Model (GEM) has been applied to the monetary costs and benefits of the options to derive the comparative cost implications of each of the options in the form of Equivalent Annual Costs (EAC) and Net Present Costs (NPC).

The appraisal process identifies the relevant costs and financial risks and benefits over the Project development and the first 25 years of the asset life.

Phasing of construction cashflows is consistent with the current Project programme.

Table E10 provides a summary of the cost implications together with NPC for each of the short-listed options. The detailed output of the analysis can be found in Appendix O.

In accordance with guidance, capital charges, inflation and VAT are excluded from the calculations. Capital and revenue costs are added together to calculate a net present cost for total expenditure.

Table E10: Summary Cost Implications Short-List Options

	Option 1a	Option 1b	Option 2a	Option 2b	Option 3a	Option 3b	Option 4
	£000's	£000's	£000's	£000's	£000's	£000's	£000's
Initial Cost Implications	43,571	42,737	43,571	43,575	43,065	43,069	3,162
Additional Recurring Revenue Implications	5,604	5,604	5,604	5,604	5,604	5,604	528
Net Present Cost (NPC)	132,838	132,352	133,017	133,020	132,571	132,575	28,965
Rank	5	2	5	7	3	4	1

3.8.2 Assessing Uncertainty

Sensitivity analysis is fundamental to option appraisal since it is used to test the robustness of the ranking of options and the selection of a preferred option. It examines the vulnerability of options to changes in underlying assumptions and future uncertainties. For this Project Scenario Analysis has been used, examining the impact of changing scores, weights and net present costs through a number of scenarios.

3.8.2.1 Scenario Analysis – Net Present Cost

The NPC has been subjected to a range of sensitivity tests to check whether changes to any of the assumptions concerning capital or revenue costs have a significant impact on the option rankings. The tests undertaken were:

- Running Costs +10%
- Capital Construction Costs + 20%

The outcome of these tests are detailed in Table E11.

Table E11: Sensitivity Scenario – NPC

	Option 1a		Option 1b		Option 2a		Option 2b		Option 3a		Option 3b		Option 4	
	NPC	Rank	NPC	Rank	NPC	Rank	NPC	Rank	NPC	Rank	NPC	Rank	NPC	Rank
	£000's		£000's		£000's		£000's		£000's		£000's		£000's	
Scenario 1: No Changes	132,838	5	132,352	2	133,017	6	133,020	7	132,571	3	132,575	4	28,965	1
Scenario 2: Increase Recurring Revenue Costs by 10%	141,009	5	140,524	2	141,188	6	141,191	7	140,743	3	140,746	4	29,734	1
Scenario 3: Increase Capital Costs by 20%	149,823	5	149,011	2	150,002	6	150,007	7	149,359	3	149,363	4	30,203	1

It has been demonstrated that there is little sensitivity arising from flexing these costs.

3.8.2.2 Scenario Analysis – Non-Financial Benefits

This analysis has examined the impact arising from flexing the weighted benefit scores and is detailed in Table E12.

Table E12: Sensitivity Scenario - Non-Financial Benefits

	Option 1a		Option 1b		Option 2a		Option 2b		Option 3a		Option 3b		Option 4	
	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank
Scenario 1: No Changes	81	2	83	1	75	4	75	3	67	6	68	5	5	7
Scenario 2: Equal Weight	80	2	82	1	73	4	76	3	64	6	67	5	4	7
Scenario 3: Exclude Top Rank Score	68	2	70	1	61	4	63	3	57	6	59	5	5	7

It has been demonstrated in Table E12 that the ranking of options does not change as a result of applying these scenarios as Option 1b: Site Feasibility Option A (new bespoke facility on the Foresterhill Campus) new road access arrangements + 1 MRI @ Foresterhill Campus + 1 MRI @ Dr Grays Hospital remains superior in terms of expected non-financial benefits in all three scoring scenarios.

3.8.3 Conclusion from the Sensitivity Analysis

In conclusion, the option rankings show little sensitivity to amending the underlying assumptions.

3.9 Conclusion and Identifying the Preferred Option

Value for money in the Economic Case considers the optimum solution in terms of comparing qualitative benefits to costs. This analysis has been performed on an economic NPC basis in line with HM Treasury guidance and the results are shown in Table E13.

Table E13: NPC per Non-Monetary Benefit Score

	Option 1a	Option 1b	Option 2a	Option 2b	Option 3a	Option 3b	Option 4
Net Present Cost (NPC) (£000's)	132,838	132,352	133,017	133,020	132,571	132,575	28,965
Non-Financial Weighted Benefit Score	4.05	4.13	3.69	3.77	3.33	3.41	0.26
NPC per Weighted Benefit Score	32,799	32,047	36,048	35,284	39,811	38,878	111,402
Score (Out of 100)	**98**	**100**	**89**	**91**	**80**	**82**	**29**
Rank	**2**	**1**	**4**	**3**	**6**	**5**	**7**

This analysis identifies Option 1b: Site Feasibility Option A (new bespoke facility on the Foresterhill Campus) new road access arrangements + 1 MRI @ Foresterhill Campus + 1 MRI @ Dr Grays Hospital as the option that has been economically appraised to represent value for money.

The sensitivity analysis has shown that the option appraisal results are robust as realistic and plausible changes in the underlying assumptions

around costs and benefits do not result in a change in the choice of a preferred option. Furthermore, there would need to be substantial change in Weighted Benefit Scores or NPC for there to be a change in the ranking of options.

A summary of the results of all the evaluation criteria of the economic and risk appraisals are presented together in Table E14 and, discounting the do minimum option, affirms Option 1b: Site Feasibility Option A (new bespoke facility on the Foresterhill Campus) new road access arrangements + 1 MRI @ Foresterhill Campus + 1 MRI @ Dr Grays Hospital to be the preferred option to be taken forward

Table E14: Option Appraisal

Score (Out of 100)	Option 1a	Option 1b	Option 2a	Option 2b	Option 3a	Option 3b	Option 4
Economic Appraisal	98	100	89	91	80	82	29
Risk Appraisal	81	82	81	81	78	79	73
Total Score	179	182	170	172	158	161	102
Overall Ranking	2	1	4	3	6	5	7

4. The Commercial Case

4.1 Overview

This section outlines the commercial arrangements and implications for the Project.

This is done by responding to the following points:

- the procurement strategy and appropriate procurement route for the Project
- the scope and content of the proposed commercial arrangement
- risk allocation and apportionment between public and private sector
- the payment structure and how this will be made over the lifetime of the Project
- the contractual arrangements for the Project

4.2 Procurement Strategy

4.2.1 Procurement Route

The Project is a health project with an investment cost inclusive of Community Hubs of circa £55.7 m (incl VAT) of which circa £33 m (ex VAT) relates to construction contract. It is to be funded by means of a capital budget allocation and procured under the NHSScotland Frameworks Scotland 2 (FS2) arrangement.

The following are the key features of the proposed procurement route for the delivery of this Project:

- The works will be procured using an existing contract under the national Framework Scotland 2 arrangements - Major Acute Services NHS Grampian FS2 – The appointed Principal Supply Chain Partner (PSCP) is Graham Construction.
- The Framework Agreement is managed by Health Facilities Scotland (HFS) (a division of NHS National Services Scotland) on behalf of the Scottish Government Health Directorate (SGHSCD).

- The Framework embraces the principles of collaborative working, public and private sectors working together effectively, and it is designed to deliver on-going tangible performance improvements due to repeat work being undertaken by the supply chains.
- The form of contract is likely to be the Engineering and Construction Contract (NEC3), Option C.
- The general principle of the Framework is that risks are passed to 'the party best able to manage them', subject to value for money.

This capital procurement route is consistent with the other elective care developments currently being progressed across Scotland as part of the national elective care programme.

The Project will operate a Project Bank Account (PBA), consistent with Scottish Government Guidance for public sector construction projects. A Project Bank Account is a ring-fenced bank account from which prompt payments are made directly and simultaneously to a lead contractor and members of the supply chain. PBA's improve subcontractors' cashflow and ring-fence it from upstream insolvency.

The Trust Agreement is in place allowing NHS Grampian and the PSCP to operate the PBA. In addition, robust financial governance and contractual arrangements are being developed to ensure the safeguard of funds and the optimal and efficient delivery of the benefit associated with this arrangement.

Effective engagement in relation to PBA arrangements with the supply chain during their appointment is a key objective of the Procurement Strategy of the Project.

It is the intention that the PBA will become operational during Stage 3 of the project. The documentation and contractual arrangements associated with setting up the are in place.

Current and potential sub-contractors have been advised the PBA forms part of this Project using enclosed PBA Information Sheet, refer to Appendix X.

In addition, to the appointment of the PSCP, the NHSScotland (NHSS) Consultant Frameworks were also utilised for the appointment of: Construction Design Management (CDM) Advisor, Joint Cost Advisor (JCA), Project Manager and Healthcare Planner.

4.2.2 European Union Rules and Regulations

Under FS2, there is no need to advertise in the Official Journal of the European Union (OJEU). The five PSCPs on the Framework have been selected via a compliant OJEU tender process in 2012 / 2013 for capital investment construction schemes across Scotland up to 2019. Appointment of a PSCP is made following a mini-competition process.

The same form of process applies to the NHSScotland Consultants Frameworks (PSCs) for CDM Advisor, JCA, Project Manager and Healthcare Planner.

4.2.3 FS2 Procurement Process (Mini Competition)

The original FS2 mini competition process for the appointment of the PSCP involved issuing a High Level Information Pack (HLIP) to the framework participants. The pack described what facilities and services are to be provided and the specific form of contract to be used. It also set out what the procurement process would look like for programme and deliverables, and the detailed evaluation and selection criteria. The PSCP was selected on the basis of a quality and commercial evaluation.

The Elective Care Project was originally included as part of the Baird and ANCHOR Project High Level Information Pack (HLIP) issued in July 2016, however the PSCPs were not required to propose how they would undertake the Elective Care Project nor provide a commercial proposal,

as no detail regarding the scope or timescales for delivery was known at the time.

In November 2016, NHS Grampian appointed John Graham Construction Limited (Graham Construction) to deliver the Major Acute Services in NHS Grampian Project. Following approval of the Elective Care, Initial Agreement in September 2018 NHS Grampian elected to undertake an assessment of Graham Construction's proposed approach to deliver the Elective Care Project, prior to confirming appointment to the Project.

On Friday 7 December 2018, NHS Grampian issued Graham Construction the Elective Care Project Background and Scope documentation (Appendix U). The purpose of these documents was to provide Graham Construction with the opportunity to respond with a project proposal to undertake the Elective Care Project it included both a quality and commercial element.

The evaluation process of the project proposal allowed NHS Grampian to make an informed decision on whether or not Graham Construction proposals were deliverable and represented value for money. If NHS Grampian were unable to confirm these requirements, they reserved the right to open the project delivery up to further competition.

Graham Construction was requested to provide and participate in the following:

1) A written Project Proposal covering the following:

- Proposed personnel and supply chain for the Project, Skills and Expertise relevant to the Project,
- Approach to the Project – including the Project, Design and Construction,
- Commentary on delivery of the project within the proposed programme including an outline of the procurement strategy;

- Project Programme and, and
- Confirmation that the Project can be delivered within the funding envelope.

2) A commercial submission setting out the following:

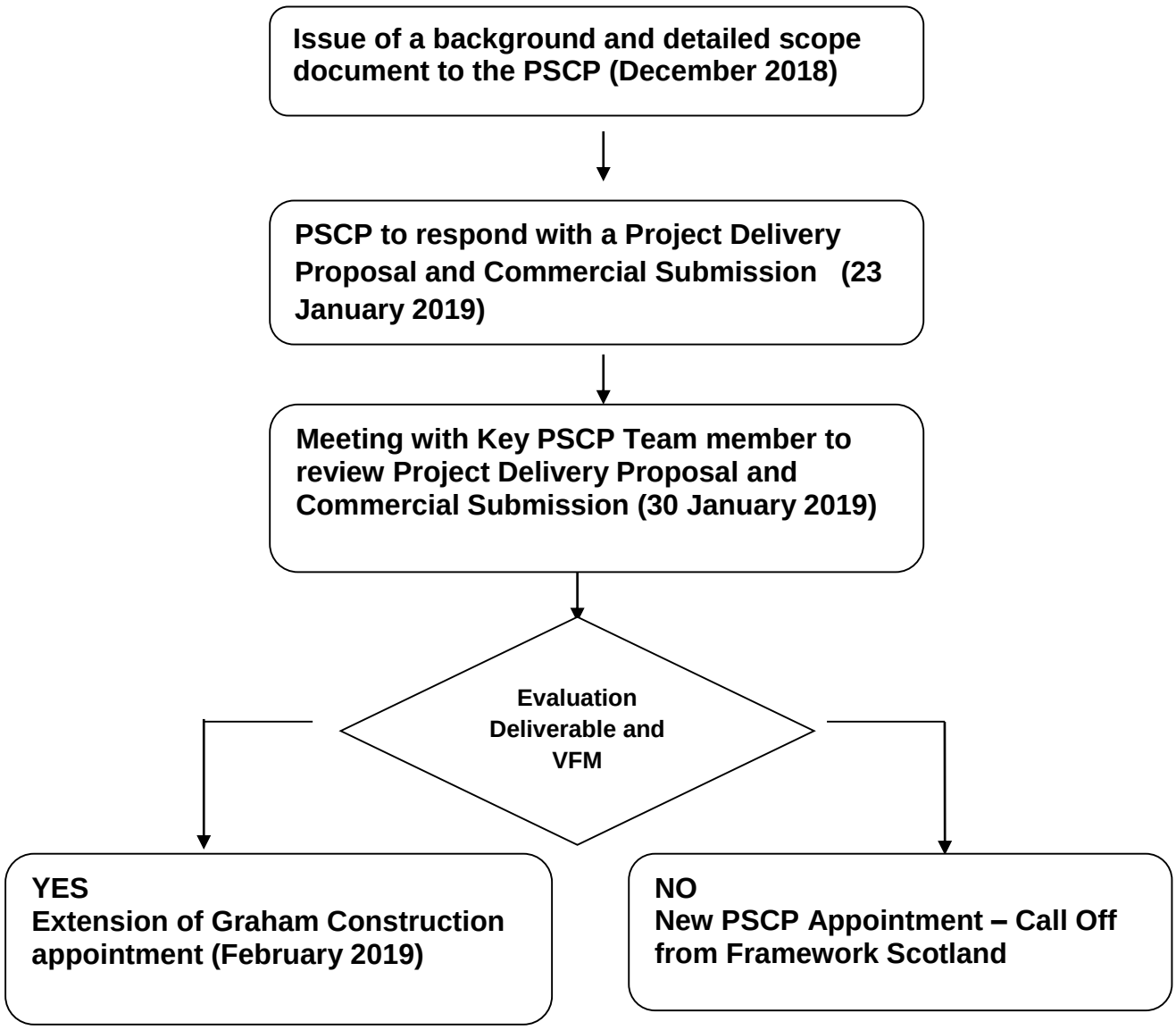
- Prelims Staff and Non Staff percentages (%), and
- Activity Schedules priced on the basis of an NEC3 ECC Option C Target Price.

3) Presentation and Meeting:

- Attendance of Key Project Team members to present the Project proposal,
- Presentation covering the stated project topic, and
- Question and Answer session.

The Project Team worked with Health Facilities Scotland (HFS) and the Central Legal Office (CLO) to develop this process. The process had the following key components:

Table C1: PSCP Appointment Process – 2018/19



The Joint Cost Advisors for the Project worked with the Evaluation Team to consider Value for Money aspects of the submissions.

The Project Manager Advisors for the Project worked with the Evaluation Team to consider the proposed approach to the Project.

The Evaluation Team reviewed the Project Delivery Proposal and Commercial Submission submitted by Graham Construction on 23 January 2019 and clarified through a series of meetings and written

queries. They concluded the proposed approach was deliverable and represents Value for Money, and have evidenced it in a detailed report prepared with the Project Advisors and Health Facilities Scotland (HFS).

On the 12 February 2019 the Board Chair and Interim Chief Executive on behalf of the Board of NHS Grampian confirmed their agreement to the extension of the appointment of the John Graham Construction Limited for the Major Acute Services in NHS Grampian Project (Baird Family Hospital and ANCHOR Centre) to include Elective Care Facilities.

4.2.4 Procurement Timetable

Following the appointment of the PSCP in February 2019 the Programme for delivery of the Elective Care Project has been updated from the indicative programme outlined in the Initial Agreement. Following agreement at the National Elective Care Programme Board in January 2019 the submission of an OBC to the Capital Investment Group (CIG) in July 2019 has been retained along with overall completion of the programme, where possible by 2021.

Table C2: Key Project Programme Milestones

Master Programme	**Dated 4 June 2019**
Activity	**Key Milestones**
Stage 2	
Planned Completion	22.07.19
Contract Completion	21.06.19
SGHSCD CIG Meeting	13.08.20
OBC Approval (provisional)	23.08.20
Stage 3	
Commence Stage 3	26.08.19
RIBA Stage 4 Design	26.08.19 - 01.11.19

Agreement of Target Price	03.04.20
Issue a PMI/CE for Enabling Works	06.04.20
FBC Approval	May-20
Stage 4	
Mobilisation	29.06.20 - 24.07.20
Construction Start	27.07.20
Construction Completion	26.11.21
Bring into Operation	01.03.22

The programme for completion of the Project has been set nationally by the National Elective Care Programme Board, with all five Elective Care Centre Projects in Scotland to be handed over and if at all possible operational before the end of 2021. This is a challenge for the NHSG Elective Care Project, with the PSCP only appointed in February 2019. NHSG is working with the PSCP and the Design Team to look at programme, design and construction techniques that will facilitate optimisation of the Programme to meet this challenging timeframe.

Achievement of this challenging programme will only be possible by employing a mixture of techniques including design and construction methodologies and the reprogramming of a number of Stage 3 and 4 activities including:

- Proceeding with a defined range of Stage 3 design activities, e.g. 1:50 design, during the conclusion of Stage 2.

- During Stage 3 proceeding with a defined range of Stage 4 pre-construction enabling works in advance of the main Stage 4 construction phase.

The scope of this work is outlined in the Master Programme which includes the Stage 3 Programme and the indicative Stage 4 Programme, refer to Appendix S. A budget cost for these works, to be progressed during Stage 2 and 3.

4.2.5 Advisors

Four advisor appointments under the NHSScotland Consultants Framework have been made. The appointed consultants are outlined in Table C3.

