

Report

Expansion of the Acute Medical Unit at the Royal Infirmary of Edinburgh Edinburgh Integration Joint Board

16 June 2017



Executive Summary

1. This paper provides an update on work between Integration Joint Boards (IJBs) and NHS Lothian's acute services on the future shape and function of the medical assessment function of the Royal Infirmary of Edinburgh.

Recommendations

2. It is recommended that the board:
 - notes that NHS Lothian has approved capital funding to support the expansion of the acute medical unit (AMU) at the Royal Infirmary of Edinburgh; and
 - agrees the directions detailed in section 23 of this report to use additional capacity over winter 2017/18 and working with officers of NHS Lothian to develop a sustainable model of care beyond this.

Background

3. Edinburgh IJB's vision, as articulated in the strategic plan, is for people to live longer, healthier lives in homely settings with a focus on the prevention of hospital admissions and supported self-management. This requires easily accessible alternatives to admission for the frail elderly. Appropriate hospital discharge should be without delay and minimise risk of readmission.
4. The Lothian Hospitals Plan sets out strategic headlines for each of the acute hospital sites. This plan was approved by the NHS Lothian Board in December 2016.
5. Work with the four Lothian IJBs on acute set aside services, including the broad range of unscheduled care services, is therefore now operating within the context of the Hospitals Plan and IJB strategic plans as expressed in IJB Directions to NHS Lothian.
6. The final piece of context is the Health and Social Care Delivery Plan, published in December 2016, which sees a clear expectation that IJBs

will “start to maximise their powers” with regard to unscheduled care. Consequently, the Scottish Government’s six key measures for IJB performance in 2017/18 are focussed on improved unscheduled care performance.

Main report

Increasing demands

7. The strategic headline for the Royal Infirmary of Edinburgh (RIE) is that it will act as South East Scotland’s emergency care centre, incorporating a major trauma centre, inpatient orthopaedics, neurosciences, and tertiary children’s services.
8. This, in turn, means that the RIE is the key engine for delivering on the 4-hour standard for unscheduled care, seeing between 350 and 400 unscheduled attendances a day. This volume makes the RIE the largest unscheduled care centre in Scotland and one of the biggest in Britain. The standard is that 95% of patients should be seen, treated, and either admitted or discharged, within 4 hours of first arrival.
9. The following crucial pieces of intelligence are contained either within the IJB’s joint strategic needs assessment and/or intelligence within NHS Lothian’s acute services;
 - Significant population growth across the city up to 2036, with an additional 78,634 (15.5%) residents;
 - A 68% increase in the number of citizens aged 75 or above between 2016 and 2036;
 - A 25% increase in the number of households within the City of Edinburgh by 2036;
 - An 8% increase in overall RIE Emergency Department attendances between 2013/14 and 2016/17; and
 - That the current model of care leads to 29.1% of attendances to the emergency department being admitted.
10. Whilst an emergency admission to hospital has significant positive impacts, it can also lead to negative impacts too. The IJB’s strategic plan is focussed on preventing admission wherever possible, and the Health and Social Care Delivery Plan outlines a target for IJBs of a 10% reduction in unscheduled care bed-days by 2018. This would be delivered by: preventing admission; reducing length of stay; and eliminating delayed discharges.
11. Increased attendances will result in increased admissions, assuming no change in the current conversion rate of 29.1% unscheduled care

attendances being admitted. Taking this into consideration it is recognised that the existing acute medical unit (AMU) does not meet the capacity demands now required of the unit, the primary function of which is to rapidly assess and treat patients, with aim of reducing the number of admissions into the ward arc.

