Outline Business Case for the Future Delivery of Front Door Services within NHS Ayrshire & Arran

Phase 1

NHS Ayrshire & Arran

19th November 2012

Contents

Glossary of Abbreviations

ACS	Ambulatory Care Sensitive
ADOC	NHS Ayrshire Doctors on Call
A&E	Accident & Emergency
AEDET	Achieving Excellence Design Evaluation Toolkit
AHP	Allied Health Professional
AME	Annually Managed Expenditure
ASU	Acute Stroke Unit
BCIS	Building Cost Information Service
BfBC	Building for Better Care
BREEAM	Building Research Establishment Environmental Assessment Method
BRP	Benefits Realisation Plan
CAU	Combined Assessment Unit
CCF	Critical Care Facilities
CCT	Certificate of Completion of Training
CCU	Critical Care Unit
CDU	Clinical Decisions Unit
CHD	Coronary Heart Disease
CEL	Chief Executives Letter
CHP	Community Health Partnership
CIG	Capital Investment Group
CoE	Care of the Elderly
CPB	Capital Programme Board
CSF	Critical Success Factors
CT	Computerised Tomography
DVT	Deep Vein Thrombosis
EAC	Equivalent Annual Cost
ED	Emergency Department
ENP	Emergency Nurse Practitioner
ENT	Ear, Nose & Throat
EPR	Electronic Patient Record
EWTD	European Working Time Directive
FBC	Full Business Case
FM	Facilities Management
GROS	General Register Office for Scotland
HASU	Hyper Acute Stroke Unit
HDL	Health Department Letter
HDU	High Dependency Unit
HEAT	Health Improvement, Efficiency, Access and Treatment
HEPMA	Hospital Electronic Prescribing and Medicines Administration (Scotland)
HFS	Health Facilities Scotland
HR	Human Resource
HTMs	Health Technical Memorandum
IA	Initial Agreement
ICU	Intensive Care Unit
IFRS	International Financial Reporting Standards
IPCU	Intensive Psychiatric Care Unit
ISD	Information & Statistics Division
IDM	Investment Decision Maker
LDP	Local Delivery Plan
LOS	Length of Stay

MAU	Medical Assessment Unit
MEWS	Modified Early Warning Score
MID	Medical Imaging Department
MMC	Modernising Medical Careers
MRI	Magnetic Resonance Imaging
MSSW	Medical Short Say Ward
NEC3	The New Engineering Contract Engineering and Construction Contract
NPC	Net Present Cost
NPV	Net Present Value
OB	Optimism Bias
OBC	Outline Business Case
OBD	Occupied Bed Days
OD	Organisational Development
OGC	Office of Government Commerce
OOH	Out Of Hours
OPD	Outpatient Department
PAS	Patient Administration Systems
PFI	Private Finance Initiative
PMS	Patient Management System
POE	Post Occupancy Evaluation
PPE	Post-Project Evaluation
PPM-CoE	Programme and Project Management Centre of Excellence
PPP	Public Private Partnership
PSC	Professional Service Contractors
PSCP	Principle Supply Chain Partner
RCPE	Royal College of Physicians of Edinburgh
RIS	Radiology Information System
RPA	Risk Potential Assessment
RRHEAL	Remote and Rural Healthcare Educational Alliance
RTT	Referral to Treatment
SAS	Scottish Ambulance Service
SCIM	Scottish Capital Investment Manual
ScotPHO	Scottish Public Health Observatory
SFIs	Standing Financial Instructions
SGHD	Scottish Government Health Directorate
SoA	Schedule of Accommodation
SPSP	Scottish Patient Safety Programme
SRO	Senior Responsible Owner
SRU	Surgical Receiving Unit
SSW	Short Stay Ward
TUPE	Transfer of Undertaking and Protection of Employee
UNICEF	United Nations Children's Fund
VAT	Value Added Tax
VFM	Value For Money
WBS	Weighted Benefit Score
WTE	Whole Time Equivalent

Executive Summary

Introduction

The purpose of this Outline Business Case (OBC) is to present proposals for the future delivery of Accident and Emergency at Ayr Hospital and the development of a Combined Assessment Unit at Crosshouse. This forms part of a wider programme of investment in front door services across the Board's two acute hospital sites.

The parameters of the OBC were originally part of an Initial Agreement (IA) 'Building for Better Care, an implementation plan for the future delivery of urgent / emergency and critical care services across NHS Ayrshire and Arran' which was approved by the Scottish Government Health Directorates (SGHD) Capital Investment Group (CIG) on 11 June 2009.

This OBC presents Phase 1 of the Building for Better Care programme. Subsequent phases will encompass:

- Combined Assessment at University Hospital Ayr (herein referred to as Ayr Hospital)
- Expansion of Intensive Care and High Dependency at University Hospital Crosshouse (herein referred to as Crosshouse Hospital) to support the integration of the Intensive Care Unit with Medical and Surgical High Dependency
- Expansion of the existing Intensive Care and High Dependency at University Hospital Ayr

These will be the subject of further investment proposals.

Strategic Context

The national context for the development of health services in Scotland is set out in the following policy initiatives:

- ***20:20 Vision***. *"Achieving sustainable quality in Scotland's healthcare*" set out a vision for Scotland's healthcare and key action required to deliver the vision
- The ***Healthcare*** Quality ***Strategy for NHS Scotland*** (May 2010) set out a number of drivers and ambitions aimed at ensuring the delivery of the highest quality healthcare services to people in Scotland, and through this to ensure that NHS Scotland is recognised by the people of Scotland as amongst the best in the world.
- ***Scottish Patient Safety Programme*** (SPSP) supports the 'Safe' ambition embedded in the NHS Scotland Quality Strategy by developing a sustainable infrastructure for quality improvement in the NHS in Scotland while embedding a culture of safety into the everyday practice of frontline staff.
- Scottish Ambulance Service published "***Working Together for Better Patient Care***" a five year Strategic Framework, setting out their strategy to deliver the best care for people in Scotland
- ***Reshaping for Older People: a programme for change*** this set out the reasons for change in the approach to care for older people and what has been seen as the key actions required to achieve this change. Underpinning the Programme for Change is the creation of a Change Fund which provides bridging finance to enable health and social care Partners to implement local plans for making better use of their combined resources for older people's services by shifting care towards anticipatory care and preventative spend.

- Consultation on the ***Integration of Adult Health and Social Care*** published in May 2012. Sets out s vision for a successfully integrated system of adult health and social care in Scotland.

The local context for developing front door services in Ayrshire and Arran is set out in the following strategy documents:

- A review of mental health services - ***Mind Your Health***;
- A review of primary care services – ***Your Health: We're in it together***;
- The development of the ***eHealth & Information Services Strategy 2010-2013***.
- And more recently the development of an ***Estates Strategy***

These documents envisage a modernised health service that will:

- Focus on patients needs;
- Provide services which are designed around the needs of patients;
- Streamline processes between primary and secondary care;
- Shift clinical activity to provide services as close to home as possible;
- Provide high quality hospital services

Business Case Objectives and Constraints

The key SMART project objectives are summarised below:

Table 1: Key SMART objectives

SMART Objective	Description
Clinical Effectiveness & Sustainability	to ensure the hospital provides services which are clinically effective and sustainable over the medium to long term
Physical Environment	to facilitate the provision of services in a high quality environment which is 'fit for purpose' for staff, patients and visitors
Capacity & Demand	to ensure front door services in Ayrshire and Arran can respond to the demand from the local population
Delivering models of care in line with the clinical strategy	to ensure that secondary care services facilitate joint planning in the development of patient focussed services, in a primary and community setting
Access	to maximise access to appropriate front door hospital services for the local population in the short, medium and long term
Performance & Efficiency	to ensure front door services are developed in such a way as to maximise performance and improve efficiency
Recruitment, retention of staff and students	to ensure the Board is able to recruit and retain high quality skilled staff to support the delivery of high quality patient care

The project objectives have been mapped to the objectives set out in the Initial Agreement.

The constraints for the project are embedded in the Critical Success Factors, however, specific constraints are to ensure that:

- Options must be deliverable within the available capital and revenue resources
- Options should provide sufficient flexibility for future changes in service requirements.
- Service continuity must be maintained during construction / refurbishment
- Options can be delivered within the overall programme and in line with the profile of available funding
- Options must comply with Scottish Government guidance regarding single room provision and patient environment

Scope of Service Provision

The proposed scope of services contained in this phase (phase 1) of the Building for Better Care Programme is as follows:

For **Crosshouse Hospital**:

- The introduction of Combined Medical and Surgical Assessment Unit in line with the Royal College of Physicians, 2004, requirement that all hospitals should have an Acute Medical Unit to deliver safe and effective emergency medical care

For **Ayr Hospital** is defined, as follows:

- The provision of an Accident & Emergency consultant delivered service on a 12-hour a day, 7 day a week basis
- The modernisation and redesign of the “Front Door” entry points to urgent and emergency services. This will provide a fully integrated front-door service, encompassing Accident & Emergency, Minor Injury and NHS Ayrshire Doctors On Call (ADOC) services within one department
- The redevelopment of the Accident and Emergency Unit to meet the latest Scottish Health Planning Note 22 standards with the provision of an appropriate configuration of Resuscitation Bays; High Care Areas, and cubicles

The Case for Change

The case for change is based on six key drivers, namely:

- **Managing demand for unscheduled care**: the increasing demand for unscheduled care impacts on the ability of front door services to deal with existing pressures
- **Responding to and managing future demographic change**: The demographic change impacts on both the profile of the population and people’s health needs
- **Epidemiology**: The pattern of illness and disease within Ayrshire and Arran
- **Provision of appropriate, safe and effective healthcare**: The need to further modernise services, focusing on quality and clinical effectiveness
- **Workforce:** NHS Ayrshire and Arran needs to attract and retain appropriately skilled and trained staff to ensure the sustainability and ongoing development of services
- **Current configuration and nature of front door services:** There are a series of issues about the way front door services are structured and managed that need to be addressed

Model of Care and Service Specification

Proposed Model of Care – Accident and Emergency / ADOC

The A&E department will form the main 'front door' to the hospital in terms of emergency and unscheduled care. In addition GP out of hours services (ADOC) will be provided adjacent to the A&E facilities. The objective of the unit will be to ensure that all patients presenting, are assessed by Emergency Medicine specialty doctors and trainees, Emergency Nurse Practitioners and other ED nursing staff and, within a maximum of 4 hours, undergone all investigations necessary to determine an appropriate treatment plan which will be delivered within the A&E department.

Patients requiring further investigation and treatment which cannot appropriately be provided within A&E will be transferred to an appropriate inpatient area for admission.

Patients will present to the A&E in four main ways, namely:

- Following self presentation
- By ambulance (999)
- Following GP referral to a specialty for assessment and / or admission, where clinical stability is confirmed and where patients can be signposted to the most appropriate area within the hospital
- Following GP referral to A&E seeking urgent advice on patient management

In the new facilities patients will be streamed into a number of distinct flows:

- Minors
- Majors
- Paediatrics
- Resuscitation
- Patients requiring an extended period of observation

The A&E model will provide for dedicated imaging within the department as well as close proximity to laboratories, ICU, theatre and recovery facilities.

Proposed Model of Care – Combined Assessment

The Combined Assessment Unit (CAU) is a key element in the proposed integrated Emergency Care department. The integration with the existing Accident and Emergency department is reflected in the model of care presented below.

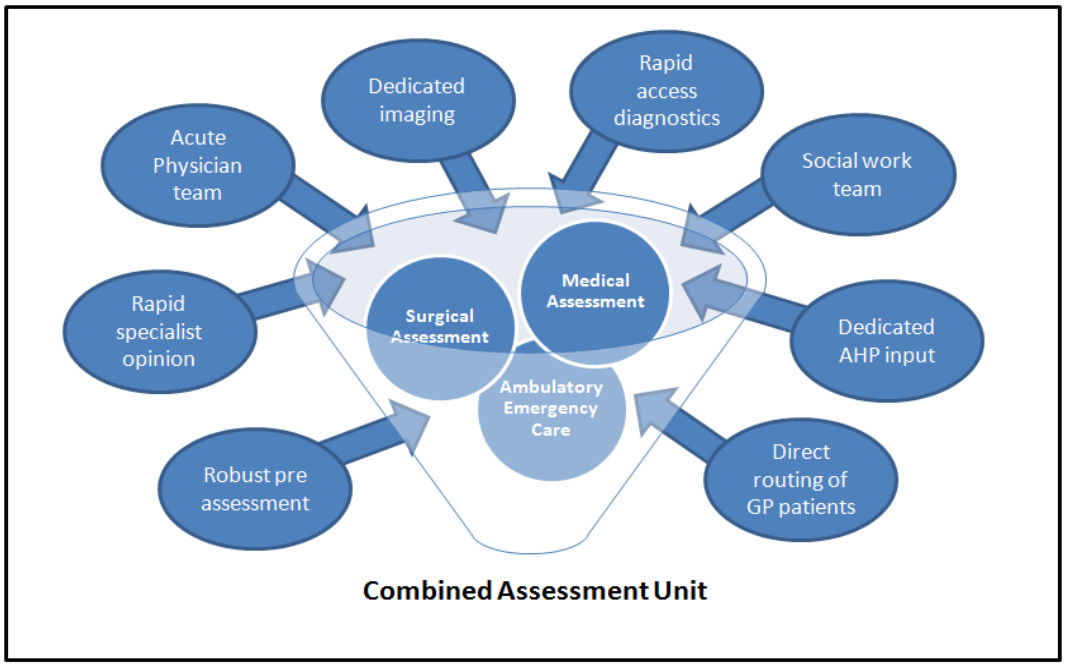
The CAU will be located within the 'front door' complex of Crosshouse Hospital, adjacent to the A&E department. The objective of the unit will be to ensure that all patients presenting, for whom the level of assessment is beyond that able to be provided by the A&E department, are assessed by trained doctors (from the appropriate specialty or combination of specialties) and, within a maximum of 24 hours, undergone all investigations necessary to determine an appropriate treatment plan which will be delivered either within the CAU or at specialty level following transfer from the CAU.

Patients will present to the CAU in three main ways, namely:

- Following self presentation and initial work up in the A&E department
- Following GP telephone referral and patient presentation to a single dedicated reception area, where clinical stability is confirmed and where patients can be signposted to the most appropriate area within the CAU
- Following GP referral seeking urgent advice on patient management

The diagram below summarises the concept of the integrated CAU.

Table 2: An integrated Combined Assessment Unit



This model of care is different from the current model in the following areas:

- The CAU becomes the focal point for managing the initial assessment, treatment and management of unscheduled care
- Medical and surgical assessment is integrated into a single combined function located at the front door and adjacent to A&E
- Ambulatory emergency care is provided as an integral part of the CAU which aims to maximise the number of patients who can be treated on an ambulatory basis
- Patients are managed by a dedicated physician team, supported by other disciplines including input from social workers to facilitate integrated decision making and ensure continuity of care

Future Service Requirements

Future service requirements include a range of core planning assumptions plus a series of service changes designed to enhance the effectiveness of services provided at the front door. Future capacity requirements and outputs have been developed for:

- A&E department at Ayr Hospital,
- Combined Assessment Unit (CAU) at Crosshouse Hospital
- Downstream inpatient beds and day care beds at Crosshouse Hospital

The table below summarises the outputs in relation to Ayr ED:

Table 3: Summary of Ayr ED requirements

Room function	Current	Projected 2016
Resuscitation	2	4
Major & Minor	17	14
Triage	1	1
Observation	6	10
Total	**26**	**29**

The table below summarises the outputs in relation to Crosshouse

Table 4: Summary of Crosshouse inpatient bed requirements

Bed Pool	Current	Future 2016 New CAU & improved LoS	Difference
CDU	7[1]		-7
MAU (3E)	25		-25
Medical Short Stay (3D)	12		-12
Surgical Receiving (part of 4A)	12		-12
CAU Trolleys	-	11	+11
CAU Beds	-	42	+42
Sub-Total Front Door	**56**	**53**	**-3**
A&E / Medical	118	176	-26

[1] 7 physical beds but 6 funded CDU beds

Bed Pool	Current	Future 2016 New CAU & improved LoS	Difference
CoE/Stroke	84		
Stroke ASU	6	6	0
CCU	*12*	*12*	*0*
Med High Dependency	*12*	*12*	*0*
Surgical	67	57	-10
Surgical High Dependency	*12*	*12*	*0*
Orthopaedic/Trauma	58	58	0
Gynaecology	20	20	0
ICU	*5*	*5*	*0*
Sub-Total Inpatient	**394**	**358**	**-36**
Grand Total	**450**	**411**	**-39**

Workforce Planning

The Board has developed a robust process for assessing and managing the impact of the changes to staffing brought about by implementing the proposals contained within the OBC. This includes an assessment of the following areas:

- The factors that affect the workforce plan
- How the Board will identify future staffing requirements
- How the change process will be managed

The estimate of future workforce requirements has been based on detailed discussions with Healthcare Managers, the Associate Medical and Nurse Director and the Finance function. They take due account of the proposed service changes specifically in relation to the new service model and future service and capacity requirements.

Option Identification

The Initial Agreement approved in 2009 set out a range of ways in which front door services could be enhanced. The five approaches set out in the IA were used to develop a longlist of options which encompassed a wide range of potential solutions in line with the options framework. Each longlisted option was assessed against a range of investment objectives and constraints to establish a preferred direction of travel and a shortlist for this OBC.

The final short listed options are shown in the table below.

Table 5: Final OBC option short list

Option	Description	Comment
1	Do minimum, backlog maintenance of Crosshouse CAU and Ayr Emergency Department	This is the benchmark option, which will be used as a comparator
2	Build new Outpatient department, releasing space for provision of Combined Assessment Unit at Crosshouse and new build Emergency Department at Ayr	This is a more ambitious option, which exceeds the specification in the direction of travel by facilitating further developments of the hospital site in addition to the core front door services or reproviding facilities which are currently deemed fit for purpose
3	Build new Combined Assessment facility at Crosshouse site in main car park and link to existing hospital. Build new Emergency Department at Ayr site.	This option represents the reference position, fulfilling the direction of travel set out in the IA

Option Appraisal

A robust and detailed appraisal of the shortlisted options has been undertaken in line with the requirements set out in the Scottish Capital Investment Manual (SCIM) and involved assessing for each of the options:

- Benefits (scored against criteria linked to project objectives)
- Value for Money (Economic Appraisal)
- Risks

No overriding factor or measure was used to determine which option is most likely to meet the objectives of the project and as such no single measure, qualitative or quantitative. The selection of the preferred option has been based on a broad assessment of the outcome of all aspects of the option appraisal and a balanced view of the solution, which is deemed to offer the optimal balance across its core elements.

Each option offers a different range of features, both positive and negative however, the option appraisal undertaken as part of the business case measures and contrasts these in quantifiable terms.

The following table summarises the results of the benefits appraisal, economic appraisal and risk assessment.

Table 6: Option Appraisal Summary

Option Appraisal Measure	Do Minimum	Option 2	Option 3
Benefit points	100	345	350
Initial Capital Cost incl OB £000	13,937	25,645	21,628
Net Present Cost (NPC) £000	3,105,291	3,084,978	3,082,338
Equivalent Annual Cost (EAC) £000	114,153	112,191	112,077
Qualitative risk assessment score	238	186	170
NPC per Benefit Point (£000)	31,053	8,942	8,807

NPC and EAC values reflect quantified risk adjustments

Analysis of the Option Appraisal Results

Option 1 – Do Minimum

The do minimum option is essentially the reference position against which the other shortlisted options can be measured, however, it has been demonstrated that it is capable of meeting some of the objectives of the programme and it is therefore a feasible solution. The option appraisal essentially measures the extent to which it is likely to meet the overall objectives of the project.

The non financial benefits appraisal clearly demonstrates that the do minimum option is likely to offer substantially poorer scope to meet the overall objectives of the proposed clinical change and redevelopment proposals – in particular against the other options it appears to offer limited benefits in terms of delivering the required improvements in front door services.

This option has the lowest benefit score and the highest net present cost. The benefit score reflects the fact that it does not provide an opportunity to enhance quality of care and improve the effectiveness of service delivery and is also highly disruptive. Whilst it has the lowest level of initial capital cost this is more than offset by the additional quantified risks over the project lifecycle which is reflected in the overall economic cost (NPC). As a result it provides by far the poorest ratio of NPC to benefits.

The deficiencies identified in this option also impact significantly on the qualitative risk profile demonstrated by the ranking against the other options.

Taking all of the above together Option 1 – the Baseline Option can be deselected at this juncture.

Option 2

Option 2 proposes a solution which provides a new build outpatient facility at Crosshouse which allows the release of space to provide a Combined Assessment Unit. The solution for Ayr hospital is to provide a new build Accident and Emergency facility to replace the existing department.

Option 2 has the second highest benefit score and net present cost. It returns the second best ratio of risk adjusted NPC to benefits. It is ranked second in terms of the overall level of qualitative risk.

Option 2 has the highest level of capital costs.

Option 3

Option 3 proposes a solution which provides a new build Combined Assessment Unit at Crosshouse. The solution for Ayr hospital is the same as option 2, a new build Accident and Emergency facility to replace the existing department.

Option 3 has the highest benefit score and risk adjusted net present cost. It returns the best ratio of NPC to benefits. It is ranked lowest in terms of the overall level of qualitative risk. As such it is likely to offer the best overall Value for Money (VFM) of the shortlisted options.

Selection of the preferred option

The selection of the preferred option has considered both the results of the option appraisal and assessment of the project constraints identified within Section 8 of the OBC.

Reviewing the results of the option appraisal, the best option in terms of the relationship of costs to benefits is Option 3. This option can be delivered within the available capital funding envelope (further details are provided in the Financial Case) and therefore satisfies this key constraint. Option 3 is therefore the solution which delivers the highest possible level of overall Value for Money whilst meeting the constraints identified and is therefore the preferred option.

Key Features and Benefits

The preferred option, determined through the appraisal process, is Option 3. This option is able to deliver the project objectives, provide the best value for money within the constraints identified and delivers the model of care, required capacity and appropriate clinical environment for this stage of the Building for Better Care programme.

The key features of the preferred option are summarised below.

Table 7: Key features of the preferred option

- **Crosshouse Hospital site** - Development of a new Combined Assessment Unit, located adjacent to the Accident and Emergency Department, comprising 42 single bed spaces with en-suite bathrooms, 11 ambulatory care cubicles and 3 assessment bays for initial patient triage.
- **Ayr Hospital site** - Development of a new build Accident and Emergency department to replace the existing facility comprising a total of 14 treatment rooms, 4 resuscitation bays and 10 observation spaces plus a triage room
- Total capital expenditure of £21.6m (priced at midpoint of construction) including construction costs, fees, VAT and optimism bias
- An overall construction duration of circa 1 year 10 months including enabling works

The key benefits of the preferred option are summarised below highlighted against the relevant benefit criteria heading.

Table 8: Key benefits of the preferred option

Safe:

- Enables delivery of improved models of patient care built on established best clinical practice in managing front door services e.g. co-location of A&E, combined assessment / ambulatory care at Crosshouse
- Ensures that patients have access to clinically effective assessment processes and rapid decision making so that as many patients as possible have their entire pathway of care delivered at the front door thus avoiding unnecessary hospital admission
- Provides front door care in improved facilities with appropriate use of single rooms thus improving the patient environment, reducing the risk of healthcare acquired infection and provide more flexibility in the use of beds
- Eliminates unsafe overcrowding and provides increased resuscitation capacity within Ayr hospital A&E

Flexibility:

- Provides flexible front door services that allow patients to easily move between and within A&E and CAU thus ensuring that care is appropriate to their needs
- Facilitates future phases of BfBC programme with minimal disruption to existing services

Sustainable:

- Services are sized to address demographic shift and changes in the pattern of care so that they can respond to need both now and in the future without the need for further significant changes in infrastructure
- Improves the utilisation of resources at the front door and, by optimising the assessment process, provides the basis for enhancing the effectiveness of specialty based care and the associated use of staff and facilities

Accessible:

- Specifically in relation to Crosshouse CAU:
  - Provides all front door services in a single integrated location so that patients access through a single portal and are then streamed to the most appropriate location
  - Patient flows within the CAU are improved with access to both bed based and ambulatory care. Patients requiring subsequent specialty admission are the subject of rapid and appropriate decision making within the CAU and early placement on the most appropriate patient pathway
- Specifically in relation to Ayr ED:
  - Provides increased capacity within the emergency department to match future demand to capacity

Disruption:

- Delivers early improvements in the estate with a new build CAU (Crosshouse) and A&E facility (Ayr) within 22 months of start on site.
- Requires little if any decant of services into temporary accommodation thus minimising the disruption to on-going service provision

Procurement Route Assessment

The Board sought to establish the optimal procurement route for the proposed developments at an early stage in the capital investment process.

Having considered a range of options, including the use of private finance, the Board have determined that the use of traditional capital finance offers the best overall value for money.

The Board have chosen to adopt the guiding principles of the national Frameworks Scotland Agreement which is managed by Health Facilities Scotland and have appointed BAM construction as its PSCP.

Contractual Arrangements

As part of the Health Facilities Scotland Framework the Board will utilise the NEC 3 contractual arrangements as the basis for the commercial arrangements with its PSCP – BAM Construction.

Embedded within this contractual framework will be the arrangements for payment and risk allocation.

The proposed procurement route will result in the capital expenditure being incorporated on the Board's balance sheet.

Financial Appraisal of the Preferred Option

The section considers the affordability analysis for the preferred option. The resulting capital and revenue analysis is set out below.

Table 9: Capital Affordability £000

		2012/13	2013/14	2014/15	2015/16	Total
Crosshouse Hospital	Capital costs	194	1,222	5,641	3,784	10,840
	Less 5% impairment (excluding equipment)					(532)
	Revised Capital Costs					**10,308**
Ayr Hospital	Capital costs	194	1,209	6,694	2,691	10,788
	Less 5% impairment (excluding equipment)					(527)
	Revised Capital Costs					**10,261**
Total Capital Impact						**20,569**

The table above indicates a total capital requirement of £20.569m; net of impairment over the construction period for both developments.

The desired scope and services have been reviewed as well as space requirements and affordability during the preparation of this document.

These projected capital costs for the Building for Better Care project are within the funding envelope contained with the Board's LDP approved Capital Investment Plan. This will include a central funding contribution of £15.5m from the Scottish Government towards the total capital costs of £20.569m, with the balance of £5m met from Board capital funds. The projected phasing of the Scottish Government Health Department central contribution is shown in the capital investment plan.

It is estimated that the remaining phase(s) of the Building for Better Care Programme will require between £19m and £22m of capital funding.

Table 10: Revenue Impact - £000

	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18
Baseline pay costs	143,906	143,906	143,906	143,906	143,906	143,906
Baseline non-pay costs	8,591	8,591	8,591	8,591	8,591	8,591
Movement in pay costs	-	-	-	(84)	(168)	(168)
Movement in non-pay costs	-	-	-	91	182	182
Total pay / non-pay costs	**152,497**	**152,497**	**152,497**	**152,504**	**152,511**	**152,511**
Current depreciation	8,952	8,952	8,952	8,952	8,952	8,952
New depreciation	-	-	-	-	649	649
Total depreciation	**8,952**	**8,952**	**8,952**	**8,952**	**9,601**	**9,601**
Gross Costs	**161,449**	**161,449**	**161,449**	**161,456**	**162,111**	**162,111**
Income	(1,299)	(1,299)	(1,299)	(1,299)	(1,299)	(1,299)
Net costs	**160,149**	**160,149**	**160,149**	**160,156**	**160,812**	**160,812**
Current costs	160,149	160,149	160,149	160,149	160,149	160,149
Total revenue impact	**-**	**-**	**-**	**7**	**663**	**663**

The table above indicates the total recurring revenue consequences of the preferred option results in a net cost increase of £663k. The full impact of this will be in place from 2016/17 onwards.

Project Management Arrangements and Timetable

This project enthusiastically embraces the principles of project and programme management to ensure that the project is successfully delivered and all risks managed.

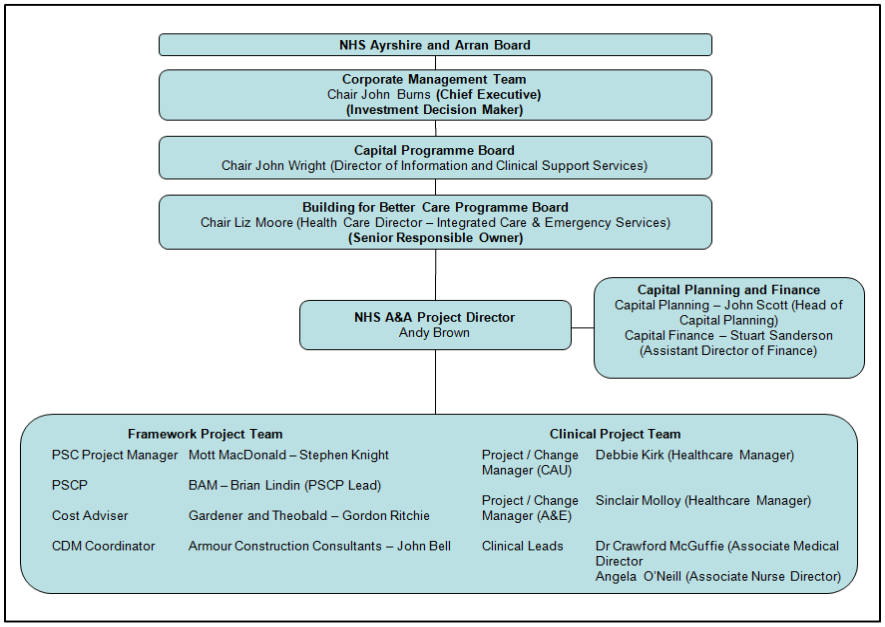
This project is being procured under the Framework Scotland agreement, such that it incorporates a collaborative working and joint decision making process between the Board and the PSCPs.

Management Structure

The diagram below sets out:

- The overall programme structure
- How the Project Board and the Project Team fit into this structure
- The key Project Management roles

Table 11: : Programme structure



The dates detailed in the table below highlight the key milestones for the project.

Table 12: Project Milestones

Action	Responsibility	Date
Completion of OBC	BfBC Programme Board	November 2012
Approval of OBC by Programme Board	BfBC Programme Board	1st November 2012
Approval by Corporate Management Team	Corporate Management Team	13th November 2012
Approval of OBC by Capital Programme Board	Capital Programme Board	14th November 2012
Gateway 2 Review	BfBC Programme Board	19 th November 2012
Approval of OBC by Finance Committee	Finance Committee	3rd December 2012
Approval of NHS Ayrshire & Arran Board	NHS Board	5th December 2012
Submission of OBC to SGHD CIG	BfBC Programme Board	6th December 2012
SGHD CIG Approval of OBC	SGHD	15th January 2012
Detailed Design sign off	BfBC Programme Board	31st May 2013
Draft FBC for initial consideration by Capital Programme Board	BfBC Programme Board	4th October 2013
NHS A&A Board Approval	BfBC Programme Board	December 2013
FBC Submission to SGHD CIG	BfBC Programme Board	December 2013
SGHD CIG FBC Approval	SGHD	February 2014
Construction commence (enabling works)	PSCP	February 2014
Construction complete	PSCP	September 2015

Change Management Plan

A core change management plan has been developed that sets out the key tasks for the project's change management plan. Once the OBC has been approved and the Change Management Champion identified, three actions will occur:

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

Benefits Realisation Plan

The Board has developed a robust process for identifying, measuring and managing the benefits anticipated to result from the proposed investment.

A draft Benefits Realisation Plan (BRP) has been developed and further activities identified to conclude the remaining aspects and finalise the plan.

This will be used to track, monitor and manage benefits over the lifetime of the project and, where necessary, take corrective action to ensure the anticipated benefits are realised.

Risk Management Plan

The Board recognises the value of putting in place an effective risk management framework to systematically identify, actively manage and minimise the impact of risk. This is done by:

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

The Board has designed a simple risk management framework that focuses on effective identification, reporting and management of risks.

Post Project Evaluation

The Board has identified a robust plan for undertaking PPE in line with current SCIM guidance, which is fully embedded in the project management arrangements of the project. These plans have not yet been costed, but will be fully developed and the costs identified for inclusion in the FBC.

1 INTRODUCTION

1.1 Purpose

1.1.1 The purpose of the Outline Business Case (OBC) is to present proposals for the future delivery of Accident and Emergency at Ayr Hospital and the development of a Combined Assessment Unit at Crosshouse. This forms part of a wider programme of investment in front door services across the Board's two acute hospital sites.

1.1.2 The parameters of the OBC were originally part of an Initial Agreement (IA) 'Building for Better Care, an implementation plan for the future delivery of urgent / emergency and critical care services across NHS Ayrshire and Arran' which was approved by the Scottish Government Health Directorates (SGHD) Capital Investment Group (CIG) on 11 June 2009.

1.1.3 This OBC presents Phase 1 of the Building for Better Care programme. Subsequent phases will encompass:

- Combined Assessment at University Hospital Ayr (herein referred to as Ayr Hospital)
- Expansion of Intensive Care and High Dependency at University Hospital Crosshouse (herein referred to as Crosshouse Hospital) to support the integration of the Intensive Care Unit with Medical and Surgical High Dependency
- Expansion of the existing Intensive Care and High Dependency at University Hospital Ayr

1.1.4 These will be the subject of further investment proposals.

1.1.5 This section of the OBC provides an overview of:

- The context of the proposed investment
- Relevant NHS Scotland Capital Investment Guidance
- The project's structure
- The structure and content of the OBC

1.2 Context of the Proposed Investment

1.2.1 The Building for Better Care (BfBC) Programme sets out proposals for the creation of a single point of entry to urgent and emergency services at both Ayr and Crosshouse hospitals to enable the streaming of patients to the most appropriate practitioner based on their needs.

1.2.2 The programme responds to the Cabinet Secretary's commitment to provide Accident and Emergency services from Ayr and Crosshouse hospitals and sets out the proposals for the future delivery of "FRONT DOOR" services.

1.2.3 To achieve this, there needs to be a transformation of front door hospital services, away from initial assessment, management and admissions, to a focus on detailed assessment, diagnosis and care planning, led by senior clinicians This requires a cultural shift away from the traditional "admit-to-decide" approach towards an ethos of "decide-to-admit".

1.2.4 The proposed changes are aimed at both improving the quality and safety of care as well as using existing resources far more effectively. By delivering more care at the front door it is possible to avoid unnecessary specialty based admissions which often result in delays and increase the overall patient length of stay.

1.2.5 This approach will also build on current developments to deliver more care in community settings, provided by specialist multi-disciplinary teams, thereby avoiding unnecessary hospital admissions and ensuring more appropriate individual care pathways. This will also be facilitated through co-location of Rehabilitation and Enablement team members at the front door, who will provide assessment, treatment and discharge plans through integrated working across health and social care partnerships.

1.2.6 Under the proposals set out within the Building for Better Care programme a number of enhancements are proposed in relation to the way in which patients presenting at the front door of the Board's two acute hospitals are managed. These proposals include:

- The modernisation and redesign of the entry points to emergency services at both hospital sites. This will provide a fully integrated service model encompassing Ayrshire Doctors On Call (ADOC), Accident & Emergency (and Minor Injury Service) and the introduction of Combined Medical and Surgical Assessment Units adjacent to the Accident & Emergency Departments
- The redevelopment of Ayr Hospital, Accident and Emergency Unit to meet the latest building standards and to achieve an appropriate departmental layout

1.2.7 The Initial Agreement set out the Board's response to the Cabinet Secretary's commitment to provide Accident and Emergency services from Ayr and Crosshouse Hospitals alongside the proposals for the future delivery of "Front Door" emergency services. It clarifies the need for change in healthcare provision in line with NHS Ayrshire and Arran's Local Delivery Plan.

1.2.8 Separate Outline Business Cases (OBCs) for the proposed developments at Ayr and Crosshouse hospitals were subsequently developed and submitted to the Capital Investment Group in December 2010. This set out detailed proposals for each site comprising:

1.2.9 **Ayr Hospital** proposals:

- Development of a new build Accident and Emergency department comprising a total of 19 treatment rooms (including 3 rooms for the ADOC service) addressing the capacity and infrastructure constraints inherent in the current service
- Extension and reconfiguration of the existing Accident and Emergency Department to provide a Combined Assessment Unit providing 28 single room bed spaces with en-suite bathrooms and 7 ambulatory care cubicles
- Extension and reconfiguration of the existing Critical Care Department to provide a total of 13 beds comprising 5 ICU and 8 HDU beds plus support accommodation

1.2.10 **Crosshouse Hospital** proposals:

- Redesign of the Emergency Department to provide 20 treatment rooms and 3 rooms for the co-located ADOC service
- Development of a new Combined Assessment Unit providing 40 single room bed spaces with en-suite bathrooms and 11 ambulatory care cubicles
- Development of a new integrated Critical Care Department to provide a total of 24 bed spaces comprising 8 ICU and 16 HDU beds plus support accommodation

1.2.11 At the point of submitting the OBC the anticipated capital implications of the programme was estimated to be £35.6m which was to be funded by a central contribution of £30.35m with the balance through the Board's capital funding.

1.2.12 As a consequence of the tightening in UK government expenditure, capital resources across the public sector have been significantly reduced from 2011/12 onwards. These funding constraints have impacted significantly on the Board's Capital Plan, particularly those projects subject to procurement using traditional public capital funding.

1.2.13 Following further review by SGHD, and recognising the national constraints on capital funding, a cap of £15.5m has been applied to the available central funding for BfBC. Taking into account the Board contribution of £5.5m and inflation funding of £1m, total funding of circa £22m is now available for this project.

1.2.14 It has therefore been necessary for the Board to review the work previously undertaken and to review and prioritise the scope of what is to be delivered at this point in time whilst still committed to the wider scale of investment within the BfBC programme. .

1.2.15 Having reviewed all of the elements of the BfBC programme the Board have chosen to prioritise the following developments as part of the initial investment in improving front door services at Ayr and Crosshouse hospitals

- Re-development of Accident and Emergency services at Ayr Hospital
- Development of a new Combined Assessment Unit at Crosshouse Hospital

1.2.16 The prioritisation of these elements has been based on the following factors:

- The urgent need to address the severe lack of capacity and inappropriate patient environment within the A&E department at Ayr Hospital
- The need to consolidate and relocate existing assessment functions at Crosshouse Hospital so that they are provided adjacent to A&E as part of the emergency care model. This will deliver a number of benefits, namely:
    - The ability to develop improved models of care with a higher proportion of care delivered at the front door and on an ambulatory care basis

- Improved arrangements for managing the increase in demand for emergency / urgent care arising from demographic change
- Improved efficiency arising from the concentration of assessment into one area combined with the ability to deliver improvements in specialty based length of stay

1.2.17 A more detailed description of the scope of the project is provided in section 4.4

1.3 Compliance with National Capital Investment Guidance

1.3.1 The proposals are presented in the form of an Outline Business Case (OBC) consistent with the requirements of the Scottish Government Health Directorates Capital Investment Manual issued via CEL 19 (2009).

1.3.2 The OBC framework allows the investment benefits, costs and risks to be identified and evaluated in a systematic way. It ensures that NHS Ayrshire and Arran's Board can demonstrate convincingly that the investment is economically sound and financially viable.

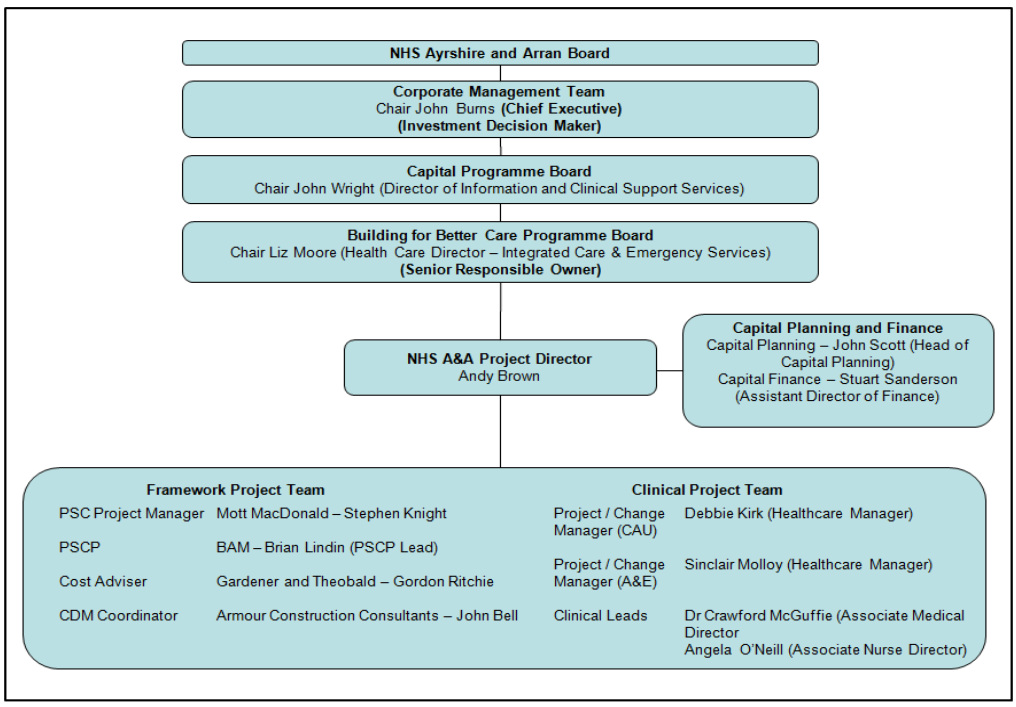
1.4 Project Structure

1.4.1 A comprehensive project governance structure has been established. **Appendix A1** sets out the membership of the key groups within the structure.