Table C3: Appointed External Advisors

Framework	Appointment	Date
Healthcare Planner	Buchan + Associates	November 2016
Joint Cost Advisor	Currie & Brown AECOM	December 2018
CDM Advisor	Doig+Smith	May 2019
Project Manager	Currie & Brown	December 2018

4.3 Scope and Content of Proposed Commercial Arrangements

The purpose of this section is to specify the scope and content of the proposed works/services included within the proposed commercial arrangements.

4.3.1 Scope of Works/Services

The PSCP Scope of Services are as defined in the standard FS2 Framework Agreement, and in, summary relates to providing all aspects of the design and construction of the facilities as set out in the Background and Scope Documentation Appendix U.

All Facilities Management (FM) services, maintenance and lifecycle (including soft FM such as domestic, catering, portering and external grounds maintenance) will be provided by the Board.

Responsibility for procurement of equipment is as follows:

- Group 1 items of equipment, which are generally large items of permanently installed plant or equipment, will be supplied and installed by the PSCP and maintained and replaced by the Board
- Group 2 items of equipment, which require to be fixed to the building structure, will be supplied by the Board, installed by the PSCP and maintained by the Board
- Group 3 - 4 items of equipment are supplied, installed, maintained and replaced by the Board.

4.3.2 Project Information

The following Table C4 provides a checklist of Project information requirements at this stage of the Project's development.

Table C4: Project Information

Design Information Requirements	Confirmation that information is available (Yes, No, n/a)
Site Feasibility Studies or Masterplan (≥ 1:1000)	Supplementary Planning Guidance to Local Development Plan. Site Feasibility Report completed in December 2018.
Analysis of site option(s) (≥ 1:500, plus 3Ds)	Yes.
List of relevant design guidance to be followed – NHSScotland Technical Standards, HBNs, HTMs, HFNs, including a schedule of any key derogations	Referenced within Works Information.
Evidence that Activity Data Base (ADB) use is fully utilised	Using ADB as a project delivery tool, using ADB codes for production of Room Data Sheets (RDS) and equipment lists.
Geometric models. Proprietary 3D Building Information Modelling (BIM) Requirements with 2D pdf's cut from the models to the	Using BIM Level 2. The Employer Information Requirements (EIR) and BIM Execution Plan are in place. Refer to section 4.3.6

above noted levels of definition/scales	
Design Statement, with any updates in benchmarks highlighted	Design Statement is in place and being used to inform the design as part of the NDAP Process.
Evidence of completion of self-assessment on design in line with the procedures set out in the Design Statement	Assessment using AEDET reviews. Baseline, Target and OBC assessments completed.
Completed AEDET review at current stage of design development	Refer to section 4.3.7.
Evidence of Local Authority Planning consultation on their approach to site development and alignment with Local Development Plan	The Aberdeen City Local Delivery Plan 2017 identifies the Foresterhill Health Campus site for "Existing Community Sites and Facilities (CF1)". In 2008, The Aberdeen City Council approved the Foresterhill Development Framework on behalf of the site's joint owners, namely NHS Grampian (NHSG) (as per The Scottish Ministers) and the University of Aberdeen (UoA), and this was further updated to reflect new planning policy in 2012. The Foresterhill Development Framework is recognised as supplementary planning guidance to the Local Delivery Plan. An initial meeting with the Planning Department was held on 24 April 2019 to begin to discuss the Elective Care development. A pre-planning application was made on 7 June 2019. The Planning department have recently confirmed the project as a major development and as such a Proposal of Application Notice (PoAN) was submitted on 20 June 2019,

	plans for formal public consultation are now underway. The UoA as joint site owners are pleased to confirm their support for the Elective Care Centre on the Foresterhill Health Campus site.
Risk Register detailing benefits and risks analysis	Refer to section 6.5 and Appendix I.
Photographs of site showing broader context	Refer to Appendix V.
Building Research Establishment Environment Assessment Method (BREEAM) healthcare pre-assessment	A BREEAM 2018 assessment has been completed and agreed in dialogue with HFS. Refer to section 4.3.8.
Evidence that relevant Disability Discrimination Act (DDA), dementia, health promotion and equality commitments are incorporated	Outlined in Works Information. A dementia and anti-ligature risk assessment is to be completed to inform the detailed design phase.
Developed brief	Outlined in Works information including SOA, Room Data Sheets, Design Statement and clinical briefs.
Outline design study should be co-ordinated and include relevant multi-disciplinary input, including but not limited to: architecture, building services, structural, fire, landscape design concepts; including diagrams and sketches demonstrating the key proposals to assess alignment with brief	OBC designs to RIBA Stage 2, reviewed by Project Team and its advisors and assessed as part of NDAP. Refer to 4.3.5. A 'supported' NDAP statement is in not yet in place, but discussions are underway with ADS and HFS to complete this work prior to formal consideration of the OBC by CIG in August 2019.

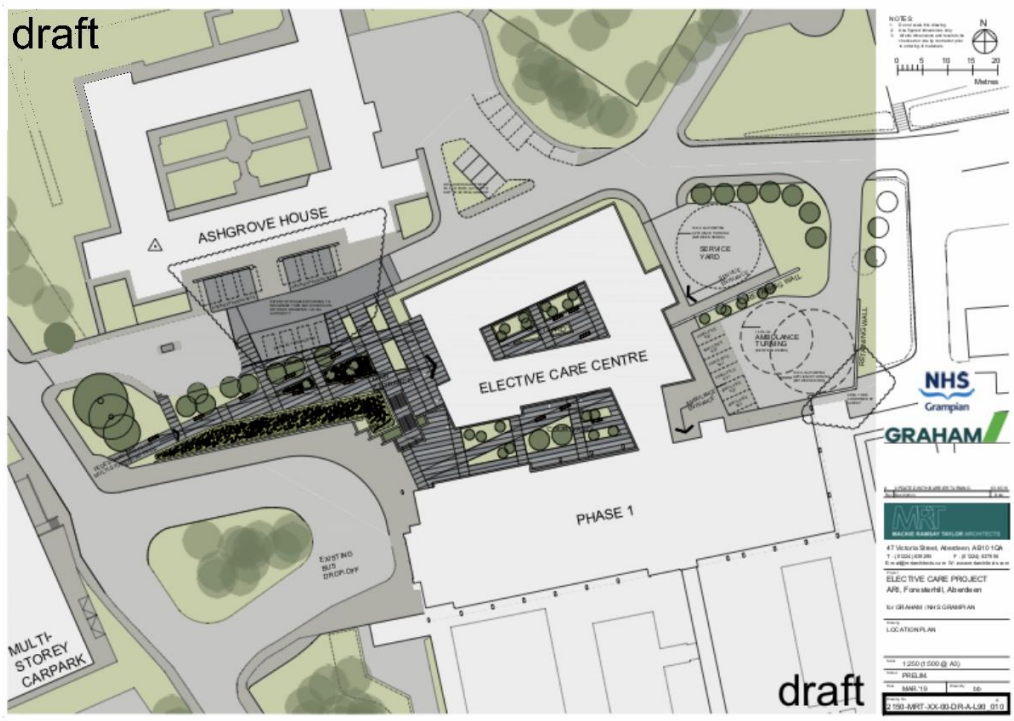
4.3.3 Design Quality Objectives

The option appraisal analysis has demonstrated that the preferred option is:

Option 1b: Site Feasibility Option A (new bespoke facility on the Foresterhill Campus) new road access arrangements + 1 MRI @ Foresterhill Campus + 1 MRI @ Dr Grays Hospital

The Elective Care Centre to be located at the north west of the Foresterhill Health Campus adjacent to Phase 1 of Aberdeen Royal Infirmary (ARI). The development will incorporate elements of new build and refurbishment of the Phase 1 building originally opened in 1966. The Centre will have a dedicated entrance located close to the recently completed Lady Helen Parking Centre and will comprise a range of outpatient services, an endoscopy and day surgery unit and also a range of imaging services. The proposed site plan is shown in Figure C1.

Figure C1: The Proposed Site Plan – The Elective Care Centre



The estimated Gross Internal Floor Area (GIFA) for the Elective Care Centre is 7,337.80 m2. It includes a light touch upgrading of elective care accommodation for dermatology services (1,187.70 m2) and 353.20 m2 for MRI accommodation at Dr Gray's Hospital in Elgin. A Schedule of Accommodation (SoA) is included in Appendix Q.

The Elective Care Centre will bring together a range of ambulatory services including day investigation, treatment and out-patient services. The new Centre will be collocated with and connected to the existing Phase 1 building of ARI. The development will include a mixture of new build and the refurbishment of elements of existing ARI, elective care centre accommodation. Level 3 of the Phase 1 building was refurbished in 2017/18 at a cost of £5.4m as part of the wider NHS Grampian backlog maintenance programme to relocate the eye outpatient clinic into Phase 1 from elsewhere on the Foresterhill Health Campus, allowing the service's previous accommodation to be demolished.
This will provide new ambulatory accommodation for the delivery of ophthalmology services The Centre will have its own dedicated entrance and provide respiratory, urology and dermatology ambulatory services, along with an endoscopy and day surgery unit and a range of imaging services including (MRI, CT and plain film imaging).

Additionally, the new facility has prompted the development of new ways of working facilitated by the development of appropriate accommodation, providing the opportunity for a move towards ambulatory care as the norm, with in-patient care being reserved for patients with care requirements which demand an extended stay in hospital.

This substantial redesign agenda will result in a significant increase in out-patient and day-patient care and treatment made possible by e.g. surgical pre-assessment, day of surgery admission, appropriate ambulatory care accommodation and the creation of flexible space to optimise space utilisation.

The MRI at Dr Gray's Hospital in Elgin will be collocated with the existing Imaging Department; it will operate as a dedicated elective care unit for Moray and the West of Grampian.

4.3.4 New Build and Refurbishment

The Elective Care Centre includes a mixture of new build and refurbishment elements. Most services will be located in new build accommodation and a number in existing accommodation which will be refurbished, including the central decontamination unit (CDU), endoscopy unit, the shared recovery area for day surgery and endoscopy and the dermatology suite.

The accommodation to be refurbished for endoscopy, recovery and CDU is currently occupied by the Woman's Day Clinic; alternate accommodation has been identified to decant this service until it relocates, in due course, to the new Baird Family Hospital enabling this space to be vacated to allow the refurbishment to be progressed in line with the elective care master programme.

The space to be occupied by the dermatology service is currently occupied by the Breast Screening Centre also scheduled, in due course, to relocate to the Baird Family Hospital. This service cannot be decanted and therefore the dermatology, light touch refurbishment, cannot be progressed until the Baird Family Hospital is operational. This element of the programme will therefore be delayed until 2023. Once the construction programme for the Baird Family Hospital is confirmed the works programme for this element of the elective care project can be scheduled.

4.3.5 NHSScotland Design Assessment Process (NDAP)

The purpose of the NHSScotland Design Assessment Process (NDAP) is to promote design quality and service. It does this by mapping design standards to the key investment deliverables, including Scottish

Government (SG) objectives and expectations for public investment, then demonstrating their delivery via self, and independent, assessments.

The Project Team have had regular dialogue with Architecture Design Scotland (A+DS) and HFS since the Initial Agreement (IA) stage of the Project. During this early stage of the Project, A+DS colleagues facilitated the development of a Design Statement for the development. This information has formed part of the design brief since the outset of the Project.

During the OBC stage of the Project, the Project Team has worked with A+DS, HFS, Graham Construction and their supply chain to participate in the design assessment process as outlined in the Scottish Capital Investment Manual (SCIM) Guidance.

Due to the complex nature of the Project on the major acute Foresterhill Health Campus, the Project Team agreed with A+DS that the Outline Business Case (OBC) NDAP should commence earlier than normal to establish key design principles, seeking to avoid the need for redesign later in the process. The process commenced in March 2019 with 2 meetings involving both A+DS and HFS where key design principles' were agreed to inform the design process for the outset.

On 29 May 2019 A+DS and HFS completed an assessment involving the Project Team, Graham Construction and their design team. Some initial observations were discussed that have influenced the developing design for The Elective Care Centre Project

Discussions with AD+S and HFS are ongoing a copy of the A+DS "supported" NDAP report will be submitted to the Scottish Government Capital, Investment Group prior to their meeting on the 13 August, once received it will be included as Appendix F.

4.3.6 Building Information Modelling Requirements

Building Information Modelling (BIM) describes the process of designing and constructing a building collaboratively using one coherent system of digital models and linked non graphical data, as opposed to separate sets of drawings and documents. These models and data also incorporate information which will be carried over and used in the operational phase.

NHSScotland is supporting the adoption of Level 2 BIM maturity following the SG mandate in support of the recommendations of the "Review of Scottish Public Sector Procurement in Construction" which endorsed that "BIM will be introduced in central government with a view to encouraging adoption across the public sector. The objective states that, where appropriate, projects across the public sector adopt BIM level 2 by April 2017."

The NHSScotland BIM strategy is intended to ensure the creation of a digitised information management process which all Boards and teams working on NHSScotland programmes should follow to maintain consistency and facilitate collaborative working, which will in turn reduce waste and non-conformances.

The Project will use BIM as a key design tool during the design and construction phases of the Project. This resource will also be kept dynamic by NHSG Estates colleagues during the operational phase of the Project.

An NHS Grampian BIM Strategy and Employers Information Requirements (EIR) has been developed in collaboration with the NHSScotland BIM Working Group being led by HFS and supported by the consultancy AECOM (Professional Services and Engineering Consultancy). The Strategy is based on achievement of BIM Level 2.

This has informed the development of a BIM Execution Plan, developed over recent months with Graham Construction for use throughout the design, construction and operational phase of the Project. The BIM Execution Plan has been developed to meet NHSG requirements, including project specific fields for asset information. By providing a good understanding of the inputs required by the NHSG FM and Estates teams the design team is able produce information from the model that can be fed directly into the NHSScotland software.

One of the main benefits of BIM will be that the Board has true “as built” records along with the project specific asset tagging that will assist the operation/maintenance and replacement of components. The BIM model will also be made available to NHSG for functional modelling.

4.3.7 Achieving Excellence Design Evaluations Toolkit (AEDET)

In accordance with SCIM guidance and the investment objectives, Achieving Excellence Design Evaluation Toolkit (AEDET – HFS Refresh December 2014) will be used throughout the development of the Project to help NHSG manage the design from initial proposals through to detailed design and will continue to do so through to Project Evaluation. In addition, the preferred option will be reviewed as part of the NDAP, refer to section 4.3.5.

The AEDET toolkit has three key dimensions (functionality, build quality and impact) and outlines 10 assessment criteria. Each of the 10 areas is assessed using a series of questions which are scored on a scale of 1 - 6.

A Baseline AEDET workshop for the current facilities was completed in October 2018. This workshop was led by Susan Grant, Principal Architect, HFS. The summary scores outlined in Table C6 below demonstrate that the existing facilities score poorly at between 1.3 and 1.8, in all 10 categories.

On the same day the AEDET Target scores were also developed and agreed. Target scores of between 4.0 and 4.7 were agreed for each dimension by the team. Subsequent AEDET workshops will assess the emerging design at key stages throughout the Project against the agreed target scores. The target scores are summarised in Table C5.

On 5 June 2019, an AEDET workshop was held to review the OBC stage design against the agreed target scores. This workshop involved clinicians, Project Team, the Board's Technical Advisors, Graham Construction and their design team and were led by Jackie Bremner, Project Director. During each AEDET assessment, an effort was made to achieve a consistent approach in terms of who was involved in the AEDET process. A core of people has been involved in all three AEDETs to date for each development. The OBC AEDET scores are included in Table C5. Some of the dimensions could not be scored or were only partially scored due to the lack of detail available this early in the design process.

The next AEDET assessments will be undertaken at FBC stage.

Table C5: The Elective Care Centre AEDET Scores

Elective Care Centre AEDETs	Baseline October 2018	Target October 2018	OBC June 2019
► Use	1.3	4.6	4.7
► Access	1.7	4.4	4.7
► Space	1.6	4.4	5.2
► Performance	1.2	4.7	0.8
► Engineering	1.8	4.0	0.0
► Construction		4.0	0.0
► Character and Innovation	1.7	4.5	4.4
► Form and Materials	1.5	4.6	2.8
► Staff and Patient Environment	1.3	4.6	3.3
► Urban and Social Integration	1.4	4.7	4.9

4.3.8 Sustainability

Sustainable developments are a major requirement for NHSScotland and NHSG. The Works Information outlines the technical brief for this Project and has been developed with colleagues from NHSG, colleagues from HFS and more recently Graham Construction and their design team to try to ensure clarity regarding what these facilities should achieve in sustainability terms.

One measure to be used is BREEAM. BREEAM sets the standard for best practice in sustainable building design, construction and operation and has become one of the most comprehensive and widely recognised measures of a building's environmental performance.

Consistent with NHSScotland, NHSG has an aspiration that, where possible, all new buildings achieve a BREEAM Excellent rating. In that regard, an independent BREEAM assessor has been appointed to work with the Project Team with the aim of achieving BREEAM Excellence with a degree of pragmatism. Agreement has been reached in dialogue between NHSG and HFS that only the new build element of the project will be subject to a BREEAM 2018 assessment. The refurbishment elements will not be subject to a BREEAM assessment.

A Target score for the new build element of the project was agreed at a BREEAM Workshop held on 4 April 2019 with NHSG, the PSCP and the design team and shared with HFS colleagues for comment. The current target being pursued is as follows:

The New Build element - Target score of 49% with possible score of 69)% Good/Very Good.
The Refurbishment elements – Not applicable

During the design development stage, initial analysis has been undertaken with GRAHAM Construction and their design team to ensure the aspirational carbon emission and energy consumption targets are

achievable. The PSCP will ensure that the Elective Care Centre facilities operate to achieve the best perceivable EPC rating for the new build, to be confirmed at FBC stage.

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Passive Design Analysis is being carried out during Stage 2 and 3 to identify where energy demands of the facilities can be reduced and improved efficiencies will, in turn, reduce the carbon demand associated with the facilities.

Recommendations in a number of areas will be developed and these will be re-evaluated throughout Stage 3 to ensure they are all still appropriate.

The Passive Design Analysis has covered the opportunities and carbon reduction associated with the following:

- Ventilation Strategy - Mechanical Ventilation with Heat Recovery, Single Sided Natural Ventilation, Natural Cross Ventilation, Mixed Mode
- Indoor Thermal Comfort – Overheating Analysis, Energy Consumption, Space Requirements, Flexibility, Control Requirements
- Thermal Mass Evaluation
- Natural Lighting Considerations - Building Orientation Optimisation, Solar Control Strategies, Glazing Optimisation, Solar Shading and Daylighting Strategy.
- Building Fabric improvements have been incorporated into the design to date

The preferred site does present a number of constraints and does have an impact on the extent of opportunities in relation to building orientation, day lighting and natural ventilation.

The carbon reduction associated with the Mechanical and Electrical systems will be analysed further during Stage 3 Building Regulations and BREEAM requirements and as design progresses.

There are wider sustainability platforms for this investment, notably the potential to deliver community benefits through education, training and Small and Medium Enterprises (SMEs) and wider associated benefits for the construction and operational phases of the Project. A Community Benefits Plan has been developed and agreed with the PSCP, refer to Appendix T and to section 6.4.1.1.

4.3.9 eHealth

eHealth requirements in the new facilities have formed part of the development of the brief and the service is a key stakeholder in the Project. Appendix AA sets out the ehealth aspects of this development in more detail.

4.4 Risk Allocation

4.4.1 Key Principles

The key principle is that risk has been allocated to the party best able to manage it, with the objective to optimally allocate risk.

This will be achieved commercially during the construction stage by the identification of employer risks in the PSCP contract and by the allocation of the costed risks between the employer and the contractor.

A Risk Register, set out in Appendix I has been prepared and maintained collaboratively with Graham Construction and appointed consultants associated with this Project. This sets out the owner and manager for each risk.

The risk allocation shown in Table C6 shows the high level allocation of commercial risk between the parties. This is shown as percentage allocation.

4.4.2 Risk Allocation Table

Table C6: Risk Allocation

Risk Category	Potential allocation of risk		
	Public	Private	Shared
Client/business risks (title, ground conditions, where not disclosed)	100%	0%	
Design	10%	90%	✓
Development and construction (note dark ground, contamination remain with public)	50%	50%	✓
Transition and implementation (commissioning, migration Board responsibility)	100%	0%	
Availability and performance During Operation	100%	0%	
Operating	100%	0%	
Revenue	100%	0%	
Termination	50%	50%	✓
Technology and obsolescence	80%	20%	✓
Control	100%	0%	
Financing	95%	5%	✓
Change in law	100%	0%	
Other Project risks	50%	50%	✓

Note that while financing risk is with the public sector, there is a pain share/gain share mechanism which is an integral part of FS2 to incentivise the PSCP to keep the target price within agreed limits.

4.5 Payment Structure

Under FS2, PSCs and PSCPs are appointed under an NEC3 Option C Target Price contract which has been specifically structured to provide a more predictable cash flow for the NHS client. The Target Price is based on a submitted Activity Schedule. The Client pays actual cost only up to the Target Price ceiling. Any cost beyond this is borne by the PSC or PSCP.

The PSC and PSCP pre-construction stage payments are on the basis of fixed framework hourly rates paid up for time worked to the maximum of the Target Price.

The PSCP Target Price for construction is jointly developed on an 'Open Book' basis. The PSCP is paid Defined Cost plus Fee Percentage (i.e. actual cost of labour, plant, materials and sub-contract work plus a fixed percentage for overhead and profit) but only up to the ceiling price of the Target Price. If savings are generated against Target Price then these are shared on a 50/50 basis up to 5% below the Target Price (PSCP contract only). For PSC and PSCP pre-construction stage contracts, all amounts below the Target Price are retained by the NHS Client.

There is provision in the contract so that the NHS Client may reinvest these savings back into the Project. If the amount of savings exceeds 5% of the Target Price at completion, gain share is only calculated on the 5% saving e.g. 2.5% maximum gain share to the PSCP. The remaining saving reverts to the NHS Client. If the cost exceeds the Target Price without compensation events (variations), then the PSCP absorbs any overspend. This could typically infer an inaccurate Target Price or inefficient working by the PSCP (e.g. having to correct defective work or inefficient management of resources) or an underestimation by the PSCP of their risks in the contract.

The Board will pay for the construction of the facilities by way of regular payments as the construction work proceeds.

4.5.1 Risk Contingency Management

The general risk management process and high level allocation is noted in Table C6. A full Project Risk Register has been developed and the risk contingency will be managed under the Compensation Event (CE) process noted below. This involves the Project Manager or Contractor raising early warnings of potential risks then addressed at the risk reduction meetings.

4.5.2 Contract Variations

As noted, the Project is procured under the FS2 NEC3 form of contract which manages contract variations by means of compensation events. The major benefit of this process is that variations are dealt with as soon as they become apparent and are costed and agreed as they arise.

The compensation event process enables any variations or employer's risk items which transpire to be reflected in an adjustment to the Target Price and/or an adjustment to the programme reflecting the impact of the variation.

4.5.3 Disputed Payments

The FS2 NEC3 form of contract has processes to manage disputed payments and PSCP applications for payment may have disallowed costs which are monitored by the JCA at each monthly assessment to ensure that only payments due and fully accounted for are passed.

4.5.4 Payment Indexation

Payment indexation is managed centrally on FS2 and hourly staff rates for both PSCs and PSCPs are adjusted and notified annually across the Frameworks by HFS. Construction inflation is managed by reference to Building Cost Information Services (BCIS) published cost indices. The construction inflation risk is held by the PSCP for the first two years of the

programme. The risk is then passed to the NHS Client for the balance of the programme beyond two years.

4.5.5 Utilities and Service Connection Charges

As the Project is publically funded, utilities and service connection charges are paid by NHSG as part of the contract.

4.5.6 Performance Incentives

FS2 has a pain/gain incentivisation model as detailed earlier in section 4.5, Payment Structure.

4.6 Contractual Arrangements

This section outlines the contractual arrangements for the procurement, including the use of a particular contract, the key contractual issues for the commercial deal and any personnel implications.

4.6.1 Type of Contract

The Contract is the FS2 NEC3 Contract, Option C, Target Price with Activity Schedule. The PSCP, CDM Advisor and Health Care Planners have all been appointed to the Project on a NEC3 Contract Option C Target Price. The Joint Cost Advisor and Project Manager have all been appointed to the Project on a NEC4 Contract Option C Target Price.

4.6.2 Key Contractual Issues

At this stage the Scheme Contract will include The Elective Care Centre and MRI at Dr Gray's in Elgin in a single contract. Following agreement with the National Elective care Programme Board at their meeting on 30 April 2019 it was agreed that the Community Hubs element of the Project in a separate standard business case, the time scale for this programme of works and procurement route is still to be formally agreed but all works will be approved and commissioned in advance of December 2021. A number of Project specific Z clauses have been developed in dialogue with HFS and Graham Construction for the Baird and ANCHOR Project, these have been adopted for this contract at this stage.

The Project specific Z clauses relate to:

- sectional completion
- defects liability
- gain share
- retention
- Project Bank Account
- Insurance arrangements
- Limitation of liability

The Project will operate a Project Bank Account during the Stage 3 (FBC) and Stage 4 (construction) contract phases, refer to section 4.2.1.

4.6.3 Personnel Implications

There are no employees who are wholly or substantially employed on services that will be transferred to the private sector under the proposals for this Project, and therefore the Transfer of Undertakings (Protection of Employment) Regulations 1981 (TUPE) will not apply.

4.6.4 Key Commercial Risks

The Risk Register is included as Appendix I. It outlines the current risks being managed by the Project Team. The Register is dynamic and is updated regularly by the joint Project Team.

There are a number of key risks currently being actively managed by NHSG, the PSCP and wider Project Team. These risks are assessed as high, medium and low risk and the possible financial impact of the risks outlined in the Risk Register have been included in the costed Risk Register included as Appendix N. Risk provision has been included in the cost plan presented in this OBC. A number of these key risks are

described in Table C7 below, they relate mainly to cost, programme and to potential or actual site abnormals.

Table C7: Key Commercial Risks

Risk	Mitigation	RAG
Failure to discharge statutory planning conditions.	Early engagement with Planning Authority, statutory consultees and stakeholders.	
Ground conditions, bearing pressure and contamination. Requirement for expensive ground gas protection and removal/capping of contaminated ground.	Early Site Investigations being carried out to inform design specification.	
Asbestos may be more extensive than highlighted in the management surveys.	Ability to carry out demolition surveys to be agreed. May not be possible due to live nature of site. Desktop study of available info together with meeting with NHSG Asbestos Officer. Sufficient cost and programme allowances to be made.	
Unknown services – accuracy of GPR surveys of existing services below ground.	Ground Penetrating Radar (GPR) surveys to be carried out. Further trial digs at hot spots to understand risks, risk allowance for unknowns. Possible early diversion enabling works to de-risk programme.	
Water infrastructure may not have sufficient capacity.	Resilience in reservoir and public supply to be investigated.	

Recent treatment of Knotweed infestation elsewhere on the campus affects the Project sites.	Knotweed strategy for the campus has been developed and initial treatment has been completed. An ongoing treatment plan is now established.	
Potential lack of co-ordination of Greenspace Strategy being delivered incrementally.	The Greenspace Strategy is being implemented on an incremental basis as funding becomes available. The Project Team is seeking to work in a collaborative fashion with other design teams when funding for other sections becomes available. This will ensure a planned and co-ordinated approach to the implementation phase in terms of material, plants etc.	
Fire strategy not defined/agreed. Fire strategy remains open to testing throughout the design stage and derogations may be challenged.	Fire Strategy to be developed and reviewed by all parties including Grampian Fire and Rescue, ACC, NHSG and HFS.	
Project specific Z clauses are not agreed with PSCP.	Early dialogue with The Central Legal Office, HFS and PSCP to agree the use of appropriate Z clauses.	
Procurement of supply chain is inadequate.	Early development of the procurement strategy.	
Programme is not completed by December 2021	Early development of a master programme that looks to accelerate components of the overall programme to realise planned completion date. Investigate with PSCP and Design Team	

	construction methods that facilitate a timely construction phase.	
Cost of project exceeds approved sum	Regular cost review involving JCA and PSCP, regular review of market conditions and clarity on an affordable brief.	
Vacation of spaces to allow for refurbishment	Confirm services to be relocated to facilitate refurbishment, including space to be relocated to and timescales.	
Connection to existing steam main and or MPHV (district heating) is costly or not viable	Early confirmation of heat source, to inform the design and construction programme. Early investigative survey work commissioned.	
Planning consent	Early dialogue with planning department and submission of appropriate pre planning materials, followed by formal consultation phase.	
Relocation of major services, steam main, etc.	Early survey work to confirm service diversions, their design, cost and timing.	

5. The Financial Case

5.1 Introduction

The Financial Case considers the overall affordability of the preferred option both in the context of the Board's financial plans and in comparison to the short-listed option. The preferred option is:

Option 1b: Site Feasibility Option A (new bespoke facility on the Foresterhill Campus), new road access arrangements + 1 MRI @ Foresterhill Campus + 1 MRI @ Dr Grays Hospital

The case does this by:

- setting out the financial model for the Project
- reviewing the revenue and capital implications of the Project
- setting out a statement on overall affordability
- confirming stakeholder support

The investment required to deliver the Project is set out in Table F1 below. Table F1: Summary of Initial Capital Investment

	Total OBC
	£000's
Enabling Works	630
Construction Related Costs	39,619
Furnishing and Equipment	9,168
Project Development Costs	2,633
Commissioning Costs	100
Total Capital Investment	**52,150**
Community Hubs - Sep Business Case	3,500
Total Elective Care Programme	**55,650**
Sources of Funding	
SG Additional Capital Funding	55,650
Total Sources of Funding	**55,650**

The investment required to deliver the new bespoke facility on the Foresterhill Campus and CT and MRI facilities (including MRI facilities at Dr Gray's Hospital) is estimated at £52.2 million, £9.2 million is the cost of equipping the new facilities, £2.6 million project development costs

and construction costs of £40.4 million. The option for the development of Community Diagnostic and Treatment Hubs will be subject to a separate approval process, with the costs estimated at £3.5m.

The project costs exceed the indicative capital target of £52million and approval to proceed with the preferred option (including the Community Diagnostic and Treatment Hubs) as specified, will be conditional upon confirmation from the Scottish Government that capital funding to the value of £55.7 million can be made available to support the project.

The revenue implications in the first full year of operation are set out in Table F2.

Table F2: Summary of Revenue Implications - First Full Year of Operation (2022/23)

	Total OBC
	£000's
Revenue Costs	
Additional Depreciation	1,811
Additional Clinical Service Costs	2,980
Additional Non-Clinical Service Costs	1,329
Building Related Running Costs	1,295
Total Costs	**7,415**
Sources of Funding	
SG (Waiting Time Improvement Plan/Access Funding)	7,415
Total Sources of Funding	**7,415**

Waiting Times Plan which will incorporate the above requirement to fund the £7.4 million revenue consequence of the Elective Care development, together with the requirements to fund additional capacity in those services which do not form part of this project. The Board is currently developing its case for continued funding for the 30 month period of the national Waiting Times Improvement Plan and to support investment in sustainable capacity beyond 31 March 2021. NHS Grampian will also

require confirmation that additional revenue funding will be made available to allow the preferred option to proceed.

Further details of the capital and revenue elements of the Project and sources of funding are provided in the following sections.

5.2 Revisiting the Financial Case

The Initial Agreement (IA) was approved by Scottish Government Health and Social Care Department (SGHSCD) on 26 September 2018 and no specific conditions were outlined in the approval letter in relation to the Financial Case.

5.3 Financial Model: Costs and Associated Funding for the Project

The following sections set out how the key financial implications of the Project have been identified and the assumptions influencing them.

It also considers any relevant cost variations in relation to the preferred service delivery option that formed part of the appraisal in the Economic Case for this Project.

5.3.1 Capital Investment

5.3.1.1 Construction Costs including MRI facilities at Dr Gray's Hospital

The estimated build costs associated with construction of the Elective Care Facilities have been produced by the Joint Cost Advisor (JCA) for the Project based on the developing design.

Table F3 sets out the anticipated construction costs for the new facilities and a more detailed cost plan is contained in Appendix R & Y.

The assumptions in preparing these costs are as follows:

- Construction start date: Q2 2019;

- Construction end date: Q4 2021;
- Tender Inflation: current Building Cost Informatin Service (BCIS) Tender Inflation rates for the relevent period have been applied. Construction inflation has been estimated from the date of tender return to the mid-point of the construction phase using the BCIS Building Cost Index up to anticipated mid-point of construction;
- Design team fees are based on the tender submission by the main contractor, updated for additional costs incurred as part of design development ;
- Main contractor preliminaries and overhead and profit are based on tender submission;
- Quantified construction risk is based on those risks identified in costed risk at construction; and
- The Elective Care Centre will be built on land already owned by NHSG, on behalf of the Scottish Ministers, jointly with the UoA.

5.3.1.2 Table F3: Construction Costs

	Total OBC	Total IA	Difference
	£000's	£000's	£000's
Construction Related Costs			
Enabling Works	487	0	-487
Building Costs	23,572	22,709	-863
Site Specific Costs	1,891	0	-1,891
Prelims, Fees, On-Costs	3,740	1,279	-2,462
Inflation	1,682	2,161	479
Risk	2,981	5,467	2,486
VAT	5,896	5,983	87
Total Construction Costs	**40,249**	**37,598**	**-2,651**
Sources of Funding			
SG Additional Capital Funding	40,249	37,598	-2,651
Total Sources of Funding	**40,249**	**37,598**	**-2,651**

5.3.1.3 New and Replacement Equipment including MRI at Dr Gray's Hospital

Whilst there should be a significant level of clinical equipment transfer to the new building, there will also be a requirement for investment in new and replacement equipment, quantified at £9.2 million (inclusive of VAT).

This level of investment is not affordable within the Board's annual formula capital funding allocation which is fully committed to other essential equipment replacement and backlog maintenance priorities as part of the Board's agreed five year infrastructure investment plan and will require to be funded in full through an additional capital allocation from the Scottish Government.

Equipment allowances have been developed based on the Schedule of Accommodation (SOA) for the Project and will continue to be refined over the course of the Project.

An indicative capital cost associated with additional Group 2, 3 and 4 equipment based on these equipment allowances has been prepared and analysed, allowing for a transfer of existing equipment assumption of 60% where Clinical Services are transferring and 0% where additional service delivery arrangements will be introduced. Table F4 sets out the requirements in relation to equipment.

The Board will continue to refine this cost estimate as the design progressed to finalised Room Data Sheets (RDS) and the ongoing monitoring of equipment suitable for transfer.

Table F4: Summary Equipment Cost Implications

	Total OBC	Total IA*	Difference
	£000's	£000's	£000's
Equipment Costs			
Furnishing	631		
IT	627		
Medical Equipment	6,382		
Total	**7,640**	**7,275**	**-365**
VAT	1,528	1,382	-146
Total Initial Investment	**9,168**	**8,657**	**-511**
Sources of Funding			
SG Additional Capital Funding	9,168	8,657	-511
Total Sources of Funding	**9,168**	**8,657**	**-511**

*Amended to reflect optimum bias

5.3.1.4 Capital Provision Community Diagnostic and Treatment Hubs

The Initial Agreement identified within the preferred service solution: 'The development of the concept of Community Diagnostic & Treatment Hubs'. Although the development of the concept of Community Diagnostic & Treatment Hubs will be subject to a separate business case they are an integral part of the overall service redesign placing significant emphasis on the transfer of activity in to a community and primary care environment and this is reflected in the physical design of the Elective Centre. Successful delivery of the Community Diagnostic and Treatment Hubs is a critical dependency to enable successful delivery of the investment objectives set out in this case. Table F5 sets out a summary of the costs associated with this area of the Programme.

Table F5: Capital Provision – Community Diagnostic and Treatment Hubs

	Total OBC	Total IA
	£000's	£000's
Construction and Equipping	2,937	2,937
VAT	563	563
Total Construction Costs	**3,500**	**3,500**
Sources of Funding		
SG Additional Capital Funding	3,500	3,500
Total Sources of Funding	**3,500**	**3,500**

5.3.1.5 Project Development Costs

A Project Team and associated Health Care Planners have been appointed to support the delivery of the Project over the period to commissioning. Table F6 sets out the Project Development Costs. Other professional advisors form part of the Construction Related Costs (Fees).

Table F6: Project Development Costs

	Total OBC	Total IA	Difference
	£000's	£000's	£000's
Project Development Costs			
Project Team	2,343	1,865	-478
Project Advisors (Healthcare Planner)	250	250	0
Other Project Costs	40	30	-10
Total Project Development Costs	**2,633**	**2,145**	**-488**
Sources of Funding			
SG Additional Capital Funding	2,633	2,145	-488
Total Sources of Funding	**2,633**	**2,145**	**-488**

5.3.1.6 Commissioning Costs

Additional non-recurring costs are anticipated in 2021/22 in respect of commissioning of the buildings and transfer of services from existing premises. An estimated £100,000 will be required to meet the cost of decanting, pre-cleaning, deployment of equipment (including IT), security

during commissioning phase and project evaluation, as set out in Table F7.