1.4.2 In October 2009, NHS Ayrshire and Arran, via Frameworks Scotland, appointed BAM Construction Ltd, as their Principal Supply Chain Partner (PSCP) for the Building for Better Care project. The key milestones for the project are set out in Section 17.5 of the OBC.

1.4.3 A summary of the project structure is provided in the diagram below.

Figure 1-1: Governance structure



1.4.4 The Building for Better Care Programme Board is chaired by the Senior Responsible Officer who is in turn supported by an NHS Project Director and PSC Project Manager. There is also a Project Team which includes representation from each of the front door services and relevant clinical and non clinical support functions.

1.4.5 The membership of the Programme Board is set out in **Appendix A1** along with details of the membership of other key groups within the structure.

1.5 Structure of the Outline Business Case Document

1.5.1 The structure and content of the OBC is outlined in Figure 1-2. This structure reflects the '5 Case' approach as reflected in current Scottish Government Health Directorates guidance and accepted best practice in Business Case development and presentation.

Figure 1-2: Structure of the outline business case

The Strategic Case	**Section 2 – Profile of NHS Ayrshire and Arran:** provides an overview of the Board, its current services, purpose and objectives, health status and demography as well as details of current clinical activity and performance.
	Section 3 – Strategic Context: sets out the strategic context within which the changes proposed in this OBC will take place, the national context for healthcare developments in Scotland, and the local context for developing services in Ayrshire and Arran
	Section 4 – Business Case Objectives and Scope: provides an overview of the key investment objectives and success factors along with a definition of the project scope.
	Section 5 – Model of Care and Service Specification: provides an overview of the current model of care within the hospital and sets out the scope of service provision together with an overview of the proposed new models of care for front door services, explaining the process by which they were developed.
	Section 6 - Future Service Requirements: sets out the proposed model(s) of care, the planning assumptions used to derive the associated future capacity and facility requirements and the scale of change from current provision.
	Section 7 Workforce Planning - summarises the workforce planning methodology applied for the proposed service changes, the change management policies and supporting training and development needs.
	Section 8 – Benefits, Risks, Constraints and Dependencies: sets out the key benefits, risks, and project constraints and also considers the key project dependencies.
The Economic Case	**Section 9 – Option Identification:** summarises the longlist of options, the criteria used by stakeholders to evaluate these and the resulting option shortlist to be incorporated into the option appraisal.

	Section 10 – Non Financial Benefits Appraisal: identifies the anticipated non financial benefits of each of the shortlisted options, measured against weighted criteria.
	Section 11 – Risk Assessment and Quantification: assesses and quantifies the capital and revenue risks associated with each option incorporating an assessment of optimism bias.
	Section 12 – Economic Appraisal: explains the value for money assessment, and presents the risk adjusted Net Present Cost (NPC) and Equivalent Annual Cost (EAC) analysis for each option.
	Section 13 – Preferred Option: sets out the details of the preferred option, together with a reasoned justification of the choice.
The Commercial Case	**Section 14 - Procurement Route Assessment:** outlines the proposed deal in respect of the preferred option outlined in the Economic Case and presents the value for money assessment of the potential procurement routes.
	Section 15– Proposed Contractual Arrangements: sets out the proposed deal in respect of the preferred way forward.
The Financial Case	**Section 16 – Financial Appraisal of Preferred Option:** presents a profile of the capital and revenue costs of the preferred option and the associated projected impact on the Board's income and expenditure.
The Management Case	**Section 17 – Project Management & Project Implementation Timetable:** describes how the Board intends to manage the various phases of the project and sets out the proposed timetable and key milestones.
	Section 18 – Change Management: sets out the change management strategy framework and outline plans for the successful delivery of the preferred option.
	Section 19 - Benefits Realisation Plan: sets out the key benefits that will be delivered by the preferred option identifying the actions necessary to realise the benefits and explains how the benefits will be monitored and measured.
	Section 20 – Risk Management Plan: sets out the outline risk management plan for the preferred option going forward.
	Section 21 – Arrangements for Post Project Evaluation: sets out the Board's proposed approach to PPE and its key phases.

1.5.2 Appendices to the OBC are contained within a separate volume.

1.6 Further Information

For further information about this outline business case please contact:

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STRATEGIC CASE

2 PROFILE OF NHS AYRSHIRE & ARRAN

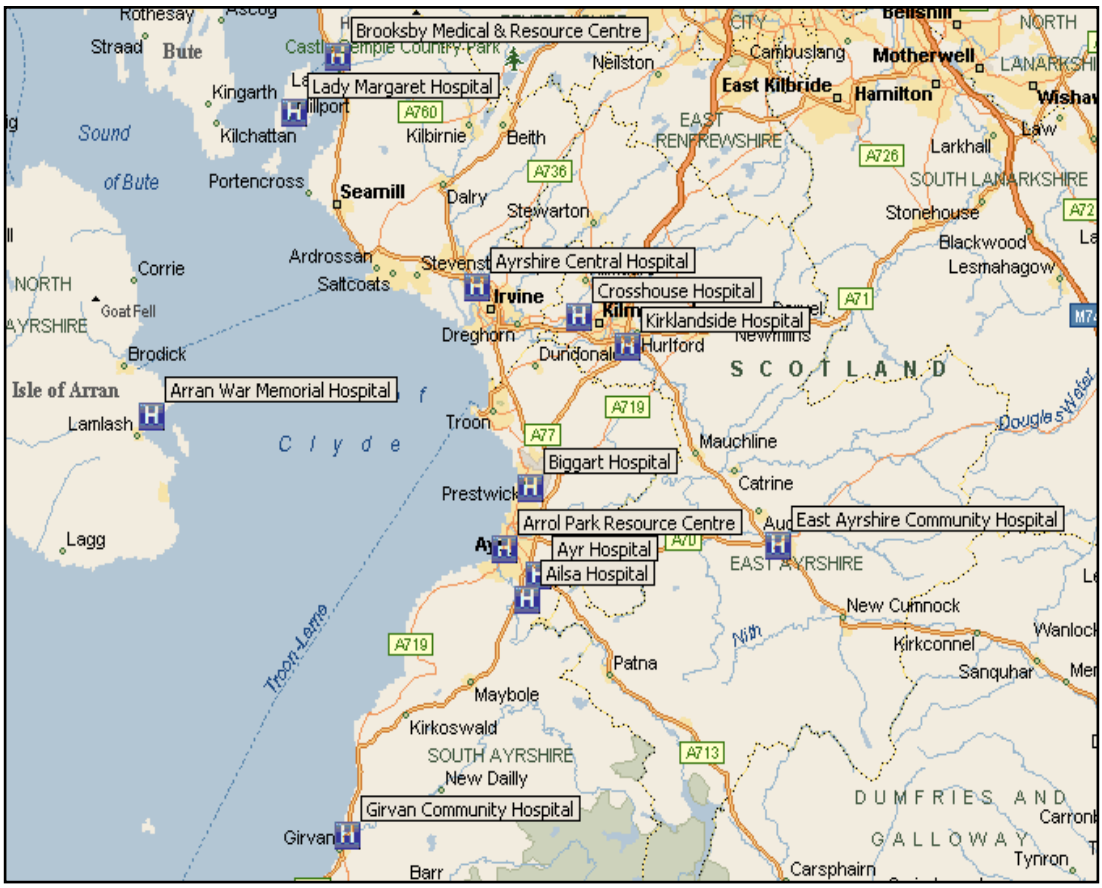
2.1 Overview

2.1.1 NHS Ayrshire and Arran covers an area of 2,500 square miles and serves a population of some 368,000, which is 7.3% of the population of Scotland. The majority of the population live in urban areas, of which Ayr (population 46,431), Kilmarnock (population 43,588) and Irvine (33,090) are the largest in the region.

2.1.2 The population varies from rural in the south, old coal mining areas in the east and industrial towns in the north. There are considerable health inequalities throughout Ayrshire and Arran – particularly in east and north Ayrshire, with a number of areas of high deprivation.

2.1.3 The Board provides a range of acute, community and primary care services from a variety of locations across Ayrshire and Arran. These are shown in the map below.

Figure 2-1: Location of health services in Ayrshire and Arran



2.2 Current Health Service Provision

2.2.1 The population in the area is dispersed in a mixture of urban and rural settings accessing a range of acute and community services in a variety of locations. The main District General Hospitals, Community Hospitals and Resource Centres located in each Local Authority area are shown in the table below.

Figure 2-2: Main healthcare facilities in NHS Ayrshire and Arran

Area	Location
North Ayrshire	▪ Brooksby Medical & Resource Centre, Largs ▪ Ayrshire Central Hospital, Irvine ▪ Arran War Memorial Hospital, Lamlash, Isle of Arran ▪ Lady Margaret Hospital, Millport, Isle of Cumbrae
South Ayrshire	▪ University Hospital Ayr, Ayr ▪ Ailsa Hospital, Ayr ▪ Biggart Hospital, Prestwick ▪ Arrol Park Resource Centre, Ayr ▪ Girvan Community Hospital, Girvan
East Ayrshire	▪ University Hospital Crosshouse, Crosshouse, Kilmarnock ▪ East Ayrshire Community Hospital, Cumnock ▪ Kirklandside Hospital, Kilmarnock ▪ North West Area Centre, Kilmarnock

2.2.2 A profile of the main hospitals is set out in the table below.

Figure 2-3: Main hospitals in NHS Ayrshire and Arran

Area	Hospitals
University Hospital Crosshouse	▪ The hospital is a large District General Hospital providing a wide range of services, including paediatric inpatient services as well as area wide services for gynaecology, ENT, maxillofacial, renal and the area laboratory. ▪ It is home to the national Cochlear Implant Service. ▪ Crosshouse is the Accident and Emergency Centre for North and East Ayrshire. ▪ The hospital also houses the UNICEF accredited Ayrshire Maternity Unit.
University Hospital Ayr	▪ Ayr Hospital is a General Hospital, which provides medical and surgical services on an inpatient, day case and outpatient basis. ▪ It is the Accident and Emergency service for South Ayrshire. It provides a number of Ayrshire-wide services including vascular surgery, ophthalmology and urology.

Area	Hospitals
Ayrshire Central Hospital	▪ Ayrshire Central Hospital provides Young Disabled/Rehabilitation services and a number of assessment beds for Elderly Mental Health Services. ▪ Recent years have seen significant developments on the site with a new General Outpatient Department and Rehabilitation Centre. All have excellent facilities with the Rehabilitation Centre being recognised as one of the best in the country. ▪ Ayrshire Central will be the site of a new Community Hospital planned for the area, as well as a state-of-the-art adult mental health inpatient facility.
Ailsa Hospital	▪ Ailsa Hospital combines modern clinical accommodation with older hospital accommodation. The hospital currently provides acute Mental Health services for South and parts of East Ayrshire and at times for patients from other parts of Ayrshire and Arran. ▪ Other services include Continuing Care, Intensive Psychiatric Care Unit (IPCU), Rehabilitation, Industrial Therapy and an inpatient Dual Diagnosis and Addictions Assessment and Rehabilitation service at Loudoun House. ▪ Elderly mental health services will continue on the Ailsa site once adult inpatient services have relocated to the newly built facility at Ayrshire Central.
Biggart Hospital	▪ Biggart Hospital is situated in Prestwick and is the local hospital for the care and rehabilitation of the elderly. It provides a wide range of vascular, orthopaedic and stroke Consultant led rehabilitation inpatient and day care facilities. ▪ The 30-bed day hospital provides facilities to care for patients after discharge from acute care or directly from the community setting.
East Ayrshire Community Hospital	▪ East Ayrshire Community Hospital is situated in Cumnock. The hospital provides 50 continuing care and respite beds, 24 GP medium-acute beds, a 24-place day hospital and a 28,000-capacity outpatient facility together with rehabilitation and radio-diagnostics facilities and a patient therapy garden.

Area	Hospitals
Girvan Community Hospital	▪ Girvan Community Hospital, located on a greenfield site at Bridgefield on the northern outskirts of Girvan opened its doors in April 2010. The new environmentally-friendly facility comprises an inpatient block of 14 single and 6 double bedrooms. ▪ The hospital provides modern health and social care services to the people of south west Ayrshire. This includes general medical services, outpatient clinics, mental health services, a minor injuries unit, an elderly care day hospital, rehabilitation services, x-ray services, community dental services as well as a health visitor and District Nursing base, and Scottish Ambulance service.

2.3 NHS Ayrshire and Arran – vision and objectives

2.3.1 NHS Ayrshire & Arran has a clear vision, which is set out in its strategy for 2007 – 2012, Promoting Health Reducing Health Inequalities:

2.3.2 "The healthiest life possible for the people of Ayrshire and Arran through promoting health and reducing health inequalities"

2.3.3 The Board has three key long term strategic objectives covering 2009-12, which are set out in the table below.

Figure 2-4: Long term strategic objectives of NHS Ayrshire and Arran

Objective	Detail
Meeting the health needs of our population	▪ We will continue to drive continual clinical improvement, with a clear focus on patient safety ▪ We will achieve the best possible health for individual, families and communities by developing services which promote well-being and good health; prevent ill-health; provide equal and appropriate care and treatment for all; and ensure we plan for future health needs ▪ We will provide clear information about the services people seek from their GP surgery and other community services, community pharmacist, dentists, optometrists, their local hospitals and how patients can get the right help in an emergency
An environment in which staff flourish	▪ We will ensure our staff have the appropriate skills and equipment ▪ We will strive to be an exemplar employer on matters of equality and diversity ▪ We will promote staff health and well-being ▪ We will focus on workforce re-design to achieve optimal support across the patient journey ▪ We will ensure effective staff development.

Objective	Detail
Effectively managing resources	▪ We will address challenges in maintaining financial balance through effective use of resources ▪ We will maintain essential services

2.4 Conclusion

2.4.1 This section has provided an overview of NHS Ayrshire and Arran in terms of:

- Healthcare provision
- Vision and objectives

3 STRATEGIC CONTEXT

3.1 Overview

3.1.1 This section of the OBC sets out the strategic context within which the changes proposed in this OBC will take place, and covers:

- the national context for healthcare developments in Scotland
- the local context for developing services in Ayrshire and Arran
- the financial challenges in supporting service developments

3.1.2 The national context for the development of health services in Scotland is set out in a range of policy initiatives, the key points of which are discussed below.

3.2 2020 Vision (September 2011)

3.2.1 In September 2011 the Scottish Government published 20:20 vision, "Achieving sustainable quality in Scotland's healthcare".

Figure 3-1: 20:20 Vision

Our vision is that by 2020 everyone is able to live longer healthier lives at home, or in a homely setting.
We will have a healthcare system where we have integrated health and social care, a focus on prevention, anticipation and supported self management. When hospital treatment is required, and cannot be provided in a community setting, day case treatment will be the norm. Whatever the setting, care will be provided to the highest standards of quality and safety, with the person at the centre of all decisions. There will be a focus on ensuring that people get back into their home or community environment as soon as appropriate, with minimal risk of re-admission.

3.2.3 The key actions required to deliver the vision include:

- shared understanding with everyone involved in delivering healthcare services which sets out what they should expect in terms of support, involvement and reward alongside their commitment to strong visible and effective engagement and leadership which ensures a real shared ownership of the challenges and solutions.
- shared understanding with the people of Scotland which sets out what they should expect in terms of high quality healthcare services alongside their shared responsibility for prevention, anticipation, self management and appropriate use of both planned and unscheduled/ emergency healthcare services, ensuring that they are able to stay healthy, at home, or in a community setting as long as possible and appropriate.
- integrated working between health and social care, and more effective working with other agencies and with the 3rd and Independent Sectors.
- prioritise anticipatory care and preventative spend e.g. support for parenting and early years.

- prioritise support for people to stay at home/in a homely setting as long as this is appropriate, and avoid the need for unplanned or emergency admission to hospital wherever possible.
- make sure people are admitted to hospital only when it is not possible or appropriate to treat them in the community - and where someone does have to go to hospital, it should be as a day case where possible.
- Caring for more people in the community and doing more procedures as day cases where appropriate will result in a shift from acute to community-based care. This shift will be recognised as a positive improvement in the quality of our healthcare services, progress towards our vision and therefore the kind of service change we expect to see.

3.2.4 A number of the actions set out above are being implemented within NHS Ayrshire & Arran including:

- Establishing an anticipatory care programme within each of the three local authority areas whereby GP practices identify the patients with the greatest needs and an anticipatory plan is developed for them
- Establishing a range of treatments which can appropriately be carried out within its community based settings
- Establishing a targeted social marketing campaign ' Know who to Turn To' to educate the public to select the most appropriate services for their needs
- Redirections from the Emergency Departments to other more appropriate care including GP, GP Out of Hours service, Community Pharmacy and other services
- The development of a single point of contact supported by modern telephony and integrated inter-agency electronic communications for unscheduled care services provided by a variety of agencies to support care in the community and avoid hospital admission

3.3 The Healthcare Quality Strategy for NHS Scotland (May 2010)

3.3.1 The ultimate aim of The Healthcare Quality Strategy for NHS Scotland is to deliver the highest quality healthcare services to people in Scotland, and through this to ensure that NHS Scotland is recognised by the people of Scotland as a world leader in healthcare quality.

3.3.2 The Quality Strategy reflects and encompasses many of the themes of previous policy and builds on these foundations. It is principally about three things, namely:

- putting people at the heart of our NHS. It will mean that our NHS will listen to peoples' views, gather information about their perceptions and personal experience of care and use that information to further improve care. 'putting people at the heart of our NHS'
- building on the values of the people working in and with NHSScotland and their commitment to providing the best possible care and advice compassionately and reliably by making the right thing easier to do for every person, every time.

- making measurable improvement in the aspects of quality of care that patients, their families and carers and those providing healthcare services see as really important.

3.3.3 Underpinning the strategy is a series of drivers, quality ambitions and specific improvement initiatives. A summary of the drivers and ambitions is set out in the table below.

Figure 3-2: Ongoing Key Drivers within the Quality Strategy

Driver	Quality Ambition
Person centred	Mutually beneficial partnerships between patients, their families and those delivering healthcare services which respect individual needs and values and which demonstrate compassion, continuity, clear communication and shared decision-making
Safe	There will be no avoidable injury or harm to people from healthcare they receive, and an appropriate, clean and safe environment will be provided for the delivery of healthcare services at all times
Effective	The most appropriate treatments, interventions, support and services will be provided at the right time to everyone who will benefit, and wasteful or harmful variation will be eradicated.

3.3.4 Pursuit of the three Quality Ambitions will make significant and positive impacts on efficiency and productivity, which will sustain the unprecedented improvements made in waiting times and in access to primary, secondary and emergency healthcare services.

3.3.5 NHS Scotland will also strive to ensure that the high quality health services delivered are provided on the basis of their ongoing commitment to equality of experience and outcomes - to everyone in Scotland, no matter who they are, or where they live.

3.3.6 For NHS Ayrshire and Arran, this quality agenda is reflected within their vision and values and is central to the ongoing development of services for the local population.

3.4 Patient Safety Programme

3.4.1 The Scottish Patient Safety Programme (SPSP) supports the 'Safe' ambition embedded in the NHS Scotland Quality Strategy by developing a sustainable infrastructure for quality improvement in the NHS in Scotland while embedding a culture of safety into the everyday practice of frontline staff.

3.4.2 The programme will continue its objective to steadily improve the safety of hospital care right across the country. This will be achieved by using evidence-based tools and techniques to improve the reliability and safety of everyday health care systems and processes. Real-time data will be gathered unit-by-unit, and the staff caring directly for patients will lead the changes required to achieve the aims of the Programme

3.4.3 The overall aims of the programme is to achieve a 30% reduction in adverse events and a 15% reduction in mortality

3.4.4 Over the five-year period of the programme steps will be taken to:

- Improve the organisation and leadership on safety
- Reduce healthcare associated infections
- Reduce adverse surgical incidents
- Reduce adverse drug events
- Improve critical care outcomes
- Ensure early interventions for deteriorating patients

3.5 Scottish Ambulance Service Clinical Strategy (January 2010)

3.5.1 In January 2010 the Scottish Ambulance Service published “Working Together for Better Patient Care” our five year Strategic Framework, setting out our strategy to deliver the best care for people in Scotland, when they need us, where they need us and with three main goals to:

- improve patient access and referral to the most appropriate care
- deliver the best services for patients
- engage with all our partners and communities to deliver improved healthcare.

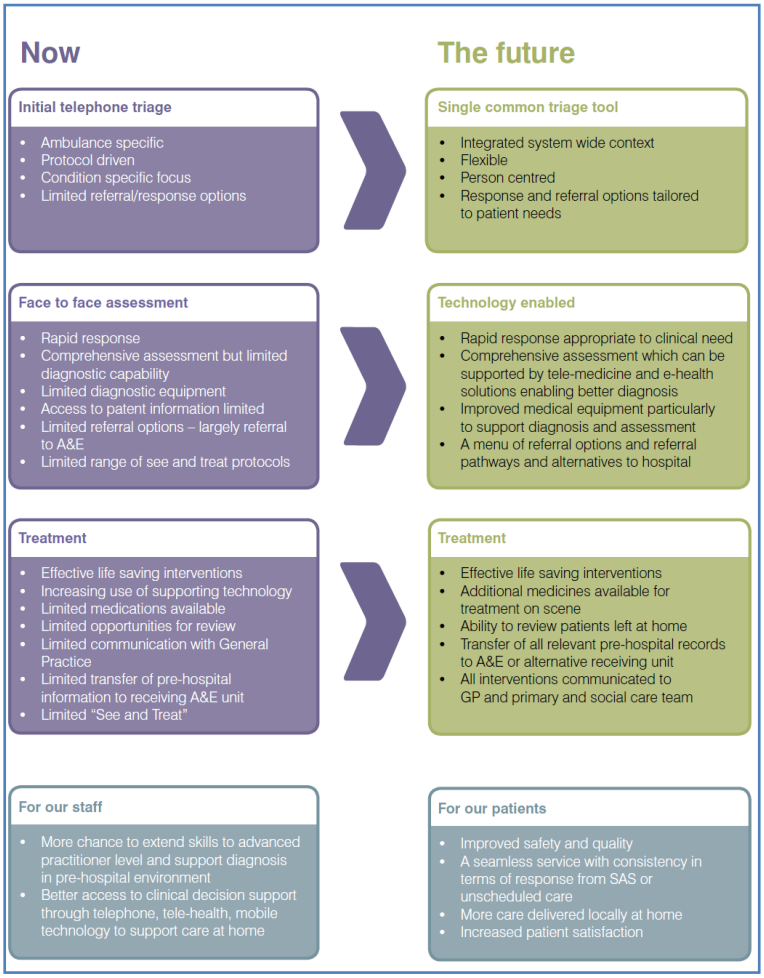
3.5.2 The 'Clinical Strategy' sets out the clinical framework within which they will develop and deliver clinical excellence across all services. The strategy also aims to define the key purpose, vision and ambition of Scottish Ambulance Service to be the provider of choice in the provision of emergency and urgent care services within the pre-hospital environment.

3.5.3 The aim is to develop world class clinically-focused ambulance services which will:

- provide a national specialised unscheduled care service 24/7
- enhance provision of pre-hospital care and treatment
- support patients and the wider NHS by treating more patients in their homes, better meeting those patients’ needs and preventing unnecessary trips to hospital
- focus ambulance patient transport resources on patients with a clinical or medical requirement to get to and from hospital appointments/discharges/transfers.

3.5.4 The diagram below sets out the new model of care for the Scottish Ambulance Service. This sees a shift to more integrated care, increased diagnostics with a greater proportion of patients seen and treated at home / scene and increased communication between SAS and primary care.

Figure 3-3: Scottish Ambulance Service Model of Care



3.5.5 A number of the proposals within the SAS new model of care will complement the proposed arrangements for delivering front door services within NHS Ayrshire & Arran and facilitate an improved quality of service of patients. Specifically it will facilitate:

- Improvements in patient triage prior to presenting within the acute hospital setting
- Enhanced patient assessment and improved information sharing with acute and primary care through the utilisation of tele health
- Access to broader range of referral options with alternatives to hospital transmission
- More care delivered locally within peoples' homes

3.6 Reshaping Care for Older People: A Programme for Change (2011)

3.6.1 The Scottish Government' vision that 'Older people are valued as an asset, their voices are heard and they are supported to enjoy full and positive lives in their own home or in a homely setting' was a key driver of the re-shaping care agenda.

3.6.2 The 'Programme for Change', published in 2011 set out the reasons for change in the approach to care for older people and what has been seen as the key actions required to achieve this change. Some of the key messages which need to frame the development and delivery of the Reshaping Care programme include:

- Older people are an asset not a burden
- We need to shift in philosophy, attitudes and approaches
- We are adding healthy years to life
- Supporting and caring for older people is not just a health or social work responsibility
- Services should be outcome focussed
- We need to accelerate the pace of sharing good practice
- It is important to align partnership resources to achieve our goals
- Additional funding is needed for care

3.6.3 The Programme for Change also outlined the main messages from stakeholders about the preferences of older people:

- People want to stay in their own homes for as long as possible
- People want a greater degree of personalisation and choice
- People want more joined up working – less needless bureaucracy
- People want to avoid prolonged hospital stays
- People want greater support for unpaid carers
- People want funding and support for pensioner networks of community groups
- People want a consistency of paid workers
- People want regular health and well being check ups
- People want more specialist services for people with dementia
- People want appropriate housing and timely installation of equipment and adaptations
- People want information

3.6.4 Underpinning the Programme for Change is the creation of a Change Fund which provides bridging finance to enable health and social care Partners to implement local plans for making better use of their combined resources for older people's services by shifting care towards anticipatory care and preventative spend.

3.6.5 An initial allocation of £70m in 2011/12, of which NHS Ayrshire and Arran and its partners were allocated a total of £5.5m, was specifically aimed at implementing initiatives to stimulate shifts in the totality of the budget from institutional care to home and community based care and enable subsequent de-commissioning of acute sector provision.

3.6.6 Following the 2012 Spending review, a further £80m Health and Social Care Change Fund is available for Partnerships in 2012/13, with £80m committed for 2013/14 and £70m for 2014/15.

3.6.7 As part of its approach NHS Ayrshire and Arran has focused on prevention and anticipatory care in order to strengthen community based approaches, and on establishment of community hubs as a new focus for integrated community based services.

3.6.8 Examples of change projects approved in Ayrshire and Arran include:

- Dementia support workers
- Out of hours community nursing service accessed through single point of contact.
- Integrated care and enablement teams in community settings
- A Community ward, comprising a GP, Advanced Nurse Practitioner and Administrator in each locality.
- Additional support for voluntary services
- Additional support for carers
- Falls coordinator and pathway development
- Acute/community interface work to support pathways across primary and secondary care – e.g. Consultant and GP agreeing shared care management plans to manage high risk patients at home
- Additional tele health and tele care
- Housing adaptations
- Specialist care of the elderly outreach services
- Additional support to care homes

3.6.9 Some early performance indicators were included in the 2012/13 midyear Change Fund reports submitted to the Scottish Government in September 2012, including evidence of increased number of acute bed days saved as a consequence of the new Integrated Care and Enablement Services, reduced admissions from care homes to hospitals and impact of new reablement service on reduced use of home care hours.

3.6.10 The Change Fund projects have not identified specific targets for number of acute bed days saved, as it is recognised that this work is part of a whole system change involving acute and community services and much closer engagement with the wider community. However, thanks to the robust, outcomes based approach to the Change Funds projects, over time it will be possible to measure the impact of individual projects on the current pattern of care and treatment.

3.6.11 An early example of this is the Out of Hours nursing project which has established daily, face to face meetings with A&E to identify patients who may be able to be discharged from A&E with additional community nursing input.

3.6.12 These initiatives should have a positive impact on managing demand for unscheduled care allowing the growth in activity to be better managed within the whole system across NHS Ayrshire and Arran.

3.7 Health & Social Care Integration

3.7.1 On 8 May 2012 the Cabinet Secretary for Health, Wellbeing and Cities Strategy launched the Scottish Government's consultation on the Integration of Adult Health and Social Care. The vision of a successfully integrated system of adult health and social care for Scotland is that it will exhibit these characteristics:

- Consistency of outcomes across Scotland, so that people have a similar experience of services, and carers have a similar experience of support, whichever Health Board or Local Authority area they live within, while allowing for appropriate local approaches to delivery;
- A statutory underpinning to assure public confidence;
- An integrated budget to deliver community health and social care services and also appropriate aspects of acute health activity;
- Clear accountability for delivering agreed national outcomes;
- Professional leadership by clinicians and social workers; and
- It will simplify rather than complicate existing bodies and structures.

3.7.2 The proposals are based on four key principles:

- Nationally agreed outcomes will be introduced that apply across adult health and social care;
- Statutory partners will be jointly accountable to Ministers, Local Authority Leaders and the public for delivery of those outcomes;
- Integrated budgets will apply across adult health and social care;
- The role of clinicians and care professionals will be strengthened, along with engagement of the third and independent sectors, in the commissioning and planning of services.

3.7.3 How it will be achieved:

- Community Health Partnerships will be replaced by Health and Social Care Partnerships, which will be the joint and equal responsibility of Health Boards and Local Authorities, and which will work in close partnership with the third and independent sectors and with carer representation.

- Health and Social Care Partnerships will be accountable, via the Chief Executives of the Health Board and Local Authority, to Ministers, Local Authority Leaders and Health Board Chairs for the delivery of nationally agreed outcomes. These outcome measures will focus, at first, on improving older people's care and will be included in all Community Planning Partnerships' Single Outcome Agreements.
- Partnerships will be required to integrate budgets for joint strategic commissioning and delivery of services to support the national outcomes
- A jointly appointed, senior Jointly Accountable Officer in each Partnership will ensure that partners' joint objectives, including the nationally agreed outcomes, are delivered within the integrated budget agreed by the Partnership.
- The role of clinicians, social care professionals and the third and independent sectors in the strategic commissioning of services for adults will be strengthened
- Proportionally, fewer resources – money and staff – will be directed in future towards institutional care, and more resources will be directed towards community provision and capacity building. This will mean creating new and potentially different job opportunities in the community.
- Within this broad framework for integration, local leaders will be free to decide upon delivery mechanisms and organisational structures that best suit local needs and priorities.

3.7.4 NHS Ayrshire & Arran supports proposals set out within the consultation in particular, it builds on progress made to date with closer integration of services and provides the necessary framework of support to improve outcomes.

3.7.5 The Board and its partners have extensive experience of making flexible use of resources across health and social care and was one of the pilots for the national Integrated Resource Framework

3.7.6 The proposals set out within the OBC are entirely consistent with all of the national strategies outlined above. At the heart of the BfBC programme is a drive to improve the quality of unscheduled care across NHS Ayrshire and Arran.

3.7.7 This can only be achieved by reshaping the way in which services are delivered through working with partners as part of a broader team approach. This will ensure that the care delivered is appropriate, patient centred and more cost effective through increasing the proportion of patients who receive care at the front door and reducing the need for specialty admission.

3.8 The Local Context for Developing Services in Ayrshire & Arran

3.8.1 In addition to Building for Better Care NHS Ayrshire and Arran has developed a range of local service and Board wide strategies covering:

- A review of mental health services - ***Mind Your Health****;*
- A review of primary care services – ***Your Health: We're in it together***
- The development of the **eHealth *& Information Services Strategy 2010-2013***.
- The development of an ***Estates Strategy***

3.8.2 These local strategies envisage a modernised health service that will:

- Focus on patients' needs;
- Provide services which are designed around the needs of patients;
- Streamline processes between primary and secondary care;
- Shift clinical activity to provide services as close to home as possible;
- Provide high quality hospital services.

3.8.3 This approach reflects the themes of:

- **Mutuality** – through the focus on patient needs, especially when designing services
- **Sustaining health** – by providing services across all communities whatever their size
- Improving **access** – by providing service closer to home where possible

Approach to Mental Health Services

3.8.4 ***Mind Your Health*** is the strategic review of mental health services in Ayrshire and Arran, and was launched in December 2006 at a multi-stakeholder conference in Ayr attended by around 200 people.

3.8.5 Following a participative approach involving eight multi-stakeholder workshops, two multi-stakeholder conferences and work by nine multi-stakeholder working groups, the NHS Ayrshire & Arran Board endorsed an overall model of care at its meeting on 23 January 2008. The Board also ratified the proposed approach to planning inpatient mental health services to include an option appraisal, and gave approval to a programme of informing and engaging with the wider community about the proposed community based services, from February to May 2008.

3.8.6 During February and March 2008, four reference groups; carers, service users, voluntary organisations, and a fourth group comprising NHS staff, partner agency representatives and members of the public, carried out an option appraisal of a previously identified longlist of options for future acute mental health inpatient services. The option appraisal resulted in a shortlist of four options, plus the status quo.

3.8.7 In May 2008, the NHS Ayrshire and Arran Board agreed to a plan for formal public consultation on the shortlist of options for the future location of acute mental health inpatient services.

3.8.8 Proposals for future mental health services were finalised in a submission to the Scottish Government in December 2008 and approved by the Cabinet Secretary for Health and Wellbeing in March 2009.

Primary Care Strategy

3.8.9 In June 2008 the NHS Board endorsed the development of a primary care strategy through the Your Health: We're in it together project. In developing the strategy, the project team identified three themes which cut across interests in the organisation, specifically:

- Improved access, consistency and patient experience
- Delivering sustainable health improvement and healthcare in local settings
- Placing primary care at the heart of integrated care pathways

3.8.10 Following an extensive programme of public and professional engagement involving over 60 meetings with public groups and almost 50 meetings with professional groups, the findings of these activities were captured in the draft Primary Care Strategy and presented to the NHS Board in June 2009. Following this a formal consultation programme, which ran between August and October 2009, was launched to seek stakeholder views on the draft recommendations.

3.8.11 Following the consultation process the NHS Board formally endorsed the project and the associated strategy at its meeting in November 2009.

3.8.12 Specific proposals arising from "Your Health" are being developed to support a range of initiatives including;

- Developing alternatives to referral to hospital for planned care (focusing specifically on how we can develop alternatives to Consultant interventions and where these can be provided from)
- 'Getting the right care for Remote and Rural Communities' – the outcomes of the service reviews at Arran Hospital and Cumbrae
- The implementation of the Community Nursing review
- Improving access to Primary Care services to reduce waiting times for GMPs and GDPs.
- Developing primary care and community-base alternatives to avoid preventable admissions (this would include telemedicine, community wards, community hubs, etc.)
- Further developing Community Hospital Services

eHealth & Information Services Strategy 2010-2013

3.8.13 The NHS Ayrshire & Arran Board approved the eHealth & Information Services Strategy for 2010-2013 in August 2010. The strategy brings together the shared goals of eHealth, Health Records and Information Services, providing a cohesive set of deliverables and a shared vision which will support the organisation in the delivery of integrated care within a contemporary health care setting.

3.8.14 A key feature of the strategy is the development of an integrated Electronic Patient Record (EPR), replacing the paper record. This will allow enhanced information sharing based on a "capture once share many approach.

3.8.15 The strategy will support clinical service improvement programmes such as 18 weeks RTT, Long Term Conditions and Mental Health. Read access to real time operational management and performance information will enable staff to make better informed decisions to support service planning and development.

3.8.16 Technology which improves clinical and business communication such as video conferencing, tele conferencing and tele care will be implemented locally and regionally.

3.8.17 Specific key e-Health benefits include:

- Implementation of a new Patient Management System (PMS) to replace the existing ageing PAS systems providing a single Patient Administration System, Electronic Order Communications and Clinical Support Tools with significant reduction to paper based records
- Implementation of new community nursing and AHP systems which integrate with PMS to support access to the patient record
- Implementation of Hospital Electronic Prescribing and Medicines Administration (HEPMA) into Crosshouse Hospital providing electronic prescribing and administration across the 2 main hospital sites
- Implementation of regional systems to support the Renal service and Chemotherapy Prescribing
- Further development of the Data Warehouse linking with eHealth systems to ensure that real time information is available

Estates Strategy

3.8.18 NHS Ayrshire & Arran published their Estates Strategy in March 2012. This provided a strategic approach to the management of the estate, giving information on its current use and condition, which informs the decision making process in service planning terms and aids the future management and development of the Board's healthcare properties.

- **Where are we now** – provides an analysis of the board's existing estate including age profile, condition assessment, utilization and quality. It also sets out the existing capital investment priorities and estate which will become surplus to requirements.

- **Where do we want to be –** this set of short (0-12 months), medium (1-5 years) and long term (6-10 years) priorities provides an analysis of how the estate will need to adapt to changing demands arising from developments in clinical services.
- **How do we get there** – sets out the programme for major capital investment and backlog maintenance aimed at ensuring that the estate is capable of supporting the needs of Board and its population in a safe and cost effective manner.

3.8.19 The Building for Better Care programme is one of the major capital investment programmes for the Board over the next 5 years which will see a series of projects relating to the redevelopment of front door services at both Ayr and Crosshouse.

3.9 Economic Challenges in Supporting Service Developments

3.9.1 The challenging financial outlook for the public sector for the foreseeable future will require fundamental change in the way NHS services are provided and new ways of working to achieve the Board's clinical strategies.

3.9.2 The NHS Board is committed to a sustainable future through promoting the values of excellence, improved efficiency, effective team working and clinical improvement allowing it to achieve superior performance and make a distinctive impact over a sustained period of time.

3.9.3 Its strategy for achieving this is embedded in a number of specific and measurable objectives, many of which are fundamental to the proposals presented in this OBC. These objectives are supported through a number of initiatives designed to deliver higher quality, more affordable and sustainable services. These initiatives and the opportunities to realise the benefits are summarised below.

Figure 3-4: Improvement Initiatives

Initiative	Opportunities
Capturing the opportunity of integrated care	▪ Develop settings of care and improve long-term pathways ▪ Improve unscheduled care pathways ▪ Improve the quality of continuing care through more effective health and social care partnerships ▪ Implement cross-system patient information and informatics
Improve quality and financial sustainability by reducing harm, waste and variation	▪ Improve acute care performance and decrease length of stay ▪ Stop wasteful clinical interventions ▪ Enhanced recovery programmes for elective surgery ▪ Improve primary and community care performance ▪ Improve mental health service provision

Initiative	Opportunities
	▪ Manage medicines more effectively ▪ Drive highest value prevention campaigns ▪ Improved procurement and supply chain management
Empowering the front line	▪ Modernise the workforce ▪ Establish effective line management and supporting arrangements
Supporting services to deliver through good management and strong partnerships	▪ Re-focus corporate support to enable more effective and streamlined management arrangements ▪ Delivery of shared services where appropriate (internal and external working with business partners)

3.9.4 This provides the background for the investments in this outline business case for improvements to "front door" services at Crosshouse and Ayr Hospital, as part of the BfBC programme. Through this approach the Board are confident that they can secure the delivery of long lasting / sustainable improvements in clinical services on an affordable basis.

3.9.5 The financial case for the investment within Building for Better Care envisages significant improvements in the use of existing resources. The additional clinical cost from concentration of appropriate services at the "Front Door" are being evaluated / benchmarked (benefits obtained from new ways of working / new pathways / improved clinical management and patient flows), and, will be off-set by savings at the "Back Door" through reduced bed requirements (reduction in inappropriate admissions / reduced bed days / length of stay).

3.9.6 The foundation for these improvements has been derived from:

- significant staff participation in clinical review of processes / procedures (supported by the LEAN and Continuous Improvement Programme),
- general agreement on change in admission policy from 'admit to decide' approach towards 'decide to admit' philosophy,
- improvements in workforce utilisation (right staff to be available in the right place at the right time),
- benefits from co-location of services / general environmental improvements in terms of more productive / contented workforce (with less non-productive time)

3.9.7 The specific nature of these improvements is presented in Sections 5, 6 and 7 of the OBC and the overall financial impact of the programme captured within the Financial Case.