Table F7: Project Commissioning Costs

	Total OBC
	£000's
Commissioning Costs	
Removal (Inc Flooring Protection)	20
Security	20
Post Project Evaluation	20
Domestic and Portering	20
IT Support	20
Total Commissioning Costs	**100**
Sources of Funding	
SG Additional Capital Funding	100
Total Sources of Funding	**100**

5.3.1.7 Comparison to Initial Agreement Capital Costs

Table F8 sets out a comparison of the capital costs identified at Initial Agreement and compares to an update.

Table F8: Comparison of Capital Investment against Initial Agreement

	Total OBC	Total IA	Difference
	£000's	£000's	£000's
Enabling Works	630	0	630
Construction Related Costs	39,619	37,598	2,021
Furnishing and Equipment	9,168	8,657	511
Project Development Costs	2,633	2,145	488
Commissioning Costs	100	100	0
Total Capital Investment	**52,150**	**48,500**	**3,650**
Community Hubs - Sep Business Case	3,500	3,500	0
Total Elective Care Programme	**55,650**	**52,000**	**3,650**
Sources of Funding			
SG Additional Capital Funding	55,650	52,000	3,650
NHSG Capital Funding	0	0	0
Total Sources of Funding	**55,650**	**52,000**	**3,650**

The investment required has increased by £3.65 million from that reported in the Initial Agreement. The increase relates to the design response (retaining walls, entrance, existing service infrastructure e.g. the addition of an out patient theatre and the requirement to co-locate an endoscopy decontamination unit and site preparation) in relation to the complexity of the site selected for the development and the additional equipping requirements associated with the developed brief.

5.3.1.8 Recurring Revenue Costs

The Project will deliver new buildings which will attract additional running costs and also provide an opportunity to deliver services differently and implement better ways of working. Some of these service changes will deliver efficiencies, however it is anticipated that some cost pressures may arise and the Board is planning for and managing these.

Areas of potential service cost pressures which will require funded for the successful delivery of this Project have been identified and categorised as (i) consequence of the new buildings, (ii) current service pressures and (iii) growth. Only those costs that are as a direct consequence of the new buildings or those new Diagnostic and Treatment services agreed within the scope of this case e.g. additional outpatient theatre and MRI provision, are included below.

Table F9 sets out the revenue cost estimates and assume that services are in place and available for use in 2021, with 2022/23 being the first full year of operation.

These costs together are not yet reflected in the Board's financial plans and LDP.

Table F9: Summary of Recurring Revenue Implications - First Full Year of Operation (2022/23)

	Total OBC	Total IA	Difference

	£000's	£000's	£000's
Revenue Costs			
Additional Depreciation	1,811	1,732	79
Additional Clinical Service Costs	2,980	2,100	880
Additional Non-Clinical Service Costs	1,329	698	631
Building Related Running Costs	1,295	923	372
Total Costs	**7,415**	**5,453**	**1,962**
Sources of Funding			
SG (Waiting Time Improvement Plan/Access Funding)	7,415		
Total Sources of Funding	**7,415**		

The annual running costs have increased by £2 million from that reported in the Initial Agreement. The increase relates mainly to the addition of an outpatient theatre following further demand and capacity modelling and the requirement to co-locate a decontamination unit within the endoscopy service.

The recurring funding for the business case will form part of the Board's Waiting Times Plan which will incorporate the above requirement to fund the £7.4 million revenue consequence of the Elective Care development, together with the requirements to fund additional capacity in those services which do not form part of this project. The Board is currently developing its case for continued funding for the 30 month period of the national Waiting Times Improvement Plan and to support investment in sustainable capacity beyond 31 March 2021. NHS Grampian will require confirmation that additional revenue funding will be made available to allow the preferred option to proceed.

5.3.1.9 Depreciation

The current hospital premises, the land on which it sits and the adjacent land on which the new build element of the facility will sit, are owned by NHSG on behalf of the Scottish Ministers.

The NHS Scotland Capital Accounting Manual has been followed throughout in creating these calculations. The computations for assets are based on the following lives:

- new build – 45 years
- upgrade – 20 years
- equipment – 10 years

The new build elements are assumed to be depreciated over an average expected life of 45 years and equipment over an expected life of 10 years. Annual depreciation is set out in Table F10 below, and sets out a net additional depreciation of £1,811,000.

No impairments have been identified as part of this Project, at this stage.

Table F10: Total Depreciation - First Full Year of Operation (2022/23)

	Total OBC	Total IA	Di
	£000's	£000's	£0
Depreciation			
Equipment	917	687	
Building	894	1,045	
Total Net Depreciation	**1,811**	**1,732**	
Sources of Funding			
SG (Waiting Time Improvement Plan/Access Funding)	1,811		
Total Sources of Funding	**1,811**		

5.3.1.10 Building Related Running Costs

As is the case with most new build projects that replace existing buildings, it is anticipated that there will be a net increase in property related running costs. The reason for this is in relation to the modern

space standards that new buildings are required to meet. The resulting increased floor area inevitably leads to increased costs for business rates, heating, lighting, cleaning, building maintenance etc.

The difference between the size of the current accommodation and the new accommodation has arisen mainly as a result of achieving modern space standards. The SoA were developed in line with the SHPNs and in dialogue with clinical colleagues, Health Intelligence and our Healthcare Planners Buchan + Associates.

During the briefing process, the Project Team worked with healthcare planning colleagues to look at need over the coming years, including changes in demography and demand in line with our regional and North of Scotland remit.

The team looked at maximising accommodation sharing opportunities and created, where possible, generic accommodation that can alter its function over time as need changes. The team also completed a range of scenario planning exercises with clinicians, Health Intelligence and our healthcare planners to agree the best solution based on likely future demand.

These costs represent the net additional component of building related running costs and have not been provided for in the financial plans of the Board.

Detailed costing of building running costs based on the emerging design has been undertaken and the net costs are summarised below in Table F11.

Table F11: Additional Building Related Running Cost - First Full Year of Operation (2022/23)

	Total OBC	Total IA	Difference
	£000's	£000's	£000's

Building Related Running Costs			
Rates	357	316	-41
Water Rates	134	15	-119
Electricity	170	97	-73
Heating	22	75	53
Domestics	291	208	-83
Property Maintenance	321	213	-108
Total Annual Costs	**1,296**	**924**	**-372**
Sources of Funding			
SG (Waiting Time Improvement Plan/Access Funding)	1,296		
Total Sources of Funding	**1,296**		

5.3.1.11 Clinical Service Costs

The Project will facilitate service redesign and a significant part of the Project is to focus on the readiness of NHSG to optimise the benefits arising from the new facilities. The areas where incremental revenue implications have been identified are detailed in Table F12.

Table F12: Additional Clinical Service Costs - First Full Year of Operation (2022/23)

	Additional Annual Staff Cost	Other Costs	Total Cost	Additional Staff	IA
	£000's	£000's	£000's	WTE	£000's
CT Scanning Suite (1)	270	142	412	9.98	600
MRI Scanning Suite (2)	648	218	866	22.33	1,000
Imaging: Other Staffing	674	0	674	8.50	0
Integrated Day of Surgery and Endoscopy	578	450	1,028	13.51	0
Total	**2,170**	**810**	**2,980**	**54.32**	**1,600**

5.3.1.12 Non-Clinical Service Costs

The Project will deliver facilities that will be designed and operated differently. The areas where incremental revenue implications have been identified are set out in Table F11.

Table F11: Non-Clinical Service Costs - First Full Year of Operation (2022/23)

	Additional Annual Staff Cost	Other Costs	Total Cost	Additional Staff	IA
	£000's	£000's	£000's	WTE	£000's
Decontamination Unit	171	209	380	6.00	0
Equipment - Maintenance and Equipment	0	822	822	0.00	687
Self Check in	0	127	127	0.00	0
Total	**171**	**1,158**	**1,329**	**6.00**	**687**

5.3.1.13 Comparison to Initial Agreement Revenue Costs

Table F12 sets out a comparison of the revenue costs identified at Initial Agreement and compares to an update.

Table F12: Comparison of Revenue Costs - First Full Year of Operation (2022/23)

	Total OBC	Total IA	Difference
	£000's	£000's	£000's
Revenue Costs			
Additional Depreciation	1,811	1,732	79
Additional Clinical Service Costs	2,980	2,100	880
Additional Non-Clinical Service Costs	1,329	698	631
Building Related Running Costs	1,296	924	372
Total Costs	**7,415**	**5,453**	**1,962**

The annual running costs have increased by £1.95 million from that reported in the Initial Agreement. The increase relates to the addition of an outpatient theatre following demand and capacity modelling, the co-location of a decontamination unit with the endoscopy service and an increase in area (GIFA) following the development of a Schedule of Accommodation.

5.3.2 VAT

Anticipated VAT has been included within the costs presented. The following are the key assumptions:

- Construction Costs: a rate of 16.84% has been applied. This is net of the recoverable sums (15.8%) for this scheme being agreed with HMRC
- Equipment Costs: a rate of 20% has been applied
- Project Development Costs: where applicable, VAT is assumed to be recoverable
- Recurring Revenue Costs: where applicable, VAT is assumed non recoverable

5.3.3 Financial Risk and Dependencies

All of the risks are identified within the Project Risk Register and are currently open. It is anticipated that the majority of risks will be closed or mitigated to reduced levels in the period leading up to FBC submission. Those risks that are financial in nature have been quantified using recognised risk management techniques.

Those financial risks that relate to the delivery of the Project (£3.5 million) have been explicitly reflected in the Capital Investment Tables above. The residual risk will be managed by the Board within the funding requirements identified.

The financial risks carrying the greatest impact in relation to the construction element are those that relate to the uncertainty of macro economic market conditions, unknown site conditions, fire strategy and connection to the existing service infrastructure.

Successful equipping of the new facilities assumes substantial transfer of existing medical and other equipment. Achievement of this assumption places reliance on NHS Grampian equipment replacement programme haven funded the replacement of some essential items of medical equipment prior to commissioning.

Successful operation of the new facilities within the additional revenue costs identified within this case will require the advancement of a redesign programme and a workforce strategy that secures appropriate recruitment.

These could impact on the Project being able to deliver within affordability caps. Appendix N sets out these risks in detail. The risks will be managed and monitored during the procurement and construction period to identify and resolve issues as early as possible if they transpire.

5.3.4 Costs Not Included

The developments set out in this Business Case are wide ranging and in preparing the Financial Case only those which attract a net cost burden and arise as a direct consequence of the new buildings have been reflected.

Those clinical and non-clinical costs that relate to current service pressures or predicted growth in demand have not been reflected. However, they are recognised by the Board and will be considered and managed through existing budgeting and financial management arrangements augmented by a service redesign governance structure as detailed elsewhere in this Business Case.

The project costs include an estimate to connect the new facility to the existing energy infrastructure at the Foresterhill Campus. A review is underway in order to inform the requirement for investment in increased capacity across the site as part of NHS Grampian's five year infrastructure plan. Any required investment in future capacity does not form part of this business case.

5.3.5 External Financial Contributions to the Project

At this point in time, there are no other anticipated external partner financial contributions.

It is unlikely that a public fundraising campaign will be undertaken in order to provide enhancements to the Project that would not normally be paid for from NHS Grampian funds.

5.4 Statement of Overall Affordability

5.4.1 Statement of the Organisation's Financial Situation

For the financial year 2019/20, the NHS Grampian Board have an annual revenue budget of approximately £1.1 billion, and core capital budget of approximately £12.7 million.

In 2018/19 the Board achieved all of its financial targets. The Board presented a fully financially balanced 1 year (2019/20) Local Delivery Plan (LDP) to the Scottish Government Health and Social Care Directorate, which includes the Board's projected revenue and capital funding and expenditure.

Implementation of the preferred service solution commenced in 2018/19 and is expected to complete in 2021/22.

5.4.2 Provision in Financial Plans

The project costs exceed the indicative capital target of £52million and approval to proceed with the preferred option (including the Community

Diagnostic and Treatment Hubs) as specified, will be conditional upon confirmation from the Scottish Government that capital funding to the value of £55.7 million can be made available to support the project.

The recurring funding for the business case will form part of the Board's Waiting Times Plan which will incorporate the above requirement to fund the £7.4 million revenue consequence of the Elective Care development, together with the requirements to fund additional capacity in those services which do not form part of this project. NHS Grampian will require confirmation that additional revenue funding will be made available to allow the preferred option to proceed

These costs as set out in table F13 and F14 below, will be fully accounted for in preparation of the current 5 year LDP but will require additional funding allocations to support the successful delivery of the Project.

Table F13: Capital Costs

	Total OBC
	£000's
Enabling Works	630
Construction Related Costs	39,619
Furnishing and Equipment	9,168
Project Development Costs	2,633
Commissioning Costs	100
Total Capital Investment	**52,150**
Community Hubs - Sep Business Case	3,500
Total Elective Care Programme	**55,650**
Sources of Funding	
SG Additional Capital Funding	55,650
NHSG Capital Funding	0
Total Sources of Funding	**55,650**

Table F14 Summary of Additional Recurring Revenue Implications - First Full Year of Operation (2022/23)

	Total OBC

	£000's
Revenue Costs	
Additional Depreciation	1,811
Additional Clinical Service Costs	2,980
Additional Non-Clinical Service Costs	1,329
Building Related Running Costs	1,295
Total Costs	**7,415**
Sources of Funding	
SG (Waiting Time Improvement Plan/Access Funding)	7,415
Total Sources of Funding	**7,415**

The phase of costs associated with the delivery of the Project have been profiled to align with the current Programme for the Project. This assumes the acceleration of £630,000 for the preparation of the site into quarter 2 2020, ahead of FBC approval. This will deliver the benefits of: de-risking the Project programme and removing up to 17 weeks of construction inflation and costs to support construction completion in 2021.

The phase of costs associated with the delivery of the Project have been profiled to align with the current Programme for the Project. This assumes the acceleration of £630,000 for the preparation of the site into quarter 2 2020, ahead of FBC approval. This will deliver the benefits of: de-risking the Project programme and removing up to 17 weeks of construction inflation and costs to support construction completion in 2021.

Tables F16 and F17 consolidate the capital and revenue cash flows and funding requirements to support the Project during development and the first full year of operation.

Table F15: Costs – Cashflow

	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	Total
	£000s	£000s	£000s	£000s	£000s	£000s	£000s	£000s
Enabling Works		0	0	0	630	0	0	630
Construction Related Costs		0	232	1,161	11,468	22,935	3,823	39,619
Furniture and Equipment		0	0	0	0	8,251	917	9,168
Project Development Costs	71	627	334	600	568	433	0	2,633
Commissioning Costs		0	0	0	30	60	10	100
Total Capital Costs	**71**	**627**	**566**	**1,761**	**12,696**	**31,680**	**4,749**	**52,150**
Impairments						0		
Additional Depreciation						453	1,811	
Clinical Service Costs						745	2,980	
Non-Clinical Service Costs						332	1,329	
Building Related Running Costs						324	1,296	
Total Revenue Costs	**0**	**0**	**0**	**0**	**0**	**1,854**	**7,415**	
Total Costs	**71**	**627**	**566**	**1,761**	**12,696**	**33,533**	**12,165**	

Table F16: Funding – Cashflow

	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	Total
	£000s	£000s	£000s	£000s	£000s	£000s	£000s	£000s
SG Additional Capital Funding	71	627	566	1,761	12,696	31,680	4,749	52,150
SG (Waiting Time Improvement Plan/Access Funding)						1,854	7,415	
Total Sources of Funding	**71**	**627**	**566**	**1,761**	**12,696**	**33,533**	**12,165**	**52,150**

5.4.3 Sensitivity of Affordability

In assessing the affordability of the Project, consideration has been given to the impact of a 10% increase in costs, together with consideration of specific potential dependencies not outlined in Table F16.

Table F18: Sensitivity Analysis

Area	Impact £millions	Management
Capital Expenditure – Build	4.0	Stage 2 design developed and anticipated deliverable within cost cap of the Project set out. These are subject to regular review and it is expected that the PSCP and associated supply chain will apply innovation to ensure delivery within that cap.
Capital Expenditure –Equipment	0.9	Structured processes of identifying and programming need and managing delivery are in place.
Recurring Revenue Costs	1.0	Regular review including a detailed programme of service redesign forms part of budget planning process and workforce strategy for the new facilities is being developed.
Market Pressures	1.6	A procurement strategy has been developed by the contractor to support market testing. Regular soft market testing and benchmarking inform the cost plan.
Major Existing Infrastructure	0.5	Feasibility work underway to establish best approach to heat source. A programme of surveys will inform understanding of current infrastructure.
Medical Equipment	0.7	Planned replacement of medical equipment progressed through the equipment replacement programme

5.4.4 Value for Money

The construction costs included within the business case have been scrutinised by external Joint Cost Advisors (AECOM) as part of their due diligence towards their validation of the cost representing value for money at this stage. In particular, the elements making up the total capital cost have been compared with other similar comparator projects and existing market conditions. This has also included area benchmarking and a value engineering process. Moving forward to market testing, there is an expectation that further value will be applied to reflect competitive market testing.

The stages in cost planning undertaken since AECOM were appointed are outlined as follows

- development of a budget analysis - this was a rate per metre squared for each department applied to the total area based on the brief.
- as the Stage 2 design developed a more detailed Formal Cost Plan (this is based on actual measurements of each building element from the design drawings at this stage) was developed
- the costs were then subjected to a detailed review by the Joint cost Advisor in conjunction with the PSCP, Graham on a line by line basis with both parties challenging and interrogating the rates and quantities used to build up the overall project cost in the Formal Cost Plan. During this review the GIFA was also challenged and potential Value Engineering identified

As part of the cost development the Joint Cost Advisor in conjunction with Graham and NHSG also reviewed the Risk and Inflation allowances in the formal cost plan to ensure that these were appropriate for the project stage.

The Joint Cost Advisor provided NHS Grampian with an OBC Stage 2 Cost Plan Report on 15 July 2019 and has confirmed a robust process has been concluded in relation to construction cost planning and that the costs presented represent value for money.

5.4.5 Agreed Accountancy Treatment

The new and refurbished buildings and the equipment procured will be accounted for by NHSG as a non-current (fixed) asset.

The annual charge to the Statement of Comprehensive Net Expenditure (SOCNE) will consist of all building related running costs, clinical and non-clinical costs and depreciation. Depreciation is calculated on a straight line basis.

Assets which are being vacated as part of the Project will be impaired on the Board's balance sheet if appropriate, at this stage no impairment requirement has been identified.