3.10 Conclusion

3.10.1 The Scottish Government has initiated a range of policy initiatives which will change the way healthcare services are provided in Scotland, making them more responsive to patients' needs. NHS Ayrshire and Arran have embraced the spirit of national policy within its local development plans in shaping the way healthcare services will be provided in the future. Building for Better Care is at the heart of these proposals and represents a key part of the overall system for delivering high quality care to the local population.

3.10.2 The Board recognises the financial challenges it will face in the future and the need to ensure that the proposals can be delivered in an affordable manner whilst still delivering the key objectives of the programme.

4 BUSINESS CASE OBJECTIVES & SCOPE

4.1 Overview

4.1.1 This section of the OBC sets out the criteria used to confirm the objectives and scope of the project which is set within a defined overall development programme and the case for change.

4.1.2 The content of this section includes:

- The development of Critical Success Factors (CSFs)
- The refinement of the Key Investment Objectives
- Confirmation of the scope of the project
- A description of existing arrangements
- The case for change

4.2 Critical Success Factors

4.2.1 The 2009 SCIM Business Case Guide requires organisations to set Critical Success Factors (CSFs) when developing investment proposals. These should be developed initially as part of the Initial Agreement and then be revisited at OBC stage to confirm whether they are still valid.

4.2.2 CSFs were not formulated as part of the development of the IA. However, the Business Case Team concluded that developing CSFs for the OBC would be beneficial and enhance the robustness of the assessment process.

4.2.3 The Team agreed five CSFs, which are set out below:

Figure 4-1: Critical success factors (CSFs)

CSF	Description
1. Strategic fit	▪ Does the option give the Board sufficient long term flexibility and ability to change in response to new service demands? ▪ Does the option allow appropriate co-location with, or support to, other service developments? ▪ Does the option facilitate integrating services with other health partners? ▪ Does the option address any backlog maintenance issues associated with the estate?
2. Achievability	▪ Is the option deliverable given the Board's capacity and capability to manage the subsequent change programme?
3. Affordability	▪ Is the option likely to be funded in capital and revenue terms?
4.Timescale for implementation	▪ Is the option deliverable within the strategic timescale?

CSF	Description
5. Value for money	▪ Does the option maximise the return on the required investment in terms of economy, efficiency and effectiveness and minimise associated risks?

4.2.4 These CSFs were used in the assessment and evaluation process for this OBC.

4.3 Key Investment Objectives

4.3.1 The initial agreement (IA) set out seven project investment objectives as follows:

Figure 4-2: Project investment objectives as set out in the IA

Objective	Description
1. Population	▪ Address changes in the nature of the population profile ▪ Provide care differently in response to changes in population
2. Epidemiology	▪ Address changes in the nature of illness and disease ▪ Improve the responsiveness of services
3. Workforce	▪ Address changes in the nature of health service contracts and training arrangements ▪ Improve staffing levels, explore staffing levels and explore alternatives to the traditional Medical Model of Care
4. Safe, effective healthcare	▪ Address the changing nature of healthcare provision ▪ Take account of the relationship, between volume and outcome ▪ Provide appropriately experienced and specialist teams
5. Local policy context	▪ Meet the Local Delivery Plan, the objectives of the Board and associated service strategies, which are emerging to focus on delivery of front line clinical services ▪ Address the need to maintain the momentum envisaged in the report – "Building a Health Service : Fit for the Future" in terms of the evolving models of care to shift the balance of care

Objective	Description
6. Local Property strategy	▪ NHS Ayrshire and Arran's primary and secondary care sectors will integrate and respond to emerging healthcare needs, whilst remaining flexible enough to meet changing needs. ▪ Develop services to assist in re-defining the role and function of a modern District General Hospital and Mental Health Hospital, supported by a network of Community Hospitals, Resource Centres, Health Centres, and Clinics throughout Ayrshire and Arran.
7. National policy context	▪ Take account of the context of the Scottish Government's stated purposes of: a. Healthier – Help people to sustain and improve their health, especially in disadvantaged communities, ensuring better, local and faster access to health care b. Safer and stronger – Help local communities to flourish, becoming stronger, safer places to live, offering improved opportunities and a better quality of life

4.3.2 The Investment Objectives were reviewed by the Business Case Team to ensure they remain valid in light of SCIM guidance issued in May 2009. This guidance requires that all project Investment Objectives are SMART (Specific Measurable, Achievable, Realistic and Time-constrained) and therefore have baseline data against which the planned improvements can be assessed.

4.3.3 The Team therefore decided to review the objectives set out in the IA, grouping them under seven key headings; these have been mapped to the original objectives as shown below.

Figure 4-3: OBC key investment objectives

	Key Investment Objective	Map to IA objectives
1	**Clinical Effectiveness & Sustainability**: to ensure the hospital provides services that are clinically effective and sustainable over the medium to long term	4
2	**Physical Environment:** to facilitate the provision of services in a high quality environment which is 'fit for purpose' for staff, patients and visitors.	6 & 7
3	**Capacity & Demand:** to ensure front door services in Ayrshire and Arran can respond to the demand from the local population	1 & 2

	Key Investment Objective	Map to IA objectives
4	**Delivering models of care in line with the developing clinical strategy:** to ensure that secondary care services facilitate joint planning in the development of patient focussed services, in a primary and community setting.	5 & 7
5	**Access:** to maximise access to appropriate front door hospital services for the local population in the short, medium and long term	1
6	**Performance & Efficiency:** to ensure front door services are developed in such a way as to maximise performance and improve efficiency.	4 & 6
7	**Recruitment and retention of staff:** to ensure the Board is able to recruit and retain high quality skilled staff to support the delivery of high quality patient care.	3

4.3.4 The objectives were then further developed by the Business Case Team and made SMART. They include baseline data against which the planned improvements can be assessed. The more detailed SMART objectives were agreed and are set out in **Appendix B1.**

4.4 Project Scope

4.4.1 The proposed scope of services contained in this phase (phase 1) of the Building for Better Care Programme is as follows:

4.4.2 For **Ayr Hospital** is defined, as follows:

- The provision of an Accident & Emergency consultant delivered service on a 12-hour a day, 7 day a week basis
- The modernisation and redesign of the "Front Door" entry points to urgent and emergency services. This will provide a fully integrated front-door service, encompassing Accident & Emergency, Minor Injury and NHS Ayrshire Doctors On Call (ADOC) services
- The redevelopment of the Accident and Emergency Unit to meet the latest Scottish Health Planning Note 22 standards with the provision of an appropriate configuration of Resuscitation Bays; High Care Areas, and cubicles

4.4.3 For **Crosshouse Hospital**:

- The introduction of Combined Medical and Surgical Assessment Unit in line with the Royal College of Physicians, 2004, requirement that all hospitals should have an Acute Medical Unit to deliver safe and effective emergency medical care

4.4.4 The remaining phases of the Building for Better Care programme in order of priority will be:

- Combined Assessment at University Hospital Ayr
- Expansion of Intensive Care and High Dependency at University Hospital Crosshouse to support the integration of the Intensive Care Unit with Medical and Surgical High Dependency
- Expansion of the existing Intensive Care and High Dependency at University Hospital Ayr

4.5 Existing Arrangements

4.5.1 The existing arrangements for the services within scope (as outlined in 4.4.2 and 4.4.3) is set out below.

A&E Services – Ayr Hospital

4.5.2 The A&E department is operational 24/7 and is the default locus for patients considered to be in need of immediate management by NHS24, GPs or the ambulance service. The A&E has a Minor Injuries Unit staffed by Emergency Nurse Practitioners and acts as the base for major incident response for the hospital.

4.5.3 The A&E department provides a consultant led service from 09.00 to 20.30 hours 5 days per week, with on call cover for the remainder of the week.

4.5.4 The service is complemented by a range of Emergency Medicine specialty doctors and trainees, Emergency Nurse Practitioners and other ED nursing staff. The departments is working towards extending consultant led cover.

4.5.5 The core functions of the A&E department include:

- Resuscitation
- Majors (999, GP unstable, air and road transfer unstable, self referral) including:
    - Paediatric Emergencies
    - Acute chest pain
    - Acute Stroke
    - Trauma
    - Unconsciousness
- Minors (See, Treat or Triage – nurse / ENP delivered)

4.5.6 The department also provides rapid assessment and short observation periods for a defined group of patients.

4.5.7 The A&E department treats patients presenting with any illness. A significant proportion of A&E workload involves the management of soft tissue trauma and fractures.

4.5.8 The current service configuration is summarised in the table below.

Figure 4-4: Current service configuration

Area	No. of Beds/Spaces
Resuscitation	2
Major	8
Minor	5 + eye room
Paediatrics	3 including transfer bays for patients requiring transfer to Crosshouse or tertiary centre
Observation	6

4.5.9 Whilst the compact layout of the A&E department makes it relatively easy to monitor patients with current staffing levels and promotes good communication between staff, in terms of the overall suitability of the existing department it is too small and has many shortfalls including:

- Inadequate access to plain film imaging
- An inappropriately sized resuscitation room
- A wholly inadequate decontamination suite
- Need for improved support accommodation

4.5.10 In addition there is a need to separate paediatric patients from adults throughout their Emergency Department journey and this is not possible within the existing departmental layout.

4.5.11 There are a number of significant service challenges that are summarised in the following table and discussed further below.

Figure 4-5: Issues that need to be addressed in Ayr ED

What doesn't work in Ayr Emergency department
▪ Overall department too small ▪ Lack of resuscitation capacity ▪ No dedicated imaging ▪ Undefined short stay case mix (high patient acuity) ▪ Decontamination ▪ No separate area for children ▪ Poor access to laboratory services (OOH service & staffing) ▪ Interface between Primary Care / OOH & ED ▪ Access and availability of rapid response – resources, staff, rehab ▪ Patient Registration (Emergency Department) ▪ Capacity & Demand (Mon to Fri) ▪ Transit times especially to MAU – requirement for Nurse escorts compromises staffing levels and result in delays in transfer ▪ Near patient testing ▪ Inadequate storage and staff facilities ▪ Management of psychiatric presentations ▪ Streaming of Minor Illness / Minor Injury activity ▪ IT/Communication Systems ▪ Long Term Condition Management

4.5.12 The GP out of hours service (ADOC) is co-located with the A&E department but the facilities are not fit for purpose. There is a need for a fully integrated front-door service, encompassing A&E, Minor Injury and ADOC services within one department at Ayr Hospital. This would provide a single "portal" through which emergency care services are accessed. The co-location of ADOC and Emergency Departments is important to the appropriate streaming of patients and the overall efficiency of unscheduled care services

4.5.13 The availability and capacity of diagnostic and other clinical support services to provide 24/7 support does not enable detailed assessment, diagnosis and care planning. The ability to move away from a "5 day service" towards a 7 day service would assist in the achievement of HEAT targets and in bed management generally.

4.5.14 Travel distances from "front door" services to receiving wards reduce the availability of ED staff and increases the requirement for portering services. A Combined Assessment Unit (CAU) with immediate adjacency to the ED would significantly reduce the workload associated with patient transfers.

4.5.15 However, as a CAU will not be provided within this phase of front door improvements at Ayr Hospital, a number of the current pressures will continue to be present, even after addressing the current facility and service deficiencies. In the absence of a co-located CAU the A&E department will continue to require adequate capacity to manage patients prior to admission (particularly GP referred patients) and then to transfer them into the appropriate care setting.

4.5.16 This will mean that the department will need to be sized to accommodate this continued patient flow which will only be addressed once an appropriately sized CAU is provided adjacent to the new A&E department.

4.5.17 In summary there is little doubt that the current A&E department at Ayr Hospital does not provide an appropriate environment to effectively manage the demands placed upon it and is in urgent need of redevelopment.

Emergency Assessment at Crosshouse Hospital

4.5.18 Crosshouse Hospital provides an emergency service for a population of 225,000 people. Emergency admissions are received and treated across a range of specialties including general medicine, general surgery, orthopaedic trauma, head and neck, gynaecology, paediatrics and psychiatry.

4.5.19 In addition to A&E, to which the majority of emergency admissions present, the emergency assessment and treatment facilities include the following:

- Clinical Decisions Unit (CDU)
- Medical Admissions Unit (MAU)
- Surgical Receiving Unit (SRU)
- Medical Short Stay Ward (MSSW)

4.5.20 Emergency orthopaedic admissions are managed within the Orthopaedic Trauma Unit.

4.5.21 The function and facilities of these areas are shown in the table below.

Figure 4-6: Emergency assessment and treatment facilities

Area	Functions and facilities
Clinical Decisions Unit	▪ The Clinical Decisions Unit (CDU) is located adjacent to A&E and is led by the consultants in A&E and Emergency Medicine. The unit comprises 7 beds and additional treatment chairs, providing an innovative service developed to improve care delivery. It drives rapid access to emergency assessment, efficient diagnosis using fast track diagnostic techniques and appropriate intervention following evidence based care pathways; this facilitates clinical decision making, treatment intervention and follow on care. ▪ There are currently 10 clinical care pathways for the rapid diagnosis and treatment of specific pathology, which represent high volume, relatively short stay patients. Scope exists to develop further pathways and thus to manage more patients through the Clinical Decisions Unit.

Area	Functions and facilities
	▪ In addition an ambulatory care service for management of patients with suspected or proven DVT and the management of patients with cellulitis (a nurse-driven unit) operates within the CDU and provides outpatient assessment and treatment.
Medical Admissions Unit	▪ The Medical Admissions Unit (MAU) is a 25 bedded ward located on the 3rd Floor of Crosshouse Hospital in the East block. There are three 6 bedded rooms and 3 single rooms as well as a 4 bedded annexe area which can only be utilised by mobile patients as trolleys do not fit into the bed spaces. ▪ Most general medicine admissions are admitted through the MAU. The most common routes of entry are via GP referral, accident and emergency, outpatient clinics, dialysis unit, and hospital transfer. The aim of the unit is to undertake patient assessment; initiate treatment then either admit to downstream beds or discharge the patient from hospital. ▪ A wide range of patients are treated from all medical specialities e.g. respiratory, cardiology, renal, endocrinology, geriatric medicine and gastroenterology. The range of dependency varies from those suitable for discharge within 24 hours to highly dependent acutely unwell, complex patients ▪ All patients are reviewed by a doctor then await further review by the Receiving Consultant patients are either discharged or transferred to another area for ongoing treatment.
Surgical Receiving Unit	▪ The Surgical Receiving Unit (SRU) is a 29-bedded ward located on the 4th Floor of the West block of Crosshouse Hospital. It includes four 6-bedded rooms and five single rooms along with a small assessment room which accommodates one trolley space. ▪ Surgical emergency admissions may be admitted following self presentation at A&E, admitted directly from clinic, or following GP request. GP admissions are directed straight to the Surgical Receiving Unit and do not require assessment in the A&E department. ▪ A number of cases presenting to the SRU are identified as potential short-stay patients. These patients are managed through the assessment room, where rapid assessment, treatment and discharge are undertaken avoiding the need to full admission to hospital. This is however limited to the one available trolley within the assessment room.
Medical Short Stay Ward	▪ The Medical Short Say Ward (MSSW) is a 12-bedded ward located on the 3rd floor of the East block of Crosshouse Hospital. It forms part of a larger 30-bedded ward which comprises four 6-bedded rooms and six single rooms.

Area	Functions and facilities
	▪ The ward aims to provide care for patients who require some form of medical treatment expected to last no longer than 72 hours. Patients are identified as suitable for the MSSW following initial assessment in the Medical Assessment Unit and should be transferred to the MSSW with a treatment plan in place. Patients in the MSSW are normally under the care of the specialty doctor in acute medicine, with the consultant in acute medicine having overseeing senior responsibility.

4.5.22 The current capacity configuration within emergency assessment and treatment in Crosshouse Hospital is set out in the table below.

Figure 4-7: Emergency assessment and treatment – current bed configuration

Clinical area	Total spaces	Assessment / Treatment Rooms	Other
Clinical Decisions Unit *	7	-	Ambulatory Care Area
Medical Assessment Unit	25	-	
Medical Short Stay Ward	12	-	-
Surgical Receiving Unit **	29	1	-

** 7 physical spaces but only 6 funded*

*** Note that the new Combined Assessment Unit will only replace the short stay component of emergency surgical admissions, and thus will not replace these wards in their entirety. Total replacement of the Clinical Decisions Unit, Medical Assessment Unit and Medical Short Stay Ward is anticipated.*

4.5.23 Details of other clinical services used by emergency assessment is set out in the table below.

Figure 4-8: Other clinical services used in emergency assessment

Area	Functions and facilities
Medical imaging	▪ The Medical Imaging Department (MID) is located on the ground floor at the rear of the accident and emergency department and the outpatient department. Additionally two plain film x-ray rooms are located within the A&E department, with a further extendable arm x-ray tube located in the 4 bedded resuscitation area in the A&E department. ▪ Facilities within the main MID include plain film, CT and MRI. ▪ The MID supports imaging activity from both the planned and unplanned streams. Requests for imaging investigations are submitted via the Radiology Information System (RIS) web electronic system. ▪ Although dedicated scanning slots are not set aside from emergency requests, requests associated with emergency admissions are undertaken as quickly as possible, often same day, but in some cases a day or two following admission depending on the clinical urgency of the request. This can create delays in a patients' pathway of care, treatment and ultimate discharge from hospital.
Laboratories	▪ The Laboratory department is situated between the A&E department and the operating theatres. The main department reception, where laboratory samples are delivered, is located on the ground floor with the individual laboratories located over the ground and first floor. ▪ The laboratory service includes Biochemistry, Haematology and Blood Transfusion, Histopathology and Microbiology.
Clinical Physiology	▪ The Clinical Physiology laboratory is located on the ground floor of the hospital, adjacent to the Imaging Department and close to the Accident and Emergency Department. It provides a range of investigative physiological tests including Exercise Tolerance Tests, Echocardiogram and various pulmonary tests. ▪ Close adjacency to the Accident and Emergency Department is considered beneficial and a similar close adjacency to the Combined Assessment Unit is considered essential for optimal working.

4.5.24 The current services which support emergency admissions operate 24 hours a day, 365 days a year. Whilst staff work to maximise the effectiveness of the current services the current set up has a number of significant limitations which impact on the overall process of patient assessment and treatment. These are set out below.

Figure 4-9: Current service limitations

Aspect of service	Limitation
Fragmentation	▪ The current service has a tendency to operate as a series of individual departments, where patients are passed from team to team. In addition to the risk that this introduces by way of multiple hand-offs, this also serves to limit the benefit of continuity. ▪ A number of patients present with multiple co-morbidity, or complex clinical presentation which would benefit from close multi-specialty working, however the current way of working does not facilitate this.
Physical Location	▪ The problem of fragmentation can be partly attributed to the physical location of some of the facilities involved in delivery of assessment and emergency care. Although there is good proximity between A&E and medical imaging and the laboratories, the MAU, SRU and MSSW are all located some distance from these services, and from one another. ▪ This can limit the opportunity for case discussion by senior colleagues which extends beyond the A&E department and includes decision making for medical imaging and laboratory testing.
Staffing	▪ Beyond the A&E department, many services are staffed primarily from 9am – 9pm, with skeleton on-call services out of hours and at weekends. This fluctuating capacity does not necessarily tie in with the level of demand throughout the 24 hour period. ▪ This can create bottlenecks and constraints in the system which may result in higher levels of admission and/or longer lengths of stay than would be the case if more senior decision making was available through the period. ▪ Increasing sub-specialisation is also causing some limitation to the provision of services; particularly in the out of hours and weekend periods. This can lead to some services only being available at certain times, dependent on the member of staff rostered for that day.

Aspect of service	Limitation
Facilities	▪ The ward based accommodation fails to meet current standards for single room accommodation. This creates not just an infection control issue but also an issue of privacy and dignity for patients, since the rapid and unpredictable nature of emergency receiving means that it is often not possible to separate male and female admissions who may be required to share the same multi-bedded room. This also produces control of infection risks. ▪ The various emergency wards offer limited assessment and treatment space meaning that in the majority of patients awaiting assessment must be admitted to a hospital bed, regardless of the severity of their illness and likelihood of requiring longer term admission. The establishment of a purpose designed ambulatory care area would facilitate the further expansion of pathway driven care which offers improved patient experience and increased efficiency within the hospital system.
Conflicting Priorities	▪ Some of the services which support emergency care require balancing the planned demand with the demand generated by the emergency and inpatient caseload. This is particularly the case with medical imaging where the current number of facilities do not support separate streaming of this activity. This can result in delays to a patient's overall pathway of assessment and treatment. It is envisaged that dedicated capacity for emergency / inpatient CT scanning will be required in order to facilitate smooth and rapid assessment of presenting patients.

4.5.25 The need for change has been set out above, detailing the increasing demand anticipated from demographic changes and the current limitations in service. The redesign of the "front door" complex at Crosshouse Hospital presents an ideal opportunity to address these issues in conjunction with improved patient flow and associated patient care in Accident and Emergency.

4.5.26 A number of particular opportunities would arise from the implementation of a new CAU that would replace the current arrangements for emergency assessment and treatment.

Figure 4-10: Opportunities arising from a new CAU

Area	Opportunity
Change in physical location	▪ A new location would facilitate an integrated approach to emergency patient assessment across the specialties. ▪ Physical relocation of emergency assessment facilities to the "front door" should encourage a change in mindset for staff and patients alike – a move to a "decide to admit" model rather than "admit to decide"
New models of care	▪ Provision of a purpose designed ambulatory care area will facilitate development of an increased range of ambulatory and short stay clinical pathways which provides a more efficient means of managing many patient presentations compared with admission to a hospital bed and in so doing will facilitate a reduction in specialty hospital beds. ▪ A single focus for emergency assessment which reduces need for complicated prioritisation by some supporting services such as Medical Imaging ▪ Integrated approach facilitates the development of further clinical care pathways
More effective patient management and involvement of other professional groups	▪ Locus for senior decision making and intervention to enable discharge or transfer to more appropriate facilities (including downstream facilities) at an earlier stage ▪ Development of a menu of alternatives to admission to an acute hospital, such as referral to community support teams, direct admission to a community hospital bed, which can be effectively implemented as a result of prompt senior decision making ▪ Locus for social services assessment and input to facilitate more effective coordination of home care support for patients presenting at hospital ▪ Single locus will facilitate expansion of near-patient testing in a manageable and safe manner
Reduces pressures on wards	Ward areas less involved in the assessment processes and so able to concentrate on delivering effective treatment and planning timely discharge.
Improved staff development	Staff development opportunities and role extension arising from integrated working.
Improved efficiency	Economies of scale relating to concentration of assessment facilities into one area.

4.5.27 In summary the current arrangements for emergency assessment do not provide for a patient centred approach arising from the fragmentation and physical separation of the existing services. This leads to delays in the patient journey and in duplication of staffing resource. In addition the existing facilities do not meet current standards, in particular, they fail to provide an appropriate level of single room accommodation which impacts on patient privacy and dignity and also poses a control of infection risk.

4.6 The Case for Change

4.6.1 The case for change is based on six key drivers taken from Building for Better Care, namely:

- **Managing demand for unscheduled care**: the increasing demand for unscheduled care impacts on the ability of front door services to deal with existing pressures
- **Responding to and managing future demographic change**: the demographic change impacts on both the profile of the population and people's health needs
- **Epidemiology**: the pattern of illness and disease within Ayrshire and Arran
- **Provision of person centred, safe and effective healthcare**: the need to further modernise services, focusing on quality and clinical effectiveness
- **Workforce:** NHS Ayrshire and Arran needs to attract and retain appropriately skilled and trained staff to ensure the sustainability and ongoing development of services
- **Current configuration and nature of front door services:** There are a series of issues about the way front door services are structured and managed that need to be addressed

4.7 Managing demand for unscheduled care

4.7.1 The demand for unscheduled care across NHS Ayrshire and Arran continues to demonstrate consistent year on year growth placing increased pressure on front door services at both Ayr and Crosshouse.

4.7.2 This trend manifests itself both in the numbers of patients attending the A&E departments as well as the number of patients admitted to the hospitals as emergencies. Critically the rate at which people attending A&E are admitted to a hospital bed is also increasing which places additional pressure on resources at specialty level.

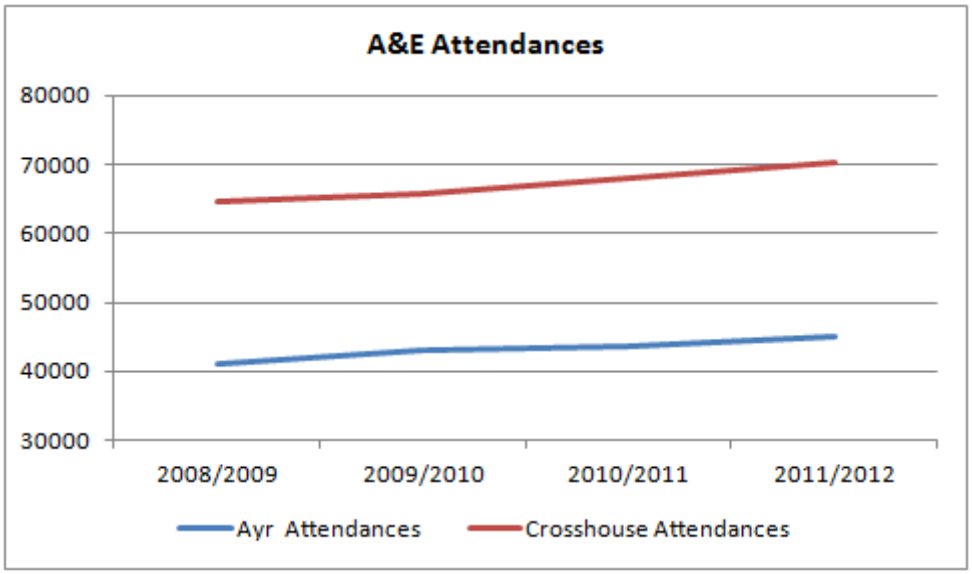
4.7.3 This trend is illustrative of the 'admit to decide' approach as opposed to 'decide to admit' where much greater emphasis is placed on providing assessment and treatment at the front door thus avoiding the need for admission to a specialty bed.

4.7.4 The charts below provide information on the changing demands for unscheduled care across NHS Ayrshire and Arran both in terms of attendances at Accident and Emergency and admissions to unscheduled care services.

A&E Attendances

4.7.5 There has been a steady growth in the number of A&E attendances across Ayrshire and Arran as demonstrated in the chart below covering periods 2008/09 to 2011/12.

Figure 4-11: A&E Attendances



Unplanned Admissions

4.7.6 The table below presents details of the number of emergency admissions at both Ayr and Crosshouse covering the period 2008/09 to 2011/12. It also shows the rate of patient admission in terms of the number of A&E attendances that translate into a hospital admission.

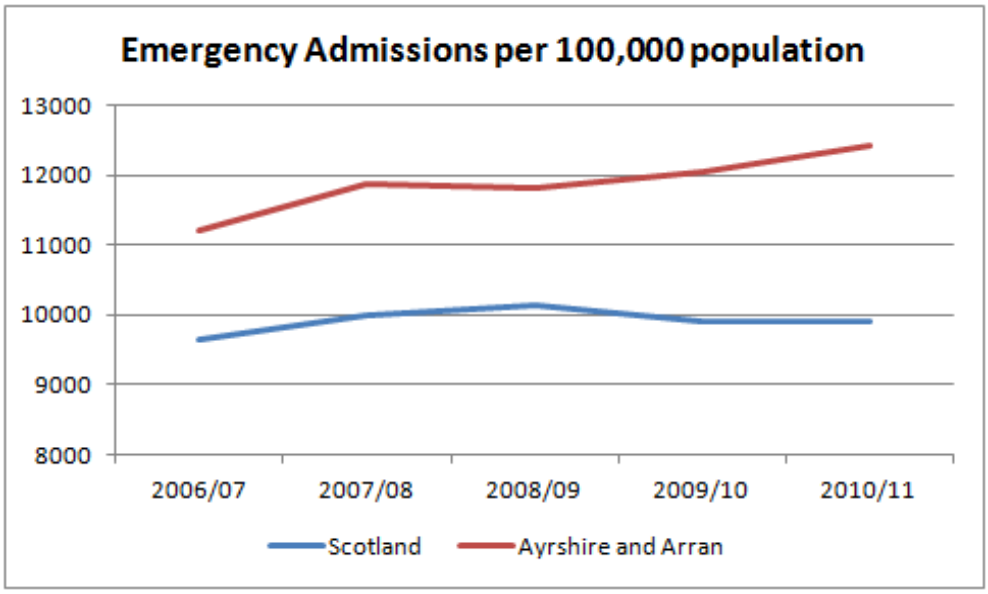
Figure 4-12: Emergency Admissions

Period	Ayr		Crosshouse	
	Emergency admissions	Admission rate	Emergency admissions	Admission rate
2008/09	12,820	31.3%	24,383	37.8%
2009/10	14,869	34.5%	25,310	38.5%
2010/11	15,503	35.5%	26,108	38.4%
2011/12	15,615	34.8%	28,059	39.9%

4.7.7 Not only does this show that the number of emergency admissions are increasing at both hospitals but the rate of admission is also increasing. This means that the unscheduled care system is becoming increasingly pressurised with few alternatives to acute hospital based emergency care settings for the management of emergency care.

4.7.8 Looking at the national perspective the diagram below shows the comparative rates of emergency hospital admission for NHS Ayrshire and Arran and Scotland as a whole for the period 2006/07 to 2010/11.

Figure 4-13: Comparative Rates of Emergency Admission



Source ISD National Statistics Publication - March 2012

4.7.9 The analysis demonstrates that the rate of admission in Ayrshire and Arran is significantly above the national level, however, this may in part be impacted by demography. More importantly whilst the national trend in admissions appears to have peaked in 2008/09 and is now reducing, the rate in Ayrshire and Arran continues to increase, and from 2008/09, at a faster annual rate.

4.7.10 The analysis of unscheduled care demand clearly shows that, in NHS Ayrshire and Arran, access to hospital based services is increasing both in terms of A&E and hospital inpatient care and that there is an increasing sensitivity to patient admission following initial contact with emergency care.

4.7.11 This is illustrative of a front door system which is not working as a means of managing demand for unscheduled care services and results in pressure elsewhere within the acute hospital settings.

4.7.12 In addition, persisting with the current model of service provision will not only fail to address the increasing demand, it will also result in the continuation and worsening of the pressures on existing services. Within high pressure services such as General Medicine and Care of the Elderly, bed occupancy rates are already at excessively high levels. There is also a high number of 'boarders' where patients are placed in beds assigned to other specialities.

4.7.13 These bed pressures result in clinical risk to patients exacerbated by additional hand offs associated with decanting to boarding wards as well as placing significant pressure on medical staffing resources. In addition they also result in elective cases being cancelled.

4.8 Responding to and managing future demographic change

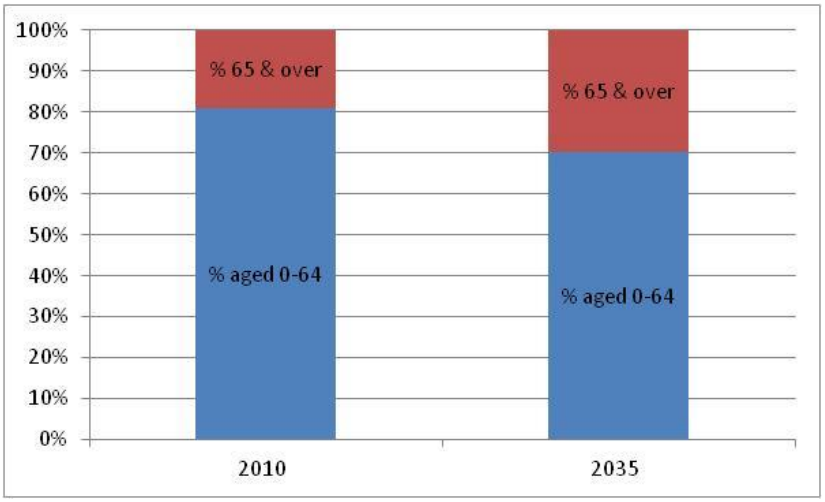
4.8.1 The population in Ayrshire and Arran is changing. Whilst the reduction in the size of the population is not significant, the overall change in the structure of the population is profound.

4.8.2 The latest projections from the General Register Office for Scotland (GROS) from 2010 to 2035 show that the size of the population in Ayrshire and Arran will fall by only 2.4%.

4.8.3 However, within that seemingly small change in overall numbers, the structure of the population is projected to change significantly, specifically:

- The working age population, which in 2010 makes up 63.6% of the overall population, is projected to fall to 54.0% of the population by 2035 – a reduction of 17.1%.
- The over 65 age group, which in 2010 makes up 19.2% of the population, increases dramatically to 29.7% of the population by 2035 – an increase of 51.2% (as detailed in the chart below).

Figure 4-14: NHS Ayrshire and Arran % of Population by Age group – 2010 & 2035



4.8.4 This data reflects the general trends in dependency within Scotland. The number of dependents per 100 population is projected to increase by 13.4% by 2035, of which the most significant increase is in the number of dependent pensioners, which will increase by 28.7%.

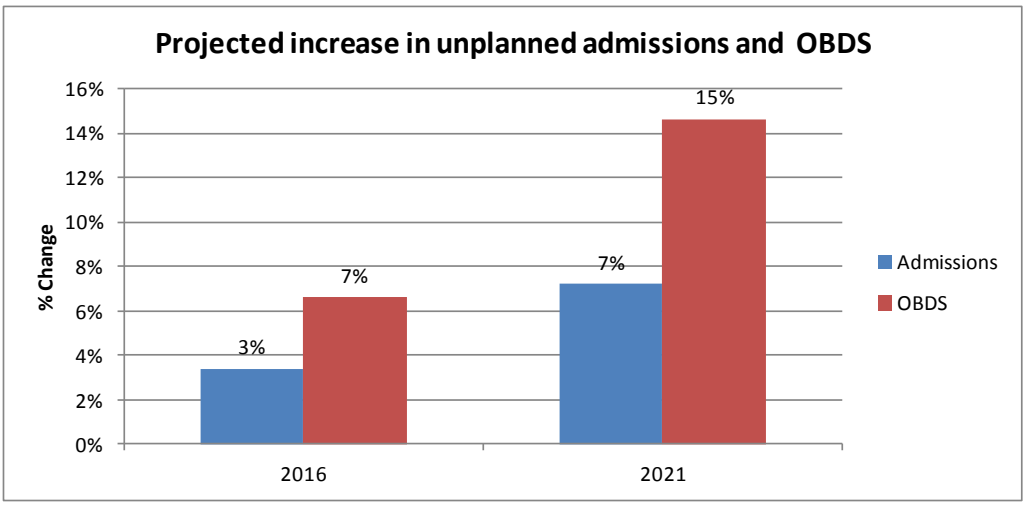
4.8.5 As well as an increase in the older population, the proportion of elderly people living alone is likely to increase dramatically. The latest GROS household projection has estimated that between 2010 and 2035:

- The number of over 75s will increase by 78%
- 68% of the over 75 population will be living alone

4.8.6 These population changes and living conditions have considerable importance when planning future services. To utilise health resources efficiently trends in the level of future patient demand for services need to be considered.

4.8.7 In terms of the impact that the changing demography will have on future demand for unscheduled care services across Ayrshire and Arran, based on estimated population change only, the number of admissions by 2021 could increase by 7% and require a 15% increase in inpatient beds. This is presented in the graph below and assumes no change to the model of care.

Figure 4-15: % increase in unplanned admission and Occupied Bed Days (OBDs)



4.8.8 The rise in older age groups has considerable importance in planning future health services. This large increase in the frail elderly population is likely to result in many frail, older people placing demands on the local healthcare system for emergency admission with a range of complex health and social care needs.

4.8.9 These changes will impact on the nature and structure of health services provided in the future, which is described in more detail in the analysis of the impact of epidemiology changes below.

4.9 Epidemiology

4.9.1 The changes in population described above are already, and will continue to, impact on the pattern of illness and disease within Ayrshire and Arran. For health services to be effective there should be a balance of care between the prevention, diagnosis and treatment of illness and disease.

4.9.2 It is widely accepted that, with an increasingly elderly population, the challenge for the 21st century will be the management of chronic disease (Scottish Executive, 2005). In Scotland, findings from the 2011 Census highlighted that 54% of over 65s reported a limiting long standing illness (an illness or condition that limits the activities of daily living).

4.9.3 This figure increased to 75% in the over 85s, thereby reinforcing the link between an increasingly elderly population and the burden of chronic disease.

4.9.4 People living with a long term condition are acknowledged to consume a high proportion of available healthcare resources. They:

- are estimated to account for 80% of all GP consultations
- are twice as likely to be admitted to hospital
- stay in hospital disproportionately longer
- account for 60% of hospital bed days

4.9.5 Whilst the Board can expect an increasing demand for healthcare from an ageing population, its effects are being exacerbated by the fact that our older people are on average less healthy than the average across Scotland. This is partially offset by the fact that generally, life expectancy in Ayrshire and Arran is improving, although at a slower rate than the Scottish average.

4.9.6 As the population gets older and the demand for NHS services increases, we need to continue to change how we provide healthcare in order to respond to the health needs of the population. We need to develop services to anticipate and manage long term illness, reduce the need for patients to attend an acute hospital and avoid unnecessary admissions.

4.9.7 The biggest causes of death and ill health in Scotland are currently 'the big three' - coronary heart disease, cancer, and stroke. The pattern of these diseases varies across the different parts of Ayrshire and Arran. The table below shows Scottish Public Health Observatory (ScotPHO) data for life expectancy and early deaths in under 75s for 2010 in key disease categories within the three CHP Partnership areas.

4.9.8 The analysis shows the position in Ayrshire and Arran compared to the Scottish average, with indicators showing whether the position in each of the three CHP areas is:

- Statistically significantly 'worse' than Scottish average (▼)
- Statistically not significantly different from Scottish average (—)
- Statistically significantly 'better' than Scottish average (▲)

Figure 4-16: Comparative health position in Ayrshire and Arran (2010)

CHP area	Population (000)	Life expectancy	CHD	Asthma	Cancer
North Ayrshire	135	▼	—	▼	—
East Ayrshire	119	▼	—	▼	—
South Ayrshire	112	▲	—	▼	▲

4.9.9 For the future the biggest single factor influencing health and social care needs is the pattern of chronic diseases together with the substantial rise in the number of older people in our population.

4.9.10 There is a clear challenge around the need for a service that is configured to effectively deal with the problems posed by an increasingly elderly population with chronic disease. Acute services locally are likely to be stretched unless alternatives to hospital admission are developed and implemented.

4.9.11 Compared with the Scottish population as a whole, people's health in Ayrshire and Arran is broadly worse than average.

4.9.12 Historically, life expectancy in Ayrshire and Arran has been improving. General Register Office for Scotland (GROS) analysis of changes in life expectancy over ten years shows that between 1998-2000 and 2008-010 overall life expectancy increased from 77.9 years to 80.0 years – an increase of 2.1 years, or 2.7%.

4.9.13 A comparison with the Scottish average over the same period is more favourable; the average life expectancy in Scotland in 1998-2000 was 78.4 years (0.5 years higher than in Ayrshire and Arran) and increased to 80.4 years (0.4 years higher than Ayrshire and Arran) between 2008-10.

4.9.14 Ayrshire and Arran ranks relatively low in terms of life expectancy compared with other Health Boards. The population of almost two thirds of Scotland's Health Boards have a better life expectancy than that of Ayrshire and Arran.

4.10 Provision of person centred, safe and effective healthcare

4.10.1 The NHS Scotland Quality Strategy makes a specific reference to the need to respect individual needs and values and which demonstrate compassion, continuity, and clear communication and shared decision-making.

4.10.2 Furthermore it stresses that there be no avoidable injury or harm to people from healthcare they receive, and an appropriate, clean and safe environment will be provided for the delivery of healthcare services at all times.

4.10.3 Additionally it emphasises that the most appropriate treatments, interventions, support and services will be provided at the right time to everyone who will benefit, and wasteful or harmful variation will be eradicated.

4.10.4 The current arrangements in place at the front door of both Ayr and Crosshouse Hospitals present significant barriers to ensuring that these requirements are addressed. This significantly impacts on the patient experience, causes delays in treatment and resources to be used ineffectively.