5.4.5.1 Recurring Revenue Costs

Recognising that the potential revenue consequences of major new facilities are substantial, a comprehensive service redesign structure has been put in place by NHSG. Part of the remit of this structure is to manage and mitigate cost pressures that may arise. To assist, cost pressures have been broken down into three classifications:

- project – consequence of the new building
- current – current service pressure
- growth – anticipated increase in service demand/delivery

Only those identified as Project related (£7.4 million) are reflected in the OBC.

5.5 Written Agreement of Stakeholder Support

None required

6. The Management Case

6.1 Overview

The purpose of the Management Case is to demonstrate that NHS Grampian (NHSG) is capable of successfully delivering this Project.

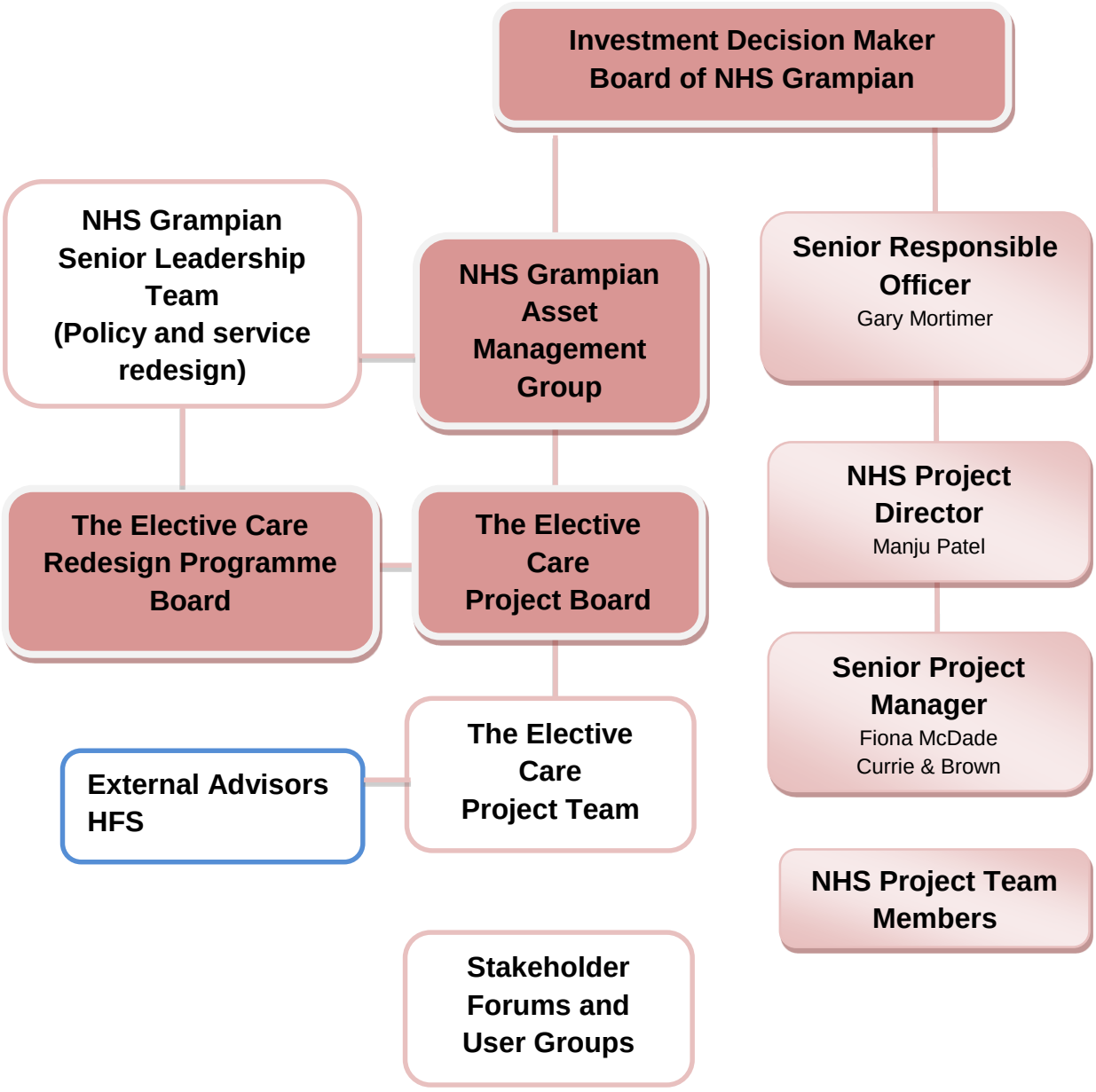
6.2 Reporting Structure and Governance Arrangement

This project is part of the £200m National Elective Care Programme to be delivered by the end of 2021. The project one of five is being delivered with the support of the National Elective Care Programme Board. The Initial Agreement letter of approval, from the Scottish Government Health and Social care Directorate (SGHSCD) dated 26 September 2018 invited the Board of NHS Grampian to progress the Project to Outline Business Case (OBC), refer to Appendix A.

The governance of the Project is consistent with the Scottish Capital Investment Guidance (SCIM). The Project governance arrangements described in this section seek to ensure that Scottish Government Health and Social Care Directorate (SGHSCD), National Elective Care Programme, Capital Investment Group (CIG) and Health Facilities Scotland (HFS), as well as the Board of NHSG are appropriately involved in the Project as it progresses through appropriate key gateways to completion, operation and evaluation.

In compliance with the Scottish Capital Investment Manual (SCIM), this Project will deploy a programme and project management approach with the management structure as shown in Figure M1.

Figure M1: Structure and Governance Arrangements



The investment decision maker is the Board of NHS Grampian. The reporting and governance arrangements outlined in Figure M1 indicate the groups who will be involved in providing assurance to the Board as part of the governance process for the Project. They include:

The NHSG Asset Management Group (AMG)

The remit of the AMG is:

- To ensure system-wide co-ordination and decision making of all proposed asset investment/disinvestment decisions for NHSG, ensuring consistency with policy and the strategic direction of NHSG; and,
- The AMG works in conjunction with the NHS Board Senior Leadership Team to ensure consistency of approach consistent with policy and affordability.

The Project Board

The Programme Board is accountable through the AMG to the Board of NHS Grampian.

The main purpose of the Project Board is to support and supervise the successful delivery of this capital project to be delivered by the end of 2021.

Remit

1. To agree the scope of the Project, including the clinical service strategy and the benefits to be realised by the development with appropriate stakeholder involvement.

2. To ensure that the resources required to deliver the Project are available and committed.

3. To drive the Project through Initial Agreement (IA), OBC and FBC approval within NHSG and thereafter the CIG at SGHSCD.

4. To supervise the Framework Scotland 2 (FS2) NEC3 procurement process and appointment of the Principal Supply Chain Partner (PSCP), Joint Cost Advisor and CDM Advisor.

5. To assure the Project remains within the framework of the overall project strategy, scope, budget and programme.

6. To approve changes to the scope of the Project including e.g. time, cost and quality, within agreed authority.

7. To review the Risk Management Plan, ensuring all risks are identified; that appropriate mitigation strategies are actively applied and managed and escalated as necessary, providing assurance to the NHS Board that all risks are being effectively managed.

8. To ensure that staff, partners and service end users are fully engaged in designing operating policies that inform the detailed design and overall procedures that will apply, which in turn will inform the Works information i.e. ensuring that the facilities are service-led rather than building-led.

9. To ensure that the Communication Plan enables appropriate involvement of, and communication with, all stakeholders, internal and external, throughout the Project from conception to operation and evaluation.

10. To commission and participate in appropriate external reviews including e.g. Office of Government Commerce, Gateway Reviews and the Architecture Design Scotland, NHS Scotland Design Assessment Process (NDAP).

11. To ensure the Project remains within the affordability parameters set out by Scottish Government and NHSG.

12. To work with the PSCP to ensure that the completed facilities are delivered on programme within budget and are compliant with the Works Information and Board Construction Requirements.

13. To supervise the functional commissioning and bring the facilities post-handover and thereafter completion of the post project evaluation

The NHS Project Team

The remit of the NHS Project Team is:

1. To coordinate the production of the Employers Works Information documents for the Project.

2. To coordinate the production of all technical and financial schedules from an NHS perspective.

3. To lead the PSCP and advisor procurement process.

4. To participate in e.g. Gateway Reviews and the NDAP, helping to ensure project delivery readiness at each key project gateway.

5. To lead and coordinate the production of the IA, the OBC and the FBC.

6. To work with the PSCP to ensure that the Project is delivered to cost, quality and programme.

7. To agree appropriate derogations.

8. To supervise the development of third party Occupation Agreement/s, as appropriate, with building users.

9. To ensure communication with all internal and external stakeholders and appropriate user involvement in relation to e.g. workforce planning, functional commissioning and relocation.

10. To ensure the development of all appropriate policies and procedures (clinical and Facilities Management) to ensure the smooth operation of the building once operational.

11. To commission specific redesign work associated with the redesign of services relocating to the new facilities.

12. To plan for the Project evaluation.

13. To lead the specification, procurement and commissioning of all group 2, 3 and 4 equipment.

14. To lead the specification of all group 1 equipment consistent with the Works Information.

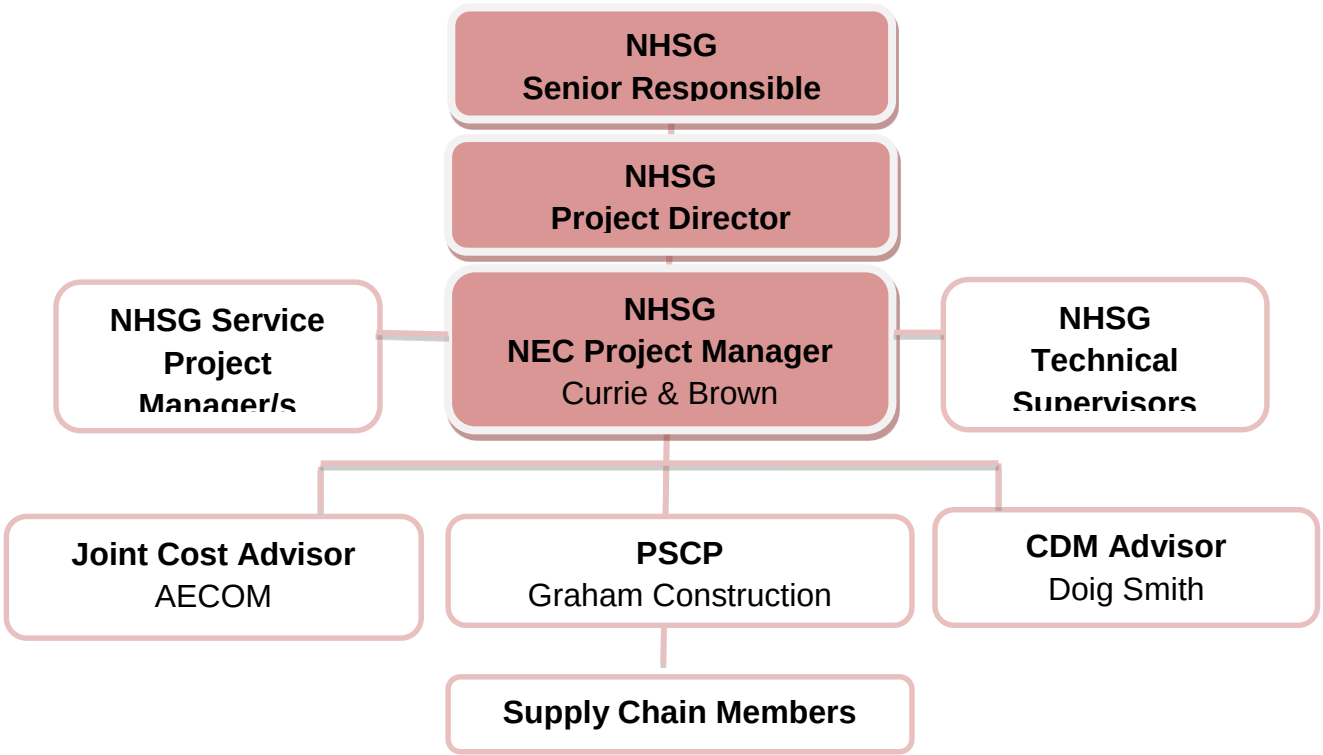
15. To ensure compliance with Employers Works Information requirements.

16. To ensure completion of the soft landings programme in advance of handover.

17. To lead development and implementation of functional commissioning programme, including service relocation, staff orientation and training etc.

6.2.1 Project Structure and Roles and Responsibilities

Figure M2: Project Team Structure



Roles and Responsibilities

Putting the right team together for this significant capital Project is key to the successful delivery of the Project. One of the recommendations resulting from the Review of Scottish Public Sector Procurement in Construction (May 2014) was the production of guidance on Baseline Skillsets for construction projects of different size and complexity, refer to Tables M1 - 4. This guidance has been used to assess the complexity level of the Project and to assess the experience and suitability of the lead officers, specifically the Senior Responsible Officer (SRO), Project Director (PD) and Senior Project Manager.

Table M1: Project Complexity

Project Complexity Criteria:	Level 1	Level 2	Level 3	Level 4
Value:	Up to OJEU threshold	Less than £10 million	Less than £15 million	£40m
Number of Organisations	1	1-2	1-2	Any
Number of User Consultees	1-5	1-5	1-12	13+
Number of Tier 1 Contractors	1	1-2	1-2	Any
Number of Design Teams	1	1-2	1-2	Any
Degree of Technical Complexity and/or Operational Risk	Low	Low or Medium	Low or Medium	Medium/ High

Table M1 indicates that using the Scottish Public Sector Procurement in Construction (May 2014) guidance the Project is assessed to be a Level 4 project in terms of complexity. Using the 'Baseline Skillset Matrix' from the guidance referenced above the following three Tables M2, M3 and M4 demonstrate the experience level of the three lead officers, in line with the guidance for a Level 4 project.

The **Senior Responsible Officer** (SRO) for the Project is Gary Mortimer, Director of Operational Delivery; he is the person within NHSG with the authority to provide leadership and clear accountability for the Project's success. He has ultimate responsibility at Board Executive level for delivery of the Project's benefits and the appropriate allocation of resource to ensure its success. The SRO has held a number of roles in NHSG including General Manager, Facilities and Estates and Director of Acute Services, now Director of Operational Delivery. Gary has been a senior member of multiple project teams/major capital projects over the last +30 years.

Table M2: Senior Responsible Officer

Senior Responsible Officer (SRO): Gary Mortimer		
Main Responsibilities: The business sponsor who has ultimate responsibility at Board/Executive level for delivery of the Project's benefits and the appropriate allocation of resources to ensure its success.		
Experience and suitability for the role:	**Skillset Expected**	**Skillset of Individual**
Development Management	Experienced	Experienced
Governance	Expert	Expert
Commercial Acumen	Expert	Expert
Project Management	Experienced	Expert

Stakeholder Management	Experienced	Experienced
Procurement Management	Previous Involvement	Previous Involvement
Construction Management	Experienced	Expert
Resource Commitment	25-75%	10%-20%

The **Project Director** (PD) for the Project is Manju Patel, she is responsible for the ongoing day to day management and decision making on behalf of the SRO to ensure that the desired Project objectives are delivered. She is also responsible for the development maintenance, progress and reporting of the business case to the SRO. The PD has undertaken a similar role on a number of Framework capital funded health projects in NHSG and NHS England over the last 15 years.

Table M3: Project Director

Project Director: Manju Patel		
Main Responsibilities: Responsible for the ongoing day-to-day management and decision making on behalf of the SRO to ensure that the desired Project objectives are delivered. They are also responsible for the development, progress and reporting of the business case to the SRO.		
Experience and suitability for the role:	Skillset Expected	Skillset of Individual
Development Management	Experienced	Experienced
Governance	Expert	Expert
Commercial Acumen	Expert	Experienced
Project Management	Experienced	Expert

Project Director: Manju Patel		
Stakeholder Management	Experienced	Expert
Procurement Management	Previous Involvement	Previous Involvement
Construction Management	Experienced	Expert
	25-75%	60%

The **Senior Project Manager** (SPM) for the Project is Fiona McDade, Currie & Brown, She is responsible for leading, managing and co-ordinating the integrated Project Team on a day to day basis. The SPM has undertaken a similar role on a number of Framework, capital and hub revenue funded health projects in Scotland over the last 12 years.

Table M4: Senior Project Manager (SPM) – Skills Matrix

Senior Project Manager: Fiona McDade		
Main Responsibilities: Responsible for leading, managing and co-ordinating the integrated Project Team on a day to day basis.		
Experience and suitability for the role:	**Skillset Expected**	**Skillset of Individual**
Development Management	Expert	Expert
Governance	Previous Involvement	Experienced
Commercial Acumen	Expert	Expert
Project Management	Expert	Expert
Stakeholder Management	Expert	Expert
Procurement Management	Experienced	Experienced
Contract Management	Experienced	Expert

Resource Commitment	100%	70%

This Project is complex and involves a large number of services, stakeholders and a significant service redesign agenda to be delivered to coincide with delivery of the new facilities, led by the Elective Care Re-design Programme Board which meets bi-monthly and is chaired by Graeme Smith, Deputy Chief Executive. A complex project requires a Project Board to oversee the Project's successful delivery. The role and remit of the Elective Care Project Board is outlined in section 6.2. The Project Board meets bi-monthly and is chaired by the SRO. The PD produces a monthly Director's Report for review by the Project Board. Membership of the Project Board is outlined below in Table M5. The Table also outlines the Project role and main responsibilities of each member of the Project Board and their previous experience of similar project roles.

Table M5: Project Board Membership

Project Board Membership	
Name **Designation**	**Experience of similar Project Roles**
Organisation's project leadership representatives	**Representing the organisation's project delivery interests**
Gary Mortimer, Director of Operational Delivery (SRO)	Gary has held a number of roles in NHSG including General Manager Facilities and Estates before becoming Director of Acute Services and now Director of Operational Delivery. Gary has been a senior member of multiple project teams/major capital projects including RACH, Matthew Hay Building, Energy Centre, Backlog Maintenance programme etc. Involvement has been at all stages including business case development, design, procurement, construction, commissioning and in-operation facility management phases.