4.10.5 At Ayr hospital, within the A&E department a number of deficiencies have been identified as part of the existing arrangements (see Section 4.5), however, the areas of particular relevance include:

- **Lack of capacity** – meaning that there are delays in patient triage and treatment, there is overcrowding in waiting areas and inadequate facilities for staff
- **Lack of resuscitation capacity** – meaning that patients requiring resuscitation are often receiving this in an inappropriate setting
- **No dedicated imaging** – meaning that patients have to be transferred to the main x-ray department resulting in delays in treatment and resources being tied up in moving patients
- **Inadequate separation of adult and children patient flows** – meaning that there is not audio visual separation of children for the whole of their journey which presents particular risks at peak periods

4.10.6 At Crosshouse Hospital the current arrangements for patients presenting for emergency medical or surgical assessment pose significant challenges and a number of deficiencies have been identified as part of the existing arrangements (see Section 4.5), however, the areas of particular relevance include:

- **Unnecessary / compromised patient admission** – meaning that patients are frequently admitted to specialty based care as opposed to assessed and treated at the front door. Furthermore patients are frequently admitted to the 'wrong' specialty' due to pressure on beds. This results in increased patient risk, inconvenience for families and carers and inappropriate use of expensive NHS resources
- **Fragmentation and separation** – meaning that different parts of the unscheduled care system find it difficult to work in a cohesive manner resulting in a lack of standardisation, unnecessary patient movement and duplication of resources
- **Inadequate facilities** – meaning that patient care is delivered in a sub-optimal environment which compromises quality and increases risk, particularly in relation to infection control

4.10.7 Addressing these issues will ensure that care is provided in a more timely manner, patients are receiving their treatment within a more appropriate environment, safety is improved and resources are used in a more effective manner. All of these factors are complementary to the provision of a person centred, safe and effective environment in which to provide services to patients whilst also improving the environment for staff and families.

4.11 Workforce

Underpinning principles

4.11.1 The overall vision for the workforce is to ensure the right staff are available in the right place with the right skills and competences to deliver high quality care and services.

4.11.2 In order to realise this vision the workforce needs to be aligned with both service and financial plans to ensure affordability and sustainability over the long term.

4.11.3 The 6 steps methodology to workforce planning, as detailed in CEL32(2011) - Revised Workforce Planning guidance, will provide the framework by future workforce requirements are defined. This is further detailed in Section 7.

4.11.4 Adherence to the Staff Governance Standard will be implicit for the workforce directly impacted upon by the Building for Better Care Programme with the expectation that positive benefits will be realised thus ensuring staff are:

- Well informed
- Appropriately trained and developed
- Involved in decisions that affect them
- Treated fairly and consistently, with dignity and respect, in an environment where diversity is valued
- Provided with a continuously improving and safe working environment, promoting the health and wellbeing of staff, patients and the wider community.

4.11.5 The programme will be inclusive, ensuring staff, their representatives and trade unions are fully involved throughout the process and receive frequent updates on progress. The local Framework for Managing Workforce Change policy will provide the mechanism by which workforce changes arising from the project are implemented.

Policy context

4.11.6 The NHS in Scotland 20:20 Workforce Vision is currently being developed and will have a direct impact upon workforce planning for the programme as it progresses. The three strands of the 20:20 Workforce Vision being:

- **Modernisation & capacity** – describing the changing shape and size of the workforce needed to deliver different models of care in the future
- **Leadership & capability** – leadership and skills the workforce will need to deliver the 20:20 vision
- **Governance & engagement** – improvements in staff engagement to impact positively upon the care experience

4.11.7 Regulatory and policy drivers such as the European Working Time Directive and Reshaping the Medical Workforce coupled with the implementation of the quality strategy and ensuring service efficiency and effectiveness, will exert influence on the size and shape of the workforce.

Workforce pressures

4.11.8 The recruitment and retention of medical staff at consultant and specialty doctor grades across a number of key specialties – emergency medicine, radiology and medical specialties – poses a significant challenge to NHS Ayrshire & Arran especially as there are a number of posts that have been vacant for some time. This has necessitated the use of locums to ensure service continuity however even this supplemental solution is becoming more challenging to secure.

4.11.9 The redesign and configuration of services emerging from Building for Better Care is anticipated to provide the leverage of ensuring long term sustainability of services provided via reviewing roles, responsibilities and skill mix. There will be the potential to develop new multi specialty team approaches and develop advanced practice roles.

4.11.10 Underpinning the successful implementation of the proposed front door improvements will be a requirement to ensure that there is access to adequate levels of senior decision making input. This will ensure that timely decisions are made in relation to assessment and treatment and that this care is delivered in the most appropriate setting.

4.12 Current configuration and nature of front door services

4.12.1 The configuration and nature of front door services demonstrates a number of problems which mean that services are not currently delivered optimally. These include:

- **Unsatisfactory integration of A&E with other services** – there is no comprehensive programme of Long Term Conditions Management that would reduce the level of patients presenting at A&E and provide alternatives to admission through A&E. In addition, there is a need to improve the interface and co-ordination between primary care and out of hours services with A&E
- **Admission rates** - The high rate of admission through A&E is part of the cause of pressures on existing assessment and specialty beds
- **Operational challenges** – there are particular problems dealing with peaks and troughs in demand through the week, with long transit times, especially to MAU and the requirement for nurse escorts compromising staffing levels
- **Physical issues** – the co-location of the different elements of clinical services is not optimal and there are capacity constraints, particularly in Ayr A&E

4.12.2 The overall impact of these issues means that:

- There is pressure on hospital services because the admission rate is higher than would be expected in comparison with other health systems - "the front door is too wide" – partly due to the unsatisfactory integration of A&E with other services, partly through the practice of "admitting to decide"
- Patients do not receive the highest quality of care possible as the assessment and admission process is not optimal
- The initial priority is to redesign front door services, however, these changes will need to be complemented by changes in primary care services to provide effective alternatives to acute admission

4.13 Impact of drivers

4.13.1 From the analysis it is evident that the existing model of acute care is having difficulty coping with the demands placed on it by the current population. The changes in the structure of that population, combined with the likely future health profile, are likely to result in increased demand for healthcare. It is therefore unlikely that, in its current form, the model of healthcare provision in Ayrshire and Arran could continue to effectively meet the needs of the local population over the next 10 – 15 years.

4.13.2 The analysis of the drivers for change shows that:

- Existing acute services are already under pressure from high volumes of patients admitted into acute care through A&E
- There will be significant pressure on healthcare services from changes in both demography and epidemiology
- There are a number of structural issues, including medical staffing that need to be addressed
- The existing configuration of front door services significantly compromise the ability to deliver effective high quality care in a manner which makes best use of the available resources

4.14 Implications of not redesigning front door services

4.14.1 The implications of not redesigning front door services are that front door services will come under increasing pressure in the coming years, particularly from:

- Demographic changes that will continue to increase the volume and acuity of patients presenting at A&E with no corresponding change to manage this increase in the volume and severity of caseload
- Pressure on acute services will also continue to increase because the default route for unplanned care is A&E, followed by admission in a higher proportion of cases when compared with other health systems
- Operational challenges, particularly around managing peaks in demand will not be addressed
- Patients will not receive the highest quality of care possible as the assessment and admission process is not optimal

4.14.2 In summary, the quality of care will worsen and the safety of front door services in the medium to long term cannot be assured.

4.15 Conclusion

4.15.1 In considering the objectives and scope of the project NHS Ayrshire and Arran has:

- Set out the criteria used to confirm the objectives and scope of the project to ensure the process within this OBC is robust.
- Clearly articulated the case for change, taking into account factors from the wider national environment in Scotland as well as particular local issues within NHS Ayrshire and Arran.

5 MODEL OF CARE AND SERVICE SPECIFICATION

5.1 Overview

5.1.1 This section of the OBC sets out the Model of Care developed for the proposed front door developments at Ayr and Crosshouse Hospitals. Specifically it sets out:

- An overview of the process for developing the model of care
- The proposed model of care for the areas within the scope of the OBC, namely:
  - Accident and Emergency services at Ayr Hospital
  - Combined Assessment Unit at Crosshouse Hospital

5.1.2 The models of care have subsequently been used to inform the future service requirements in terms of required capacity and as the basis for developing the design briefs.

5.2 Principles for Developing the Models of Care

5.2.1 In developing and evaluating the models of care the Board has applied an evidence based approach to ensure the model of care achieved the combined aims of:

- Best clinical practice and evidence based treatment
- Cost effective use of resources
- Patient centred, high quality care

5.2.2 As part of the development process the Board engaged extensively with staff who would ultimately be responsible for delivering the reshaped and improved front door services.

5.2.3 The principles were supported by a structured process to develop, test, agree and sign off the proposed models of care for front door services.

5.3 Process for Developing the Models of Care and Design Briefs

5.3.1 The Board adopted a two stage process for developing the model of care, structured around User Group workshops for both CAU and A&E. The stages in the process are described below.

Stage 1

5.3.2 The first User Group meeting focussed on the following areas:

- Establishing a clear understanding of the clinical policy and practice issues, as defined by the evidence base and analysis of UK best practice, in the design of Combined Assessment and Accident and Emergency Services
- Challenging existing planning assumptions reflected in the model of care work as part of the development of the clinical briefs
- Securing clinical and managerial consensus on the key planning assumptions

- Securing an explicit agreement which outlines any areas where the proposed model of care does not reflect in its entirety all aspects of the published evidence and the rationale on which these decisions have been made

Stage 2

5.3.3 The second workshop followed some remodelling of the planning assumptions with a primary focus on optimising the use of resources, improving clinical outcomes and delivery of evidence based care. The focus of this workshop was to:

- Present the revised modelling work and 'sign off' the agreed planning assumptions
- Secure agreement on the facilities and resources required to deliver the new model of care – highlighting areas of investment and disinvestment to support the required changes in clinical practice (this might include investment in expanded Ambulatory Care Sensitive treatment spaces / trolleys with disinvestment in inpatient specialty beds resulting from reduction in admissions and increased provision of emergency ambulatory care)
- Secure a clear agreement on the clinical benefits of the proposed models of care
- Reaching a consensus on how the proposed models of care and associated capacity requirements were formally signed off and accepted.

5.4 Proposed Model of Care – Accident and Emergency at Ayr

5.4.1 The Accident and Emergency (A&E) Department is the first element in the proposed integrated Emergency Care department with the Combined Assessment Unit (CAU) forming the second element in the proposed integrated Emergency Care department.

5.4.2 However, as a CAU will not be provided within this phase of front door improvements at Ayr Hospital, a number of the current pressures will continue to be present, even after addressing the current facility and service deficiencies. In the absence of a co-located CAU the A&E department will continue to require adequate capacity to manage patients prior to admission (particularly GP referred patients) and then to transfer them into the appropriate care setting.

5.4.3 This will mean that, at least on an interim basis, the model of care will need to accommodate this continued patient flow which will only be addressed once an appropriately sized CAU is provided adjacent to the new A&E department.

5.4.4 The integration with a CAU at the front door is therefore not fully reflected in the model of care presented below.

The proposed model of care for A&E

5.4.5 The A&E department will form the main 'front door' to the hospital in terms of emergency and unscheduled care. In addition GP out of hours services (ADOC) will continue to be provided adjacent to the A&E facilities. The objective of the unit will be to ensure that all patients presenting, are assessed by Emergency Medicine specialty doctors and trainees, Emergency Nurse Practitioners and other ED nursing staff and, within a maximum of 4 hours, have undergone all investigations necessary to determine an appropriate treatment plan which will be initiated within the A&E department.

5.4.6 Patients requiring further investigation and treatment which cannot appropriately be provided within A&E will, following appropriate specialty opinion, be transferred to an appropriate inpatient area for admission.

5.4.7 There will be an increased focus on taking patients direct to the medical and surgical admissions / receiving wards, however, in the absence of a CAU, A&E will remain as the initial receiving point for all patients.

5.4.8 Patients will present to the A&E in four main ways, namely:

- Following self presentation
- By ambulance (999)
- Following GP referral to a specialty for assessment and / or admission, where clinical stability is confirmed and where patients can be signposted to the most appropriate area within the hospital
- Following GP referral to A&E seeking urgent advice on patient management

5.4.9 In the new facilities patients will be streamed into a number of distinct flows:

- Minors
- Majors
- Paediatrics
- Resuscitation
- Patients requiring an extended period of observation

5.4.10 The A&E model will provide for dedicated imaging within the department as well as close proximity to laboratories, ICU, theatre and recovery facilities.

Planning assumptions for A&E

5.4.11 The workshop participants agreed a series of planning assumptions relevant to any new build for front door services. The principal challenge was agreed to be changing the focus away from simply reducing the rate of attendance at A&E. Instead, the focus should be on:

- Reducing the admission rate and alternatives to admission
- The design of the service
- Triage streaming and segmenting flows

5.4.12 Developing a menu of alternatives to admission was essential in helping manage the patient flow both before and after it reached the front door of the hospital. These alternatives would ensure that there was accessible, safe and effective care for patients. Examples of alternatives to admission include use of:

- Long term conditions management
- Step down, intermediate care and rehabilitation beds
- Home care packages

5.4.13 Although these alternatives would not be developed in detail within the scope of this OBC, they are being developed as a separate stream of work to ensure that the Board provides accessible, safe and effective unscheduled care that is not provided in an acute setting through A&E.

5.4.14 The model of care and associated planning assumptions will be reviewed and updated as part of a subsequent stage in the BfBC programme which provides for a CAU at Ayr Hospital as part of the front door enhancements.

5.5 Proposed Model of Care – Combined Assessment at Crosshouse

5.5.1 The Combined Assessment Unit (CAU) is a key element in the proposed integrated Emergency Care department. The integration with the existing Accident and Emergency department is reflected in the model of care presented below.

The proposed model of care for CAU

5.5.2 The CAU will be located within the 'front door' complex of Crosshouse Hospital, adjacent to the A&E department. The objective of the unit will be to ensure that all patients presenting, for whom the level of assessment is beyond that able to be provided by the A&E department, are assessed by trained doctors (from the appropriate specialty or combination of specialties) and, within a maximum of 24 hours, have undergone all investigations necessary to determine an appropriate treatment plan which will be delivered either within the CAU or at specialty level following transfer from the CAU.

5.5.3 Patients will present to the CAU in three main ways, namely:

- Following self presentation and initial work up in the A&E department
- Following GP telephone referral and patient presentation to a single dedicated reception area, where clinical stability is confirmed and where patients can be signposted to the most appropriate area within the CAU
- Following GP referral seeking urgent advice on patient management

The patient journey through the CAU

5.5.4 GP Referrals will present to an initial triage/assessment area where an initial assessment will be undertaken including vital observations, and Modified Early Warning Score (MEWS) to determine acuity of illness.

5.5.5 From this initial triage patients will be signposted as follows:

- Directly to the ambulatory care area if a relevant diagnosis has been made based on the GP and/or triage assessment

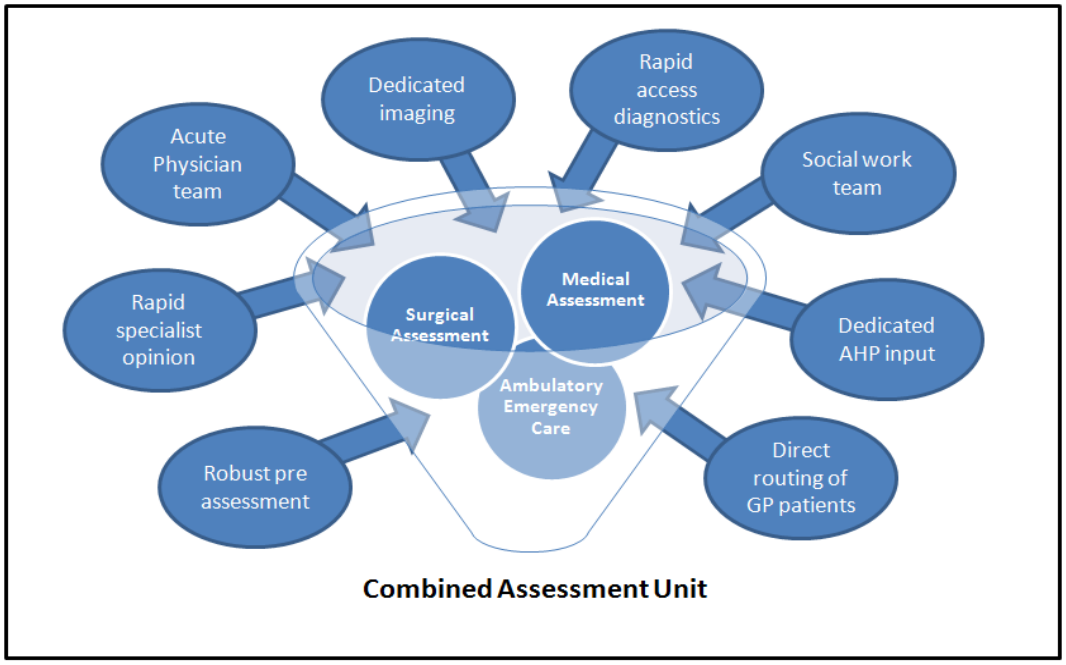
- To the general assessment beds if further assessment and investigations are required to confirm the diagnosis or if the initial triage suggests that a longer length of stay will be required.

5.5.6 Further movement of patients between the General Assessment beds and the Ambulatory Care area may occur depending on the outcome of further assessment and investigations.

5.5.7 The CAU will seek to maximise the number of patients who can be managed on an ambulatory basis, without the need for admission to a hospital bed. In delivering this the CAU Institute for Innovation & Improvement report, titled – "Delivering Quality & Value – Directory of Ambulatory Emergency Care for Adults" (2006). This will also include use of a menu of alternatives to admission which will aim to reduce the number of avoidable admissions to hospital through use of, for example, rapid access clinics.

5.5.8 The diagram below summarises the concept of the integrated CAU.

Figure 5-1: An integrated Combined Assessment Unit



5.5.9 This model of care is different from the current model in the following areas:

- The CAU becomes the focal point for managing the initial assessment, treatment and management of unscheduled care
- Medical and surgical assessment is integrated into a single combined function located at the front door and adjacent to A&E
- Ambulatory emergency care is provided as an integral part of the CAU which aims to maximise the number of patients who can be treated on an ambulatory basis
- Patients are managed by a dedicated physician team, supported by other disciplines including input from social workers to facilitate integrated decision making and ensure continuity of care

Planning assumptions for the CAU

5.5.10 The workshop participants agreed a series of planning assumptions for the proposed CAU and how it would link to A&E. The assumptions are:

- Self referred medical and surgical patients will be directed through A&E where they will be triaged and assessed within four hours. Patients needing treatment that takes longer than four hours will be admitted to CAU
- GP referred medical and surgical patients will be directly admitted to the CAU
- The ambulatory emergency care stream will be directed for admission and treatment within the CAU, rather than the CDU currently located in A&E
- There will be a close co-location with diagnostics, theatres and critical care

Key principles in planning and operating the CAU

5.5.11 The workshops also agreed a range of key principles in the working of the CAU that included:

- There would be an appropriate level of senior decision making, ideally through a dedicated acute physician team, with one team per 25 admissions (RCPE guidelines)
- Continuous review starting with a “pull system” to post take ward rounds with specialty input
- An Ambulatory Care Sensitive (ACS) treatment area for patients whose treatment lasts less than 12 hours on average – the range of pathways would be tailored to reflect best practice and local priorities
- The CAU would provide continuity of care for expected 24 to 48 hour lengths of stay with early decisions (within 24 hours) made on patients requiring specialty based care
- There would be a multidisciplinary team supported by social workers
- Enhanced access to imaging (particularly CT scanning) with access to 24/7 diagnostics
- Close collaborative working with critical care, CAU, theatres, diagnostics and care of the elderly

5.6 Design briefs

5.6.1 The outputs of the workshops and the resulting models of care have been used to develop a design brief for Ayr A&E and Crosshouse CAU. These translate the outputs into a set of guidelines that are used to develop the layout of the departments.

5.6.2 This ensures that the principles of the models of care are embedded into the developing proposals for the facilities. As these are built around the patient pathway and informed by staff who will be working within the services this ensures that the process is person centred.

5.7 Conclusion

5.7.1 The models of care for the proposed Accident Emergency redevelopment at Ayr hospital and the new Combined Assessment Unit at Crosshouse have been built around a structured process which has engaged staff on a multi-disciplinary basis.

5.7.2 Due consideration has been taken of best practice in delivering the services within the scope of the OBC ensuring that the proposed models reflect the latest thinking in the provision of front door care.

5.7.3 The models of care developed incorporate a range of agreed planning assumptions which underpin the physical capacity and support infrastructure required to deliver the proposed services

5.7.4 Finally the outputs of the model of care work have been used to develop the person centred design principles that will underpin the proposed new facilities.

6 FUTURE SERVICE REQUIREMENTS

6.1 Overview

6.1.1 This section describes the methodology used for determining future capacity requirements and outputs for:

- A&E department at Ayr Hospital,
- Combined Assessment Unit (CAU) at Crosshouse Hospital
- Downstream inpatient beds and day care beds at Crosshouse Hospital

6.1.2 As a CAU at Ayr will not be delivered within this phase of the BfBC programme, opportunities to redesign unscheduled care pathways will be limited and therefore the impact on downstream bed capacity at Ayr Hospital will be minimal.

6.1.3 The analysis effectively translates the model of care and service specification described in Section 5 into a set of service and facility requirements.

6.1.4 In determining future requirements a baseline period has been used reflecting the latest available 12 months activity data. A series of growth assumptions have then been applied to determine the future demands placed upon the services within the scope of the OBC. For this purpose a planning year of 2016 has been selected reflecting the point in time when the services will become operational.

6.1.5 As part of the future requirements analysis has also been undertaken to determine the likely required capacity 5 years post commissioning (i.e. 2021). This does not however materially impact on the front door capacity requirements.

6.1.6 Further analysis has been undertaken to determine opportunities for realising improvements in specialty based length of stay as a result of providing the new CAU at Crosshouse as well as broader opportunities not linked directly to the proposed development. Any resources released will be reinvested in the front door to support the revised model of care.

6.2 Ayr A&E baseline activity and capacity

6.2.1 The table below provides information on Ayr A&E attendances, including an analysis of triage category, for calendar year 2011. This data has been used as the baseline activity to determine capacity requirements to 2016.

Figure 6-1: Ayr A&E - baseline reported attendances by aggregated triage category

Year	Total	Resuscitation	Minor & Majors
2011	44,386	17%	83%

6.2.2 Figure 6-2 below shows the current spaces at Ayr A&E. The facility has two resuscitation suites, 16 cubicles suitable for minors/majors and 1 triage room to assess and treat patients within 4 hours, and 6 observation beds for patients, under the care of A&E consultants, who require a stay longer than 4 hours before deciding whether to discharge or admit to a specialty bed.

6.2.3 Ultimately these observation spaces would need to be considered in any further development of a Combined Assessment Unit facility at Ayr Hospital.

Figure 6-2: Current Ayr A&E capacity

Rooms	Spaces
Resuscitation	2
Major & Minor	17
Triage Room	1
Observation Spaces	6
Total Capacity	26

6.3 Ayr A&E future activity profile

6.3.1 Projected change in demography of the Ayrshire and Arran Health Board population, as determined by GROS estimates (2008-2010 based) does not fully explain the reported increase in annual attendances historically or project any increase in attendances to 2016 (planning year).

6.3.2 Analysis suggests service change, especially in primary and community settings has had and will have a greater and more rapid impact on annual attendances and further work is required to better understand the type and size of impact these service changes will have (e.g. OOH services, GP referral triage and ambulatory care services in primary/community/future combined assessment unit at Ayr hospital).

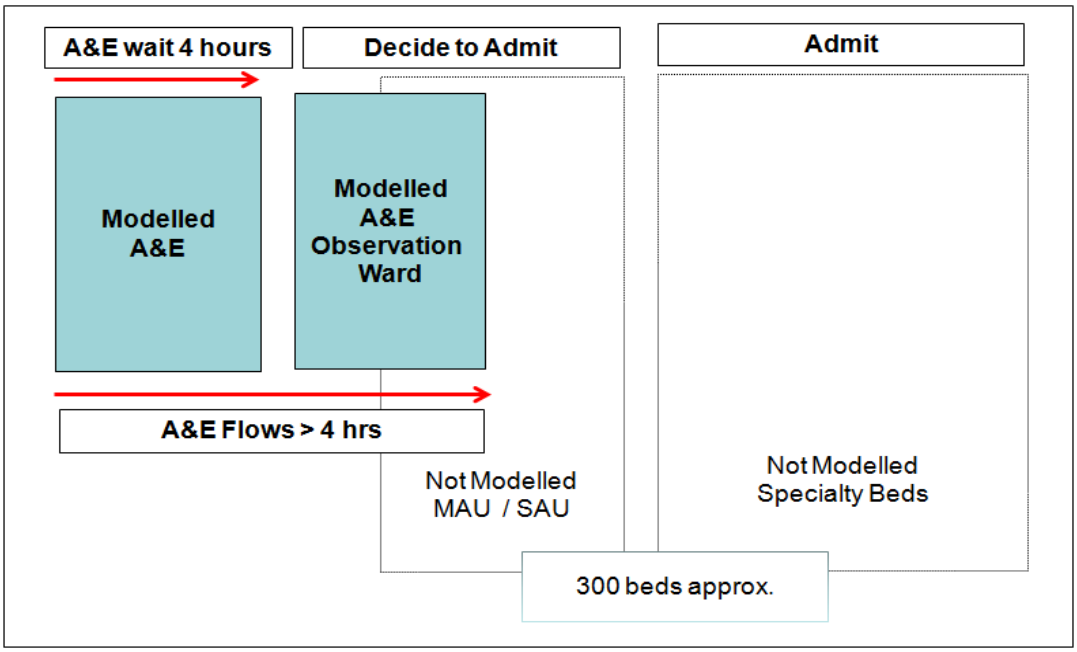
6.3.3 The capacity requirements for the proposed new A&E and observation ward to 2016 shown in this business case can absorb an additional 10% in demand during peak times (08:00 to 16:00 = around 50 % of all reported attendances) compared with reported attendances during 2011, the baseline year (average 2 % increase per year), and around 15-25 % OOH (average 3-5 % per year).

6.4 Ayr A&E service modelling – methodology & assumptions

6.4.1 Figure 6-3 shows the approach for determining required A&E and observation ward capacity within the context of having the right balance of resources to facilitate patient flows from A&E (4 hour maximum wait) through to “admission” to an observation bed.

6.4.2 This is an interim solution to facilitating patient flows under the care of A&E specialty clinicians. Future development would involve amalgamating the observation beds with the existing medical and surgical assessment facilities to provide a single Combined Assessment Unit.

Figure 6-3: Approach to modelling required resources to facilitate patient flows



6.4.3 Figure 6-4 describes the data used and the assumptions and caveats of the modelling used to determine capacity requirements.

Figure 6-4: Data, assumptions and caveats of modelling methodology

Model	A&E cubicles	Observation beds
Data	Used reported A&E attendances, using date, time of arrival and triage category to determine resuscitation and minor / major cubicles required to discharge patients within 4 hours.	Used reported A&E flow data Used total patient numbers and reported total waits under A&E consultant.
Assumptions	Modelled to have flex up capacity to meet peaks in daily and intraday demand (required modelled average occupancy rate of 35%). Based on meeting 4 hr max wait target with remainder of stay modelled in observation beds. Assuming 2 % growth in activity during the busiest time of the day.	Modelled to have flex up capacity to meet peaks in daily and intraday demand (required modelled average occupancy rate of 45%). Based on facilitating flows from A&E to meet 4 hr max wait target. Assuming 2 % growth in activity during the busiest time of the day.

Model	A&E cubicles	Observation beds
Caveats	Reported triage categories especially for major/minor sometimes linked to available space rather than to patient need.	Not modelled in alignment with MAU required capacity / future CAU and ambulatory care area (next step).

6.5 Ayr A&E summary of capacity requirements

6.5.1 Figure 6-5 shows modelled capacity requirements for A&E cubicles and observation beds to 2016 compared with the current configuration.

6.5.2 Overall, there is no change in the overall spaces required within the A&E department, assuming max LoS 4 hours, but there is a lack of resource for dealing with resuscitation / trauma patients which needs to be addressed.

6.5.3 The increase in projected observation beds reflects potentially insufficient capacity for facilitating flows from A&E to MAU / specialty beds and presents an interim solution as set out in Section 5.4. Any further development of a front door model area would need to incorporate the activity going through these observation beds and how this would impact flows going A&E (e.g. GP referral bypassing A&E).

Figure 6-5: Current and future planned capacity Ayr A&E

Room function	Current	Projected 2016
Resuscitation	2	4
Major & Minor	17	14
Triage	1	1
Observation	6	10
Total	**26**	**29**

6.6 Crosshouse baseline activity

6.6.1 Figure 6-6 shows actual admitted activity levels for the 12 month period from June 2011 to May 2012.

Figure 6-6: Crosshouse baseline admitted activity

Baseline year	Admissions		
	Non-elective	Elective	Total
June 2011 to May 2012	29,213	16,852	46,065

6.7 Crosshouse baseline inpatient and daycase capacity

6.7.1 Figure 6-7 shows current bed capacity at Crosshouse Hospital (2012).

Figure 6-7: Crosshouse baseline bed capacity 2012

Bed Pool	Unit	Beds	
		Ward	Pool
Assessment	Clinical Decisions Unit*	7	
	MAU 3E	25	
	Medical Short Stay 3D	12	
	Surgical Receiving 4A**	12	
Sub-Total Assessment		**56**	**56**
A&E / Medical	Gastroenterology 3D	18	118
	Respiratory / Renal 3B	34	
	Endocrin./Cardiology 4E	30	
	Infectious Diseases 2D	8	
	Medical/Renal 2D	12	
	Dermatology 2D	4	
	Renal 2F	12	
CoE / Stroke	5D	30	84
	5E	30	
	4D (shared with stroke)	24	
Hyper Acute Stroke Unit	HASU 4D	6	6
CCU	Coronary Care Unit (CCU)	12	12
Medical HDU	Medical HDU	12	12
Surgical	Surgical Receiving 4A**	17	67
	Surgical 4B	30	
	ENT (10) / Surgical (10) 5A***	20	
Surgical HDU	4C	12	12
Orthopaedic	Orthopaedic Trauma 2A	29	58
	Orthopaedic Elective 2B	17	
	Orthopaedic 2C	12	

Bed Pool	Unit	Beds	
		Ward	Pool
Gynaecology	Ward 6***	20	20
ICU	ICU	5	5
Sub-total Inpatient		**394**	**394**
Medical Day Case	3C	4	4
Surgical Day Case	20 Day / 12 overnight	20	20
Oncology		18	18

** 7 physical spaces but only 6 funded*

***This reflects a notional split between assessment and post theatre receiving*

**** Wards 5A and 6 close some beds at weekends*

6.8 Crosshouse future activity profile

6.8.1 The projected impact of a changing demography of the Ayrshire and Arran health board population correlates crudely with reported non-elective admitted activity since 2009 and has been used to project future activity to 2016.

6.8.2 Based on change in population only, projected growth to 2016 is around 3% (average 0.6% per year) for non-elective admissions and around 7 % (average 1.4 % per year) in bed days required, reflecting a growing elderly population and the tendency for this age cohort to spend a relatively longer time in hospital.

6.8.3 The analysis assumes that:

- The current age profile and use of resources of admitted patients,
- The age cohort projections for A&A Health Board catchment area,
- Prevailing models of care, and admission rates

6.8.4 Clearly, this increasing trend in admissions and demand on beds is not sustainable, but will be impacted by initiatives which reshape care for older people and potentially by expansion of the “front door” and development of more ambulatory care pathways.

6.9 Crosshouse service modelling – methodology and assumptions

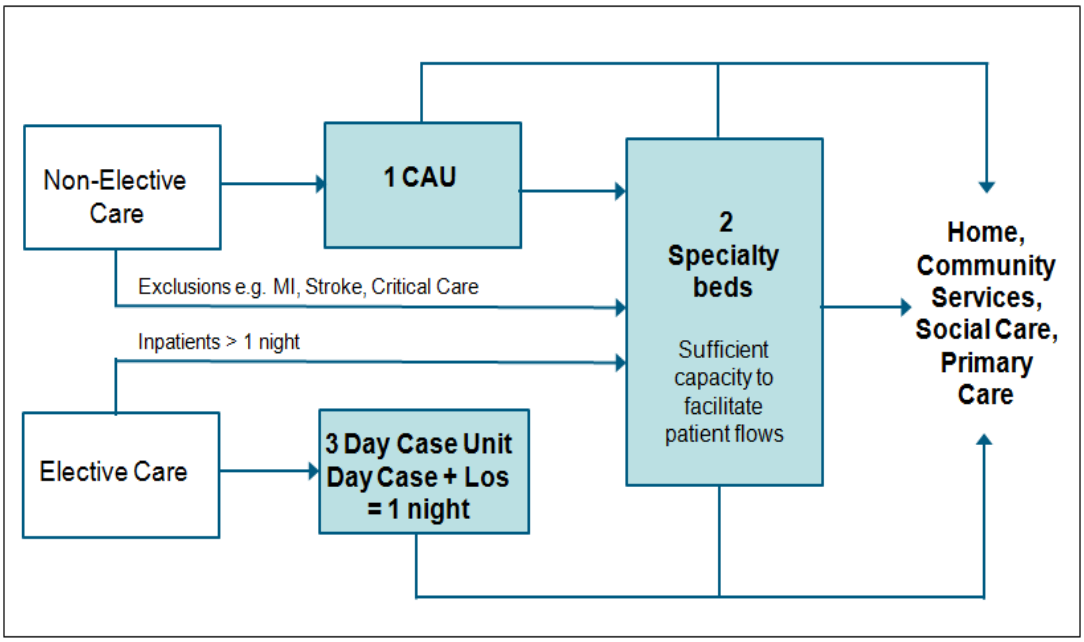
6.9.1 Figure 6-8 below shows the approach for determining required capacity within the context of having the right balance of resources across the whole hospital to facilitate patient flows from CAU through to admission to a specialty bed to discharge, whether this be home or into an alternative care setting / provider.

6.9.2 Three resource areas have been modelled; the proposed new CAU (including an integrated ambulatory care area), downstream inpatient beds with sufficient capacity to facilitate flows from CAU, and day / 23 hr planned day care area which has sufficient capacity to accommodate all eligible day and 23 hr cases reducing potentially the burden on inpatient beds.

6.9.3 Projected capacity requirements are based on whole patient pathways irrespective of specialty, with separate flows for non-elective and elective care.

6.9.4 This requires closer working arrangements and a more flexible approach to pooling beds during busy periods for specialties who see the same patient within a single spell (e.g. patient admitted under care of general medical physician but referred to CoE consultant), and work is already ongoing in having greater CoE specialist input at the front door.

Figure 6-8: Approach to modelling required resources to facilitate patient flows



6.9.5 Figure 6-9 describes the data used and the assumptions and caveats of the modelling for determining capacity requirements for the new proposed CAU, inpatient beds and day case unit.

Figure 6-9: Data, assumptions and caveats of modelling methodology

Model	CAU	Specialty beds	Day Care
Data	Reported admission data for 2011, projected to 2016 based on GROS (2010 based) population projections.		
Assumptions	Max LoS of 48 hours (assess treat and discharge) or transfer to specialty bed within 24 hrs if patient stay > 48 hours or if patient requires procedure in theatre. Ambulatory care based on agreed set of locally agreed pathways Available 365 days per year. Modelled at average occupancy rate to meet peaks in demand at the 95th percentile (70%).	Modelled to accommodate current LoS net of any time spent in CAU. Available 365 days per year. Modelled at average occupancy rates to meet peaks in demand at the 95th percentile. This varies by specialty and facility ranging from 60- 65 % for small specialist units (ICU, CCU) to around 85 – 90 % for larger bed pools (e.g. General medicine and CoE).	To include all waiting list cases with a LoS of less than 24 hrs. Available 250 days per year. Modelled at average occupancy rate to meet variation in daily demand but set to minimum of average of 1.55 patients per bed per day.
Caveats	• Projections do not take account of any change in service outwith acute setting or any increased demand from any source other than population change • Bed projections for delivering elective care are based on reported activity and may not reflect actual demand to be met from waiting list • Projections for COE and Medical bed pools individually are impacted by necessary cap on daily take of patients to CoE specialty beds. Recommend pool beds and take flexible approach to bed allocations based on variation in demand		

6.9.6 Figure 6-10 shows the non-elective pathways which have been modelled going through the CAU and those which have been excluded (i.e. straight to specialty bed).

Figure 6-10: Pathways modelled through CAU, based on specialty on admission or admitted facility

Specialty / facility on Admission	Modelled through CAU ?
A&E and medical specialties	Yes – excluding non-TIA (direct to HASU) and MI (direct to CCU) and any patient requiring ICU, CCU or HDU bed on admission
CoE	
Surgical specialties except those listed below	
Gynaecology	No - but use of consulting room
Orthopaedics	No
ENT	No - assessment to remain part of ward
Intensive Care Unit (ICU)	No
High Dependency Units (HDUs)	No
Acute Stroke Unit (ASU)	No

6.9.7 The capacity projections shown in this business case have factored in two improvement opportunities for reducing non-elective LOS.

- Developing more ambulatory care pathways within the new proposed CAU which will shift overnight emergency cases to same day discharges from the CAU. NHS A&A have reviewed the National Institute Directory of Ambulatory Care and set targets for same day discharges for a range of conditions.
- Improvement in non-elective LoS. NHS A&A have compared spell LoS with the upper quartile performance of a peer group using the reported Health Resource Group (HRG). The results of this benchmarking are shown in Figure 6-11. The benchmarking highlighted significant opportunity for improving the LOS of patients under the care of medical and COE specialties as highlighted in Figure 6-12, which shows the top 10 HRGS presenting the greatest opportunity (top 10 are equivalent to reduction of 23 beds or 33 % of bed saving opportunities identified).

Figure 6-11: Results of LoS benchmarking with upper quartile performance of peer group (by patient spell case mix adjusted)

Bed Pool	ALOS Crosshouse	ALOS Peer top 25%
Medical + CoE	6.1	4.4
Surgical Pool	4.2	3.9

Figure 6-12: Top 10 non-elective HRGS representing greatest opportunity for reduction in LoS

HRG	ALOS Crosshouse	ALOS Peer (top 25%)	Diff. Beds
L09 Kidney or Urinary Tract Infections >69 or w cc	10.4	6.7	3.6
D40 Chronic Obstructive Pulmonary Disease or Bronchitis w/o cc	5.6	3.3	3.0
S31 Admission for Unexplained Symptoms	8.2	2.9	2.4
D13 Lobar, Atypical or Viral Pneumonia w cc	13.9	8.2	2.4
D14 Lobar, Atypical or Viral Pneumonia w/o cc	7.2	4.2	2.4
D25 Respiratory Neoplasms	12.4	7.9	2.0
D99 Complex Elderly with a Respiratory System Primary Diagnosis	11.1	9.2	1.9
E99 Complex Elderly with a Cardiac Primary Diagnosis	12.6	8.7	1.8
F46 General Abdominal Disorders >69 or w cc	4.8	3.3	1.8
S35 Other Specified Admissions and Counselling	11.3	4.7	1.7

6.9.8 Whilst these improvements will not be secured simply through the delivery of the new CAU and the proposed model of care, it does present a number of opportunities to realise improvements at specialty level and to reduce the level of resources required to support specialty based care. Opportunities include:

- Increased proportion of care delivered at front door, and on ambulatory basis, will reduce level of patient admissions
- Enhanced assessment processes will ensure that patients requiring specialty admission will be placed on pathway at earlier stage
- Significant reductions in levels of boarding will improve access to required clinical inputs and use of resources

6.9.9 In addition while not directly impacting on CAU required capacity, provisional analysis suggests the potential for reducing inpatient and daycase bed capacity required for delivering elective care, by shifting more daycases and 23 hr cases through the surgical day care facility and smoothing daily throughput. This has not been included in the bed projections as consideration needs to be given to ensuring there is sufficient capacity to meeting waiting list demand and the logistics of planning smoother throughput through the day care facility.

6.10 Crosshouse summary of capacity requirements

6.10.1 Figures 6-15 and 6-16 shows the future capacity requirements for the proposed CAU and the required inpatient and day care bed capacity in alignment with the CAU and with LoS improvements targeted by NHS A&A.