	Gary has also been involved in Building Research Establishment Environment Assessment Method (BREEAM) assessments, NEC3 delivery, Gateway Reviews and Achieving Excellence Design Evaluation Toolkit (AEDET) reviews. A member of The Royal Institute of Chartered Surveyors (RICS), Gary now brings his engineering background to operational clinical delivery as Director of Acute Services.
Manju Patel Project Director	Manju has worked in the NHS for over 35 Years and during this time has held a number of Clinical, General Management and Strategic Roles delivering strategic and operational healthcare changes including programmes of build solutions for capital projects both in England and in Scotland. Manju since starting at NHS Grampian in 2007, as Service Planning Lead and subsequently, as Project Director, has completed four capital projects including a programme of Back Log Maintenance and Refurbishment Projects. Manju is also Chair on two, Technical Platform's for the Institute of Health Engineering & Estates Management: "Architect & Design of the Built Environment" and "Diversity & Inclusion Group". Manju is an experienced (10 Years+) and registered Gateway Reviewer for the Centre of Excellence, Scotland. Manju holds an MSc (Distinction) in Construction Project Management (Healthcare) and is a co-author of book published by Wiley-Blackwell,

	Governance and Knowledge Management for Public-Private Partnerships (2010).
Fiona McDade Senior Project Manager (NEC3) Currie & Brown	Fiona is a chartered Project Manager and achieved NEC3 Project Manager accreditation in 2016. Fiona has almost 30 years in the construction industry with the last 12 years being predominately within the healthcare sector. Through this period, Fiona has gained expertise in the delivery of projects within a live acute site while maintaining business continuity. Fiona's experience includes the successful delivery of a wide range of new-build and refurbishment projects under Frameworks Scotland 1 and 2. This includes multiple projects for NHS Lanarkshire at Wishaw, Hairmyres and Monklands Hospitals. The largest and most complex of these is the refurbishment of seven operating theatres at Monklands and the construction of a new ten bed Intensive Care Unit (ICU). Fiona has previously worked for NHSG as Technical Advisor on the Hub DBFM scheme for Foresterhill and Inverurie Health Centres. Fiona has provided project management for The Baird and ANCHOR Project since December 2016 and was appointed as the SPM for the Elective Care Project in December 2018. Fiona is a Divisional Director (Project Management) within Currie & Brown.
Organisation's business and finance representatives	**Representing the organisation's business and finance interests**

Alan Gray Director of Finance	Alan is a member of the Institute of Chartered Accountants of Scotland and member of The Institute of Chartered Accountants for Scotland (ICAS) Public Sector Panel. Additionally, he is Chair of NHSG AMG. Alan was SRO on the first DBFM project under hub model in Scotland (Aberdeen Health Village) and SRO on the first joint project with two organisations under hub model in Scotland (Forres, Woodside and Tain). Alan is currently SRO on DBFM project for the replacement of Foresterhill and Inverurie Health Centres. Alan is the former Chair of the North of Scotland Territory Partnering Board, former member of hub National Programme Board and former shareholder representative on the Board of Hub North Scotland Limited.
Garry Kidd Deputy Director of Finance	Garry is a member of the Chartered Institute of Management Accountants (CIMA) and has held a range of financial roles in an NHS career spanning some 36 years. Garry, in his current role, has a wide range of responsibility including delivery of all regulatory financial accounting services, management of NHSG's Endowment Fund charity and the financial management of NHSG's capital and infrastructure programme. In previous roles, Garry has directly project managed the delivery of specific infrastructure developments such as Chalmers Community Hospital and the Maud Resource Centre. He has developed extensive experience, over the last 21 years, as a team member in the development and presentation of a

	business case and then supporting the financial and commercial aspects to deliver a range of capital and revenue funded infrastructure projects across Grampian.
Lorraine Scott Acting Director of Modernisation	Lorraine has worked in the NHS for over 25 years. Initially as a registered general nurse and then as a specialist nurse working in primary, secondary and tertiary settings within Scotland and England. Lorraine has held a number of project management roles covering clinical service redesign, including capital/building developments. Over the last 10 years her role has predominantly focused on strategic planning at a service and organisational level both within NHS Grampian and the wider North of Scotland. This included facilitating the development of the Grampian Clinical Strategy.
Organisation's senior service/operational management representatives	**Representing the organisation's service/operational management interests**
Fiona Francey, General Manager, Acute Sector	Fiona has worked within the NHS for the past 33 years; originally as a registered nurse (adults, paediatrics, community District Nursing, senior charge Nurse at Woodend), for the last 23 in management positions spanning Dr Gray's Hospital, Moray Community Services, LHCC in Kincardine, LCHP, South Aberdeenshire, GM Primary Care Services and for the last 7 years various General Management positions within the Acute Sector.

	Fiona's current role includes the joint management of all acute sector services alongside the Medical Director, Acute and the Director of Nursing & Midwifery, Acute.
Paul Allen Director of eHealth and Facilities	Paul has worked in NHSG for 34 years in ICT/eHealth, Facilities and Estates. Across these specialist areas he has contributed to a wide range of new construction developments on the Foresterhill Health Campus. Paul worked very closely with the RACH and the Matthew Hay Building project teams prior to The Baird and ANCHOR Project. These projects were very successful, not just in design construction but also service redesign.
Organisation's senior workforce management representatives	**Representing the organisation's workforce management interests**
Claire Strachan, HR Manager	Claire is a member of the Institute of Personnel and Development (CIPD) and has worked in the HR Department at NHS Grampian for over 4 years. In her HR role she has been involved in numerous complex and challenging redesigns and establishing close working relationships with staff and trade unions.
Rachael Little Employee Director	Rachael represents the organisation's workforce management interests. As Employee Director, she contributes to this Project Board in terms of staff involvement in line with the Staff Governance Standards. Involved in the Project from inception Rachael acts as a communication conduit between the staff to be involved whilst remaining in an oversight position between the Project

	and the staff side organisations to aid delivery of the communication strategy. Rachael previous involvement in the development of the Baird & ANCHOR and the Community Health & Care Village Projects has provided a framework for her involvement in The Elective Care Project.
Organisation's senior clinical management representatives	
Paul Bachoo Deputy Medical Director	Paul has been a Consultant Vascular Surgeon in NHSG since 2001. He is currently the Medical Director for Acute NHSG and is the Executive Lead for Elective Care / Cancer Performance. He is a member of the NHSG Board. He has held a number of Leadership roles including Director of Major Trauma Centre in the past.
Jenny McNicol, Acute Director of Nursing and Midwifery	Jenny has over 35 years working in the NHS, predominantly within Midwifery. She was the Chief Midwife in NHS Grampian prior to taking up her current post. Jenny has had experience in service redesign, particularly with maternity services.
Richard Herriot Divisional Clinical Director – Clinical Support Services	Richard is a Consultant Immunologist with NHSG and Divisional Clinical Director responsible for a number of Acute Sector services including oncology & haematology, laboratory medicine, radiology, medical physics and pharmacy. Richard has chaired a number of professional, management, educational and advisory committees and working groups for various Medical Royal Colleges, specialist societies, clinical networks, patient groups and SG.

Health and Social Care Partnership (HSCP) Representative	**Representing the HSCP's interests**
Angie Wood Aberdeenshire HSCP	Angie is one of the Partnership Managers within Aberdeenshire H&SCP. Previously working within NHS for 28 years before moving to H&SCP 3 years ago. Angie has held a number of operational and strategic roles including significant redesign work both within services and in taking whole system approach.
The University of Aberdeen (UoA) Senior Representative	**Representing the UoA's interests**
TBC University of Aberdeen (UoA)	Current vacancy
The SG representatives	**Representing the SG and NHSScotland interests**
Alan Morrison Scottish Government, Health and Social Care Directorate (SGHSCD)	Alan is a member of the Chartered Institute of Public Finance and Accountancy (CIPFA) body and is the chair of the SG's NHS CIG which reviews all NHS capital investment business cases.
Jacqueline Kilcoyne Health Facilities Scotland (HFS)	Jacqueline is Framework Manager for FS2. In her role as Capital Projects Manager within HFS, Jacqueline provides advice/support to NHS Boards in the delivery of capital projects. Jacqueline is a Chartered Building Surveyor with 25 years experience within the construction industry, focusing on health projects for the last 15 years.
The Project Team representatives	**Provide reassurance to the Project Board on progress in line with brief, quality, programme and cost.**
Duff Bruce Clinical Lead	Duff has worked in the NHS for over 30 years. Whilst clinical lead for General surgery, he was involved in a

	programme of departmental cultural change impacting on ways of working, quality improvement, team-coaching, integration of the multi-professional team, education and academic departmental profile. His role has been to communicate elective care messages with clinical healthcare colleagues and to provide interface for the project team in discussions around specific clinically-related topics.
Louise McKessock Clinical Redesign Manager	Louise has worked in NHS Grampian as a nurse for over 30 years and has extensive clinical experience. She was then Nurse Manager for the Surgical Unit and covered numerous specialities for 9 years before moving into Infrastructure, planning and service redesign. Louise was a Clinical Advisor for a short time and then moved to the role of Deputy Director of the ARI Reconfiguration Project/Backlog Maintenance Programme. Louise is an accredited NEC3 Project Manager and has a MSc in Research. Louise's current role is Clinical Redesign Manager, she has been in post since the start of the Elective Care Project.
Julie Anderson Finance Manager	Julie is the Finance Manager supporting the Project. A qualified accountant with wide ranging public sector experience, she joined NHSG in April 2015. Her primary role is to support the delivery of The Baird and ANCHOR Project and Elective Care Project including a substantial redesign agenda whilst also supporting a range of other NHSG infrastructure projects.

Organisation's external Joint Consultant Cost Advisor	Representing the organisation's commercial and cost management interests
Robert Rankin Cost Advisor, AECOM (in attendance)	Robert is a Director in AECOM's Cost Management team in Scotland. He has almost 40 years experience as a Cost Manager in the construction industry with the last thirty in the healthcare sector. A Member of the Royal Institution of Chartered Surveyors , Robert is also AECOM's Health Lead in Scotland, and is a member of the UK National Health team. He is also HFS Framework Manager for AECOM. He has extensive experience in delivering complex healthcare projects in both the Acute and Primary Care market and has been involved in the HFS Framework delivery model since its inception in 2008 with over 50 nr Target Cost projects successfully completed. A number of these with NHS Grampian across the region. He has strong recent experience in other Elective Care project deliveries for other Boards.

6.2.2 Independent Client Advisors

In addition, to the key officers outlined above a number of client advisors have been procured to provide support to the Project Team to ensure the successful completion of all Project activities, to specification, on time and to cost. The advisors are listed in Table M6, with the exception of the Health Facilities Scotland (HFS) Equipping Services, the advisors were procured via the Public Contract Scotland quick quote portal from the FS2 Framework. NHSG has entered into a service level agreement with the HFS Equipping Service consistent with earlier projects to support the specification, procurement and

deployment of most group 2, 3 and 4 equipment and the specification of group 1 medical equipment.

Table M6: Independent Client Advisors

Independent Client Advisors	
Senior Project Manager	Currie & Brown
Joint Cost Advisor	AECOM
CDM Advisor	Doig Smith
Healthcare Planner	Buchan + Associates
Equipment Advisor	Health Facilities Scotland (HFS) Equipping Service

6.2.3 Project Recruitment Needs

The Board of NHSG has invested significant financial and organisational resources in ensuring that it has sufficient capacity and capability to be able to effectively deliver and manage infrastructure Projects across the organisation.

The Project management structure was prepared from local experience and also taking advice from other similar projects in Scotland, refer to Figure M2. The cost of the Project Team over the life of the Project, including directly appointed project staff, together with external advisers will be funded from the capital funding allocation for the Project. NHSG is committed to this Project and will make sure it is resourced to ensure successful delivery of the investment objectives.

6.2.4 External Reviews

The Project will be subject to a number of external reviews including Office of Government Commence Gateway Reviews which look at Project delivery readiness at specific stages throughout the Project (refer to Table M7). A Gateway Review 1- 2 was undertaken 25 – 27 April 2019. The report assessed the Project as Red/Amber it suggested a range of actions to be implemented over the weeks to come in advance of OBC submission to help ensure the delivery of a successful Project going forward. Thereafter a Gateway Review 3 is to be scheduled for Q1 2020, in advance of the FBC submission.

The recommended actions relate to three main areas, programme risk, cost risk and management of the recent personnel changes in the roles of SRO and Project Director due to retirement.

Definition of Red/Amber rating:
Successful delivery of the project is in doubt with major risks or issues apparent in a number of key areas. Urgent action is needed to ensure these are addressed, and establish whether resolution is feasible.

In addition, the Project is also subject to the NHSScotland Design Assessment Process (NDAP) led by Architecture and Design Scotland (ADS) in collaboration with HFS, at OBC and FBC stages of the Project, refer to section 4.3.5. The OBC NDAP review was completed during the period March to June 2019. A copy of the 'supported' OBC stage NDAP report is included as Appendix F (will be included when received).

Table M7: Gateway Reviews

Gateway Reviews	Programme
Gateway 1 - 2 – Delivery Strategy	April 2019
Gateway 3 – Investment Decision	Q1 2020

Gateway 4 – Readiness for Service	Q4 2021
Gateway 5 – Operations Review and Benefits Realisation	2023

6.2.5 Project Plan and Delivery Timetable

Table M8 below describes a number of key Project milestones.

Table M8: Project Delivery

Master Programme	**Dated 4 June 2019**
Activity	**Key Milestones**
Stage 2	
Planned Completion	22.07.19
Contract Completion	21.06.19
SGHSCD CIG Meeting	13.08.19
OBC Approval (provisional)	23.08.19
Stage 3	
Commence Stage 3	26.08.19
RIBA Stage 4 Design	26.08.19 - 01.11.19
Agreement of Target Price	03.04.20
Issue a PMI/CE for Enabling Works	06.04.20
FBC Approval	May-20
Stage 4	
Mobilisation	29.06.20 - 24.07.20
Construction Start	27.07.20
Construction Completion	26.11.21
Bring into Operation	01.03.22

Summary of Project Plan:

Table M9 outlines some of the key activities to be considered in relation to delivery of the Elective Care Project, notably constraints towards completing these key activities, and an overview of planned mitigation measures.

Table M9: Key Activities

Activity	Resource Plan	Constraints
Resource Recruitment	Recruitment of both the NHSG Project Team and supporting professional advisors is now nearing completion with a number of appointments made during the period since approval on the IA. This includes the appointment of a new SRO and Project Director due to retirement.	Orientation and handover programmes for the SRO and Project Director are currently being implemented. Resources will be reviewed on a regular basis by the PD to make sure that all Project activities are successfully delivered.
Stakeholder Engagement	Stakeholder engagement is a key feature of all NHSG projects. The project has dedicated	A communication and involvement group has been established and will coordinate communication and

Activity	Resource Plan	Constraints
	communication officer capacity to support the project team in organising appropriate stakeholder engagement and communication across the life of the project.	involvement across all stages of the project.
Site Purchase	The site of the new Elective Care Centre and MRI at Elgin are in the ownership of NHSG on behalf of the Scottish Ministers.	In terms of the Foresterhill Health Campus it is jointly owned by The University Of Aberdeen. The location of the new Centre has been agreed with the University. The University are represented on the Project Board and is represented on the Health Campus Forum which meets every six weeks to discuss joint issues relevant to this and other infrastructure projects on the Campus.
Planning	The preferred site for the Elective care centre on the Foresterhill Health Campus is on the site	An initial meeting was held with the ACC planners on 24 April 2019.

Activity	Resource Plan	Constraints
	identified in the Foresterhill Development Framework as for ambulatory care development. The Foresterhill Development Framework is recognised as supplementary planning guidance to the Local Delivery Plan.	Subsequent to the meeting a pre-planning application was made on 7 June 2019. The Planning department have recently confirmed the project as a major development and as such a Proposal of Application Notice (PoAN) was submitted on 20 June 2019, plans for formal public consultation are now underway.
Site Constraints	A programme of site investigation surveys have been commissioned and as the results are obtained are influencing the design, construction methodology and cost planning on the preferred site.	Appropriate surveys of the preferred site will continue to be commissioned at key stages across the life of the project. A survey tracker has been developed and outlines known surveys to be undertaken during Stage 2 and 3 of the project.
Decanting to allow Refurbishment	The new Elective Care Centre and MRI at Elgin developments include a combination of new build and refurbishment. A	Options for the relocation of these services are currently being discussed and possible solutions identified. There is a risk that appropriate solutions

Activity	Resource Plan	Constraints
	number of services need to relocate to facilitate the refurbishment elements of the project to allow the programme to be achieved.	are not identified or cannot be achieved in the required timeframe and this has a programme impact.
Construction Phase	NHSG has considerable experience of working collaboratively with external contractors in the safe, timeous and efficient delivery of major construction projects, with the Dr Gray's Hospital in Elgin, Royal Aberdeen Children's Hospital, The Dental School, the Matthew Hay Building and the forthcoming Baird and ANCHOR Project on the Foresterhill Health Campus being a few examples.	Construction activities will have to take account of both the risk of HAI, the operational constraints of construction on a live hospital Campus and the possibility of adjacent construction projects, e.g. The Baird and ANCHOR Project. The NHSG Programme Overview Group meets every two weeks and reviews all infrastructure developments and any interface issues that need to be discussed to ensure the safe operation of the campus and the timely completion of each project.

Activity	Resource Plan	Constraints
Equipment Procurement	Commissioning and Equipment management capacity will be identified 2019/20 to lead the functional commissioning activities and plan in detail the equipment any new facilities created. In addition, the HFS Equipping Service have been commissioned by NHSG to support the process of equipment specification, procurement and the commissioning of all new equipment. They will also agree with NHSG, in due course, what existing equipment will be transferred.	This OBC includes provision for new equipment based on the emerging room data sheets and makes an informed assumption regarding the level of transferring equipment as this analysis will not be complete until during the construction phase An audit of existing equipment will be undertaken inform the list of transferring equipment in the FBC.
Hand-over	NHSG will work with the PSCP during the life of the project to deliver a detailed soft landings programme	A Soft Landings Champion and Soft Landings Coordinator have been identified to facilitate the successful

Activity	Resource Plan	Constraints
	which will ensure readiness for commissioning and operation the new facilities.	delivery of the programme over the life of the Project. Helping to ensure a structured approach to bringing the buildings into use. In addition, appropriate functional commissioning capacity will be identified in 2019/20 to plan for functional commissioning and bring into operation.
Operational Change	To identify clinical, service and operational change objectives, circa 400 clinicians, operational staff and public representatives took part in circa 80 workshops co-ordinated by the Project Team, and supported by independent Health Planners, Buchan + Associates. As a result, a substantial service redesign agenda has	The new elective care facilities will be developed in order to meet the operational change requirements identified in the Strategic Case of this OBC. If these operational changes and service redesign objectives are not realised, the Project will not meet its investment objectives and optimum clinical care requirements will be left unfulfilled. An active service redesign agenda is being

Activity	Resource Plan	Constraints
	been identified. Appropriate governance and delivery mechanisms are now being put in place to enable the strategic investment priorities and the service benefits outlined in the OBC to be realised.	progressed and led by the Elective Care Redesign Programme Board and supported by appropriate operational management teams and the modernisation directorate.