Figure 6-13: Current and future inpatient capacity Crosshouse

Bed Pool	Current	Future 2016 New CAU & improved LoS	Difference
CDU	7[2]		-7
MAU (3E)	25		-25
Medical Short Stay (3D)	12		-12
Surgical Receiving (part of 4A)	12		-12
CAU Trolleys	-	11	+11
CAU Beds	-	42	+42
Sub-Total Front Door	**56**	**53**	**-3**
A&E / Medical	118	176	-26
CoE/Stroke	84		
Stroke ASU	6	6	0
CCU	*12*	*12*	*0*
Med High Dependency	*12*	*12*	*0*
Surgical	67	57	-10
Surgical High Dependency	*12*	*12*	*0*
Orthopaedic/Trauma	58	58	0
Gynaecology	20	20	0
ICU	*5*	*5*	*0*
Sub-Total Inpatient	**394**	**358**	**-36**
Grand Total	**450**	**411**	**-39**

[2] 7 physical spaces but only 6 funded

Figure 6-14: Current and future daycase capacity Crosshouse

Bed Pool	Current	Future 2016 New CAU & improved LoS	Difference
Medical Day Case*	4	5-9	1+5
Surgical Day Case*	20	20-25	0+5
Surgical Day Case (23h)	12	12	0

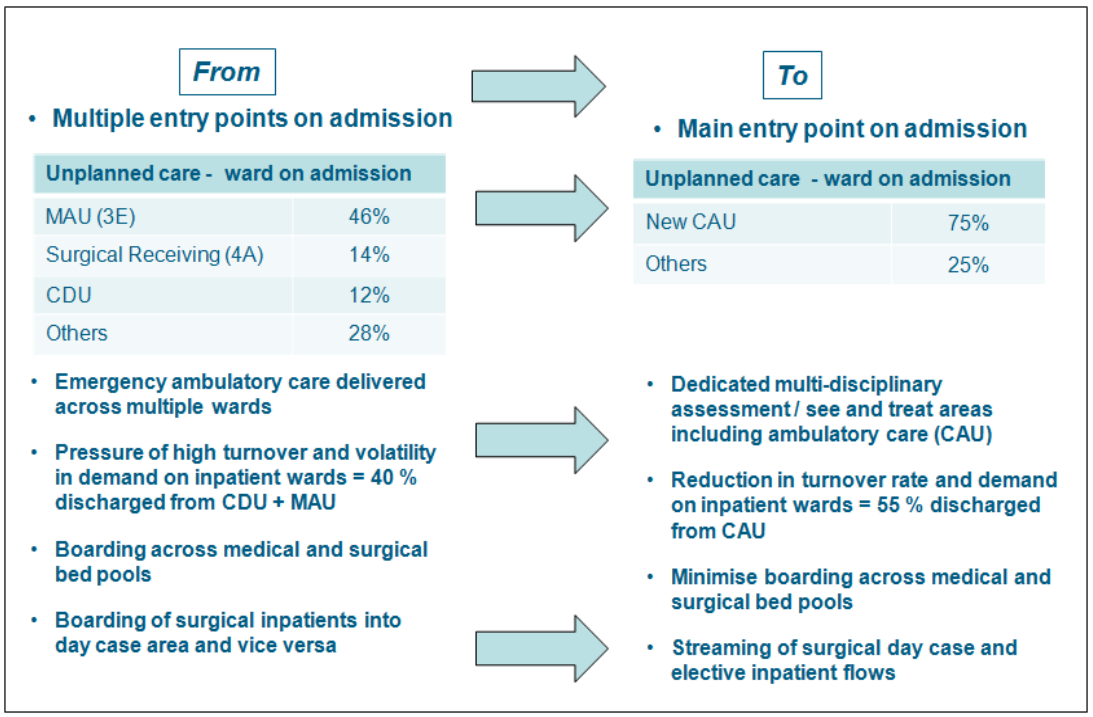
* *Range based on delivering smoothed activity (1.55 patients per day) (lower range) or to meet peaks in demand (higher range).*

6.10.2 The analysis shows that there is potential for an overall reduction of around 39 beds as a result of both improvements to front door provision and implications of moving to benchmarked performance for specialty beds.

6.11 Summary of Model and Capacity Impact

6.11.1 Taking together the model of care and the supporting changes to the service capacity it is possible to present a 'before and after state' summarising the impact on front door services and specialty based care at Crosshouse following the successful implementation of the CAU. This is presented in the diagram below.

Figure 6-15: Crosshouse CAU Change Impact



6.11.2 In addition to the proposed CAU bed provision and ambulatory care spaces 3 assessment bays will be provided for initial triage of patients on presentation to the CAU and a further 2 outpatient rooms will be provided for patients who require follow-up treatment following an initial ambulatory episode.

6.11.3 The analysis shows that at Crosshouse, the impact of the CAU will deliver significant benefits in a number of areas, principally:

- A reduced number of points of entry into the unscheduled care system
- A focal point for the delivery of emergency ambulatory care
- A significant increase in the proportion of patients receiving assessment and treatment within the front door thus avoiding specialty admission
- A significant reduction in patient boarding

6.11.4 Many of these features not only improve the quality of care and the patient experience but create significant opportunities to improve the way in which the Board uses its increasingly scarce resources to manage the delivery of unscheduled care.

6.12 Facility Modelling

6.12.1 The outputs of the facility planning work has been used to develop a Schedule of Accommodation (SoA) which sets out the spatial requirements associated with the new facilities. This will in turn be used to inform the capital cost envelope required to deliver the proposals. A copy of the SoA is provided at **Appendix C1**.

6.13 Conclusion

6.13.1 The future service requirements translate the model of care as described in the previous section of the OBC into a set of facility requirements.

6.13.2 By applying a set of growth assumptions to the baseline activity for the services within the scope of the OBC and incorporating the performance metrics incorporated within the models of care a set of outputs have been developed which show the physical capacity required within the Ayr A&E department and Crosshouse CAU.

6.13.3 The analysis has also highlighted a range of opportunities for realising improvements in specialty based length of stay as a result of providing the new CAU at Crosshouse as well as broader opportunities not linked directly to the proposed development.

7 WORKFORCE PLANNING

7.1 Overview

7.1.1 This section sets out the workforce issues faced by the Board and outlines how the Board will manage the impact of the changes to staffing brought about by implementing this OBC. The following issues are discussed:

- The principles adopted in relation to planning the future workforce required to support the BfBC programme
- The Board's current staffing position at Crosshouse & Ayr hospitals
- Factors affecting the workforce plan
- How the Board will identify future staffing requirements
- How the change process will be managed

7.2 Workforce Planning

7.2.1 NHS Ayrshire and Arran have applied the 6 Steps methodology, as detailed in CEL 32 (2011) – Revised Workforce Planning Guidance in developing its framework by which future workforce requirements are defined. The 6 steps of this framework are summarised as follows:

- Defining the plan
- Mapping service change
- Defining the required workforce
- Understanding workforce capability
- Developing an action plan
- Implement and monitoring

7.3 Current Staffing Position

7.3.1 An analysis of the Crosshouse and Ayr Hospital current staffing is shown below along with total NHS Board staff numbers.

Figure 7-1: Current staffing by staff group at September 2009

Staff Group	Crosshouse	Ayr	Total NHS A&A
Medical	331	179	618
Nursing	1,534	778	4,155
Professional & Technical	290	221	1,534
Misc	1	1	7
Ancillary	372	229	1,003
Admin & Clerical	585	349	1,509
Totals	**3,113**	**1,757**	**8,826**

Source: NHS Ayrshire and Arran Finance Department

7.4 Factors Affecting the Workforce Plan

7.4.1 This work will be undertaken in tandem with the work that is progressing in considering clinical pathways thus ensuring an integrated service and financial approach and will be iterative as clinical models continue to be refined.

7.4.2 As such at this stage it is not possible to definitively quantify the full impact of the changes in the model of care upon:

- The numbers of staff required across all functional groups i.e. medical, nursing, allied health professions and diagnostics / healthcare science staff
- The skill mix of those staff, and
- Staff turnover both during and post delivery of Building for Better Care

7.4.3 However the high level anticipated workforce impacts have been identified and are set out in the table below.

Figure 7-2: Key workforce impacts

Anticipated workforce impact	Impacted staff groups
New roles developed The proposed model of care will require a range of new roles with much greater focus on acute physician input and nurse led ambulatory care delivered at the front door.	Medical, nursing, clinical support
Skill mix change The proposed model of care will require that staffing resources will be redistributed from specialty care to the front door but that as part of this different skills will be required to deliver care within the CAU as opposed to specialty based wards. This will include a much greater focus on rapid assessment, and treatment, including increased provision of ambulatory care.	Medical, nursing, clinical support
Changes to work pattern The need to move to a model that focussed on the increased provision of rapid and effective assessment and treatment within the CAU will work most effectively if this is available on a 24/7 basis so that appropriate and rapid patient throughput can be secured.	Medical, nursing

7.4.4 In summary, the impact of these changes for the Board's clinical and non clinical staff is likely to involve:

- Changes in working practices and skill mix; development of new roles, new skills and an increasing need to work within multidisciplinary teams
- Redistribution of staffing resource from ward based care to the front door arising from the drive for improved quality, efficiency and cost effective services

7.5 Assessing Future Staffing Requirements

7.5.1 Relevant workforce tools, such as the recently developed A&E workforce tool which encompasses both nursing and medical staff will be used, as well as extant processes such as consultant job planning in order to ensure service capacity it robust.

7.5.2 Addressing the known workforce pressure relating to medical staff vacancies across key specialities will be a critical aspect of workforce planning activity.

7.5.3 The wider suite of nursing and midwifery workforce planning programme tools will also be used in conjunction with bed modelling and activity/demand data to benchmark and inform nursing requirements in the developing models of care. The Associate Nurse Director has already indicatively used the professional judgement tool for nursing staff as defined within Section 12.

7.5.4 Fundamental to planning the future workforce will be ensuring staff are equipped with the requisite skills, competences and capability to fulfil their roles in providing new models of care. As such training needs analysis and resultant development plans will be a key output of workforce planning activity.

7.6 Management of Change

7.6.1 There are two parts to the Board's strategy to manage the human resources impact of the changes envisaged by this OBC:

- Workforce Development Plans
- Communications Strategy

7.6.2 The key workforce impacts of the OBC on the Board's workforce has already been shown in Figure 7-2. Specific actions will be developed, and embedded in Workforce Development Plans, for staff groups that are particularly affected by the change.

7.6.3 NHS Ayrshire and Arran are aware that good communications are essential to the success of Building for Better Care programme. As part of a rolling communications programme, the following is being developed:

- Staff Newsletter - the Board will establish a well-read staff newsletter that provides the most up-to-date information on the programme. Through the series of articles, staff will be encouraged to get involved in the project. Linking in with the communications plan, work is in hand to develop a series of articles to highlight the ongoing work

- Staff group meetings - these will be set up to target specific staff groups that will be affected by phase 1 of Building for Better Care. It will provide an opportunity to discuss both the physical changes in the redevelopment and the staffing changes arising from the new model of care being implemented

7.7 Conclusion

7.7.1 The Board has developed a robust process for assessing and managing the impact of the changes to staffing brought about by implementing the proposals contained within the OBC. This includes an assessment of the following areas:

- The factors that affect the workforce plan.
- How the Board will identify future staffing requirements.
- How the change process will be managed

8 BENEFITS, RISKS, CONSTRAINTS & DEPENDENCIES

8.1 Overview

8.1.1 This section of the OBC:

- Sets out the main outcomes and anticipated benefits of the project
- Highlights the main risks of the project and the key project constraints and dependencies

8.2 Main Outcomes and Benefits

8.2.1 In developing the key outcomes and benefits the Board have reviewed the Investment Objectives developed as part of the IA and sought to consider how these translate into more measurable outcomes and benefits arising from the proposed improvements to front door services.

8.2.2 These benefits and outcomes will then be used to develop more detailed criteria to assess the extent to which each of the shortlisted options are capable of meeting the overall requirements of the project. These criteria are set out as part of the Economic Case in Section 10 of the OBC.

8.2.3 The key outcomes and benefits arising from the proposed investment in front door services are set out in the table below.

Figure 8-1: Main outcomes and benefits

Area	Outcome and benefit
Improving service effectiveness	Provides clinically effective and integrated front door services, enabling the full implementation of new models of care.
Responding to changes in demand	Ensures that services are flexible enough to respond to the changing nature of demand for front door services by incorporating anticipated changes in NHS Ayrshire and Arran demographics and morbidity into the service requirements.
Improving service quality	Supports improved quality of patient care by delivering more rapid and effective evidence based assessment at the front door allowing timely decisions to be made regarding the clinical pathway most likely to ensure the best possible outcomes for patients.
Effective use of resources	Makes more effective use of resources by reducing the numbers of patients unnecessarily admitted to inpatient specialty beds and increasing the proportion of patients who receive care on an ambulatory basis.

Area	Outcome and benefit
Enhanced physical environment	Provides an enhanced physical environment through improving the range and standard of accommodation required to meet clinical and functional requirements of patients, staff, visitors and other users of the hospital.
Staffing	Will help facilitate NHS Ayrshire and Arran in providing the right number of staff with the right skills in the right place at the right time
Meeting standards	An improved physical environment will provide the range and standard of accommodation required to meet clinical and functional requirements of patients, staff, visitors and other users of the hospital.

8.3 Main Risks

8.3.1 A project risk register has been developed and this is shown in section 11. The key risks highlighted include the following:

- Design and construction risks particularly in relation to the ability of the existing hospital infrastructure to accommodate the proposed developments
- Business continuity risks through failure to provide continuity of services during the construction period
- Revenue risks arising through costs being greater than anticipated and / or the inability to redirect resources to fund front door services
- Service and operational risks resulting from failure to adapt to the new models of care
- Approval and timescale risks arising from an inability to secure FBC approval prior to the Scottish parliamentary elections

8.4 Key Project Constraints

8.4.1 The project constraints are embedded in the Critical Success Factors highlighted in Section 4 of the OBC, however, specific constraints are to ensure that:

- Options must be deliverable within the available capital and revenue resources
- Options should provide sufficient flexibility for future changes in service requirements.
- Service continuity must be maintained during construction / refurbishment
- Options can be delivered within the overall programme and in line with the profile of available funding
- Options must comply with Scottish Government guidance regarding single room provision and patient environment

8.5 Project Dependencies

8.5.1 There are a range of project dependencies, many of which have been identified as part of the development of the proposed models of care. The key project dependencies include:

- The availability of adequate numbers of appropriately trained acute physicians who will be based in the CAU
- Timely and appropriately resourced access to diagnostics (e.g. imaging and laboratories)
- The need to deliver the necessary improvements in clinical performance required to release resources and redirect these to support the development of front door services

8.6 Conclusion

8.6.1 The expected outcomes and benefits as well as the main risks, key project constraints and project dependencies from this development have been identified, developed and agreed by the Board during the development of this OBC.

8.6.2 These together with the key investment objectives were used to formulate a shortlist of options and to assess the non financial benefits of the shortlisted options. This option development process is covered in the first section of the Economic Case, which is set out below.

ECONOMIC CASE

9 OPTION IDENTIFICATION

9.1 Overview

9.1.1 This section of the OBC sets out the process for identifying the shortlist of options to be appraised in subsequent sections of this document.

9.1.2 In developing the list of options the Board is conscious of the need to ensure that all shortlisted options are clearly deliverable and can be delivered within the available capital funding.

9.1.3 The option shortlisting and validation was undertaken at the option development workshop on 6th June 2012 and the agreed position is reflected in the options presented within this section of the OBC.

9.2 Project Objectives and Constraints

9.2.1 The key project objectives and constraints are set out in sections 4 and 8 of this OBC. These were used in developing the shortlist of options presented in this section of the OBC.

9.3 Developing the Options

9.3.1 There were three steps in developing the options within this OBC that are covered below:

- The Initial Agreement – this was the starting point that set out the list of approaches to enhancing front door services
- The longlisting process – development of a longlist of options
- Shortlisting the options by assessing the longlist against investment objectives and constraints

9.4 Approaches to enhancing front door services

9.4.1 The Initial Agreement approved in 2009 set out a range of ways in which front door services could be enhanced:

- Do nothing
- Do minimum
- New build
- Relocation of existing services plus refurbishment of accommodation
- Relocation of existing services, plus refurbishment and extension of accommodation

9.5 The longlisting process

9.5.1 The five approaches set out in the IA were used to develop a longlist of options which encompassed a wide range of potential solutions in line with the options framework. The longlisting process generated options within a number of categories that are set out in the table below. Note separate options were developed for the Crosshouse and Ayr sites at the long listing process:

Figure 9-1: Longlist of options

Option	Crosshouse Site	Ayr Site
1	Do Nothing	Do Nothing
2	Do Minimum	Do Minimum
3	Re-provide outpatients to release space for CAU	Full new build emergency department
4	Re-provide the emergency department to release space for CAU	Partial new build / partial refurbishment emergency department
5	New build CAU	Re-provide outpatients to release space for emergency department

9.6 Shortlisting the options

9.6.1 The longlist of options were assessed at the shortlisting workshop on 6th June 2012. Each longlisted option was assessed against a range of investment objectives and constraints to establish a preferred direction of travel and a shortlist for this OBC. The results of this assessment were:

- Do nothing eliminated as did not meet any objectives and very few critical success factors (affordability only). The Do minimum was retained as a reference position to measure the incremental benefits and cost of the other options
- Removed Crosshouse option 4 as this option did not meet affordability or value for money critical success factors as this re-provides an area which is currently fit for purpose
- Removed Ayr option 4 as this only partially met critical success factors in terms of deliverability and timescales given significant decanting and phased move, in addition only partially met value for money as would spend significant amounts on existing poor quality facilities.
- Removed Ayr option 5 as only partially meets a number of critical success factors including strategic fit, achievability, affordability and value for money as this re-provides an area out with the scope of the investment.

9.6.2 The longlisted options and the reasons for eliminating the options are set out in the table below.

Figure 9-2: Longlist of options and rational for shortlisting

Option	Description	Shortlist	Rationale
1	Do Nothing	✗	Not viable option
2	Do minimum, backlog maintenance	✓	Include as baseline option, to measure extra benefits and costs against
Crosshouse site CAU			
3	Build new Outpatient department, releasing space for provision of Combined Assessment Unit	✓	
4	Build new Combined Assessment facility in main car park	✓	
5	Build new Accident & Emergency in main car park and link to existing hospital, releasing existing Accident & Emergency / SSW / CDU / Pre-Admission area for provision of Combined Assessment	✗	Re-provides currently fit for purpose accommodation. Does not meet affordability or value for money critical success factors
Ayr site A&E			
3	Full new build emergency department	✓	
4	Partial new build / partial refurbishment emergency department	✗	Only partially meets variety of CSFs – achievability, timescale and value for money
5	Re-provide outpatients to release space for emergency department	✗	Only partially meets range of CSF - strategic fit, achievability, affordability and value for money

9.7 Reviewing and validating the shortlisted options

9.7.1 The Scottish Capital Investment Manual (SCIM) includes a requirement to revisit the shortlisted options. The Board undertook this review during the early stages of the development of the OBC, reassessing the shortlisted options for this OBC at a workshop on 6th June 2012.

9.8 The review and validation process

9.8.1 The shortlisted options were reviewed against a range of criteria including:

- Critical success factors
- The investment objectives
- Criteria within the SCIM

9.8.2 These criteria are detailed in the table below..

Figure 9-3: Criteria for reviewing shortlisted options

Critical success factors	Investment objectives	SCIM criteria
▪ Strategic fit - Does the option give the Board sufficient long term flexibility and ability to change in response to new service demands; allow appropriate co-location with, or support to, other service developments; facilitate integrating services with other health partners and address any backlog maintenance issues associated with the estate? ▪ Achievability - Is the option deliverable given the Board's capacity and capability to manage the subsequent change programme? ▪ Affordability - Is the option likely to be funded in capital and revenue terms?	▪ Clinical Effectiveness & Sustainability: to ensure the hospital provides services that are clinically effective and sustainable over the medium to long term ▪ Physical Environment: to facilitate the provision of services in a high quality environment which is 'fit for purpose' for staff, patients and visitors. ▪ Capacity & Demand: to ensure front door services in Ayrshire and Arran can respond to the demand from the local population ▪ Delivering models of care in line with the developing clinical strategy: to ensure that secondary care services facilitate joint planning in the development of patient focussed services, in a primary and community setting	▪ Do any of the options fail to deliver the investment objectives and CSFs for the project? ▪ Do any of the options appear unlikely to deliver sufficient benefits, bearing in mind that the intention is 'to invest to save' and to deliver a positive net present value (NPV)? ▪ Are any options clearly impractical or unfeasible – for example, the technology or land is not available? ▪ Is any option clearly inferior to another, because it has greater costs, lower benefits, or unacceptable environmental or social risks or costs?

Critical success factors	Investment objectives	SCIM criteria
▪ Timescale for implementation -Is the option deliverable within the strategic timescale? ▪ Value for money - Does the option maximise the return on the required investment in terms of economy, efficiency and effectiveness and minimise associated risks?	▪ Access: to maximise access to appropriate front door hospital services for the local population in the short, medium and long term ▪ Performance & Efficiency: to ensure front door services are developed in such a way as to maximise performance and improve efficiency ▪ Recruitment and retention of staff: to ensure the Board is able to recruit and retain high quality skilled staff to support the delivery of high quality patient care	▪ Do any of the options violate any of the constraints – for example, are any clearly unaffordable? ▪ Are any of the options sufficiently similar to allow a single representative option to be selected for detailed analysis? ▪ Are any of the options clearly too risky?

9.8.3 The conclusions of the review were:

- **CSFs** – all the shortlisted options identified at this stage of the development sufficiently met the CSFs
- **Investment Objectives** – all shortlisted options met the investment objectives
- **SCIM criteria** – all of the options identified at this stage of the development sufficiently met the SCIM criteria

9.8.4 On the basis of the evaluation, it was concluded that all the options were valid and should be taken forward in this OBC.

9.8.5 The Crosshouse and Ayr site options were combined into a single short list and taken forward within this OBC and are renumbered and summarised in the table below.

Figure 9-4: Final OBC option shortlist

Option	Description	Comment
1	Do minimum, backlog maintenance of Crosshouse CAU and Ayr Emergency Department	This is the benchmark option, which will be used as a comparator
2	Build new Outpatient department, releasing space for provision of Combined Assessment Unit at Crosshouse and new build Emergency Department at Ayr	This is a more ambitious option, which exceeds the specification in the direction of travel by facilitating further developments of the hospital site in addition to the core front door services or reproviding facilities which are currently deemed fit for purpose
3	Build new Combined Assessment facility at Crosshouse site in main car park and link to existing hospital. Build new Emergency Department at Ayr site.	This option represents the reference position, fulfilling the direction of travel set out in the IA

9.8.6 The Board together with the PSCP have taken forward the three shortlisted options and produced:

- Schedules of accommodation
- Design drawings
- Assessments of the design features
- A construction programme

9.9 Conclusion

9.9.1 The Board has developed a longlist of options for the redevelopment of Combined Assessment at Crosshouse hospital and Emergency Department at Ayr hospital which was set out in the initial agreement.

9.9.2 Following the development of the longlist the options were assessed against a range of investment objectives and constraints to establish a preferred direction of travel and an associated option shortlist. This process included significant input from a wide range of stakeholders.

9.9.3 The shortlist of options has been reviewed to ensure that they remain valid and further detailed work has been undertaken to clearly articulate their key features. This has resulted in a range of solutions representing a benchmark option, a reference position which fulfils the direction of travel set out in the IA, and a more ambitious option.

9.9.4 A comparison of the shortlisted options at this stage has already indicated that they contain a range of qualitative differences. These are explored in more detail in the non financial assessment, which is followed by the financial and economic appraisal and risk assessment of the three options.

10 NON FINANCIAL BENEFITS APPRAISAL

10.1 Overview

10.1.1 A key component of any formal appraisal process is the assessment of the non-financial or qualitative benefits that are likely to accrue from the options under consideration.

10.1.2 Where possible costs and benefits should be valued in monetary or quantitative terms, however, this is not always cost effective or practical. Very often qualitative factors are crucial in informing the decision making process. It is therefore important that the option appraisal process captures these non financial costs and benefits and presents them alongside the quantitative measures.

10.1.3 Whilst there is a range of techniques available to assess the non monetary factors, in light of the scale of this project, and in line with the requirements of the Green Book, the Board has adopted the weighted scoring method to assign non financial benefits to the range of shortlisted options.

10.1.4 Although the relative non-financial benefits of the options presented allows for comparisons to be made in this area, the outcome is critical in assessing the overall value for money presented by each of the options.

10.1.5 As part of this process the Board of Ayrshire and Arran has sought to clearly set out how the options compare in regard to non-monetary factors through a range of measures, namely:

- Developing a range of attributes, or benefit criteria, which relate closely to the project objectives and constraints as set out in Sections 4 and 8 of this business case
- Clearly presenting the information relating to each option which allows a comparison to be made with regard to the benefit criteria
- Explaining clearly the reasoning behind the weights and scores assigned to the options as part of the non-financial benefits assessment

10.1.6 The Board has elected to carry out the benefits appraisal in an open and transparent environment, inviting a range of stakeholders to participate in the process.

10.1.7 The weighted scoring method adopted to assess the comparative level of non-financial benefits has four main stages:

- Identification and assessment of the longlist of options to arrive at a shortlist
- Identification of the benefits criteria
- Weighting of the benefits criteria and
- Scoring of the short-listed options against the benefits criteria

10.1.8 The following sections provide a detailed description of the process used to assess the potential benefits of the short-listed options, along with the outcomes of the exercise.

10.2 The Workshop Format and Participants

10.2.1 A benefits appraisal workshop was held to assess the relative level of benefits delivered by the short-listed options on 27th June 2012.

10.2.2 The aims of the workshop was to:

- Establish a common understanding and agreed approach to the benefits appraisal process;
- Review and describe the list of options to be evaluated;
- Develop the list of criteria against which each of the options would be evaluated;
- Weight the criteria using established mechanisms;
- Score the options against the agreed criteria using the assigned weightings.

10.2.3 To ensure that the views of stakeholders were at the forefront of the process; and that the benefits appraisal process was conducted in an open and transparent manner, a broadly representative group of individuals were invited to attend the workshop. The representatives from the Board included; front line clinical staff, staff representing clinical and non clinical support services. In addition to Board staff there was representation from members of the public.

10.2.4 The workshop structure and format was designed and facilitated by Ayrshire and Arran staff. Members of the PSCP advised the group on design and phasing, but did not play a role in the ranking, weighting or scoring process. A full list of attendees for both workshops is available at **Appendix D1**.

10.2.5 The role of the stakeholder group was as follows:

- Oversee the benefits appraisal process
- Ensure the benefits appraisal was conducted rigorously and fairly
- Assess the longlist of options and agree a shortlist
- Allocate weighting to the criteria

10.3 The Benefit Criteria

10.3.1 The role of the benefit criteria in the non-financial appraisal is to provide a basis against which each of the options can be evaluated in terms of their potential for meeting the objectives of the proposed capital investment.

10.3.2 The criteria have been specifically developed in a manner which minimises the extent to which there may be double counting arising from overlap in the attributes or features. In addition due care has been taken of the need to ensure that the full range of attributes are covered even if they are likely to be common to all of the shortlisted options.

10.3.3 Individual criteria will, generally speaking, have differing degrees of importance in determining the preferred solution to emerge from the benefits appraisal. As a result it is necessary to allocate a weight to the criteria in order to reflect their relative importance to each other. This should reflect the degree to which each criterion will affect the outcome of the options scoring exercise.

10.3.4 Draft criteria definitions were discussed by the group at the meeting on the 27th June 2012. The draft criteria definitions were reviewed and explored by participants which resulted in a final set of agreed benefit criteria and definitions, which are set out in the table below.

Figure 10-1: Agreed benefit criteria

Criterion	Definition
Disruption	Disruption to the work of the service should be minimised throughout the period of building and relocation. Minimal disruption to adjacent services, both during the building process and during the long-term delivery of care should be considered.
Safe	The option should provide a safe service for all patients, carers, visitors and staff. Any clinical risks associated with the option should be assessed, managed and minimised so that the provision of the service should do no harm and aim to avoid preventable adverse events.
Sustainable	The option should be able to accommodate changes in patterns of care and the changing needs of the population over the longer term. It should enable optimal and efficient deployment of all types of resources including staff, facilities and equipment to meet the expansion or realignment of services in the future
Flexibility	The option should allow for future development phases to be effectively accommodated as part of the full delivery of font door services
Accessible	The option should improve access to services at the “front door” of the hospital and facilitate better flow from a patient pathway perspective.

10.3.5 The benefit criteria have been developed with specific reference to the investment objectives as set out in section 4 of this OBC. The linkages between the investment objectives and benefit criteria are set out below.

Figure 10-2: Linkage between investment objectives and benefit criteria

Investment Objectives	Benefit Criteria Links				
	Disruption	Safe	Sustainable	Flexible	Accessible
1. Clinical Effectiveness & Sustainability	✓	✓	✓	✓	✓
2. Physical Environment	✓				✓
3. Capacity & Demand		✓	✓	✓	✓
4. Delivering models of care in line with the developing clinical strategy		✓	✓	✓	✓
5. Access		✓	✓		✓
6. Performance & Efficiency	✓	✓	✓	✓	✓
7. Recruitment, retention of staff and students	✓	✓	✓		

10.3.6 The table shows the clear linkages between the investment objectives and the proposed benefit criteria used to differentiate the options. This analysis was taken into account by the participants at the workshop during the ranking and weighting exercise.

10.4 Initial assessment of the features of the shortlisted options

10.4.1 Before the weighting and scoring process, each of the shortlisted options was assessed against the benefit criteria, so there was clarity and understanding of the features of each option. This evaluation is set out in the following sections.

Option 1 – Do Minimum (benchmark option)

10.4.2 The key features, advantages, disadvantages for option 1 the Do minimum option, are set out below.

Figure 10-3: Detailed features of option 1

Key Features:	
The work includes undertaking the backlog maintenance e.g. repair and replacement of engineering services and the fabric of the building This will essentially return the building to its original functional standards but will not provide compliance with all regulatory technical requirements Option 1 is not a design solution – but a baseline option which improves the fabric of the existing building	
Advantages	**Disadvantages**
▪ Minimal change ▪ Addresses backlog maintenance for existing facilities	▪ Does not support the proposed front door model of care ▪ Does not deliver the required expansion in front door capacity ▪ Does not support the delivery of specialty based bed reductions ▪ Potentially disruptive to existing services ▪ Non-compliance with accommodation standards e.g. (HTMs) ▪ Increased risk to maintaining adequate infection control ▪ Does not deliver the required expansion in A&E capacity at Ayr ▪ Does not address all of the current deficiencies in A&E department at Ayr ▪ Likely require decant of existing services

Option 2 – Build new outpatients department to facilitate reconfiguration of existing space to provide CAU at Crosshouse and new build ED at Ayr

10.4.3 The key features, advantages, benefits and issues for consideration for option 2, are set out below.

Figure 10-4: Detailed features of option 2

Key Features :		
▪ Build new Outpatient Department, releasing space for provision of Combined Assessment Unit at Crosshouse hospital ▪ Build new Emergency Department at Ayr hospital		
Site	**Advantages**	**Disadvantages**
Crosshouse	▪ Provision of new state of the art CAU with future proofing within refurbished accommodation adjacent to ED ▪ Maintains strong adjacency between ED, CAU and imaging ▪ Creation of new route from CAU to theatres to avoid cross flows ▪ OPD closer to medical records ▪ OPD consolidated and re-provided in new build accommodation ▪ Minimal disruption to ongoing operations ▪ No double decants required ▪ Empty space left after phase 1 work complete for future development ▪ Improved environment for OPD	▪ Loss of car parking space near hospital entrance ▪ Disruption to adjacent facilities during OPD new build ▪ Disruption to adjacent facilities during refurbishment for CAU ▪ Services diversions, temporary access routes / fire escape etc ▪ Creates two storey OPD due to site restrictions ▪ Lack of natural light within proposed CAU ▪ Extended travel distance between OPD and main imaging department ▪ Restricts options for future delivery of critical care facility (CCF)
Ayr	▪ Fully addresses current capacity and layout constraints ▪ Space planning / clinical model to latest standards ▪ Disruption minimised ▪ Commission fully ahead of decant and move in ▪ Retains various options to deliver CAU/Critical Care in the future ▪ Empty space (future expansion potential) left at end of phase 1	▪ Expansion space to south limited due to sloping ground – restricts space planning ▪ Weak adjacency to theatre ▪ Road and car park re-alignment / reprovision ▪ Services diversions ▪ Temporary access routes / fire escape etc ▪ Potential disruption to SSW / MRI / CT while building new Emergency Dept ▪ New build ED does not improve any existing adjacencies with ED ▪ Weak adjacency between Critical Care and front door services

Option 3 – Build new Combined Assessment Unit at Crosshouse hospital and build new Emergency Department at Ayr hospital

10.4.4 The key features, advantages, benefits and issues for consideration for option 3, are set out below.

Figure 10-5: Detailed features of option 3

Key Features :		
▪ Build new Combined Assessment Unit at Crosshouse hospital ▪ Build new Emergency Department at Ayr hospital		
Site	**Advantages**	**Disadvantages**
Crosshouse	▪ Provision of new state of the art CAU with future proofing within new build accommodation with ▪ Good adjacencies to ED ▪ Minimal disruption to ongoing operations ▪ No double decants required ▪ Maximises day light opportunities ▪ Retains option to bolt on critical care facility in the future	▪ Loss of car parking facilities near hospital entrance ▪ Disruption due to road re-alignment ▪ Services diversions required for new build ▪ Increased travel distances from CAU to remainder of hospital ▪ Options for future delivery of critical care facility increased travel distance to wards / imaging ▪ Temporary access routes / fire escape etc ▪ Restricts options in future for any changes to laboratory services
Ayr	▪ Fully addresses current capacity and layout constraints ▪ Space planning / clinical model to latest standards ▪ Disruption minimised ▪ Commission fully ahead of decant and move in ▪ Retains various options to deliver CAU/Critical Care in the future ▪ Empty space (future expansion potential) left at end of phase 1	▪ Expansion space to south limited due to sloping ground – restricts space planning ▪ Weak adjacency to theatre ▪ Road and car park re-alignment / reprovision ▪ Services diversions ▪ Temporary access routes / fire escape etc ▪ Potential disruption to SSW / MRI / CT while building new Emergency Dept ▪ New build ED does not improve any existing adjacencies with ED ▪ Weak adjacency between Critical Care and front door services

10.5 Weighting the Criteria

10.5.1 As some criteria will have a greater bearing on the outcome of the benefits appraisal it is necessary to weight them to demonstrate their relative importance.

10.5.2 At the first workshop on 27th June 2012 participants were required to weight each of the five criteria. Each participant was allocated 50 weighting points and then asked to distribute these points across the five criteria. The distribution of these points reflected the relative importance of each criterion.

10.5.3 The average criteria weights are displayed in the table below.

Figure 10-6: Weighting of benefit criteria

Criterion	Weighting
Disruption	5
Safe	14
Sustainable	13
Flexible	10
Accessible	9

Note - weights do not total 50 owing to rounding

10.6 Scoring the Options

10.6.1 Participants in the workshop, held on 27th June 2012, undertook a scoring exercise to assess the relative benefits of each of the three shortlisted options. The participants were grouped into five "tables", with a mix of staff by hospital location, specialty and profession at each table.

10.6.2 In this process, the benefit attributed to an option was determined by assessing each option against each criterion and allocating a score to reflect how well that option performs against that criterion. Participants at the workshop were asked to score the benefits of the options individually.

10.6.3 The maximum score that could be attributed to each criterion in each option was 10 and therefore the maximum total score for each option, across the five criteria, was 50.

10.6.4 To calculate the weighted benefit score (WBS) for each option, the raw scores for each of the five criteria were multiplied by the relevant criterion weight. These values were then aggregated to calculate the total score for each option. The table below shows:

- The raw score
- The weighted benefit score
- The incremental benefit score

10.6.5 The options have then been ranked by total WBS and the relative benefit of each option compared to the Do Minimum.

Figure 10-7: Weighted Benefit Score (WBS) of shortlisted options

Option	Raw benefit scores (no weighting applied)	Weighted Benefit Score (WBS)	Incremental benefit using WBS (compared to Do Minimum)
3	34	350	250
2	33	345	245
1 (Do minimum)	10	100	-

10.6.6 The analysis shows that in terms of non financial benefits:

- **Option 3 is the preferred option**, scoring 350 WBS. Whilst only 1.3% (5 WBS) higher than the next option, Option 3 nevertheless attracts over twice the WBS of the Do Minimum option.
- **The second preference is option 2**, scoring 245 WBS higher than the next option, the Do Minimum.
- The Do Minimum (Option 1) scores the lowest of all the options with a WBS of only 100.

10.6.7 The conclusion from this analysis is that Option 3 is the preferred option using non financial criteria from both the WBS and the fact that it is the reference option. The relatively small difference between the options indicated that a sensitivity analysis was required to confirm the robustness of Option 3 as the preferred option.

10.7 Sensitivity Analysis

10.7.1 Sensitivity analysis was conducted to assess the degree of certainty surrounding the selection of a preferred option. The analysis included determining the preferred option for the following staff groups:

- By profession - doctors, other clinical staff, and non-clinical staff
- By hospital specialty - A&E, medicine, anaesthetics and other specialties
- By table number – as seated at the scoring workshop

10.7.2 The preferences of the participants were analysed across the above groupings and is presented in the table below.

Figure 10-8: Sensitivity analysis

Group	Category	1st preference	Conclusion
Profession	Doctors	Option 2	The Doctors score showed a minimal differential between options 2 and 3
	Other clinical staff	Option 2	
	Non clinical staff	Option 3	
Specialty	A&E	Option 2	The differential score for Medical specialties was minimal (7 points) whereas there was a differential of 66 points for Other specialties
	Medicine	Option 2	
	Anaesthetics	Option 2	
	Other specialties	Option 3	
Table	2, 3, 4 & 6	Option 2	The differentials for tables 4 and 6 were in the order of 16 and 4 points respectively
	1 & 5	Option 3	

10.7.3 Whilst Option 2 is actually the first preference in more categories than option 3 this is not hugely surprising given the closeness of the overall WBS for each option. In a number of instances where option 2 scores higher there is a marginal difference over the score for option 3. Where option 3 is the preference there tends to be a more material difference in scores between the two solutions.

10.7.4 The results of the sensitivity analysis, whilst not conclusive, still indicates that from the perspective of non-financial benefits, there is little to choose between option 3 and option 2.

10.8 Conclusion

10.8.1 In assessing the non-financial benefits of the shortlisted options NHS Ayrshire and Arran has adopted an open and transparent assessment process involving staff from both clinical and non clinical areas as well as patient representatives.

10.8.2 In assigning weights and scores to the shortlisted options, the Board has worked hard to clearly outline the supporting rationale and justification.

10.8.3 In overall terms the results of the benefits scoring exercise were conclusive. Based on the composite scores:

- Option 3 delivers the highest level of non-monetary benefits when measured against the criteria;
- Unsurprisingly, the Do Minimum option results in the lowest level of overall benefits.

10.8.4 The weighted scores will subsequently be contrasted with the analysis of the monetary costs and benefits as expressed through the Net Present Costs (NPC's) of the options to help assess the relationship between monetary and non-monetary factors.

11 RISK ASSESSMENT AND QUANTIFICATION

11.1 Overview

11.1.1 This chapter provides an assessment of both the qualitative and quantifiable risks associated with each of the short-listed options. This is so that the economic appraisal can properly reflect the risk differentials between the different options. The net present costs of quantified risk calculated in this chapter will be applied within the Economic Appraisal so that the discounted cash flow analysis incorporates the full expected value of the options.

11.1.2 The section outlines the methodology used to derive the risks, along with the net present cost of these risks. Careful attention has been paid to ensure that no double counting between risk and optimism bias has occurred.

11.2 Capital Risks

11.2.1 The capital risks have been assessed by Principal Supply Chain Partner (PSCP) BAM Construction and have been reviewed by NHS Ayrshire & Arran's Principal Supply Chain Cost Consultants Gardner & Theobald. These are expressed in terms of a capital cost contingency and the value is included within the capital costs outlined in the next section.

11.3 Optimism Bias (OB)

11.3.1 In line with HM Treasury guidance and the Scottish Capital Investment Manual (SCIM) the Board has assessed the level of optimism bias associated with each of the shortlisted options.

11.3.2 In assessing optimism bias, the Board has sought to base its assessment on evidence from other NHS schemes. It has therefore adopted the optimism bias tool that has been tailored by the Department of Health in England, and consistent with the requirements of the Scottish Capital Investment Manual (SCIM), to reflect the key contributions to optimism bias in health build projects. The spreadsheets used to identify the upper bound and the level of mitigation are included in **Appendix E1 and E2**.

11.4 Upper Bound Assessment

11.4.1 The following factors were consistent in the upper bound assessments of the short-listed options:

- **Number of Sites involved (2%)** - in all options there are two sites.
- **Facilities Management (0%)** - the procurement of the scheme will not involve FM services. FM services will continue to be provided by the Board and therefore are excluded from the procurement.
- **Information Technology (1.5%)** - the options only cover IT infrastructure. This reduces the optimism bias upper bound
- **External Stakeholders (1%)** - The number of external NHS or other organisations involved in the scheme is limited, with only 1 local NHS organisation involved. This reduces the optimism bias upper bound.
- **Service Changes (5%)** - No known service changes are expected during the procurement and construction phase

11.4.2 The following contributors to the upper bound varied across the options:

- **Length of build -** option 3 is the only option that would be less than two years with a value of 0.5%. All other options are likely to take 2-4 years with a value of 2%.
- **Number of Phases**: All Options except the Do Minimum are expected to have no more than 2 phases and a value of 0.5%, the Do Minimum is expected to take more than 4 phases with a value of 5%.
- **Location -** option 3 is less than 15% refurbishment with a value of 6%; option 2 is a mixture of new build and between 15-50% refurbishment with a value of 10%. The Do Minimum is over 50% refurbishment with and value of 16%.
- **Equipment:** All Options except the Do Minimum include all equipment with an adjustment of 5%; the Do Minimum including Group 1 & 2 equipment only with an adjustment of 0.5%.
- **Gateway Score:** All Options except the Do Minimum is assessed to be medium risk; the Do Minimum is assessed at low risk.