6.3 Change Management Arrangements

6.3.1 Service Redesign Plan

The clinical strategies for the services to be delivered from the new facilities were developed during 2017/18 with the support of Health Planners, Buchan + Associates. Development of these clinical strategies involved circa 400 clinicians, operational staff and public representatives in circa 80 workshops. This work resulted in the production of clinical output specifications for 22 clinical specialties which in turn have informed emerging clinical briefs and schedules of accommodation. These have been further developed with clinicians and operational management teams in preparation for submission of the OBC. The development of these clinical output specifications are described in the Strategic Section of this OBC and will result in a significant service redesign agenda which will be delivered in tandem with this capital project so that the overall elective care redesign programme is coordinated and integrated.

A key element of the redesign work being progressed during the OBC stage of the project is the development of an emerging workforce plan

that supports the successful delivery of the elective care programme redesign activities and achievement of the benefits outlined in the project benefits register that is included as Appendix G. NHSG continues to implement a workforce plan that seeks to address the current workforce challenges and additionally takes account of the impact of service redesign opportunities to be achieved as part of the project specific elective care redesign activities.

This solution will provide opportunities to recruit and consider carefully the skill mix and competencies of the workforce and is aligned to NHS Grampian 2018 Workforce Plan. NHS Grampian recognises that a well qualified and adaptable workforce will be pivotal to the changing model of care and opportunities for the project and the wider overarching Elective Care Programme.

The project specific elements of this agenda will be delivered between now and 2021/22 to enable the strategic investment priorities and the service benefits outlined in this OBC to be realised.

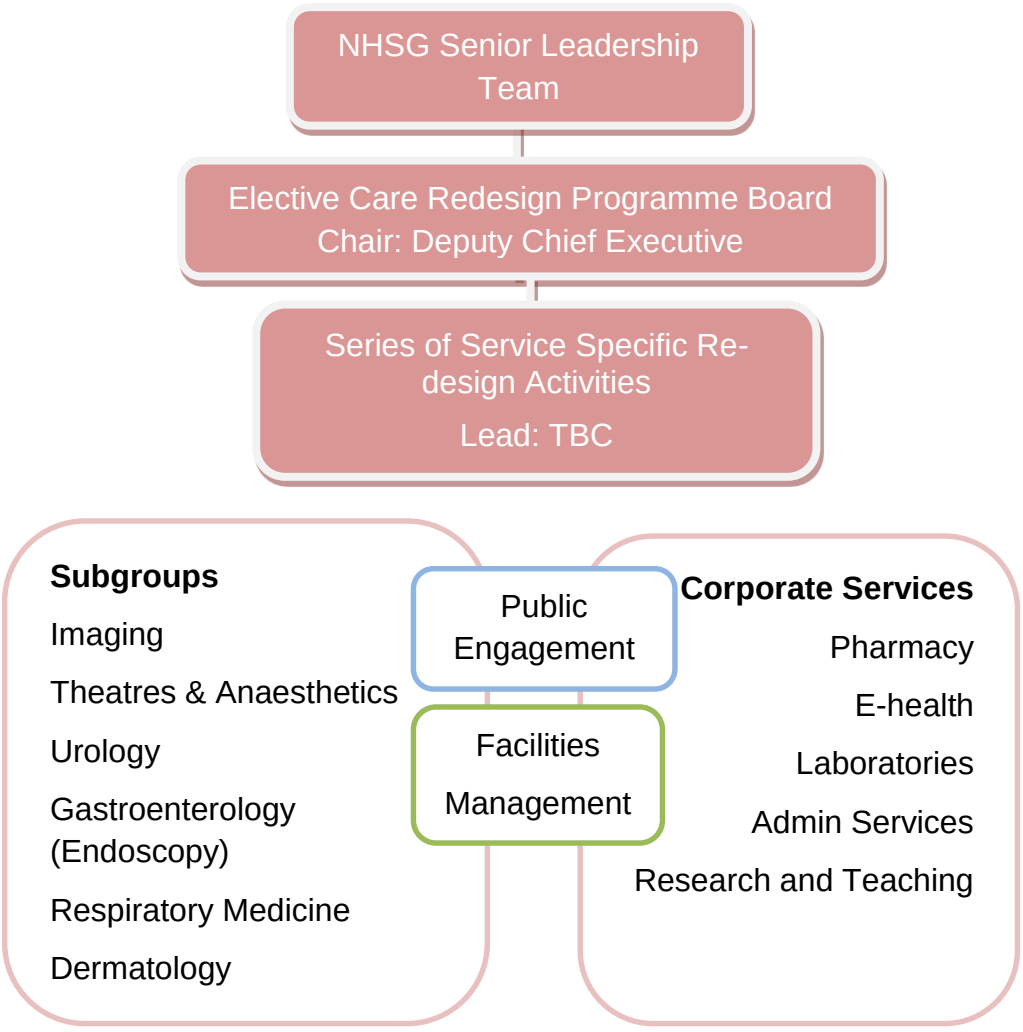
A significant service redesign plan is now being developed and is described in more detail in the Strategic Section. This element of the programme will be led by the Elective Care Redesign Programme Board and supported by relevant operational management teams and the modernisation directorate. The redesign governance structure is outlined in Figure M3.

Some of these service changes will deliver efficiencies, however it is anticipated that some cost pressures may arise and these will have to be planned for and managed. Only the cost pressures from those initiatives that are as a direct consequence of the new facilities are included in this OBC. The other redesign initiatives will be remitted to the Redesign Group to manage in conjunction with their operational management teams as part of normal business.

The Service Redesign Plan is included as Appendix P.

The service redesign agenda is at an early stage of development it will be more fully developed at the FBC Stage. The aim of the redesign programme is to make early progress with service redesign strategies and where possible have them fully or partially implemented where possible, in advance of relocation to the new facilities.

Figure M3: Service Redesign Governance Structure



6.3.2 Facilities Change Planning

Non-clinical briefs are being developed with FM colleagues to reflect the clinical redesign agenda and the emerging architectural design. This work includes meetings with stakeholders from all relevant FM services including e.g. estates, logistics, site safety, decontamination services, domestic services, portering, waste management, and laundry.

6.3.3 Stakeholder Engagement and Communications Plan

A considerable number of people will be affected by the Project and their engagement in supporting and shaping how services are delivered now and in the future is very important to NHSG and to the success of the Project. To support appropriate involvement, a Communication and Involvement Framework has been developed and agreed by the Project Board, refer to Appendix B.

Additionally, a Project specific Communication and Involvement work-stream has been established. This work is reviewed monthly by the Project Communication and Involvement Group and supported by the Project Public Involvement Officer. This work will continue over the life of the Project and does involve clinical staff, managers, public representatives, and the Scottish Health Council (SHC).

A stakeholder analysis has been undertaken for both Project and is included as Appendix C. The stakeholder analysis is updated annually to make sure it is kept dynamic over the life of the Project. These documents have informed the development of Project specific action plans outlining communication and involvement activities to ensure appropriate stakeholder involvement. Each action plan covers the forthcoming six month period and they are regularly reviewed and

updated by the Public Involvement Officer and the Clinical Redesign Manager. An example of recent action plan has been included as Appendix E. The action plan includes details of the target audience, method of communication, timescale, etc.

A brief report which seeks to summarise the communication and involvement activities to June 2019 is included as Appendix E.

6.3.4 Training and Development Plans

Delivery of the service benefits are outlined in the Benefits Register included as Appendix G, their success is dependent of the implementation of the Service Redesign Plan outlined in Appendix P.

The successful delivery of this plan is dependent on the delivery of the new facilities consistent with the design briefs and clinical/briefs, but also the implementation of a Training and Development Plan to support the successful implementation of the Service Redesign Plan. The Training and Development Plan will include an outline of e.g.:

- Any service changes that is likely to include ‘organisational change’
- how staff will be prepared and trained so that they are ready to work in different ways consistent with the overall redesign plans

The service redesign groups will be working through the workforce requirements for the facility in line with future care models as outlined in the Service Redesign Plan, refer to Appendix P.

The Training and Development Plan is being developed to support delivery of the redesign plan and to ensure the safe commissioning and operation of the new facilities in line with the emerging Soft Landing Plan.

A more fully developed Training and Development Plan will be included in the FBC. In initial Training and Development Plan is enclosed, refer to Appendix Z.

6.4 Benefits Realisation Plan

6.4.1 Benefits Register

The rationale for an investment needs to be reflected in the realisation of demonstrable benefits, as this will provide the evidence base that the proposal is worthwhile and that a successful outcome is achievable. The benefits to be achieved are discussed in the Strategic Case and have resulted in the creation of a Benefits Register and Benefit Realisation Plan for the Project.

The register of the benefits to be realised as a consequence of this proposal are outlined in a Benefits Register which is enclosed as Appendix G. The Benefits Register outlines the strategic investment priorities outlined in sections 2.2.3 other key benefits that will be assessed over the life of the Project and as part of the Project evaluation:

- improved patient and staff experience
- backlog maintenance opportunity savings
- performance benefits
- environmental benefits
- local community benefits

A baseline value and target value for each benefit has been identified. A number of benefits require the creation of baseline information, this is mainly in relation to qualitative patient and staff survey work scheduled for 2019/20 to inform the Benefits Register. This work will be completed in advance of FBC submission.

Additionally, a Red, Amber, Green (RAG) score highlighting the relative importance of each benefit is indicated using the scale outlined below in Table M10.

Table M10: RAG Scale – Relative Importance

Scale/RAG	Relative Importance
1	Fairly insignificant
2	
3	Moderately important
4	
5	Vital

The Benefits Register was put together following conversations with a wide variety of stakeholders at a series of meetings over a number of months. The benefits were identified as part of the significant stakeholder engagement work undertaken at the outset of the Project.

The benefits register include a range of benefits to be realised by the development. Each benefit includes a target that will be used to indicate the measure of success during the Post Project Evaluation (PPE).

When the benefits were developed, some can be expressed in a quantitative manner and others are qualitative in nature.

For the quantitative benefits, the register indicates the baseline (current position) at the start of the project including the source (e.g. ISD data) and this will be compared with the same data source in 2023 when the PPE is completed.

For benefits that are qualitative in nature, a series of questionnaires will be developed and a mix of patient and staff surveys/interviews will be undertaken in 2019/20 in advance of the FBC submission to outline the

baseline for these benefits. The same survey tools will be used during the PPE to examine to what degree the improvements sought were achieved.

6.4.1.1 Local Community Benefits

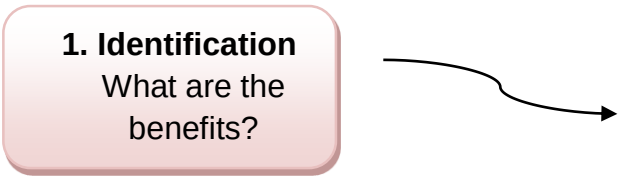
There are wider sustainability opportunities associated with this Project, notably the potential to deliver community benefits through education, training and recruitment opportunities associated with the new builds, targeting work packages offered to Small or Medium size Enterprises (SMEs) and wider associated benefits for the construction and operational phases of the Project. The Project Team has developed a Community Benefit Project Plan for the Project reflecting the guidance outlined in the SFT Community Benefits Toolkit for Construction. The Community Benefit Project Plan for the Project was included in the Background and Scoping document as part of the recruitment of the PSCP, Graham Construction. The Project Team are now working with the PSCP to further develop and implement the Community Benefit Project Plan over the life of the Project. A copy of the Community Benefit Project Plan is included as Appendix T.

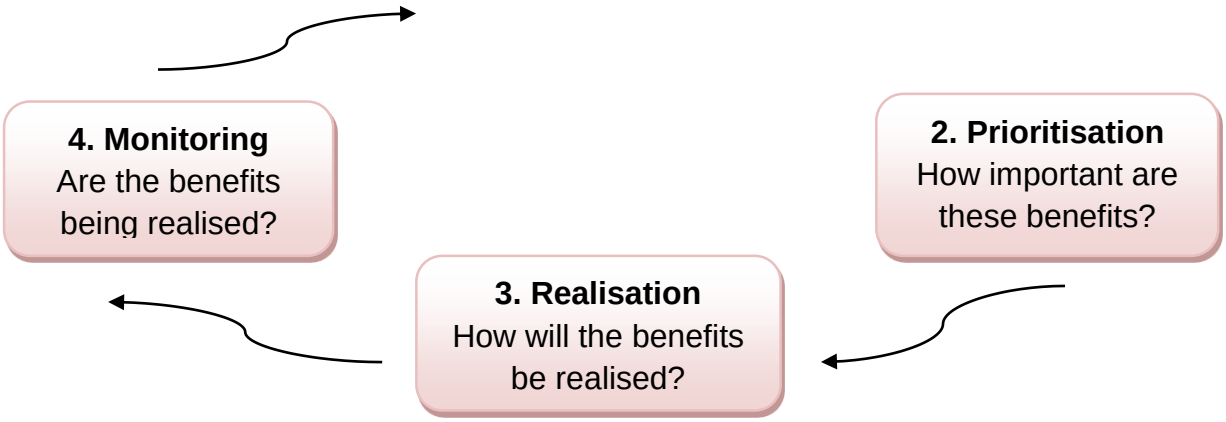
6.4.2 Benefits Realisation Plan

Building on the Benefits Register discussed in section 6.4.1, a Benefits Realisation Plan has been produced to support the achievement of the benefits outlined in the Benefits Register, and it is included as Appendix G.

The benefits realisation process is a planned and systematic process consisting of four defined stages outlined in Figure M4. The implementation of this plan will be reviewed regularly by the NHSG Elective Care Redesign Programme Board.

Figure M4: Benefits Realisation Process





The Benefits Realisation Plan outlines:

- which Investment Objective the benefit addresses
- who will receive the benefit
- who is responsible for delivering the benefit
- describe any dependencies that could affect delivery of the benefit
- any support needed from other agencies etc. to realise the benefit
- a target date by which it is hoped the benefit is achieved

Benefits monitoring will be ongoing over the life of the Project through the planning, procurement and implementation phases. Progress will be reported to the Project Board at regular intervals and will culminate in the Project Evaluation Report to be produced in 2023, refer to section 6.7.2 Project Evaluation.

6.5 Risk

Effective management of project risks is essential for the successful delivery of any infrastructure project. A robust risk management process has been put in place and will be actively managed through the whole programme to reduce the likelihood of unmanaged risk affecting any aspect of the Project. Risk is managed within the Project Team and is led by the Project Director and managed by the Senior Project Manager.

6.5.1 Updated Risk Register

In developing the Risk Register, the initial activities of the Project Team focussed on establishing a range of Project risks reflecting both the scope of the Project.. Primary risks have been identified across a range of categories, including:

- construction (including enabling works) risks
- operational (including equipping and commissioning) risks
- service change and redesign risks
- procurement and commercial risks
- project and programme management risks

In addition, the risks have been catogerised in terms of during stage of the project the risk is likely to require to be managed, eg. during Stage 2 (concept design/OBC), Stage 3 (detailed design/FBC) or Stage 4 (construction, commissioning and bring into operation).

The risks were further allocated across a range of categories depending on where these risks would apply within the overall structure of the Project. These include:

- those that would have a major impact on the cost of the Project
- the ownership of the risks including those which can be transferred to the PSCP

Each risk has subsequently been assessed for its probability and impact and, where quantifiable, its expected value. The optimism bias allowance included in the IA has now been developed into a fully costed risk allowance, where risks have been quantified.
A joint risk quantification exercise, facilitated by the JCA, was undertaken in June 2019 involving representatives from NHSG, Graham Construction and members of their supply chain during which the current version of the Risk Register was reviewed, updated and costed.

The Risk Register is maintained as a dynamic document and is updated at key milestones, or as the need arises, and is maintained by the SPM in collaboration with the wider Project Team, PSCP and JCA.

A copy of the most up-to-date Risk Register is included as Appendix I.

6.5.2 Risk Control Plan

Risk management is an integral part of the Project reporting, approval and governance arrangements. The following are key examples:

- the Project Board reviews major risk regularly and its membership includes a range of senior clinical and management representatives together with representatives from the SGHSCD and HFS
- the Project Plan includes Office of Government Commerce (OGC) led Gateway Reviews. These are conducted at key stages of a Project and provide a constructive assessment of their readiness to progress. This also provides a means of identifying issues, including risks that need to be resolved prior to the work progressing
- NHSG has a Risk Management Policy and the management of risk within this Project aligns to that Policy

6.5.2.1 Identification of Risk

The following stages of risk management are observed by the Project:

- identifying the risk
- assessing the risk
- documenting the risk
- managing and reporting the risk
- closing the risk

6.5.2.2 Assessment of Risks

Risk exposure is assessed through assigning probabilities to events. The likelihood of each of the risks occurring and the impact, should it occur, has been assessed using the following scale; Low, Medium, High and Very High, refer to Table M11.

Table M11: Assessment of Risk Scale

LIKELIHOOD	**SEVERITY / IMPACT**				
	Insignificant Score 1	**Minor** Score 2	**Moderate** Score 3	**Major** Score 4	**Extreme** Score 5
Almost Certain Score 5	MEDIUM 5	HIGH 10	HIGH 15	VERY HIGH 20	VERY HIGH 25
Likely Score 4	MEDIUM 4	MEDIUM 8	HIGH 12	HIGH 16	VERY HIGH 20
Possible Score 3	LOW 3	MEDIUM 6	MEDIUM 9	HIGH 12	HIGH 15
Unlikely Score 2	LOW 2	MEDIUM 4	MEDIUM 6	MEDIUM 8	HIGH 10
Rare Score 1	LOW 1	LOW 2	LOW 3	MEDIUM 4	MEDIUM 5

Each risk is assessed prior to identifying mitigation and with a further assessment of residual risk.

6.5.3 Governance Arrangements

A comprehensive Risk Register is maintained by the Project Team with risk owners identified and individuals allocated to manage each risk. The process for maintaining and managing the Risk Register is as follows:

- the SPM is responsible for ensuring that the Risk Register is up-to-date and that designated officers are managing specific risks
- where a risk is major i.e. has a scoring of ‘high’ or ‘very high’, an action plan for managing and monitoring is maintained by the individual allocated to manage that risk

- the Project Team review key risks on a monthly basis at the joint Core Group Meeting
- the Project Team uses the NEC3 contract early warning process to raise potential and emerging risks. Regular joint risk reduction meetings are held to review all early warnings and, where appropriate, they are included on the Risk Register
- risk specific risk reduction meetings are scheduled for significant risks, and action plans are agreed, implemented and reviewed
- the Risk Register and associated action plans are formally reviewed at a joint bi-monthly Risk Management meeting and specific high or very high risks are discussed and managements plans agreed and reviewed at risk specific risk reduction meetings
- the PD is responsible for ensuring an adequate system of control is in place over the management of the risks
- the PD reports the status of the Risk Register at each Project Board meeting and provides an update on each major risk

If the Project Board identifies a risk where inadequate progress is being made in the management of the risk, they can request to review the action plan and instruct further work to mitigate the risk.

6.6 Commissioning

The importance of the commissioning process cannot be under-estimated, as failure to adequately consider this process is likely to cause increases to project costs and failure to deliver agreed service benefits and project outcomes.

Figure M5: Facilities Commissioning Diagram

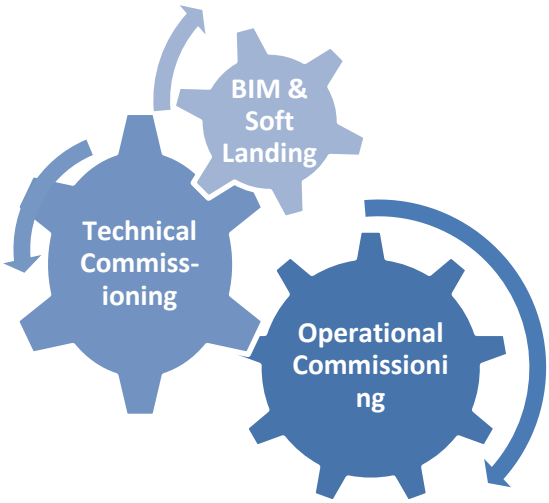


Figure M5 establishes how the commissioning process is organised; it outlines the key tasks to be addressed. The best practice principles of BIM and the Soft Landings Programme must be embedded at every stage to deliver a high quality, safe, and efficient care facility. The four key elements of a successful commissioning plan include:

- Building Information Modelling (BIM) - covered in section 4.3.6
- Soft Landings Programme
- Technical Commissioning
- Functional (Operational) Commissioning

The Elective Care Project strategy is based on achievement of BIM Level 2, this is described earlier in the OBC in section 4.3.6. In management terms BIM is addressed at the monthly Soft Landings Programme meetings.

For the purposes of this OBC commissioning is covered over three distinct but interconnected headings:

- Soft Landings Programme
- Technical Commissioning
- Functional (Operational) Commissioning

6.6.1 Soft Landings

The term 'Soft Landings' refers to a strategy adopted to ensure the transition from construction to occupation is 'bump-free' and that operational performance is optimised.

This transition needs to be considered throughout the development of a project, not just at the point of handover. The Soft Landing Strategy and Plan should be outlined in the early stages of a project. This Soft Landings Plan should be developed jointly and include agreement to provide the information required for e.g. commissioning, training, FM and include requirements for Building Information Modelling (BIM). Regular Soft Landings meetings commenced in April 2019 soon after the appointment of the PSCP, it has been agreed that the, recently developed, NHSScotland Soft Landings Programme will be used to support the successful delivery of the Elective Care Project.

To date, a Lessons Learned Register (LLR) has been developed for the Project, building on the comprehensive LLR developed for the Baird and ANCHOR Project, which was developed following a multi-agency team building workshop, a series of face to face interviews conducted by the Soft Landings Champion with staff who have been involved in major projects and a review of a number of key PPE reports produced following major health infrastructure projects in Scotland over recent years.

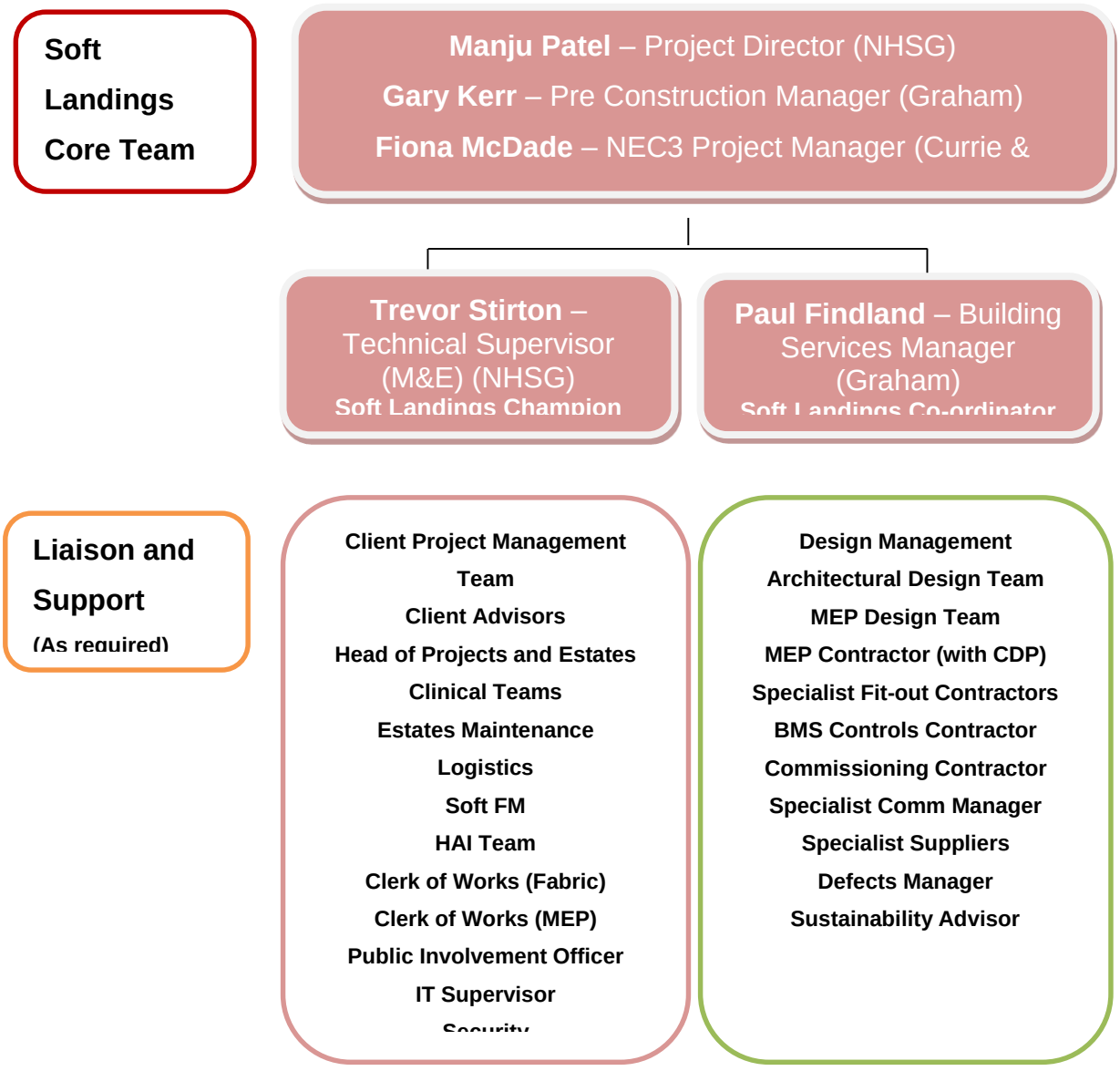
Work is now underway to develop a bespoke Soft Landing Programme, this will be in place during 2019 and will be discussed more fully in the FBC.

NHSG has identified a Soft Landing Champion and the PSCP has identified a Soft Landings Co-ordinator. These officers will co-ordinate and facilitate the delivery of this important programme of work through to handover and during the immediate post-handover period. NHSG

will work with the PSCP to ensure the successful delivery of a detailed soft landings programme for the Elective Care Centre which will ensure readiness for the functional commissioning, led by NHSG, to commence, post handover.

The structure of the Soft Landings Team is outlined in Figure M6.

Figure M6: Soft Landings Team Structure



6.6.2 Technical Commissioning

Detailed technical commissioning is critical to the successful commissioning of any building. Planning for this important project phase cannot start too early. Work to develop a detailed technical commissioning plan will be a key feature of the Elective Care Project during the FBC stage.

The PSCP may appoint an engineering consultancy to lead or support the technical commissioning process; they will have considerable experience to leading commissioning for complex hospital

developments. This process will commence during Stage 3 (FBC stage) with a series of technical commissioning workshops which will inform the development of detailed technical commissioning plan.

6.6.3 Functional (Operational) Commissioning

Functional commissioning of the facilities will commence, in earnest, following handover of the facility to NHSG from the PSCP. Functional Commissioning planning will, however, commence early in the construction phase and will be co-ordinated by a designated NHSG officer (Commissioning Manager) and the project team in close collaboration with appropriate operational management teams.

The functional commissioning will be led by the NHSG Elective Care Project Team. This substantial task will be led by the Clinical Redesign Manager and the Commissioning Manager and supported by other members of the team. During 2020/21, the project team will begin to plan in detail the commissioning of the facilities consistent with the agreed construction programme due to be completed in December 2021.

The Commissioning Manager, when identified, will have appropriate skills and will be supported by the wider project team to develop and implement a smooth and efficient Functional Commissioning Programme.

The Commissioning Programme, once developed in detail, will cover the period from FBC approval until three – six months after the facilities have been brought into operation. This will ensure that all activities are planned, co-ordinated and delivered and that all functional commissioning teething issues are resolved post-occupation in discussion with operational management teams and the PSCP, as appropriate.

The Commissioning Manager will be responsible for:

- with operational colleagues, planning for revised operational procedures to reflect changes to ways of working associated with the new building and redesign agenda
- with operational colleagues, preparing staff to work differently to deliver new procedures (including formal training, job shadowing etc)
- confirming with the HFS Equipment Service, Medical Physics, the Equipment Manager and operational colleagues the new equipment to be specified and procured, the equipment to be transferred and ensure its successful implementation
- produce a comprehensive commissioning programme with clinical and logistics colleagues and to ensure its successful delivery
- to develop a detailed occupation plan with clinical colleagues to ensure the safe continuation of appropriate clinical services throughout the commissioning period
- work with the security team to ensure that the facilities are safe and secure after handover from the PSCP and that appropriate operational procedures are implemented
- agree a service reduction plan with operational teams to facilitate the smooth relocation to the new facilities with as little disruption as possible to patients and staff
- to ensure a comprehensive plan to clean the buildings is in place and agreed with the domestic team and the Infection Prevention and Control Team
- to plan for, procure a removal company and supervise the removal of all equipment, furnishings and goods agreed to transfer
- to plan and organise with the clinical colleagues the safe relocation of all patients, as appropriate, to the new facilities
- to ensure with the Public Involvement Officer and the Clinical Redesign Manager that the public, staff, patients and visitors are

briefed and clear about the relocation and occupation plan and what their role is in relation to it

- to arrange the production of all printed material required to facilitate the move e.g. patient information booklets, staff information booklets, phone book
- to arrange and host opens days for the public to see the facilities before they are in use
- to arrange staff orientation and training for all staff who will work in the buildings, issue of security enabled badges and key statutory training e.g. fire and security
- to produce a comprehensive IT and telecommunications plan to make sure that all phones and computers etc are operational in advance of staff and patient moves
- to co-ordinate the installation of any complex equipment post-handover e.g. imaging equipment, as agreed, with the PSCP
- to plan for the accommodation being vacated to be emptied ready for reuse or demolition, as appropriate

The Clinical Redesign Manager and Commissioning Manager will be supported by the wider Project Team and Operational Management Teams to deliver this complex commissioning agenda in a planned and co-ordinated manner.

In addition, the HFS Equipping Service has been commissioned by NHSG to support the process of equipment specification, procurement and the commissioning of all new equipment. A Service Level Agreement is in place and work to agree draft equipment lists as part of the RDS is underway for design and budgeting purposes. These RDSs, including equipment lists, have been used to inform the budget equipment cost outlined in section 5.3.1.3 of the Financial Case. Work to assess equipment able to be transferred to the new building will be progressed during the detailed design (FBC) phase and will be further developed in advance of submission of the FBC.

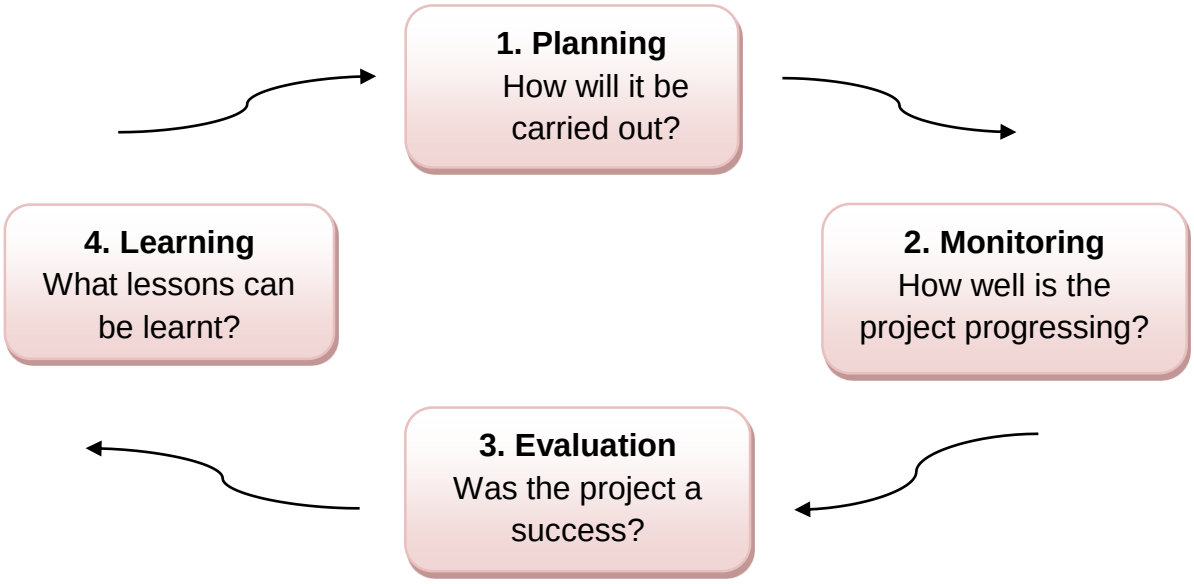
6.7 Project Evaluation

Project evaluation is a key element of any project. It must be well planned and executed. Evaluation of The Elective Care Project will have two main strands:

- monitoring which involves the systematic review of project progress while it is proceeding
- evaluation, which is the process of evaluating the realisation of the expected benefits from the project as an indication of a successful outcome to the project

When used in combination, these strands become an essential aid in realising, determining and sharing the success of any project, refer to Figure M7.

Figure M7: Project Monitoring and Benefits Evaluation Process



6.7.1 Person Dedicated to Leading This Process

A number of people will be involved in the monitoring and evaluation process. The Project monitoring will be led by the SPM who will ensure that all monitoring reports are prepared and reviewed as outlined in the Project Monitoring Plan, refer to Appendix W. A number

of designated project officers will prepare and produce a series of monitoring reports for consideration by the Core Group, Project Board, AMG and CIG at designated intervals over the life of the Project. Completion of these reports will involve PSCP officers, the JCA, CDM Advisor and the project team, including e.g. Finance Manager, Senior Project Manager, Clinical Redesign Manager, Technical Supervisors and Public Involvement Officer.

The post-Project Benefits Evaluation will be led by a designated NHSG officer, yet to be confirmed. The benefits evaluation process outlined in the updated SCIM guidance will require a different approach to previous NHSG PPE's and may need to be led and managed in a different way than was the case for previous projects. During the period between OBC and FBC, NHSG will review its approach to project evaluation and seek to outline how this will be led and managed in the FBC.

6.7.2 Monitoring and Evaluation Stages Project Monitoring

The project monitoring element will be undertaken over the life of the Project and will cover the technical aspects of the Project e.g. programme, cost, quality and health and safety.

A Project Monitoring Plan has been developed and is included as Appendix II. The Plan outlines the key areas to be monitored, it also outlines who is responsible for producing the monitoring materials and at what intervals. The monitoring reports will be reviewed and any follow up action agreed at the appropriate governance level as outlined in Figure M1.

It is proposed that the Project monitoring activities are progressed as outlined the Project Monitoring Plan. Specific monitoring materials, to be confirmed, will be shared with CIG on a six monthly basis during the construction phase.

Key aims of monitoring:

- gaining a better understanding of whether the Project is running smoothly and to programme so that any corrective action can be taken in a timely manner
- enabling service plans/changes to progress at a correct pace to align with the Project programme
- better understanding of the risk contingency status (i.e. has some of it been used or not)
- better understanding of the impact of Project scope changes on costs and programme

6.7.3 Project Evaluation

The Service Benefit Evaluation will be undertaken once the Project has ended, staff and patients have settled and the redesign agenda has had time to be fully implemented. It will cover the impact of the Project on service change and benefits realisation. The Project Benefits Register, Benefit Realisation Plan, Service Redesign Plan and Training and Development Plan will form a significant part of this assessment, refer to sections 6.3 Change Management Arrangements and 6.4 Benefits Realisation.

In relation to the Service Benefit Evaluation, a new process for this will be developed within NHSG to support a consistent approach to the evaluation of this Project and all other capital developments in Grampian. It is likely that the Service Benefit Evaluation will take in the region of three months to complete, to allow time for data collection, report writing, internal review and lessons learned. The Service Benefits Evaluation will be undertaken one - two years after the facilities are commissioned and will focus on the benefits outlined in the Benefits Register included as Appendix G.

Key aims of evaluation:

- demonstrates that the Project was worthwhile by, for example, achieving its strategic investment objectives, realising its expected benefits, and carefully managing its associated risks
- promotes organisational learning to improve current and future performance
- avoids repeating costly mistakes
- improves decision-making and resource allocation (e.g. by adopting more effective project management arrangements)
- recognises how the impact of good design can improve stakeholder satisfaction, service performance and the efficiency and effectiveness of the NHS Board's operations

6.7.4 Resource Requirements

The resource requirements of this new evaluation process will take some time to assess and cannot be done until NHSG has had time to digest the new guidance and agree how it wants to provide for these activities going forward for all infrastructure projects. NHSG is however aware of the importance of good evaluation and will put together a full plan including information outlining how this will be resourced in the FBC. A provisional cost will be included in the Project cost assumptions at OBC stage until agreement is reached within NHSG regarding how this and other evaluations will be approached in line with.