11.5 Mitigation of Optimism Bias

11.5.1 The Board has assessed the mitigation of optimism bias that can be applied, at this stage in the design development process. As the project progresses through the procurement stage, the level of optimism bias will diminish, as key features of the project become more defined and agreed. The level of optimism bias mitigation will be assessed regularly as the project progresses through the procurement process.

11.5.2 The level of mitigation for the shortlisted options is shown in the table below. This reflects the anticipated level of residual optimism bias remaining after the mitigation factors have been applied.

Figure 11-1: Mitigation of optimism bias

Area	Contribution to OB	Do Min	Option 2	Option 3
Robustness of Output Specification	25	10	10	10
Stable policy environment	20	15	6	6
Client capability and capacity	6	2	2	2
Involvement of Stakeholders	5	2.5	2.5	2.5
Agreement to output specification	5	3	2.5	2.5
Progress with Planning Approval	4	0	3	3
Other Regulatory	4	1	4	4
Detail of design	4	3	3	2
Design complexity	4	2	2	2
Other factors (see **Appendix E2)**	23	5	4.5	3.5
Total	**100**	**43.5**	**39.5**	**37.5**

11.5.3 Further details of the rationale behind these levels of mitigation are included within **Appendix E2**. The key areas are outlined below.

- Initial discussion has progressed with Planning.
- Full site investigations, topographical surveys and service's locations identified.
- PSC's and PSCP teams already appointed through HFS Framework reducing risk on Contract Form, experience and likely competition
- Early involvement of contractor and key supply chain members
- Design developed to 1:200 layouts and beyond for key areas with Schedules of Accommodation signed off by users.

11.5.4 The table below shows the resultant level of optimism bias.

Figure 11-2: Optimism bias of short-listed options

Option	Upper bound assessment	Percentage remaining after mitigation	Residual Optimism Bias
Do Minimum	33	43.5	14.36
Option 2	29	39.5	11.46
Option 3	24	37.5	9.00

11.6 Relationship between Optimism Bias and Risk

11.6.1 The Board has sought to eliminate the risk of double counting between optimism bias and risk. In particular, when developing the risk quantification, it has sought to achieve the following:

- Where a risk clearly duplicates an area covered by the optimism bias, this risk has not been quantified. Examples of risks that were not quantified are risks relating to NHS legislative or regulatory change.
- Where there is an overlap between areas covered by factors contributing to optimism bias and risk, the Board has valued the risk, but sought to tightly constrain the scope of the risk that is valued. An example of this is the risks associated with the planning application. The cost impact of any delay in gaining planning approval has been assessed as part of the capital risk contingency. However the risk that planners require changes to the scope of the scheme has been captured via optimism bias.

11.7 Revenue Risks

11.7.1 The revenue risks were identified via a workshop attended by members of the Programme Boars and Principal Supply Chain Partner (PSCP). The workshop was also used to identify and assess qualitative risks.

11.7.2 The workshop was held on 23rd August 2012 of which the participants are detailed below:

Figure 11-3: Risk workshop participants

Name	Role
Liz Moore	Director - Integrated Care & Emergency Services
Anthony Newlands	Clinical Director and Consultant Surgeon
Andy Brown	Board Project Manager
Karen Pirrie	PSCP – Capita
Stuart Sanderson	Assistant Director of Finance
Angela O'Neil	Associate Nurse Director
Sinclair Molloy	Healthcare Manager
David Watts	Clinical Director, ADOC
Mandy Yule	Director - Integrated Care and Partner Services
Kirsten Dickson	Assistant Director, Health Economics & Performance
Niall Thomson	PSCP – Capita
Stephen Knight	Project Manager, Mott MacDonald,
Colin Carruthers	Cost Consultant, Gardner & Theobald
Ali Taha	Clinical Director and Consultant Gastroenterologist
John Scott	Head of Capital Planning
Debbie Kirk	Health Care Manager

11.7.3 The first stage of the workshop involved agreeing the risk register. This was developed by reviewing the main project risk register and updating where necessary.

11.7.4 The next stage involved determining if the risk could be quantifiable or not. The table below outlines the risk register and the nature of the risks to be assessed.

Figure 11-4: Risk register

Ref	Risk Description	Quantifiable
1	***Capacity & Demand Risks***	
1.1	Failure to deliver required levels of performance	No
1.2	Unused facilities and capacity	Yes
1.3	Facilities not flexible enough to respond to changes in service and demand	No
1.4	In ability to release resource from specialty beds to use within front door (Crosshouse only)	Yes
1.5	Changes to catchment population	Yes
1.6	Inability to deliver access service targets	No
1.7	Lack of diagnostic support required for successful implementation of model of care	No
2	***Staffing Risks***	
2.1	Design impacts on staffing requirements not managed	No
2.2	Change in nursing workforce is not secured	No
2.3	Inability to recruit adequate numbers of acute physicians	No
2.4	Staff resist changes in procedures	No
2.5	Loss of key personal or staffing resources or specialist knowledge base that could impact upon the project work load; key events or milestones.	No
3	***Operational Risks***	
3.1	Failure to deliver required levels of quality	No
3.2	Inadequate patient environment	No
3.3	Facility does not meet stakeholder expectations	No
3.4	Disruption to on-going delivery of clinical and non clinical services.	No
3.5	Operational commissioning difficulties - including staff training	No
3.6	Incorrect assessment of maintenance costs	Yes
3.7	Incorrect assessment of projected energy use	Yes

Ref	Risk Description	Quantifiable
3.8	Capital charge calculations inadequate	Yes
3.9	Revenue cost impact underestimated	Yes
4	***Reputational & Policy Risks***	
4.1	Lack of clear links between the project and the organisation's key strategic priorities, including agreed measures of success	No
4.2	Lack of clear senior management ownership and leadership	No
4.3	Lack of ministerial ownership and leadership	-
4.4	Communication and Stakeholder involvement inadequate	No
4.5	Adverse publicity resulting from failure to justify levels of investment	No
4.6	Government or external strategies or policies that have a direct impact or influence the phases of the contracts for both location project schemes of work.	No
5	***Timing & Disruption Risks***	
5.1	Incorrect time and cost estimates for commissioning	Yes
5.2	Accidental loss of engineering services to existing facilities	No
6	***Funding Risks***	
6.1	Unexpected change in allocation of healthcare resources	-
6.2	Funding available to support project is reduced as a result of current economic and fiscal position.	No
7	***Technology Risks***	
7.1	Unexpected change in medical technology	No
7.2	Technological change resulting in asset obsolescence	-
7.3	Change arising from technological advancement	-
8	***Commercial Risks***	
8.1	Lack of knowledge of familiarisation of Framework NEC3 conditions of contract.	No
8.2	Framework partner was to go into receivership or encounter financial trouble or be unable to function and put the project agreement at risk.	No

11.7.5 Some risks were agreed by the group to either be irrelevant or already captured by another; therefore these were not assessed (indicated as – in table above).

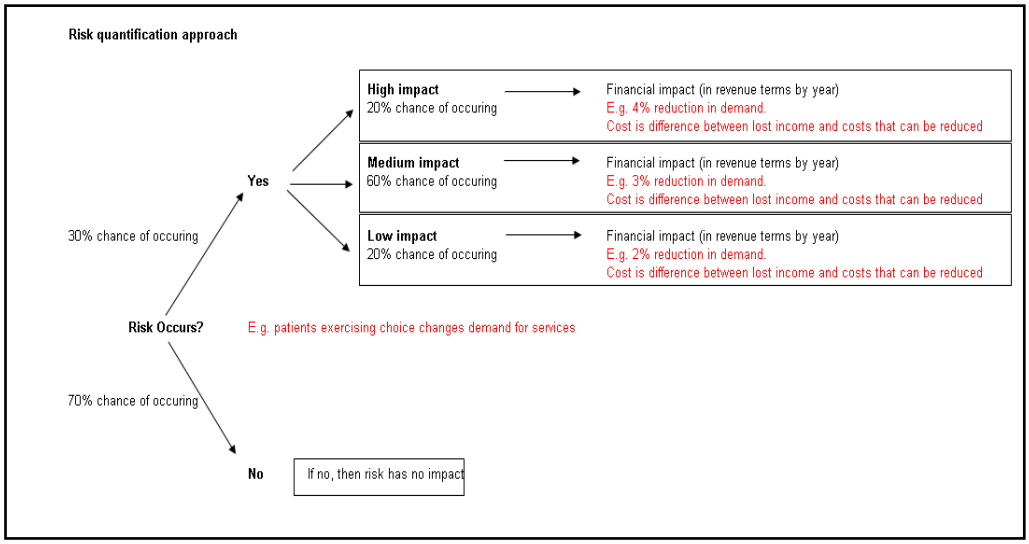
11.8 Revenue Risk Quantification

11.8.1 For the non-quantifiable risks a qualitative assessment was undertaken and is described within the next section. The quantifiable risks have been assessed in four stages, namely:

- **Stage 1** assesses the likely chance of the risk occurring
- **Stage 2** identifies the years in which the risk will occur
- **Stage 3** assesses the minimum, most likely and maximum impacts of the risk with the chance of each scenario happening.
- **Stage 4** assesses the expected differences between the expected risks of the options

11.8.2 The risk modelling has assumed that the distribution of all revenue risk impacts approximate to a triangular distribution (i.e. that the average of the minimum, most likely and maximum values equals the mean risk value). An example of this is shown below.

Figure 11-5: Diagram representing approach to revenue risk quantification



11.8.3 The resulting expected values of the quantified risks, expressed in cash values and their corresponding NPC, over a 30 year appraisal period, is shown below for each option. Further details are provided in **Appendix E3**

Figure 11-6: Mean risk cash value for short-listed options £000

Ref	Risk	Do Min	Option 2	Option 3
1	***Capacity & Demand Risks***			
1.2	Unused facilities and capacity	5,046	7,401	6,728
1.4	Inability to release resource from specialty beds to use within front door	173,781	115,854	115,854
1.5	Changes to catchment population	6,728	6,728	6,728
3	***Operational Risks***			
3.6	Incorrect assessment of maintenance costs	6,218	6,909	6,909
3.7	Incorrect assessment of projected energy use	70	77	77
3.8	Capital charge calculations inadequate	272	200	182
3.9	Revenue cost impact underestimated	38,610	42,900	42,900
5	***Timing & Disruption***			
5.1	Incorrect time and cost estimates for commissioning	2,801	4,108	3,735
	Total	**233,526**	**184,177**	**183,112**

Figure 11-7: Mean NPC of risks for short-listed options £000

Ref	Risk	Do Min	Option 2	Option 3
1	***Capacity & Demand Risks***			
1.2	Unused facilities and capacity	2,872	4,212	3,829
1.4	Inability to release resource from specialty beds to use within front door	96,962	64,642	64,642
1.5	Changes to catchment population	3,829	3,829	3,829
3	***Operational Risks***			
3.6	Incorrect assessment of maintenance costs	3,539	3,932	3,932
3.7	Incorrect assessment of projected energy use	40	44	44
3.8	Capital charge calculations inadequate	155	114	103
3.9	Revenue cost impact underestimated	21,975	24,417	24,417
5	***Timing & Disruption***			
5.1	Incorrect time and cost estimates for commissioning	2,359	3,460	3,146
	Total	**131,731**	**104,650**	**103,942**

11.8.4 It can be seen that Option 3 has the lowest expected revenue risk value, closely followed by Option 2. The risk profile is higher under the Do Minimum. This reflects the limitations within this option and in particular the ability to implement the new model of care.

11.8.5 The discounted value quantified risks are subsequently applied to the results of the economic appraisal to derive the full expected NPC of the options.

11.9 Qualitative Risks

11.9.1 For those risks which could not be quantified a qualitative assessment was carried out whereby each risk was assessed for both impact and likelihood using the scoring scale outlined below.

Figure 11-8: Impact / likelihood scoring scale

Score	Impact Scale	Likelihood Scale
1	Very minor	Rare
2	Minor	Unlikely
3	Moderate	Possible
4	Major	Likely
5	Catastrophic	Almost certain

11.9.2 The product (by multiplying together) of the assessment of the potential impact and the likelihood of occurrence gives rise to an overall analysis of the risk e.g. low to high as detailed below.

Figure 11-9: Analysis of qualitative risk levels figure

Impact	***Likelihood***				
	Rare (1)	**Unlikely (2)**	**Possible (3)**	**Likely (4)**	**Almost certain (5)**
Very minor (1)	**1**	**2**	**3**	**4**	**5**
Minor (2)	**2**	**4**	**6**	**8**	**10**
Moderate (3)	**3**	**6**	**9**	**12**	**15**
Major (4)	**4**	**8**	**12**	**16**	**20**
Catastrophic (5)	**5**	**10**	**15**	**20**	**25**

Key:		**Low Risk (1-3)**		**Moderate Risk (4-9)**		**Significant Risk (10-14)**		**High Risk (15-25)**

11.9.3 This provides a useful indicator in determining the areas requiring the greatest degree of risk management effort.

11.9.4 This provides a useful indicator in determining the areas requiring the greatest degree of risk management effort.

11.10 Results of Assessment

11.10.1 All risk areas were assessed across all options and the results presented. A summary of these are provided in the table below. Full details of the risk assessment are summarised in **Appendix E4.**

Figure 11-10: Results of the qualitative risk assessment

Ref	Risk Heading	Do Min	Option 2	Option 3
1	***Capacity & Demand Risks***			
1.1	Failure to deliver required levels of performance	20	5	5
1.3	Facilities not flexible enough to respond to changes in service and demand	20	5	5
1.6	Inability to deliver access targets	20	10	10
1.7	Lack of diagnostic support required for successful implementation of model of care	16	12	12
2	***Staffing Risks***			
2.1	Design impacts on staffing requirements not managed	5	10	10
2.2	Change in nursing workforce is not secured	5	15	15
2.3	Inability to recruit adequate numbers of acute physicians	16	12	12
2.4	Staff resist changes in procedures	3	9	9
2.5	Loss of key personal or staffing resources or specialist knowledge base that could impact upon the project work load; key events or milestones.	3	6	6
3	***Operational Risks***			
3.1	Failure to deliver required levels of quality	15	10	10
3.2	Inadequate patient environment	25	10	5
3.3	Facility does not meet stakeholder expectations	15	3	3
3.4	Disruption to on-going delivery of clinical and non clinical services.	20	15	5
3.5	Operational commissioning difficulties	3	6	6
4	***Reputational & Policy Risks***			
4.1	Lack of clear links between the project and the organisation's key strategic priorities, including agreed measures of success	9	3	3
4.2	Lack of clear senior management ownership and leadership	8	4	4
4.4	Communication and stakeholder involvement inadequate	8	4	4
4.5	Adverse publicity resulting from failure to justify levels of investment	3	3	2

Ref	Risk Heading	Do Min	Option 2	Option 3
4.6	Government or external strategies or policies that have a direct impact or influence the phases of the contracts for both location project schemes of work.	12	3	3
5	***Timing & Disruption***			
5.2	Accidental loss of engineering services to existing facilities	5	15	15
6	***Funding Risks***			
6.2	Funding available to support project is reduced as a result of current economic and fiscal position.	5	15	15
7	***Technology Risks***			
7.1	Unexpected change in medical technology	2	1	1
8	***Commercial Risks***			
8.1	Lack of knowledge of familiarisation of contracts Framework NEC3 conditions of contract.	0	4	4
8.2	Framework partner was to go into receivership or encounter financial trouble or be unable to function and put the project agreement at risk	0	6	6
	Total Risks	**238**	**186**	**170**
	Ranking	**3**	**2**	**1**

11.11 Analysis of Results

11.11.1 From the data presented it is clear that the overall results are highly sensitive to the following features:

- Failure to deliver required levels of performance high score of 20 under the Do minimum option
- Facilities not flexible enough to respond to changes in service and demand high score of 20 under the Do minimum option
- Inadequate patient environment high score of 20 under the Do minimum option
- Disruption to on-going delivery of clinical and non clinical services high scores of 20 under the Do minimum option and option 2
- Accidental loss of engineering services to existing facilities high scores of 20 under options 2 & 3
- Lack of diagnostic support required for successful implementation of model of care high score of 16 under the Do minimum option
- Inability to recruit adequate numbers of acute physicians high score of 16 under the Do minimum option
- Change in nursing workforce is not secured high score of 15 under options 2 & 3
- Failure to deliver required levels of quality high score of 15 under the Do minimum option

- Facility does not meet stakeholder expectations high score of 15 under the Do minimum option
- Funding available to support project is reduced as a result of current economic and fiscal position high score of 15 under options 2 & 3

11.11.2 The Do minimum option has the highest level of risk reflecting the limited extent to which it meets the overall investment objectives.

11.11.3 Options 2 and 3 have a very similar level of risk with Option 2 carrying a slightly higher overall risk score.

11.11.4 Option 3 presents the lowest level of qualitative risk.

11.12 Summary of the Risk Assessment

11.12.1 The table below summarises the net present cost of revenue risks and summarises the results of the qualitative assessment undertaken.

Figure 11-11: Summary of risks for short-listed options

Option	Expected Value of Quantified Revenue Risks £000		Qualitative Assessment (total risk points)
	Cash Values	NPC of Cash Values	
Do Minimum	233,526	131,731	238
Option 2	184,177	104,650	186
Option 3	183,112	103,942	170

11.12.2 The quantifiable capital (optimism bias and contingency) and revenue risks are used in the economic appraisal chapter to risk adjust the net present costs of the short-listed options.

11.13 Risk Mitigation

11.13.1 At this stage no assumptions have been made regarding the mitigation of the risks identified above. As the project progresses it is anticipated that a number of these risks will be able to be mitigated.

11.14 Risk Management Plan

11.14.1 The Board is currently developing a risk management plan that will enable effective management of the risks identified in this analysis.

11.14.2 The response for each risk can be one (or more) of the following types of action:

- **Prevention**, where countermeasures are put in place that either stop the threat or problem from occurring, or prevent it from having an impact on the business or project.
- **Reduction**, where the actions either reduce the likelihood of the risk developing or limit the impact on the business or project to acceptable levels.

- **Transfer**, the impact of the risk is transferred to the organisation best able to manage the risk, typically a third party (e.g. via a penalty clause or insurance policy).
- **Contingency**, where actions are planned and organised to come into force as and when the risk occurs.
- **Acceptance**, where the Programme Board decides to go ahead and accept the possibility that the risk might occur, believing that either the risk will not occur or the potential countermeasures are too expensive. A risk may also be accepted on the basis that the risk and any impacts are acceptable.

11.14.3 A detailed risk action plan will be developed in relation to the preferred option and should detail, as a minimum:

- A description of each key risk;
- The timeframe over which the risk is present;
- The early warning signs that a problem is occurring;
- Mechanisms for spotting the early warning signs; and
- The person responsible for taking corrective action.

11.14.4 In summary, whilst there are a number of significant risks involved with each of the options, there are means to mitigate and manage them all. This process needs to be built in to the overall Project Management as the preferred option is taken forward.

11.14.5 Details of the Board's risk management plan are set out in Section 20 of the OBC.

11.15 Conclusion

11.15.1 This section outlines the methodology used to identify and assess the risks. Where appropriate those risks that can be quantified have been valued. Risks which cannot be readily quantified have been the subject of a qualitative assessment.

11.15.2 The quantified risks associated with each of the short-listed options will be subsequently incorporated into the economic appraisal to ensure that the analysis properly reflects the risk differentials across the different options. The risk scoring exercise highlighted some of the key risks inherent in each option which need to be mitigated.

12 ECONOMIC APPRAISAL

12.1 Introduction

12.1.1 This section presents the economic appraisal of each of the short-listed options, discussing the approach taken and assumptions made in deriving the capital and revenue implications of each option and presenting this in the form of a discounted cash flow as represented by the Net Present Cost (NPC) analysis. This is then adjusted to reflect the comparative level of quantified risk associated with each option.

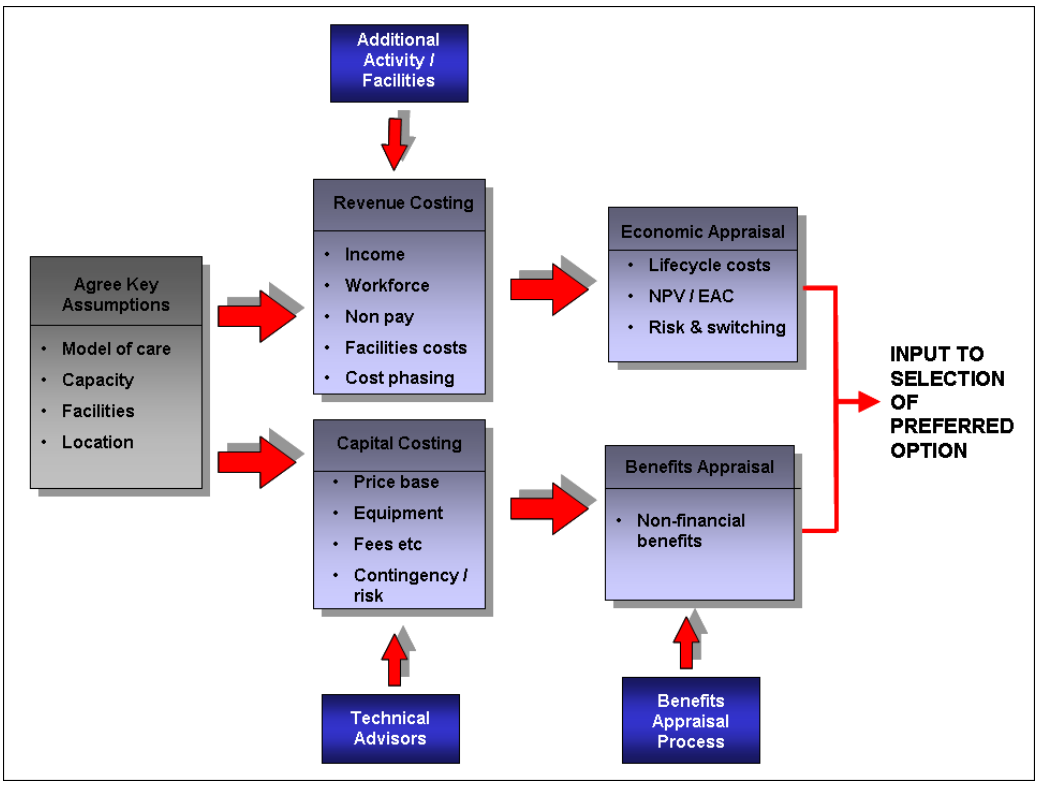
12.2 Methodology and Assumptions – Capital and Revenue Costs

12.2.1 This section presents the capital and revenue (recurring and non-recurring) assumptions used to derive the cash flows for the three short-listed options. All current guidance has been followed in constructing the financial and economic appraisal, principally the latest Scottish Capital Investment Manual (SCIM).

12.2.2 The economic appraisal process utilises a number of key outputs from other parts of the OBC process, namely workforce planning, capacity planning and design in establishing the capital and revenue implications of each option.

12.2.3 The general approach to the economic appraisal is summarised below.

Figure 12-1: Methodology for economic appraisal



12.3 Baseline Revenue Cost

12.3.1 Figure 12-2 summarises the 2012/13 baseline revenue costs for Crosshouse & Ayr hospital services affected by the proposed changes. Note the table below includes capital charges (depreciation only) whilst not included in the economic appraisal these are shown as part of the overall revenue budgets.

Figure 12-2: Crosshouse and Ayr Hospitals baseline revenue costs @ 2012/13 prices £000

Expenditure Head	Crosshouse	Ayr	Total
Nursing*	55,643	27,394	83,037
Medical*	33,021	18,400	51,421
Domestic	3,129	1,906	5,035
Catering	1,610	1,295	2,905
Estate	957	551	1,508
Total pay	**94,360**	**49,546**	**143,906**
Rates	1,309	688	1,997
Energy	2,297	1,005	3,302
Domestic supplies	257	116	373
Catering supplies	987	730	1,717
Estate supplies	715	487	1,202
Total non-pay costs	**5,565**	**3,026**	**8,591**
Total pay and non-pay costs	**99,925**	**52,572**	**152,497**
Buildings depreciation	2,296	1,265	3,561
Equipment depreciation	4,031	1,360	5,391
Total depreciation	**6,327**	**2,625**	**8,952**
Total gross revenue costs	**106,252**	**55,197**	**161,449**
Income	-819	-480	-1,299
Total net revenue costs	**105,433**	**54,717**	**160,150**

Source: NHS Ayrshire & Arran Finance Department
** Medical & Nursing costs based on cost book submissions*

12.3.2 For the purposes of the economic appraisal each of the options starts from the baseline position as stated above with cost movements applied accordingly to reflect the changes arising under each option. As such the economic costs are presented in total rather than as increments from the baseline.

12.3.3 The economic appraisal will establish the movement in monetary cash flows. The impact of non cash items such as capital charges is assessed within the Financial Appraisal (Section **Error! Reference source not found.**). This resents the total income and expenditure impact of the preferred option, and therefore assesses the affordability of the project.

12.3.4 The economic appraisal has presented the results of the combined site developments. The financial appraisal shows the split between the sites.

12.4 Capital Costing

12.4.1 The Board and its appointed cost advisors, in conjunction with the Principal Supply Chain Partner (PSCP), has prepared the capital costs based on an appraisal of the capital requirements of each option. These are derived primarily from the schedules of accommodation with appropriate adjustments to reflect the total costs of delivering the options to the point facilities become operational. Further adjustments to these capital costs will be made relating to the economic appraisal and these are discussed within the table of assumptions provided below.

Figure 12-3: Key capital assumptions

- Calculated by PSCP Quantity Surveyors Doig & Smith using BCIS cost indices at 3rd Quarter 2012 through to start on site at 3rd Quarter 2014. These have been reviewed by NHS Ayrshire & Arran's cost advisors Gardner & Theobald.
- The phasing of the capital costs is based on the current project plan for each of the shortlisted options and shown within Figure 12-5.
- Inflation is shown assuming approximately 2.74% as indicated by the BCIS indices.
- Equipment estimates have been provided by NHS Ayrshire & Arran; assuming the majority will transfer. The phasing of the equipping costs is in line with the construction spending.
- Appropriate on-costs have been applied.
- Fees have been applied in consultation with PSCP/PSC partners. These costs and all other capital costs of the project will be reviewed by the Valuers to determine value adding and non-value adding elements. Non-value adding elements will be charged to revenue in accordance with International Financial Reporting Standards (IFRS).
- Contingencies reflect the capital risks within each of the shortlisted options based on an assessment by the PSCP and the Board's cost advisors.
- VAT is allowed for at the 20% rate effective from January 2011 however there has been an element of VAT reclaim on Fees, PSCP on-cost and the works assumed in developing the costs.
- Capital contingencies have been incorporated reflecting the quantified risks of the options.
- An assessment of optimism bias is based on the analysis set out in section 11.3
- Do minimum cost estimates reflect the work required to address the backlog maintenance and associated decant requirements
- Costs associated with achieving BREEAM are included. These have been derived through workshops with NHSA&A, Project Manager, Cost Manager, PSCP and the Design Team members. These Workshops have been chaired by DSSR the appointed BREEAM Assessor. At present this indicates a "Very Good" BREEAM score can be achieved. Whilst the Board have made every effort to secure an "Excellent" rating, the assessment indicates that this cannot be achieved due to a number of site restrictions. Full details are included in **Appendix F1**.

12.4.2 Having applied the costing methodology to the short-listed options, the resultant capital expenditure is shown below.

Figure 12-4: Capital costing summary £000

	Option 1: Do Minimum	Option 2:	Option 3
New build	0	8,717	8,222
Internal alterations / refurb	8,498	2,953	753
On-costs	0	3,788	3,905
Equipment costs	21	412	380
Contingencies	425	773	644
Optimism bias	1,499	2,024	1,494
Design fees	1,497	2,802	2,696
Inflation adjustments	358	644	543
VAT	1,639	3,533	2,992
Total Capital Costs per OB1	**13,937**	**25,645**	**21,628**

Source: OB1 forms

12.4.3 Supporting analysis is provided through OB1 forms which are attached in **Appendix F2**.

12.5 Phasing of Capital Costs

12.5.1 The capital costs will be incurred over a number of years and the phases of these has been provided by the PSCP and is illustrated below. These reflect the specific phasing of capital expenditure associated with the options.

Figure 12-5: Phasing of capital costs £000

Year	Option 1: Do Minimum	Option 2:	Option 3
2012/13	-	387	388
2013/14	13,937	2,296	2,431
2014/15	-	17,406	12,335
2015/16	-	5,555	6,475
Total	**13,937**	**25,645**	**21,628**

Source: OB1 forms (Cash Flow Worksheet)

12.6 Pay and Non-pay Costs of Short-listed Options

12.6.1 The pay and non-pay costs have been calculated based on the following assumptions.

Figure 12-6: Pay and non-pay cost assumptions

General	▪ Costs are stated at 2012/13 price levels. ▪ Costs for each option have been built up using the Schedule of Accommodation (SoA), the Model of Care assumptions and the clinical adjacencies provided for each option. ▪ Pay costs are based on current pay circulars and inclusive of full on-costs. ▪ All service leads have been involved in providing required staffing levels and skill base to deliver the model of care using a variety of cost drivers as identified below. ▪ The phasing of the movement in costs reflects the current project plan for each of the relevant functions. ▪ No change to fixed overhead support costs such as HR, Finance & Corporate Services has been included.
Cost Drivers	▪ Pay costs have been derived using a variety of cost drivers: ○ Nursing - number of beds, patient dependency, ward configuration and activity. ○ Ancillary (Domestic) - based on floor area ○ Ancillary (Catering) - Based on patient days ○ All other staff groups remain unchanged from current e.g. medical based on the agreed workforce model approved by NHS Ayrshire & Arran which reflects an EU compliant model. ▪ Movements in non-pay costs have been calculated using appropriate cost drivers for each expenditure type and location, these include: ○ Property maintenance costs – based on floor area ○ Heating, fuel and power – based on cubic area ○ Rates – based on floor area ○ Catering – based on patient days ○ General supplies based on patient days

12.6.2 The approach taken by the Board in establishing the costs of the various options was to hold service review meetings with relevant managers to determine the changes in operational and transitional costs required to deliver the model of care and service levels for each of the options. In addition due consideration was also made of the timing of when these costs would be incurred.

12.6.3 The dominant drivers used were as follows:

- The volume of activity
- The capacity to be provided at the front door
- Additional floor area in square metres
- Reduction in inpatient beds
- The provision of new build facilities
- An assessment of clinical adjacencies

12.7 Workforce Requirements and Costs

12.7.1 The estimate of future workforce requirements has been based on detailed discussions with senior relevant clinical staff and the directorate management teams. They take due account of the proposed service changes specifically in relation to the new service model and future service and capacity requirements.

12.7.2 The nursing workforce levels were derived using the professional judgement of the Associate Nurse Director.

12.7.3 The summary of the resulting future workforce requirements is set out below.

Figure 12-7: Future workforce requirements (wte) for the shortlisted options

Staff Group	Option 1: Do Minimum	Option 2	Option 3
Nursing – front door	-	35.84	35.84
Nursing – specialty care	-	(46.41)	(46.41)
Domestic	-	7.19	6.20
Estate	-	1.07	1.02
Catering	-	0.00	0.00
Ward Clerks	-	0.00	0.00
Total WTE impact	**-**	**(2.31)**	**(3.35)**

Source: Board Finance Department

12.7.4 The Board has considered whether additional provision needs to be made within the OBC for enhanced staffing levels in clinical support functions (e.g. imaging, labs etc), particularly as this is a key component of the CAU model of care. It has concluded that continued service redesign will provide the basis for improving utilisation of the existing staff and facilities meaning that additional access to these services can be provided from within the existing resources or as part of more general planned expansion in service.

12.7.5 The change in pay costs arising from the future workforce requirements are shown below against the relevant staff group.

Figure 12-8: Pay cost Impact of short-listed options £000

Staff Group	Option 1: Do Minimum	Option 2	Option 3
Nursing- front door		1,121	1,121
Nursing - specialty care		(1,433)	(1,433)
Domestic		130	112
Estate		34	32
Catering		-	-
Total pay costs impact	**-**	**(149**	**(168)**
Baseline pay costs	**143,906**	**143,906**	**143,906**
Total future pay costs	**143,906**	**143,757**	**143,738**
% change in costs	**0.00%**	**(0.10%)**	**(0.12%)**

12.7.6 Overall the wtes and pay costs have reduced by between 0.1% and 0.12%. Although there is an overall reduction in bed numbers, which reduces nursing staff required, particularly in specialty based care settings, this is to a large extent offset by the increased staffing required to support the front door. There are also some increased requirements reflecting the expansion in the estate footprint.

12.8 Non pay Costs

12.8.1 The table below shows the non-pay costs impact of the redevelopment options. As is the case with the pay costs, movements in costs are generally shown against the relevant expenditure heading.

Figure 12-9: Non-pay cost Impact of short-listed options £000

Expenditure Heading	Option 1: Do Minimum	Option 2	Option 3
Rates	-	69	61
Energy	-	112	98
Domestic supplies	-	13	10
Catering supplies	-	(33)	(33)
Estate supplies	-	53	45
Total non-pay costs impact	**-**	**214**	**182**
Baseline non-pay costs	**8,591**	**8,591**	**8,591**
Total future non-pay costs	**8,591**	**8,805**	**8,773**
% change in costs	**0.00%**	**2.49%**	**2.12%**

12.8.2 The non-pay costs have increased by around 2% based on an increased building footprint and therefore higher property and domestic costs.

12.8.3 The table below shows the total pay and non pay revenue implications of each of the options post development that have been prepared for the economic appraisal, hence capital charges are not included at this stage. This will be further evaluated within the affordability analysis presented within the Preferred Option section of the OBC.

Figure 12-10: Total impact of short-listed options £000

	Option 1: Do Minimum	Option 2	Option 3
Pay costs impact	-	(149)	(168)
Non-pay costs impact	-	214	182
Total revenue costs impact	**-**	**65**	**14**
Baseline revenue costs	**152,497**	**152,497**	**152,497**
Total future revenue costs	**152,497**	**152,562**	**152,511**
% change in revenue costs	**0.00%**	**0.04%**	**0.01%**

12.8.4 The reduction in pay costs, arising primarily from the reduction in overall bed numbers, offsets a significant proportion of the increased non-pay costs leaving a net additional revenue cost (excluding depreciation) of between £14k and £65k.

12.8.5 These are anticipated to be realised in full in year 2 following completion with 50% savings likely in year 1.

12.9 Methodology and Assumptions – Economic Appraisal

12.9.1 A discounted cash flow for each of the options has been undertaken over 30 years using a discount rate of 3.5% for years 0 to 30 in line with the requirements of HM Treasury.

12.9.2 Both the Net Present Cost (NPC) and Equivalent Annual Cost (EAC) have been calculated. The EAC is used for comparison where the options have different life spans as it converts the NPC to an annual figure.

12.9.3 The key elements used in this analysis are summarised in Figure 12-11 below.

Figure 12-11: Key assumptions used in the economic appraisal

- Base period (year 0) for the economic appraisal is 2012/13
- An appraisal period of 30 years including construction has been used for all options
- Cash flows are presented at 2012/13 outturn prices and where possible exclude VAT as this is a transfer payment
- Capital cost based on phasing outlined above and includes all pre-VAT expenditure and incorporate capital risks and optimism bias.
- The current construction inflation of 2.74% is in line with general inflation therefore this has been removed fully in line with SCIM guidance which states general inflation should be removed from NPC calculation
- Building lifecycle costs based on average replacement costs over 30 years as provided by PSCP Quantity Survey (shown in **Appendix F3**)
- Equipment lifecycle costs based on 7 year replacement cycle using the initial estimated capital expenditure
- Building residual values reflect the net book value of the assets at the and of the appraisal period
- The value of quantified revenue risks has been applied to calculate a risk adjusted NPC and EAC

12.10 Results of the Economic Appraisal

12.10.1 Taking the above assumptions to populate the economic analysis the results of the economic appraisal are summarised in the table below. A more detailed analysis can be found in **Appendix F4**.

Figure 12-12: NPC and EAC for short-listed options £000

	Option 1: Do Minimum	Option 2	Option 3
NPC over appraisal period before risk[3]	2,973,604	2,980,364	2,978,431
NPC of risk over appraisal period[4]	131,686	104,614	103,907
NPC over appraisal period after risk	**3,105,291**	**3,084,978**	**3,082,338**
EAC before risk adjustment[3]	108,060	108,306	108,235
EAC of risk[4]	6,093	3,886	3,842
EAC after risk adjustment	**114,153**	**112,191**	**112,077**

[3] This includes the capital risks and impact of optimism bias

[4] This relates only to the revenue risk assessment

12.10.2 The table above indicates that Option 3 has the lowest net present cost including the impact of risk.

12.10.3 To assess the relative value for money a comparison of the net present cost per benefit point has been undertaken and shown below.

Figure 12-13: Net present cost per benefit point

	Option 1: Do Minimum	Option 2	Option 3
Benefit Points (from Figure 10-7)	100	345	350
Ratio of NPC (£000) to benefit points	31,503	8,942	8,807
Ranking NPC to benefit points	**3**	**2**	**1**

NPC values reflect risk adjustments

12.10.4 The results show that when comparing the relative costs and benefits of the alternative solutions, Option 3 has the lowest overall cost per benefit point indicating this option delivers the best value for money of the shortlisted options.

12.11 Sensitivity Analysis

12.11.1 The results of the economic appraisal illustrated above have been subject to a sensitivity analysis to examine the impact of movements in capital and revenue costs. Switching value analysis has been applied to areas of material cash flows; to identify the extent that costs must change in order for the ratio of NPC to benefit points to equal that of Option 3. The results of the analysis is presented below.

Figure 12-14: Switching values – percentage change in cost items to equal option 3 NPC to benefit ratio

Percentage change to NPC to benefits of Option 3		
Cost	**Option 1**	**Option 2**
Capital costs	(38,150%)	(110%)
Revenue costs	(75%)	(0.90%)
Risk	(1,600%)	(45%)
Total NPC	(25%)	(1.6%)

12.11.2 The table above indicates that significant changes in cost parameters would be required to deliver a comparable ratio of costs to benefits displayed in option 3. This results primarily from the options having a relatively narrow spread in terms of NPCs but a wider range of benefit scores.

12.11.3 The figure below highlights the changes to costs required for options to have the same NPC as Option 3 It should be noted that these are much smaller than the previous figure since they do not take account the comparative level of non financial benefits.

Figure 12-15: Switching values – percentage change in cost items to equal Option 3 NPC

Percentage change to NPC of Option 3		
Cost	**Option 1**	**Option 2**
Capital costs	42%	(11%)
Revenue costs	0.3%	(0.1%)
Risk	(16%)	(2.8%)
Total NPC	0.23%	(0.1%)

12.11.4 It should be noted that when calculating these switching values the costs of Option 3 were unchanged. This is a simplification as it is unlikely that, for example, the revenue costs for clinical services for one option would change dramatically while the comparable costs of another option remained the same.

12.12 Conclusion

12.12.1 A thorough economic analysis in compliance with HM Treasury and SCIM requirements has been performed. This has concluded that Option 3 offers the best combination of costs and benefits and therefore offers the best value for money. The robustness of the decision has been confirmed by sensitivity analysis.

13 PREFERRED OPTION

13.1 Overview

13.1.1 This section describes the preferred option relating to the development of front door services at Ayr and Crosshouse hospitals and explains the key factors from the appraisal process that supports its selection. The key features and benefits of the preferred option are also highlighted.

13.1.2 No overriding factor or measure has been used to determine which option is most likely to meet the objectives of the project and as such no single measure, qualitative or quantitative. The selection of the preferred option has been based on a broad assessment of the outcome of all aspects of the option appraisal and a balanced view of the solution which is deemed to offer the optimal balance across its core elements.

13.1.3 As such the preferred option is deemed to reflect the solution that is best able to deliver the key outcomes and benefits, minimise the risks and address the constraints and dependencies identified. This has been rigorously tested against the investment objectives and Critical Success Factors (CSFs) to ensure that the preferred option is most suited to meeting the business needs and associated scope of the project on a sustainable basis.

13.2 Option Appraisal Results

13.2.1 As demonstrated in the Economic Case each option offers a different range of features, both positive and negative however, the option appraisal undertaken as part of the business case measures and contrasts these in quantifiable terms.

13.2.2 The following table summarises the results of the benefits appraisal, economic appraisal and risk assessment. A comparison of risk adjusted Net Present Cost per benefit point is also included.

Figure 13-1 : Option appraisal results

Option Appraisal Measure	Do Minimum	Option 2	Option 3
Benefit points	100	345	350
Initial Capital Cost incl OB £000	13,937	25,645	21,628
Net Present Cost (NPC) £000	3,105,291	3,084,978	3,082,338
Equivalent Annual Cost (EAC) £000	114,153	112,191	112,077
Qualitative risk assessment score	238	186	170
NPC per Benefit Point (£000)	31,053	8,942	8,807

NPC and EAC values reflect quantified risk adjustments

13.3 Analysis of the Option Appraisal Results

Option 1 – Do Minimum

13.3.1 The do minimum option is essentially the reference position against which the other shortlisted options can be measured, however, it has been demonstrated that it is capable of meeting some of the objectives of the programme and it is therefore a feasible solution. The option appraisal essentially measures the extent to which it is likely to meet the overall objectives of the project.

13.3.2 The non financial benefits appraisal clearly demonstrates that the do minimum option is likely to offer substantially poorer scope to meet the overall objectives of the proposed clinical change and redevelopment proposals – in particular against the other options it appears to offer limited benefits in terms of delivering the required improvements in front door services.

13.3.3 This option has the lowest benefit score and the highest net present cost. The benefit score reflects the fact that it does not provide an opportunity to enhance quality of care and improve the effectiveness of service delivery and is also highly disruptive. Whilst it has the lowest level of initial capital cost this is more than offset by the additional quantified risks over the project lifecycle which is reflected in the overall economic cost (NPC). As a result it provides by far the poorest ratio of NPC to benefits.

13.3.4 The deficiencies identified in this option also impact significantly on the qualitative risk profile demonstrated by the ranking against the other options.

13.3.5 Taking all of the above together Option 1 – the Baseline Option can be deselected at this juncture.

Option 2

13.3.6 Option 2 proposes a solution which provides a new build outpatient facility at Crosshouse which allows the release of space to provide a Combined Assessment Unit. The solution for Ayr hospital is to provide a new build Accident and Emergency facility to replace the existing department.

13.3.7 Option 2 has the second highest benefit score and net present cost. It returns the second best ratio of risk adjusted NPC to benefits. It is ranked second in terms of the overall level of qualitative risk.

13.3.8 Option 2 has the highest level of capital costs.

Option 3

13.3.9 Option 3 proposes a solution which provides a new build Combined Assessment Unit at Crosshouse. The solution for Ayr hospital is the same as option 2, a new build Accident and Emergency facility to replace the existing department.

13.3.10 Option 3 has the highest benefit score and risk adjusted net present cost. It returns the best ratio of NPC to benefits. It is ranked lowest in terms of the overall level of qualitative risk. As such it is likely to offer the best overall Value for Money (VFM) of the shortlisted options.

13.4 Selection of the preferred option

13.4.1 The selection of the preferred option has considered both the results of the option appraisal and assessment of the project constraints identified within Section 8 of the OBC.

13.4.2 Reviewing the results of the option appraisal, the best option in terms of the relationship of costs to benefits is Option 3. This option can be delivered within the available capital funding envelope (further details are provided in the Financial Case) and therefore satisfies this key constraint. Option 3 is therefore the solution which delivers the highest possible level of overall Value for Money whilst meeting the constraints identified and is therefore the preferred option.

13.5 Key Features and Benefits of Preferred Option

13.5.1 The preferred option, determined through the appraisal process, is Option 3. This option is able to deliver the project objectives, provide the best value for money within the constraints identified and delivers the model of care, required capacity and appropriate clinical environment for this stage of the Building for Better Care programme.

13.5.2 The key features of the preferred option are summarised below.

Figure 13-2 : Key features of the preferred option

- **Crosshouse Hospital site** - Development of a new Combined Assessment Unit, located adjacent to the Accident and Emergency Department, comprising 42 single bed spaces with en-suite bathrooms, 11 ambulatory care cubicles and 3 assessment bays for initial patient triage.
- **Ayr Hospital site** - Development of a new build Accident and Emergency department to replace the existing facility comprising a total of 14 treatment rooms, 4 resuscitation bays and 10 observation spaces plus a triage room
- Total capital expenditure of £21.6m (priced at midpoint of construction) including construction costs, fees, VAT and optimism bias
- An overall construction duration of circa 1 year 10 months including enabling works

13.5.3 The key benefits of the preferred option are summarised below highlighted against the relevant benefit criteria heading.

Figure 13-3 : Key benefits of the preferred option

Safe:

- Enables delivery of improved models of patient care built on established best clinical practice in managing front door services e.g. co-location of A&E, combined assessment / ambulatory care at Crosshouse
- Ensures that patients have access to clinically effective assessment processes and rapid decision making so that as many patients as possible have their entire pathway of care delivered at the front door thus avoiding unnecessary hospital admission
- Provides front door care in improved facilities with appropriate use of single rooms thus improving the patient environment, reducing the risk of healthcare acquired infection and provide more flexibility in the use of beds
- Eliminates unsafe overcrowding and provides increased resuscitation capacity within Ayr hospital A&E

Flexibility:

- Provides flexible front door services that allow patients to easily move between and within A&E and CAU thus ensuring that care is appropriate to their needs
- Facilitates future phases of BfBC programme with minimal disruption to existing services

Sustainable:

- Services are sized to address demographic shift and changes in the pattern of care so that they can respond to need both now and in the future without the need for further significant changes in infrastructure
- Improves the utilisation of resources at the front door and, by optimising the assessment process, provides the basis for enhancing the effectiveness of specialty based care and the associated use of staff and facilities

Accessible:

- Specifically in relation to Crosshouse CAU:
  - Provides all front door services in a single integrated location so that patients access through a single portal and are then streamed to the most appropriate location
  - Patient flows within the CAU are improved with access to both bed based and ambulatory care. Patients requiring subsequent specialty admission are the subject of rapid and appropriate decision making within the CAU and early placement on the most appropriate patient pathway
- Specifically in relation to Ayr ED:
  - Provides increased capacity within the emergency department to match future demand to capacity

Disruption:

- Delivers early improvements in the estate with a new build CAU (Crosshouse) and A&E facility (Ayr) within 22 months of start on site.
- Requires little if any decant of services into temporary accommodation thus minimising the disruption to on-going service provision

13.5.4 A copy of the BREEAM assessment is provided within **Appendix G1**.

13.5.5 In addition an AEDET assessment has been undertaken to inform the design development process.

13.6 Benefits Management Strategy

13.6.1 The purpose of a benefits management strategy is to describe in detail how the programme / project intends to manage the delivery of the benefits on which the investment decision was made. As such it is a key part of the post project review process, further details of which are set out in Section 18.1

13.7 Affordability of the Preferred Option

13.7.1 The financial appraisal of the preferred option is outlined within Section 16 including details of the overall affordability.

13.8 Stakeholder Group Approval

13.8.1 The Programme Board met on the 1st November 2012 and agreed the outcome from the Economic Appraisal and the selection of the preferred option.

13.9 Conclusion

13.9.1 Following a robust option appraisal process involving a wide range of stakeholders, the Board has determined that its preferred option for the first phase of Building for Better Care is Option 3. This solution provides the optimal value for money whilst addressing the key constraints of the programme to develop front door services across the Board's two main acute hospitals.

13.9.2 The preferred option delivers a wide range of benefits which are complementary with local and national service requirements as well as the delivery of a range of short and long term objectives in improving the provision of front door and associated services.

13.9.3 Subsequent sections of the OBC will consider the optimal procurement route for the proposed programme as well as project management arrangements and project timetable.

COMMERCIAL CASE

14 PROCUREMENT ROUTE ASSESSMENT

14.1 Overview

14.1.1 The SCIM requires that, as part of the OBC development process, Boards undertake an assessment to establish the procurement route for the project. This should consider the most likely route to deliver the best overall value for money and that should include consideration the potential for procuring capital investment projects through alternative financing arrangements under Public Private Partnership (PPP). Where PPP is assessed as not offering the best value for money procurement route for delivering the project, a clear justification should be provided.

14.1.2 In the event that a traditional procurement is adopted there is a range of options available to the Board in delivering the project and the assessment should again consider which of these is likely to best support the delivery of the requirements and offer the best value for money.

14.1.3 The Board sought to make this assessment at an early stage and as such, following the development of the IA, formally considered the options for procuring the requirements in developing front door services at both Ayr and Crosshouse Hospitals.

14.2 Key Features of the Assessment

14.2.1 Although neither an in-depth assessment of the likely attractiveness to the PPP market, nor any form of soft market testing, has been undertaken we believe that this project is likely to offer limited potential for enhanced VFM through the use of private finance. The main factors that draw us to this conclusion are:

- The timetable constraints inherent in delivering the project do not lend themselves to delivery through a typical PPP procurement timetable.
- Although not binding in Scotland treasury guidance does not favour the deployment of PFI for single schemes below £20m.
- Economic conditions and the prevailing rates of finance for PPP projects mean that it is unlikely that bidders would be able to offer a solution that delivers value for money over alternative forms of procurement.
- The extent of detailed design development already undertaken builds in a significant degree of innovation which may restrict the extent to which PPP providers could realise design and construction efficiencies.
- The range of risks that the Board could reasonably expect to transfer to a private sector partner are limited.
- The extent of refurbishment of existing facilities and the resultant risks associated with maintaining the operation of the hospital during construction are likely to make the project unattractive to PPP providers.
- There is little precedent to suggest that this type of project is likely to attract the required level of PPP market interest to secure a meaningful competition.

14.2.2 Considering the points above it is concluded that the PPP funding route, when compared with traditional procurement, is unlikely to offer enhanced VFM for the construction component of the project.

14.3 Proposed Procurement Route

14.3.1 Given that alternative forms of finance are unlikely to meet the project requirements or offer Value for Money (VfM) the Board have considered alternative means of delivering the requirements through the use of capital finance. Delivery under this route provides two main options, namely:

- Conventional design & build approach
- Framework agreement

14.3.2 Having considered a conventional design and build route the Board concluded that the timescales associated with this approach were unlikely to deliver the improvements in a manner which meets the overall programme for the proposed developments.

14.3.3 Framework agreements provide an established route with suppliers who currently have operational and proven supply chains with a national best practice and knowledge transfer process. Additionally this route allows for early contractor involvement and use of an industry standard contract. The Board concluded that this approach was likely to be the best means of meeting their requirements for the proposed developments to front door services at Crosshouse and Ayr Hospitals.

14.3.4 It is therefore proposed to deliver the project in line with the guiding principles of the national Frameworks Scotland Agreement which is managed by Health Facilities Scotland (HFS) on behalf of the Scottish Government Health Directorates.

14.3.5 The framework embraces the principles of collaborative working with the public and private sectors working together in an effective and efficient manner. It is designed to deliver tangible performance improvements due to repeat work being undertaken by the PSCP supply chains.

14.3.6 The Frameworks Scotland initiative guide, developed by HFS for use on all projects, highlights that the framework has been established to achieve the following key benefits:

- Earlier and faster delivery of projects
- Certainty of time, cost and quality
- Value for Money (VfM)
- Well designed buildings procured with a positive collaborative working environment

14.3.7 The Framework Scotland approach also has clear means for transferring risk during the construction phase, and also providing incentives to contractors to perform.

14.3.8 Having identified this as the preferred procurement route at an early stage the Board has been using Framework Scotland to work with their selected Principal Supply Chain Partner (PSCP), BAM Construction, in developing the OBC. This has meant that the Board has been able to benefit from an integrated design team, which is one of the benefits that can come from PPP.

14.4 Conclusion

14.4.1 The Board sought to establish the optimal procurement route for the proposed developments at an early stage in the capital investment process.

14.4.2 Having considered a range of options, including the use of private finance, the Board have determined that the use of traditional capital finance offers the best overall value for money.

14.4.3 The Board have chosen to adopt the guiding principles of the national Frameworks Scotland Agreement which is managed by Health Facilities Scotland and have appointed BAM construction as its PSCP.

15 PROPOSED CONTRACTUAL ARRANGEMENTS

15.1 Overview

15.1.1 This section describes the commercial details of the proposed contract between NHS Ayrshire and Arran and the PSCP. The PSCP will undertake a wide range of services and duties to assist and support NHS Ayrshire and Arran through each of the business case stages, construction and commissioning of the new facility.

15.2 Required Services

15.2.1 The products and services under contract are for a single point deliverer. This offers a procurement vehicle with an integrated supply chain for the delivery of design, manufacture, construction and commissioning of the proposed developments at Ayr and Crosshouse hospitals.

15.2.2 It is proposed that the facility will be delivered by BAM under the Frameworks Scotland Agreement, NEC 3 Engineering and Construction Contract Option C: Target Cost with Activity Schedule. This delivery methodology will provide the following benefits:

- completion of the scheme to the standard and functionality that meets the requirements set out in the contract
- Value for Money (VfM), not only in the initial capital cost, but also for the whole life costs through the application of value management principles
- certainty of delivery in terms of time and cost
- consistent delivery in terms of quality in both design and construction
- introduction of continuous improvement through collaborative working and the adoption of benchmarking and performance management measures
- improved management of risk
- optimised delivery of sustainable development

15.2.3 The project will be delivered through the following stages:

- Stage 1 – Outline Business Case (Frameworks Scotland Stage 2)
- Stage 2 – Full Business Case (Frameworks Scotland Stage 3)
- Stage 3 – Construction (Frameworks Scotland Stage 4)

15.2.4 BAM will enter into an individual stage specific contract with NHS Ayrshire and Arran at the beginning of each stage of the scheme.

15.3 Proposed Payment Mechanism

15.3.1 The National Framework NEC3 Engineering and Construction Contract Option C Target Cost with Activity Schedule utilises an auditable open book approach to quantify and manage payment.

15.3.2 At the pre-construction stages, payment is based on a fee forecast schedule. This is intrinsically linked to an agreed programme and set of deliverables and is based on hours expended multiplied by the Framework agreed rates. The schedule is supported by timesheets along with ancillary cost payments such as surveys. The incurring and payment of professional fees is managed throughout this period by the Board and its advisors on a monthly basis.

15.3.3 The PSCP and its supply chain members' commercial rates and profit levels for duties undertaken during each of the pre-construction Business Case development stages have been agreed as part of the framework selection process.

15.3.4 It is envisaged that the Target Cost for the construction will be established during the FBC development phase, with payment based on accounting ledger cost from the PSCP. Payments are checked and verified through the independent Board Cost Advisor.

15.4 Potential for Risk Transfer

15.4.1 This section provides an assessment of how the associated risks might be apportioned between the Board and the Principal Supply Chain Partner. It also outlines the process for identifying, assessing and apportioning the project specific risks.

15.4.2 The general principle is to ensure that risks should be passed to "the party best able to manage them", subject to Value for Money (VFM).

15.4.3 The table outlines the allocation of responsibility for key risk areas:

Figure 15-1: Risk transfer matrix

Risk Category	Potential allocation		
	Public	PSCP	Shared
1. Design Risk			✓
2. Construction & Development Risk			✓
3. Transition & Implementation Risk			✓
4. Availability and Performance Risk			✓
5. Operating risk	✓		
6. Variability of Revenue Risks	✓		
7. Termination Risks	✓		
8. Technology & Obsolescence Risks	✓		
9. Control Risks	✓		
10. Residual Value Risks	✓		
11. Financing Risks	✓		
12. Legislative Risks	✓		
13. Other Project Risks	✓		

15.4.4 The Project delivery risks are identified in an integrated Risk Register with inputs by the Board and the PSCP. The Risk Register has been developed using the NHS Ayrshire & Arran template and this will be transferred to the HFS template for costing during FBC stage.

15.4.5 An initial Risk Workshop was organised by the PSC Project Manager in July 2012 attended by the key project members. The workshop focussed on developing and agreeing the key project risks. The PSC Project Manager will be responsible for updating the Risk Register and identifying key risks to the Board Project Director.

15.4.6 As the scheme has been developed, risks have been identified and quantified and allocated to the party best placed to manage them. The PSC Project Manager will review the Risk Register and where necessary hold risk reduction meetings as and when required. Meetings to specifically review risk can be called by either the PSC Project Manager or the PSCP. The risks to be considered include both delivery risk and operational risks.

15.4.7 The Risk Register will be issued on a monthly basis by the PSC Project Manager who will indicate on a simple matrix the changes to the Risk Register, ensuring all allocations of risk can be traced easily for audit purposes. Where there is movement of substantial amounts of risk allocation shown on this matrix, further breakdown to this risk allowance will be shown and submitted on supporting sheets.

15.5 Proposed Key Contractual Clauses

15.5.1 A template contract has been prepared for use on Frameworks Scotland based on the options contained within the NEC3 Engineering and Construction Contract, Option C: Target contract with activity schedule June 2005 (with amendments June 2006). This has been adopted for use as the basis of all Frameworks Scotland project specific contract documents. The scheme development is incorporated into the Contract by means of detailed requirements in the Works Information and establishing a realistic programme for execution – the Accepted Programme.

15.5.2 The style of Frameworks Scotland and the 'scheme contract' promotes the use of particular project management techniques. These are also applied to formulate the Target Total of Prices.

15.5.3 An overall contract is entered into at commencement of the PSCPs appointment following agreement of a Priced Activity Schedule and Accepted Programme.

15.5.4 A number of alterations have been made to the standard contract in order to tailor it to the requirements of Framework Scotland. Key alterations include:

- Cash flow forecasts regularly updated by the PSCP and related to the programme (from the NHS Client's perspective providing a positive basis for finance planning)
- Payment of accrued costs to the supply chain
- Gain share potential for Client and the PSCP (but overspend of the final target is funded by the PSCP)

- An improved definition of Defined Cost Stage 1 – Outline Business Case

15.6 Personnel Implications (TUPE)

15.6.1 It is anticipated that TUPE (Transfer of Undertaking and Protection of Employee) will not apply to this investment as outlined above.

15.7 Procurement Strategy and Implementation Timescales

15.7.1 The procurement strategy has followed the Frameworks Scotland procurement route.

15.7.2 Subject to agreement of the Outline Business Case (OBC), the implementation milestones can be seen in Figure 17-5.

15.8 FRS5 Accountancy Treatment

15.8.1 It is assumed that public funding will be allocated for this project and therefore capital will be included on the balance sheet. Refer to the Financial Case for further details.

15.9 Conclusion

15.9.1 As part of the Health Facilities Scotland Framework the Board will utilise the NEC 3 contractual arrangements as the basis for the commercial arrangements with its PSCP – BAM Construction.

15.9.2 Embedded within this contractual framework will be the arrangements for payment and risk allocation.

15.9.3 The proposed procurement route will result in the capital expenditure being incorporated on the Board's balance sheet.

FINANCIAL CASE

16 FINANCIAL APPRAISAL

16.1 Overview

16.1.1 The section considers the affordability analysis for the preferred option based on an analysis of the overall capital and revenue costs.

16.1.2 The Building for Better Care programme provides the opportunity for long lasting / sustainable improvements in clinical services to be introduced at "minimal" additional cost to the Board.

16.1.3 The financial case for the investment at both Crosshouse and Ayr envisages significant improvements from better use of existing resources. The additional clinical cost from concentration of appropriate services at the front door have been evaluated / benchmarked (benefits obtained from new ways of working/new pathways/improved clinical management and patient flows) and, will be offset by savings at the back door through reduced bed requirements (reduction in inappropriate admissions / reduced bed days / reduced length of stay).

16.1.4 In the medium term this reduction in bed requirements will provide the means by which the Board will implement the necessary improvements to single room accommodation and bed spacing within the constraints of the existing facilities.

16.1.5 The foundation for these improvements has been derived from significant staff participation in clinical review of processes/procedures (supported by the LEAN and Continuous Improvement Programmes), general agreement on change of admission policy from 'admit to decide' approach towards 'decide to admit' philosophy, improvements in workforce utilisation (right staff to be available in the right place at the right time), benefits from co-location of services/general environmental improvements in terms of more productive/contented workforce (with less non-productive time).

16.1.6 In considering the affordability of the proposals presented in this OBC it is necessary to look at the wider programme of improvements to front door services across both hospitals. The financial appraisal presents the impact of the initial stage of investment as outlined in the scope of this OBC.

16.1.7 The analysis has been undertaken over the period to 2017/18 which accommodates both the total period of capital expenditure but also incorporates the peak in revenue costs. These are then matched to the anticipated income and funding flows to demonstrate that the preferred options is affordable for the Board.

16.2 Capital Affordability

16.2.1 In determining the overall capital affordability an asset impairment of 5% has been assumed for non value adding elements in line with the outcome from discussions with the Valuers, and, in line with other developments within NHS Ayrshire & Arran.

16.2.2 The impairment results from non-value adding elements of capital costs agreed in outline form with the Board's Valuers (Valuation Office Agency) and requires to be charged to revenue costs as Annually Managed Expenditure (AME). A copy of the letter from the Boards' valuers indicating the likely impairment percentage of between 3-7% (mid range assumption applied) is provided at **Appendix H1**

16.2.3 Under International Financial Reporting Standards (IFRS) this impairment will require to be accounted on completion of works.

16.2.4 This overall capital impact of the proposed investment is shown in the table below.

Figure 16-1: Capital cost profile £000

		2012/13	2013/14	2014/15	2015/16	Total
Crosshouse Hospital	Capital costs	194	1,222	5,641	3,784	10,840
	Less 5% impairment (excluding equipment)					(532)
	Revised Capital Costs					**10,308**
Ayr Hospital	Capital costs	194	1,209	6,694	2,691	10,788
	Less 5% impairment (excluding equipment)					(527)
	Revised Capital Costs					**10,261**
Total Capital Impact						**20,569**

16.2.5 The table above indicates a total capital funding requirement of £20.569m; net of impairment over the construction period for both sites.

16.2.6 The desired scope and services have been reviewed as well as space requirements and affordability during the preparation of this document.

16.2.7 These projected capital costs for the Building for Better Care project are within the funding envelope contained with the Board's LDP approved Capital Investment Plan. This will include a central funding contribution of £15.5m from the Scottish Government towards the total capital costs of £20.569m, with the balance of £5m met from Board capital funds. The projected phasing of the Scottish Government Health Department central contribution is shown in the capital investment plan.

16.2.8 A copy of the NHS Board's latest Capital Investment Plan is included as **Appendix H2**.

16.2.9 It is estimated that the remaining phase(s) of the Building for Better Care Programme will require between £19m and £22m of capital funding.

16.3 Revenue Affordability

16.3.1 To consider the overall revenue affordability of the preferred option the capital charge impact should be considered in line with the total monetary cost impact shown in Section 12.

16.4 Capital Charges

16.4.1 The capital charges for each option are based on:

- Using capitalised amounts outlined in Figure 12-4 including optimism bias and indexation
- Building depreciation based on remaining asset life of current site – 37 years for Ayr and 32 years for Crosshouse
- Equipment depreciation based on an average 7 year asset life

16.4.2 It has been assumed that the construction costs will not be capitalised until the development is complete; depreciation will then be applied using straight line method the table below outlines the full value; which will be incurred from 2016/17 onwards.

Figure 16-2: Capital charges impact £000

	Ayr	Crosshouse	Total
Buildings	270	313	584
Equipment	29	36	65
Total	**299**	**350**	**649**

16.4.3 The table above indicates capital charges impact of £649k from 2016/17 onwards when the full impact of the capital investment has occurred.

16.5 Net Revenue Impact

16.5.1 The resulting net revenue impact from both pay and non-pay costs and capital charges is set out below combined for Ayr and Crosshouse (income has been assumed to remain the same as the baseline year).

Figure 16-3: Total revenue impact £000

	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18
Baseline pay costs	143,906	143,906	143,906	143,906	143,906	143,906
Baseline non-pay costs	8,591	8,591	8,591	8,591	8,591	8,591
Movement in pay costs	-	-	-	(84)	(168)	(168)
Movement in non-pay costs	-	-	-	91	182	182
Total pay / non-pay costs	**152,497**	**152,497**	**152,497**	**152,504**	**152,511**	**152,511**
Current depreciation	8,952	8,952	8,952	8,952	8,952	8,952
New depreciation	-	-	-	-	649	649
Total depreciation	**8,952**	**8,952**	**8,952**	**8,952**	**9,601**	**9,601**
Gross Costs	**161,449**	**161,449**	**161,449**	**161,456**	**162,111**	**162,111**
Income	(1,299)	(1,299)	(1,299)	(1,299)	(1,299)	(1,299)
Net costs	**160,149**	**160,149**	**160,149**	**160,156**	**160,812**	**160,812**
Current costs	160,149	160,149	160,149	160,149	160,149	160,149
Total revenue impact	**-**	**-**	**-**	**7**	**663**	**663**

16.5.2 The table above indicates the total recurring revenue consequences of the preferred option results in a net cost increase of £663k. The full impact of this will be in place from 2016/17 onwards.

16.5.3 The revenue consequences can be split into the following key components.

Figure 16-4: Key components of revenue impact - £000

	£000
Additional depreciation	649
Additional nursing for front door	1,121
Released nursing from specialty bed	(1,433)
Additional non-clinical (pay & non-pay)	326
Total revenue impact	**663**

16.5.4 These costs are a result of:

- Additional depreciation as a result of investing in infrastructure without releasing any current estate and associated depreciation
- Additional staffing to deliver the model of care at the front door and to deliver increased capacity to 2016 (Quality Premium associated with ensuring Right Staff in Right Place at Right Time to deliver new ways of working / pathways to meet projected patient demand)
- Released nursing from reduced specialty beds
- Additional non-clinical costs for pay and non-pay associated with the increased building footprint

16.5.5 Having considered the outcome from the workforce assessments / benchmarking work supporting the planned improvement in staffing at the Front Door, the NHS Board has agreed that the resulting net revenue cost of £663k will be covered as an approved cost pressure for quality of care improvements in the forward Financial Plan.

16.6 Impact on the Balance Sheet

16.6.1 The Boards' Valuers have reviewed the proposed plans and identified that life expectancy for Crosshouse and Ayr hospitals will not be materially changed through this investment.

16.6.2 The Valuers have also determined that the vast majority of the investment will be value adding in terms of the asset valuations with non-value adding impairments estimated at circa 5% of the capital costs. Under IFRS this impairment will require to be recognised on completion of construction works. This will be included in the AME asset impairment returns to SGHSCD.

16.6.3 The proposed balance sheet impact of the project over the period to 2017/18 years is shown below.

Figure 16-5: Projected balance sheet impact of the scheme 2017/18 £000

	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18
Existing Land	112,398	112,398	112,398	112,398	112,398	112,398	112,398
Existing Buildings	10,114	10,114	10,114	10,114	10,114	10,114	10,114
External works	3,430	3,430	3,430	3,430	3,430	3,430	3,430
New Buildings	-	-	-	-	-	20,569	20,569
Assets under construction	-	388	2,819	15,153	21,628	-	-
Impairment		-	-	-	(1,059)	-	-
Total relevant assets	**125,942**	**126,330**	**128,761**	**141,095**	**146,511**	**146,511**	**146,511**

16.7 Summary of Key Points

16.7.1 This section has set out the overall capital and revenue affordability for the preferred option. This indicates a requirement for:

- Total capital of £20.569m inclusive of optimism bias; funded by traditional capital funding from the central contribution from Scottish Government Health Directorates and the Board's capital allocation.
- Total annual net revenue costs of £663k from 2016/17 onwards. This will be covered from cost pressure funding in the NHS Board's Financial Plan.
- Revenue funding to cover anticipated impairment of £1,059k, reflecting the difference between capital spend and asset value on completion of the works will be provided by SGHD for this to be accounted for as Annually Managed Expenditure (AME)

MANAGEMENT CASE

17 PROJECT MANAGEMENT & PROJECT IMPLEMENTATION TIMETABLE

17.1 Overview

17.1.1 This section of the OBC sets out the arrangements put in place to manage the project to successful delivery. The areas covered include:

- Project management strategy and methodology
- The project framework
- Project roles and responsibilities
- The project plan, showing the high level timetable for the project
- Project communication and reporting arrangements
- Gateway review

17.2 Project Management Strategy and Methodology

17.2.1 This project enthusiastically embraces the principles of project and programme management to ensure that the project is successfully delivered and all risks managed.

17.2.2 This project is being procured under the Framework Scotland agreement, such that it incorporates a collaborative working and joint decision making process between the Board and the PSCPs.

17.2.3 This section outlines the agreed protocol for 'sign off' by the Board allowing the PSCP to progress with the detail design of the project.

17.2.4 The redevelopment will be managed using the NEC 3 Engineering and Construction Contract Option C: Target Cost with Activity Schedule, through Frameworks Scotland, which is an increasingly used strategic and flexible collaborative approach to procurement of publicly funded construction work.

17.2.5 The NEC 3 contract aligns contract structure with business needs as opposed to writing a contract that merely administers construction events.

17.2.6 The whole ethos of the NEC 3 suite is one of simplicity of language and clarity of requirements. It is therefore important that the roles and responsibilities are equally clear in definition and ownership.

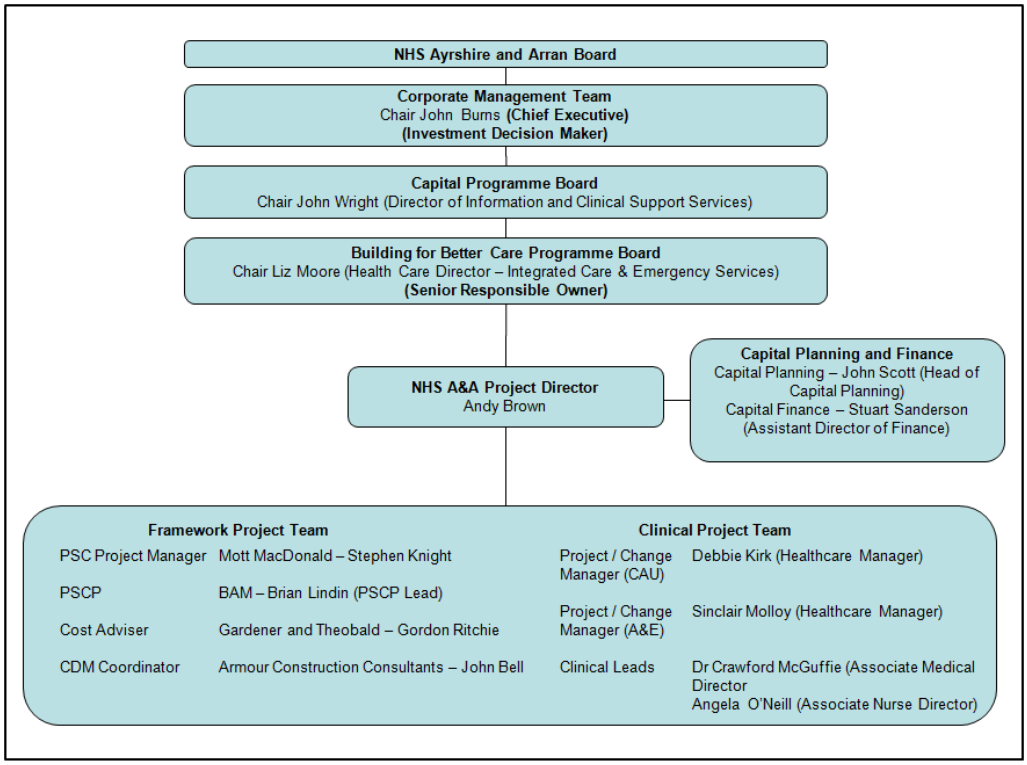
17.2.7 The NEC 3 contract aims to make improvements to more traditional forms of contract. It differs from others as it requires more involvement from the client, contractor and project manager.

17.3 The Project Framework

17.3.1 The diagram below sets out:

- The overall governance structure
- How the Building for Better Care Programme Board and the Project Teams fit into this structure
- The key roles for the redevelopment – the Senior Responsible Owner (SRO), Project Director and the appointed Professional Service Consultants (PSC) Manager

Figure 17-1: Governance Structure



17.3.2 The Senior Responsible Owner (SRO) chairs the Building for Better Care Programme Board and reports to the Capital Programme Board ensuring successful delivery of the project. The NHS A&A Board Project Director and PSC Project Manager work collaboratively ensuring effective progress of the project and jointly lead the project team.

17.4 Project Roles and Responsibilities

Structures within the Project

17.4.1 The detailed roles and responsibilities of the Boards and Teams within the project structure are set out in the table below.

Figure 17-2: Roles and responsibilities of Board and team

Team or Group	Responsibilities
NHS Ayrshire & Arran Board	▪ Oversee the project ▪ Review the progress ▪ Approve the business case ▪ Resolve matters outside Board's delegated authority
Corporate Management Team	▪ Deliver the service modernisation programme ▪ Develop vision of NHS A&A overall clinical services strategic direction ▪ Agree and prioritise the Capital Plan

Team or Group	Responsibilities
	▪ Maximise the integration of development opportunities across directorates and with external partners ▪ Authorise mandate for capital planning programme i.e. initial agreements, and submit to CPB to ensure strategic fit ▪ Endorse bids for capital allocation, ensuring that they are processed in line with Standing Financial Instructions (SFIs) and where appropriate submitted to Finance Committee for approval for those projects in excess of £1.5m ▪ Report to Audit Sub-Committee on the process and outcome of gateway reviews ▪ Ensure the Capital Plan is aligned to support service development priorities ▪ Monitor progress of programme against programme objectives ▪ Resolve issues which need the agreement of senior stakeholders to ensure progress of programme ▪ Provide recommendations to the NHS Board on Property Strategy ▪ Provide commitment and endorsement of programme at communication events ▪ Support the Senior Responsible Officer (SRO) ▪ Exercise leadership/ championing the Capital Plan ▪ Confirm sign off at programme closure
Capital Programme Board	▪ Accountable and responsible to Capital Planning Steering Group for delivery of individual projects / programmes within agreed timescales and costs ▪ Monitor and investigate variances ▪ Define acceptable risk profiles and thresholds for the programme ▪ Ensure programme is delivered within agreed parameters (cost, timescale) ▪ Resolve strategic issues between projects which need the agreement of senior stakeholders to ensure progress of programme ▪ Provide assurance of operational stability and effectiveness throughout the programme delivery lifecycle ▪ Overall management of requests for changes to office accommodation

Team or Group	Responsibilities
Building for Better Care Programme Board	▪ Establish project organisation ▪ Agree and prioritise the Capital Plan ▪ Maximise the integration of development opportunities across directorates and with external partners ▪ Authorise the allocation of project funds ▪ Monitor project performance against strategic objectives ▪ Resolve strategic issues which need the agreement of senior stakeholders to ensure progress of project ▪ Provide recommendations to Finance Committee/NHS Board on Property Strategy ▪ Maintain commitment to the project ▪ Promote the project at communication events ▪ Produce the OBC document ▪ Draft OBC document ▪ Set up the governance structure ▪ Co-ordinate submission of Papers to the relevant NHS Ayrshire & Arran Boards
Clinical Project Teams	▪ Meet as required to report and review progress. ▪ Agree responsibilities for the production of information and documentation. ▪ Receive and agree actions on reports from the User and Project Groups, Adviser Team and other bodies. ▪ Prepare and develop the Brief ▪ Agree the content of operational policies. ▪ Agree the schedules of accommodation. ▪ Agree the provision of equipment. ▪ Agree the risk models including transferred and retained risks. ▪ Agree the design proposals. ▪ Make recommendations for approval to the Building for Better Care Programme Board.

Individual roles and responsibilities

17.4.2 The key roles are those of the Investment Decision Maker, Senior Responsible Owner, Board Project Director and PSC Project Manager. These are summarised in the table below.

Figure 17-3: Roles and responsibilities of key individuals

Role	Summary of Role	Key Responsibilities
Investment Decision Maker (IDM)	The Investment Decision-Maker (IDM), usually an Executive Director of NHS Ayrshire and Arran, decides whether to invest financial and human resources in any given project, and correspondingly will have ultimate responsibility. They must consider whether the project fits the strategic direction of the organisation, its short and long-term affordability, and whether or not it represents the best use of resources The IDM will be ultimately accountable for the success or failure of an investment decision and the delivery of the project. The IDM will prioritise all project business cases to ensure value for money is achieved and a maximum return to the NHSScotland Body from the resources available for investment.	▪ Ensures that a viable and affordable business case exists for the project, with the revenue impact of the project clearly identified ▪ Ensures that the business case remains valid ▪ Maintains visible and sustained commitment to the project ▪ Ensures that the role of project ownership is established and understood ▪ Defines the project Senior Responsible Owner's terms of reference ▪ Authorises the allocation of funds to the project ▪ Oversees project performance through detailed project plans ▪ Resolves any issues that fall outside the project owner's delegated authority ▪ Ensures that quality design considerations are an integral part of the process of building and not marginalised or considered an option.
Senior Responsible Owner (SRO)	The SRO is an individual, usually an employee of NHS Ayrshire and Arran, who represents and has the authority of the	▪ Chairs Building for Better Care Programme Board ▪ Leads the delivery of the NHS Board's Capital project and provides overall direction

Role	Summary of Role	Key Responsibilities
	Board to act on their behalf in respect of the delivery of a specific project. All instructions given by the SRO are deemed to be given by the Board. All communications given to the SRO is deemed to have been given to the Board. The SRO is the Project lead from the outset. He or She is accountable directly to the Capital Programme Board and provide the strategic direction, leadership and ensure that the business case reflects the views of all stakeholders.	▪ Secures the investment required to deliver programme ▪ Ensures project delivery within agreed timescales and agreed resources ▪ Owns the Programme portfolio of projects ▪ Accountable for the Project's governance arrangements ▪ Manages interfaces with key stakeholders ▪ Manages key project risks facing the programme ▪ Maintains alignment of the programme with strategic objectives ▪ Provides progress reports to the Capital Programme Board and Capital Planning Steering Group ▪ Initiates independent Gateway Reviews and receives Review Team reports
Board Project Director	The Board Project Director is the Project Lead from the outset, and provides the strategic direction, leadership and ensures that the business case reflects the views of all stakeholders.	▪ Agree business case and budget ▪ Establish Project organisation ▪ Defines terms of reference ▪ Establish a defined Brief to user's agreement ▪ Establish reporting procedures ▪ Approve change and act as arbitrator on disputes ▪ Ensure adequate resources to deliver the Project ▪ Promote the Project ▪ Report to the Building for Better Care Programme Board ▪ Lead the Project Team ▪ Manage the Board interest in the Project ▪ Provide all decisions and directions on behalf of the Board ▪ Ensure adequate communication mechanisms exist between the Project, external organisations and the Board ▪ Carry out the duties identified in the Management of Construction

Role	Summary of Role	Key Responsibilities
		Projects section of the Capital Investment Manual ▪ Meet the requirements of the NHS funding stream ▪ Coordinate and manage consultant (PSC) appointments and deliverables
PSC Project Manager – Mott MacDonald	The PSC Project Manager works collaboratively with the Board Project Director in ensuring the step to step delivery of the project and managing the Project Team.	▪ Engage, manage and monitor consultants, contractors and suppliers necessary for the completion of the Project in conjunction with the Board Project Director ▪ Ensure delivery of the Project in accordance with the Project programme ▪ Implement the Project Execution Plan ▪ Carry out the duties in accordance with all Health Facilities Scotland directorates and guidance ▪ Understand business objectives ▪ Produce Brief and Project Plan ▪ Ensure work is defined ▪ Lead and direct Project and Technical Teams ▪ Develop all contract documentation ▪ Negotiate Target Cost with PSCP in conjunction with Board ▪ Establish procedures to monitor, time cost and quality ▪ Provide regular progress reports to the Board Project Director ▪ Provide decisions to Contractors and ensure mechanisms exist to resolve issues that will affect time, cost and quality with Board Project Director ▪ Manage the contract in accordance with framework and contract requirements including adequate change mechanisms ▪ Manage handover process to the Building for Better Care Programme Board

Role	Summary of Role	Key Responsibilities
		▪ Arrange Post Project Evaluation ▪ Management of all other Professional Services Contractors contracts
Board Project / Change Managers	Working collaboratively with the Board Project Director and as an integral part of the Clinical Project Team in ensuring that the required changes associated with the proposed service models in their respective service areas are successfully implemented and that assocated benefits realised	▪ Development of change management plans ▪ Working in conjunction with Clinical Leads, manage the workforce changes associated with the proposed service models ▪ Manage key risks associated with clinical change processes ▪ Lead on benefits management and realisation ▪ Input into Post Project Evaluation

17.4.3 There are three other parties involved in the project, whose roles are summarised in the table below.

Figure 17-4: Other parties' roles and responsibilities

Role	Key responsibilities
Health Facilities Scotland Team	▪ Manage the strategic direction of the framework ▪ Ensure appropriate support is provided to NHS clients ▪ Co-ordinate and provide training ▪ Collate and review performance data ▪ Ensure best practice is shared throughout Scotland and the UK
Principal Supply Chain Partner – BAM Construction	▪ Work as a partner with the NHS Ayrshire and Arran Board and lead the process of design development, procurement, construction and commissioning applying the principles of Framework Scotland ▪ Undertake the role of Principal Contractor responsible for the management and coordination of design and construction activities ▪ Providing scheme deliverables including but not limited to design of the works; cost planning; value engineering and all other associated activities typically undertake by a competent design and build contractor with early involvement

PSC Cost Consultant – Gardiner Theobald	▪ Engage, manage and monitor consultants, contractors and suppliers necessary for the completion of the Project, in conjunction with the Board Project Director and PSC Project Manager ▪ Implement the Project Execution Plan ▪ Carry out the duties identified in the Management of the Project in accordance with all Health Facilities Scotland directorates and guidance

17.4.4 The project management approach also sets out the level of responsibility for tasks throughout the project. The four categories of responsibility are set out below:

- **Accountable "A"** - The individual/organisation who is ultimately accountable for the activity. Has yes or no authority and veto power. Only one "A" can be assigned to an activity
- **Responsible "R"** - The individual(s) / organisation(s) who perform the activity and do the work. Responsibility can be shared. The degree of responsibility is determined by "A"
- **Consulted "C"** - The individual(s) / organisations(s) that need to be consulted prior to a final decision or action. This is a two way communication process
- **Informed "I"** - The individual(s) / organisations(s) that need to be informed after the decision or action is taken. This is a one way communication process

17.4.5 **Appendix I1** summarise the tasks with associated level of responsibility at OBC, and FBC stages, as well as the Design, Construction and Handover stage. The appendix sets out who is responsible for the task and the level of responsibility of each of the parties. Responsibilities at Commissioning and Project Completion have been allocated but are not shown in this document for brevity.

17.5 Project Plan

17.5.1 The dates detailed in the table below highlight the key milestones for the project.

Figure 17-5: Project milestones

Action	Responsibility	Date
Completion of OBC	BfBC Programme Board	November 2012
Approval of OBC by Programme Board	BfBC Programme Board	1st November 2012
Approval by Corporate Management Team	Corporate Management Team	13th November 2012
Approval of OBC by Capital Programme Board	Capital Programme Board	14th November 2012
Gateway 2 Review	BfBC Programme Board	19 th November 2012
Approval of OBC by Finance Committee	Finance Committee	3rd December 2012
Approval of NHS Ayrshire & Arran Board	NHS Board	5th December 2012
Submission of OBC to SGHD CIG	BfBC Programme Board	6th December 2012
SGHD CIG Approval of OBC	SGHD	15th January 2012
Detailed Design sign off	BfBC Programme Board	31st May 2013
Draft FBC for initial consideration by Capital Programme Board	BfBC Programme Board	4th October 2013
NHS A&A Board Approval	BfBC Programme Board	December 2013
FBC Submission to SGHD CIG	BfBC Programme Board	December 2013
SGHD CIG FBC Approval	SGHD	February 2014
Construction commence (enabling works)	PSCP	February 2014
Construction complete	PSCP	September 2015

17.5.2 The detailed project plan is shown in **Appendix I2**.

17.6 Project Communication and Reporting Arrangements

17.6.1 A meeting schedule has been developed for the engagement and management of stakeholders. This includes details of all planned meetings in order to ensure effective communication.

17.6.2 All formal communication between representatives shall be issued through the PSC Project Manager or Board Project Director.

17.6.3 The main method of communication of records will be via e-mail. All e-mails will be copied to the Board Project Director for record purposes.

17.6.4 Regular meetings have been arranged in order to manage, control and monitor issues throughout the OBC process.

17.6.5 Minutes will be taken at all meetings to ensure the task-focus of the project, prior to the closure of each meeting, an agreed action list will be circulated and agreed by all team members.

17.6.6 NHS Ayrshire and Arran have undertaken a progressive and constructive consultation process in developing this OBC and preparing for the redevelopment of both the Ayr and Crosshouse Hospitals. The following parties have been key in the stakeholder consultation:

- NHS Ayrshire & Arran Board;
- The Principal Supply Chain Partner and their contractors;
- Public & Patients; and
- Local Authority

Board and the PSCP or their contractors and other NHS Ayrshire and Arran Stakeholders

17.6.7 NHS Ayrshire and Arran have conducted a series of consultations with relevant NHS stakeholders and Health Facilities Scotland. These are listed in **Appendix I3**.

17.6.8 The comments and output from these consultations have been considered throughout preparation of this Outline Business Case.

Public & Patients

17.6.9 Public and patient engagement is critical to the success of the project and as such NHS Ayrshire and Arran have implemented a robust consultation process with the public as end users of both the Ayr and Crosshouse Hospital redevelopments.

17.6.10 On a wider Ayrshire and Arran basis this has included input to the development of the Integrated Healthcare Strategy and, for both the Ayr and Crosshouse Hospital redevelopments, through the Public Partnership Forum and Patient and Public Panel. Members of the former have been seconded onto appropriate working groups to inform key decision making in relation to:

- Establishing the benefit criteria for the scheme
- Reviewing all potential options
- Preparation of the longlist of development options

- Selecting a shortlist
- Scoring of the non financial benefits
- Identifying the preferred option

Local Authority

17.6.11 There has been informal and formal dialogue with the Local Authority during the early development of this project. This has been on a regular basis with the intention to identify and mitigate early on in the development any potential difficulties in obtaining planning permission and has covered topics such as:

- Restrictions that are likely to apply to the site given the current facilities
- Potential impact of any Tree Preservation Orders on the sites
- Impact of local conservations areas on the design and development
- Likely requirements for the provision of public transport facilities
- Parking requirements given the proposed scale of the development

17.6.12 This regular liaison will continue through the FBC development and into the construction of the new facilities.

17.7 Project Reporting Arrangements

17.7.1 The internal reporting arrangements and responsibilities including links with the Principal Supply Chain Partner are as follows:

- All members of the Building for Better Care Programme Board / Programme Team will have individual responsibilities for cascading project information through their respective service functions
- The Board Project Director and coordinators will be responsible for producing a monthly progress report to their own organisations and to the Project Board on progress, opportunities, any potential problems and project risks
- The PSC Project Manager will produce a monthly progress report in advance of the monthly progress meeting including a summary of the current status of the project and any key issues that have arisen
- The PSC Cost Consultant will produce a monthly report including a financial analysis of approved and forecast project expenditure for monthly progress meetings and Board Advisors Meetings
- The Board SRO will be responsible for producing formal Board Reports
- The Board SRO will be responsible for producing ad hoc reports to the Building for Better Care Programme Board

17.7.2 Hard copies of all documents will be maintained by those parties responsible for the documents preparation and management.

17.7.3 The external reporting arrangements and responsibilities are as follows:

- The Board Project Director will be responsible for providing the key link with major stakeholders not represented on the Building for Better Care Programme Board to report progress

- The Board Project Director will be responsible for the inclusion of the public in the proposed developments
- Any required media management will be in accordance with the Board's media policy
- The Building for Better Care Programme Board will consider the production of a regular newsletter for internal and external communication purposes. Responsibility for production and frequency (if required) to be identified

17.8 Gateway Review

17.8.1 The OGC Gateway Review process examines programmes and projects at key decision points in their lifecycle. It looks ahead to provide assurance that they can progress successfully to the next stage. Gateway reviews deliver a "peer review" in which independent practitioners from outside the programme / project use their experience and expertise to examine the progress and likelihood of successful delivery of the programme or project.

17.8.2 At Outline Business Case stage in the investment cycle the relevant decision point relates to the Delivery Stage which investigates the OBC and the delivery strategy before any formal approaches are made to prospective suppliers or delivery partners.

17.8.3 A two-stage Risk Potential Assessment (RPA) process is used to help SROs determine whether their project should have Gateway Review support. The first stage is a short assessment form that helps the SRO to determine whether their project is likely to be Low, Medium or High profile/risk/complexity.

17.8.4 Those projects assessed as Medium or High then compete the more detailed second stage assessment and those projects with a Medium or High rating following the second stage will have a formal Assessment Meeting with staff from the Programme and Project Management Centre of Excellence (PPM-CoE) to determine whether Gateway Review support would be appropriate.

17.8.5 In relation to the proposals set out within this OBC the results of the initial (RPA-1) assessment indicated a risk score of 7 which requires that a Stage 2 (RPA-2) should be completed to determine whether the programme or project must be supported by the Scottish Government Gateway Review process.

17.8.6 The completed RPA-2 assessment indicates that the overall risk rating for the project is 'Low' suggesting a requirement that the programme or project conducts regular self-assessments to ensure it is on track to successfully deliver its outcomes or objectives.

17.8.7 Despite the results of the RPA-2 assessment, it has been determined that Scottish Government Gateway Review support will be provided to the project. It was felt that as a review was undertaken in relation to the December 2010 OBC submission, and that indicated a Delivery Confidence assessment of Amber / Green largely resulting from uncertainty about the availability of capital funding to support the project, a further review should be undertaken at this stage.

17.8.8 A copy of the RPA assessments is included at **Appendix I4**.

17.9 Conclusion

17.9.1 This section of the OBC shows that NHS Ayrshire & Arran have developed a robust project management framework outlining the project strategy and methodology based on best practice, the roles and responsibilities of key project members, the project communication and reporting arrangements and the project plan including key project milestones.

17.9.2 Scottish Government Gateway Review support will be provided to the project.

18 CHANGE MANAGEMENT

18.1 Overview

18.1.1 This section of the OBC sets out HS Ayrshire & Arran's approach to change management and how it helps to deliver the preferred option, discussing:

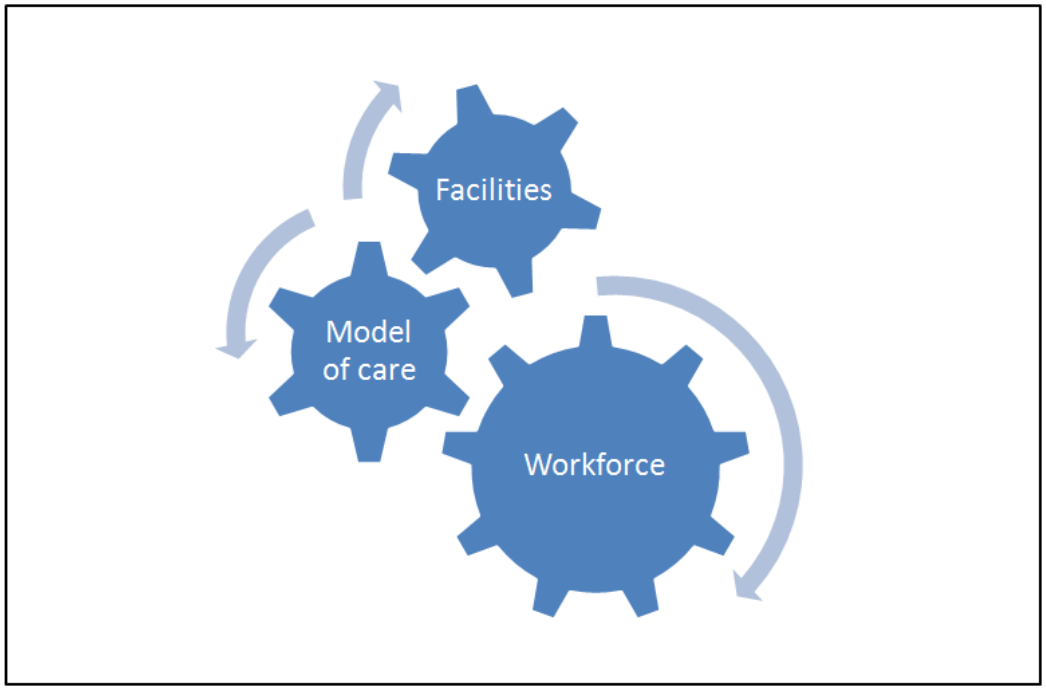
- Change management philosophy
- Change management principles
- The approach to change management
- The current change management plan

18.2 Change Management Philosophy

18.2.1 The redevelopment of front door services at Ayr and Crosshouse hospitals represents a significant change point for the Board. The change to the physical infrastructure is simply an enabler to a more fundamental change in the way that healthcare will be delivered for the residents of Ayrshire & Arran.

18.2.2 The simplified diagram below shows the three key elements encompassed by the change.

Figure 18-1: Scope of change



18.2.3 The impact of the change on these three aspects of the organisation will be fundamental. The table below summarises some of the main impacts of the changes across four areas as indicated below.

Figure 18-2: Impact of change

Area	Impact
Culture	The culture of the organisation will change from one where care is provided in an acute focused silo to one where the patient is seen as being at the centre of care, irrespective of the extent of the contribution of acute care to the overall treatment and patient pathway. The need for improvements in quality, will sit at the heart of these changes. These changes will impact upon culture and therefore staff right across the Board.
Systems	Systems will be more responsive and geared to supporting the new models of care, both within the hospital and across acute and primary care. In particular more emphasis will be placed on good communication and effective handover between acute and primary care to make the patient experience seamless.
Processes	New models of care will introduce new clinical processes and change roles and responsibilities of clinical staff. The emphasis of the clinical processes will be a speedier treatment without compromise on patient quality. The physical environment will also improve the way care is delivered and mean that some of the approaches adopted in the past because of restricted physical configuration will change.
People	There will be changes to roles and responsibilities, particularly for clinical staff. Some of this will arise from the changes in clinical process within the hospital, whereas other changes in roles will come from the way the focus of care will shift from purely acute to more pathway based care.

18.2.4 In the light of the impact of these changes, the Board's change management philosophy is to:

- Recognise the significance of the change
- Embrace the change, taking the opportunity to improve the quality of healthcare and maximise the return on investment
- Implement the change in a structured and well managed way to maintain control of the change process

18.3 Change Management Principles

18.3.1 The Board has discussed the change process and has started to develop a series of principles that will underpin the change process. These principles will shape the way that the process is managed, reflecting the change management philosophy outlined above.

18.3.2 The principles agreed to date are to:

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

18.3.3 Once the OBC has been approved, these principles will be revisited and confirmed. The change management philosophy and change management principles will be communicated to all staff as part of the launch of the change management process.

18.4 The Change Management Approach

18.4.1 The Board has designed a change management approach that encompasses the philosophy and principles outlined above.

18.4.2 It is likely that the implementation programme may start slowly, but will ramp up significantly before the FBC is approved. Once the FBC is approved, the programme will move swiftly into implementation.

18.4.3 Although the principles and processes are not yet fully signed off and in place, the Board has recognised and acted upon its responsibility for leading effective change management during the project. The paragraphs below set out the work completed to date, demonstrating the proactive approach to planning change management within this OBC.

18.5 The Current Change Management Plan

18.5.1 A core change management plan has been developed that sets out the key tasks for the project's change management plan. Once the OBC has been approved and the Change Management Champion identified, three actions will occur:

- The Core plan will be reviewed to identify other relevant areas that need to be included
- Detailed plans will be set up for each of the tasks in the core plan

- An overall timetable will be developed and the high level milestones communicated as part of the launch of the Change Management Plan

18.5.2 The table below sets out the Core plan and the main tasks identified to date.

Figure 18-3: Core change management plan

Area	Planned tasks
Planning phase	▪ Appoint Change Management Champion, confirming responsibilities and leadership of the Change Management Programme and reporting mechanism to Board ▪ Revisit and agree philosophy and principles ▪ Confirm stakeholders and interested parties both within and outside hospital ▪ Develop Core plan in more detail, identifying high level milestones for change management plan, mapped to the overall project plan ▪ Confirm involvement of HR, managers and other individuals/groups in the process
Communications and stakeholder engagement	▪ Confirm communications lead and protocols (route and timing of approval of comms messages) ▪ Develop communications routes, including face to face briefings (whole Board, individual groups, and 'surgeries'), bulletins, intranet pages ▪ Formulate and agree key communications messages against high level milestones ▪ Set up stakeholder map and engagement plan ▪ Launch change programme ▪ Ongoing communications work
Training and development	▪ Complete detailed workforce planning to identify 'shadow' structures, roles and competencies for those roles ▪ Work with staff through workshops and other training to clarify the workings of the new models of care and how these will impact in practice ▪ Identify training and development required to fulfil roles and competencies ▪ Develop training plan, aligned to pilot work and overall milestones in implementation plan ▪ Link training and development into communications plan

Area	Planned tasks
Piloting	▪ Identify and confirm areas where piloting of new models and practice will be implemented ▪ Confirm schedule of pilot work, mapped against high level project and change management milestones ▪ Agree feedback arrangements from pilots and how this links into training/development, communications and overall change management plan ▪ Execute pilots, feedback and report progress
Full Implementation	▪ Identify scheduling/phasing of full implementation at both Ayr and Crosshouse sites ▪ Using results of piloting and training work, develop detailed implementation and transition plan, mapped to project phasing ▪ Discussion and agreement with key staff ▪ Execute Implementation and transition plans

18.6 Conclusion

18.6.1 This section of the OBC shows that the Board has:

- A sound change management philosophy, underpinned by specific change management principles.
- Developed a clear approach to change management, whose simple structure will facilitate effective delivery.
- Already made progress in developing a Core change management plan to implement the changes required to make the redevelopments a success.

19 BENEFITS REALISATION PLAN

19.1 Introduction

19.1.1 NHS Ayrshire & Arran is committed to ensuring that a thorough and robust Post-Project Evaluation (PPE) is undertaken at key stages in the process to ensure that positive lessons can be learnt from the project and as such fully embedded in the project management arrangements.

19.1.2 A key element of PPE is to ensure that the range of benefits anticipated to be realised from the project materialise. Therefore, a Benefits Realisation Plan (BRP) has been developed. This report outlines the process undertaken in order to achieve this.

19.2 Background to the Benefits Realisation Process

19.2.1 A BRP is the process of organising and managing the identified benefits during project implementation, such that the potential benefits arising from the planned investment are actually realised.

19.2.2 A BRP needs to be explicit, and proactively managed, in order for the organisation to be capable of realising the wide range of potential benefits of the project (as well as avoiding possible negative impacts).

19.2.3 The BRP is used to identify what benefits will result from the Project and how these will be measured. This provides evidence that the investment has been worthwhile to the local health economy post project implementation.

19.2.4 Additionally, all benefits identified should be defensible against third party scrutiny.

19.2.5 The plan for benefits needs to be integrated into or co-ordinated with the programme plan and should be very clear about handover and responsibilities for ongoing operations in the changed state (where the benefits will actually accrue).

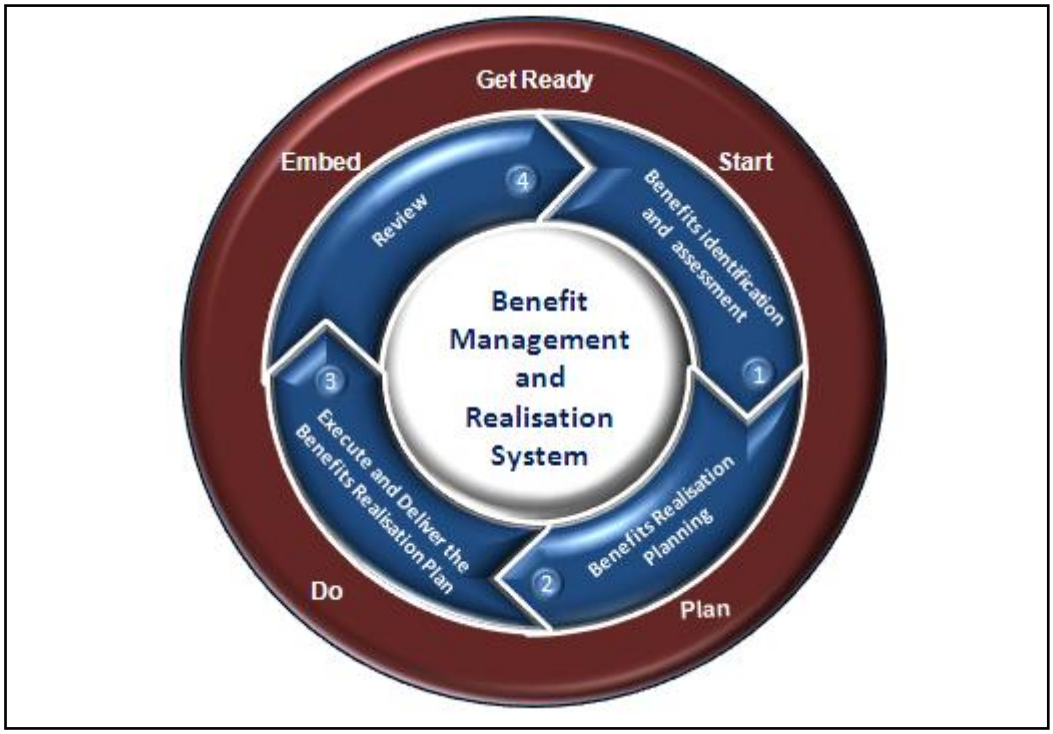
19.2.6 This section of the report outlines the benefits realisation process, describes its key elements and sets it in the wider context of benefits management.

19.3 Benefits Management

19.3.1 Benefits management is the overarching process of continuous review which incorporates the BRP as part of a process of continuous improvement. It takes due account of changes in the project during the delivery phase which impact on, or alter the anticipated benefits.

19.3.2 As such the benefits management approach is a cycle of selection, planning, execution and review as illustrated below.

Figure 19-1: Benefits management approach



19.3.3 Further details of each stage are provided below:

- Stage 1 - Benefits Identification and Assessment: Selection of appropriate and significant benefits that makes the best use of scarce resources
- Stage 2 - Benefits Realisation Planning: Rational decisions about how, when, and by whom benefits will be delivered, with clear ownership, accountability and timetable
- Stage 3 - Execute and Deliver the Benefits Realisation Plan: Successful delivery of the Benefits Realisation Plan
- Stage 4 - Review: Input to a culture of continuous improvement either through incremental change to the existing system or by triggering the inception of new programmes / projects

19.4 The Benefits Realisation Workshop

19.4.1 The benefits realisation workshop, facilitated by Capita Consulting was held on 20th August 2012.

19.4.2 The workshop was structured into two main phases, namely:

- A review of the OBC benefit criteria, and
- The activities associated with actual development of the BRP

19.5 A Review of the OBC Benefit Criteria

19.5.1 As outlined in section 2 the non financial benefit criteria developed as part of the OBC always represent the starting point in terms of the development of the BRP. It is however necessary to review these to ensure that they remain valid.

19.5.2 Further details of the OBC benefit criteria including a summary of their key features is provided in 10.3.

19.6 Process for Developing the BRP

19.6.1 As part of the workshop activities four work stages were identified in the development of the BRP process, namely:

- Defining the benefits
- Reviewing their key features
- Assessing how they will be delivered and measured
- Agreeing the best means of monitoring.

19.6.2 The first two stages were captured as part of the review of the OBC benefit criteria. Each criterion and its key features were initially reviewed and any issues clarified. It was felt beneficial at this stage to map each of the original benefit criteria to the six dimension of quality; this is shown below:

Figure 19-2: Criteria Mapped to 6 Dimensions of Quality

Criterion	Definition	Quality Dimension
Safe	The option should provide a safe service for all patients, carers, visitors and staff. Any clinical risks associated with the option should be assessed, managed and minimised so that the provision of the service should do no harm and aim to avoid preventable adverse events.	**Safe** **Person centred**
Flexibility	The option should allow for future development phases to be effectively accommodated as part of the full delivery of font door services	**Effective**
Sustainable	The option should be able to accommodate changes in patterns of care and the changing needs of the population over the longer term. It should enable optimal and efficient deployment of all types of resources including staff, facilities and equipment to meet the expansion or realignment of services in the future	**Effective** **Efficient**
Accessible	The option should improve access to services at the “front door” of the hospital and facilitate better flow from a patient pathway perspective.	**Equitable** **Effective** **Efficient** **Person Centred**

Criterion	Definition	Quality Dimension
Disruption	Disruption to the work of the service should be minimised throughout the period of building and relocation. Minimal disruption to adjacent services, both during the building process and during the long-term delivery of care should be considered.	**Timely** **Safe**

19.6.3 Following this and using these benefit criteria as the starting point, the remaining workshop activities were centred around three main aspects of BRP development, namely:

- Identification of any potential dis-benefits
- Actions necessary to realise the benefits
- Process for measurement and monitoring

19.7 Identification of Potential Dis-benefits

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

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

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

19.8 Actions Necessary to Realise the Benefits

19.8.1 Generally speaking benefits can only be realised if there is a clear set of agreed actions in place which are fully signed up to by the appropriate stakeholders. In some cases this will require certain supporting systems to be in place and in others the focus will be more on interactions and communication.

19.8.2 It is critical that all actions necessary to realise benefits are captured and agreed in the BRP. Failure to achieve this will result in either sub-optimal benefits delivery or more critically not achieving some of the core project objectives. This could adversely impact upon some or all of the project stakeholders.

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

- What specific actions are required to realise the benefits?
- Areas to consider include skills, structures, information, culture, systems, staff, stakeholders, patients.

19.9 Measurement and Monitoring

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

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

19.9.3 Additionally it should be recognised that only a proportion of the benefits will be 'hard' or quantifiable (e.g. additional activity delivered or reduction in costs) with many requiring 'soft' or qualitative measures to assess their delivery. These qualitative measures are often the areas requiring the greatest level of bespoke development.

19.9.4 Finally, the frequency of benefit monitoring will be established as part of this process.

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

- How would you know that the benefit has been achieved?
- Both qualitative and quantitative measures could be used?
- How will the Board monitor the achievement of the benefit?

19.10 Summary of Outputs

19.10.1 The outputs of the three stages of group work were documented and used as the basis for populating the BRP.

19.10.2 A summary of these outputs is included at **Appendix J1**

19.10.3 Workshop participants should be asked to review these and to feedback any comments and / or amendments. This will allow the remaining aspects of the BRP to be developed.

19.11 Conclusion

19.11.1 The Board has developed a robust process for identifying, measuring and managing the benefits anticipated to result from the proposed investment in front door services at Ayr and Crosshouse hospitals.

19.11.2 A draft Benefits Realisation Plan (BRP) has been developed and further activities identified to conclude the remaining aspects and finalise the plan.

19.11.3 This will be used to track, monitor and manage benefits over the lifetime of the project and, where necessary, take corrective action to ensure the anticipated benefits are realised.

20 RISK MANAGEMENT PLAN

20.1 Overview

20.1.1 This section of the OBC sets out NHS Ayrshire & Arran's approach to risk management, in delivering the preferred option, discussing:

- Risk management philosophy
- Categories of risk
- The framework for risk management
- The current risk management plan

20.2 Risk Management Philosophy

20.2.1 The Board's philosophy for managing risks is a holistic approach, seeing effective risk management as a positive way of achieving the project's wider aims, rather than simply a mechanistic 'tick box' exercise, to comply with guidance. The organisation regards risk as the mirror opposite of benefits. Inadequate risk management would therefore reduce the potential benefits to be gained from the project.

20.2.2 The Board recognises the value of putting in place an effective risk management framework to systematically identify, actively manage and minimise the impact of risk. This is done by:

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

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

- Prevention, where countermeasures are put in place that either stop the threat or problem from occurring, or prevent it from having an impact on the business or project.
- Reduction, where the actions either reduce the likelihood of the risk developing or limit the impact on the business or project to acceptable levels.
- Transfer, the impact of the risk is transferred to the organisation best able to manage the risk, typically a third party (e.g. via a penalty clause or insurance policy).
- Contingency, where actions are planned and organised to come into force as and when the risk occurs.

- Acceptance, where the BfBC Programme Board decides to go ahead and accept the possibility that the risk might occur, believing that either the risk will not occur or the potential countermeasures are too expensive. A risk may also be accepted on the basis that the risk and any impacts are acceptable.

20.3 Categories of Risk

20.3.1 In developing the preferred solution, the Board examined three categories of risks for each option. These are set out in the table below, together with a summary of how these were assessed.

Figure 20-1: Risk areas

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

20.3.2 The risk values for the shortlisted options were identified and evaluated as part of the assessment process in choosing the preferred solution, shown in section 11. Although the focus of this section is on the approach to managing the risks of the preferred solution, the scope of risk management will continue to cover all three areas of risk.

20.4 The Risk Management Framework

20.4.1 The Board has designed a simple risk management framework that focuses on effective identification, reporting and management of risks. There are only three roles in the risk management process that are summarised below.

Figure 20-2: Risk management roles

Role	Responsibility	Reporting & accountability
Risk management lead	Manages the process for identifying and addressing risk, maintaining the risk register on a day to day basis	SRO and BfBC Programme Board
Risk management sub group	Brings together key risk owners to co-ordinate the identification and assessment of risks plus the management of key risks	Project Steering Group and BfBC Programme Board
Risk owner	Individual or group responsible for developing and implementing risk mitigation measures for individual risks they are responsible for	Risk management lead and Risk management sub group

20.4.2 The framework will be put in place once the OBC has been approved. Although these structures are not yet in place, the Board has recognised and acted upon its responsibility for leading effective risk management throughout each stage of the project. This is particularly important at OBC stage, to ensure that the risks associated with the preferred solution have been identified and addressed.

20.4.3 The paragraphs below set out the work completed to date, demonstrating the proactive approach to risk management within this project.

20.5 The Current Risk Management Plan

20.5.1 The Board is currently developing a risk register that will enable effective management of the risks identified in the risk analysis. The risk register covers all areas of risk, both those assessed and measured and wider project risks, and has been developed through a series of workshops, meetings and discussions with key project members to provide a mechanism for managing the projects risks even at this early pre approval stage.

20.6 Responsibility for managing the risk register

20.6.1 The responsibility for managing the risk register lies with the PSC Project Manager who will review the risk register and where necessary hold risk reduction meetings as and when required. Otherwise, the risk register will be issued on a monthly basis with updated changes.

20.7 The current risk register

20.7.1 The risk register is attached at **Appendix K1** and includes:

- A description and cause of the 44 risks that have been identified
- A description of the potential impact associated with each risk
- The risk assessment for each risk using a Probability x Impact score to categorise them;
  - **Red** (score >16) – 0 (0%) of total risks
  - **Amber** (score 10-16) – 4 (9%) of total risks
  - **Yellow** (score 4-9) – 40 (91%) of total risks
  - **Green** (score <4) – 0 (0%) of total risks
- The risk action plan and progress
- The mitigation, status and due date
- Ranking order of the risks
- The risk owner and individual responsible for taking action - now identified for all risks

20.7.2 The risk register is already being regularly monitored to identify the change in the potential impact of the risk.

20.7.3 This is a normal risk pattern at this stage of the project and the active monitoring of risks will continue throughout the project. Where new risks are identified, these are communicated to the BfBC Programme Board and the risk register is updated.

20.8 Further development of the risk register after OBC approval

20.8.1 Further work is planned to provide additional detail in the risk register in terms of the cost of each risk showing best, likely and worst care scenarios.

20.9 Conclusion

20.9.1 This section of the OBC shows that the Board has:

- A sound risk management philosophy that is based on effective risk management
- A clear risk management framework, whose simple structure will facilitate effective risk management
- Already made considerable progress in identifying, evaluating and addressing the risks for the preferred solution chosen in this OBC
- Further development of the risk register is required after the approval of the OBC in terms of the potential cost associated with each risk

21 ARRANGEMENTS FOR POST PROJECT EVALUATION

21.1 Overview

21.1.1 This section of the OBC sets out the plans which the Board has put in place to undertake a thorough and robust post-project evaluation (PPE). The areas covered are:

- The requirement for Post-Project Evaluation
- Framework for Post-Project Evaluation
- The four stages of PPE
- Management of the Evaluation Process
- The expected timing of the evaluation stages

21.2 The Requirement for Post-Project Evaluation

21.2.1 Post-project evaluation is a mandatory requirement by the Scottish Government Health Directorates (SGHD). The requirements are set out in detail within the SCIM Post Project Evaluation Manual.

21.2.2 For projects such as the one proposed in this OBC whose value exceeds £5m Post Project Evaluation Reports must be submitted to the SGHD. These reports are monitored with other key milestones in the project lifecycle. Information from summary and individual reports will be pulled together and issued as a key lessons document annually by SGHD to inform and support future project delivery.

21.2.3 The resources required for each PPE stage are still being assessed but will be finalised after the OBC has been approved.

21.3 Framework for Post-Project Evaluation

21.3.1 The Board is committed to ensuring that a thorough and robust post-project evaluation is undertaken at key stages in the process to ensure that positive lessons can be learnt from the project.

21.3.2 The purpose of post project evaluation is to:

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

21.3.3 If properly planned and resourced, evaluation can produce significant benefits, which are summarised in the table below.

Figure 21-1: PPE benefits

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

21.3.4 PPE also sets in place a framework within which the Benefits Realisation Plan set out in **Appendix J1** can be tested to identify which benefits have been achieved and which have not.

21.3.5 The SGHD has published guidance on PPE, which supplements that in the Scottish Capital Investment Manual (SCIM). The key stages applicable for this project are set out in the table below.

Figure 21-2: The four stages of PPE

Stage	Evaluation undertaken	When undertaken
1	Plan and cost the scope of the PPE work at the project appraisal stage. This should be summarised in an Evaluation Plan.	Plan at OBC, fully costed at FBC stage
2	Monitor progress and evaluate the project outputs	On completion of the facility
3	Initial post-project evaluation of the service outcomes	Six months after the facility has been commissioned

Stage	Evaluation undertaken	When undertaken
4	Follow-up post-project evaluation (*or post occupancy evaluation - POE*) to assess longer-term service outcomes two years after the facility has been commissioned. Beyond this period, outcomes should continue to be monitored. It may be appropriate to draw on this monitoring information to undertake further evaluation after each market testing or benchmarking exercise	Typically at intervals of 5-7 years.

21.3.6 The detailed plans for evaluation at each of these four stages will be drawn up by the Board in consultation with its key stakeholders. The paragraphs below set out the types of issues considered at each stage of the review and the timescales for each stage.

The Four Stages of PPE

21.3.7 The SCIM guidance on PPE identifies four stages in the PPE process, which are discussed in the paragraphs below.

Stage 1: The Evaluation Plan

21.3.8 The Evaluation Plan is a requirement for the FBC and will be completed before the FBC is submitted and form part of the FBC document. The Evaluation Plan will:

- Set out the objectives of the evaluation, confirming what type of information is it designed to generate and for what purpose
- Set out the scope of the evaluation to show the type of evaluation to be undertaken at the various stages of the project and the key issues to be addressed
- Define the success criteria for assessing the success or otherwise of the project
- Define performance indicators/measures for these criteria
- State the method(s) that will be used to obtain the information
- Set out the team and its membership - who will be responsible for undertaking the evaluation and their respective roles
- State the proposed membership of the Evaluation Steering Group
- Identify the resources and budget for the evaluation, including the need for written reports and dissemination activities
- Develop a dissemination plan for ensuring the results from the evaluation are used to re-appraise the project
- Clarify the timing of the evaluation, with expected start and finish dates

21.3.9 The Evaluation Plan will be developed in conjunction with the Benefit Realisation Plan and Risk Management Strategy, as all three strategies are closely related. This will help ensure that:

- The assessment of whether the benefits expected from the evaluation, including the risks of non-delivery of the benefits, have materialised
- Changes in the project objectives and other important parameters can be tracked and explicitly noted in the Evaluation Plan

21.3.10 The Evaluation Plan will be a live document and kept under constant review.

Stage 2: Evaluation requirements at the construction stage

21.3.11 The project will be monitored for time, cost and service performance. Other aspects of the project which will be subject to monitoring include:

- The management procedures
- The procurement process
- The design solution
- The contractor's performance during the building and operational stages of the project.

21.3.12 Monitoring reports will be produced at regular intervals to help the Project Director judge whether project objectives are being met. These reports will be produced on a monthly basis.

The key issues to address at this stage will include:

- Was the project completed on time?
- Was it completed within the agreed budget?
- What were the reasons for any delay?
- What action would management recommend to prevent future problems?
- Has the estate maintenance backlog been eliminated as planned?
- Functional suitability of the building?

21.3.13 When the building has been completed, its construction record and functional suitability will be reviewed.

21.3.14 The issues identified in the review process up to this point, will form the basis of the post-project evaluation report for this stage.

Stage 3: Evaluation requirement during the operational stage

21.3.15 Once services are being delivered in the new facility and a reasonable bedding-in period of some six to twelve months after commissioning of the facility has been allowed, a more wide-ranging evaluation of the costs and benefits of the project will be undertaken.

21.3.16 This evaluation will build on the work carried out in stage 2. It will involve reviewing the performance of the project in terms of the project objectives. These will have been defined clearly at stage 1 of the evaluation process.

Stage 4: Evaluating longer-term outcomes

21.3.17 Further post-project evaluation will be undertaken at a later stage to assess longer-term outcomes and/or the extent to which short- term outcomes are sustained over the longer term. By this stage, the full effects of the project including the clinical effects will have materialised.

21.3.18 As well as re-assessing the preliminary outcomes identified in the previous phase, the evaluation at this stage will address issues such as:

- Changes in operating costs
- Changes in maintenance costs
- Changes in risk allocation and transfer
- Changes in inpatient, out-patient and day case activity rates in the various specialities
- Changes in bed occupancy rates, length of stay and other performance measures.

21.4 Management of the Evaluation Process

21.4.1 The Project Director will be responsible for ensuring that the arrangements have all been put in place and that the requirements for PPE are fully delivered. The Board Project Director will be responsible for day to day oversight of the PPE process, reporting to the SRO and Programme Board.

21.4.2 The Board Project Director will set up an Evaluation Steering Group (ESG), which will:

- Represent interests of all relevant stakeholders
- Have access to, professional advisers who have appropriate expertise for advising on all aspects of the project.

21.4.3 A project manager will be appointed to co-ordinate and oversee the evaluation. It has not yet been confirmed whether the evaluation will be carried out by in-house staff, external advisers or a team comprising of both. Whichever configuration is chosen, the key principle will be that the evaluation is "arms length" and objective. Therefore the Evaluation Team will be unrelated to the project to promote a detached assessment.

21.4.4 The Evaluation Team will be multi-disciplinary and include the following professional groups, although the list is not exhaustive:

- Clinicians, including consultants, nursing staff, clinical support staff and Allied Health Professionals
- Healthcare Planners, Estates professionals and other specialists that have an expertise on facilities
- Accountants and finance specialists, IM&T professionals, plus representatives from any other relevant technical or professional grouping
- Patients and/or representatives from patient and public groups

21.4.5 The costs of the final post-project evaluation will be identified once the ESG and Evaluation Team are fully-established. These costs are therefore not currently included in the costs set out in this OBC.

21.5 Expected Timings

21.5.1 The timings of the different stages of the PPE process are set out in the table below.

Figure 21-3: Timing of key stages of the PPE process

Stage	Requirement	Timing
1	Produce a costed Evaluation Plan which is incorporated into the FBC. This includes: ▪ Confirming objectives, benefits and risks of the project ▪ Identifying whether the evaluation will be carried out in house or by an external party ▪ Agreeing participants in the Evaluation Steering Group and Evaluation Team, including patient and public representatives ▪ Costing the process, including requirements to backfill staff time	Completed before submission of FBC and included within FBC costs and FBC submission
2	Monitor progress and evaluate the project outputs. This includes: ▪ Monthly monitoring of construction and other elements of project delivery ▪ Formal reporting at key milestones of the project plan ▪ Production of completion report once construction work has been completed	Within six to eight weeks of the completion of the facility

Stage	Requirement	Timing
3 (PPE)	Initial post-project evaluation of the service outcomes. This includes: ▪ Review of the Project Objectives and BRP to measure the extent to which they have been achieved ▪ Evaluation of the project management and control processes to assess whether they have worked satisfactorily ▪ Submission of the PPE to the SGHD	Six months after the new facility has been commissioned
4 (POE)	Follow-up post-project evaluation (*or post occupancy evaluation- POE*) to assess longer-term service outcomes. This will include: ▪ Clinical evaluation – whether the model of care has been successfully implemented and maintained ▪ Quality evaluation – whether the anticipated patient outcomes and benefits have been realised ▪ Overall benefits assessment – whether the full range of projected benefits in the benefits realisation plan have been realised ▪ Financial evaluation – whether the overall costs of the scheme have remained within the expected cost envelope	Two years after the facility has been operative.

21.6 Conclusion

21.6.1 The Board has identified a robust plan for undertaking PPE in line with current SCIM guidance, which is fully embedded in the project management arrangements of the project. These plans have not yet been costed, but will be fully developed and the costs identified for inclusion in the FBC.