The medical assessment function

12. The medical assessment function of any hospital is intended to act as a filter for medical admissions, ensuring that acutely unwell patients are assessed and treated promptly and appropriately, and then moved to the most appropriate setting for further care. The best medical assessment services focus on preventing and finding alternatives to admission.
13. There is increasing evidence that, if this function is not appropriately designed and adequately resourced, patients can be moved on to these other care settings too rapidly. This may mean that patients are “boarded” to the wrong areas of the hospital, with the negative consequences this can have. In the case of frail elderly patients in particular, a long hospital stay can lead to a reduction in independence and confidence, which in turn can lead to longer stays and a greater reliance on external help (from families and/or the health and social care sectors) than might be otherwise indicated.
14. The RIE medical assessment function recognises these important elements and so has this focus on avoiding admission. This has included the development of the primary assessment area (PAA), where patients who can be “turned around” and be offered urgent outpatient appointments are intended to be cared for. This in turn reduces the number of admissions and consequently the risk of patients being boarded or experiencing the other less desirable consequences of admission. Due, however, to the growth in demand at RIE, this area is increasingly frequently “bedded” and unable to deliver the crucial role it was designed to deliver.
15. It is important to keep the difference between “front door” medical assessment functions and “back door” inpatient beds to the forefront of this discussion, as they are designed to deliver very different outcomes. “Front door” capacity, whether outpatient or inpatient, is intended to minimise length of stay and redirect care to more appropriate settings.
16. Significant modelling work has been undertaken by the RIE team to look at what capacity would be required to meet the various aims of the medical assessment function. This work suggests that unless other changes are made to the model of unscheduled care RIE medical assessment front door capacity (AMU) would require to increase by 24 beds by the early 2020s to provide the assessment footprint required,

allowing for more capacity in the front door, with an expected consequent reduction in boarding and “back door” length of stay.

Aligning IJB and NHSL plans

17. The business case provided at Appendix 1 has been in development for some time, and predates the advent of IJBs and the development of the Lothian hospitals plan.
18. During the gestation of the business case there have been productive and helpful discussions between NHSL’s acute services and IJB Chief Officers about how plans should be aligned. To support this, analysis was undertaken which outlined the level of activity which would need to be diverted to avoid further investment in “front door” medical assessment functions. This work has differing implications for each of the four Lothian IJBs. In the case of Edinburgh it evidenced that either plans were required to prevent between 12 and 14 admissions each day or an expansion of the AMU would be required.
19. Whilst each of the four IJBs has differing requirements driven by intended models of care, the Chief Officers are sensitive to the challenges of front door services. As such, they are therefore supportive of the general principle of using NHSL capital to expand capacity, however it is only EIJB who envisage requiring the additional capacity. Discussions between the Chief Officer and NHS Lothian have resulted in the pragmatic view that the IJB is not yet in a place to avoid the level of admissions which would be required. As a result, the additional capacity outlined within the business case would be utilised by Edinburgh IJB for, at least, winter 2017/18. In parallel, the Chief Officer will work with NHS Lothian to develop ambulatory care and alternatives to admission, with a view to informing future capacity requirements.
20. Finally, all involved in discussions have noted that the only acute medical “winter capacity” within the city is ward 15 at the Western General Hospital (WGH). This accommodation is within one of the older buildings on the WGH site which is increasingly not fit for purpose, both physically but also in terms of being “back door” beds, which are not designed to help deliver on the strategic aims of either IJBs or NHS Lothian. There is, therefore, the further possibility that in line with IJB strategic plans and the Lothian Hospitals Plan, ward 15 would no longer be used to provide winter capacity. This in turn would free up the funding previously used for ward 15 to support the AMU expansion, albeit on an interim basis.

The Business Case

21. The business case forms part of a 2014 Initial Agreement which proposed an interim solution of additional investment on the RIE to assist in improving 4 hour compliance: acute medical unit expansion; discharge lounge; two separate areas of investment within the emergency department (ED); and renal medicine ambulatory care model. The case puts in place eight additional front door assessment spaces and frees up the planned assessment area for development in conjunction with IJBs.
22. Recognising the directions issues formally by the East Lothian and Mid Lothian IJBs and that the Edinburgh IJB had not yet formally debated the proposal, the NHS Lothian Finance and Resources Committee approved the business case at its meeting of 10 May 2017.

Directions

23. It is recommended that the IJB direct NHS Lothian as follows:
 - Expand the RIE AMU as suggested above. This would be funded on an interim basis from winter monies;
 - NHS Lothian acute services to work with Edinburgh H&SCP to work together to explore the feasibility and benefits of developing a locality based admission policy for frail elderly patients, to improve performance and quality of care;
 - Explore the feasibility and benefits of a locality-based admission policy for all medical receiving patients;
 - NHS Lothian to provide a case outlining the long term sustainability of the current medical receiving model within the city;
 - Undertake a review of all the different models including the development of an ambulatory care model in the RIE; and
 - Review the services financed through unscheduled care funds and report back to the IJB.

Key risks

24. The main risks associated with the programme are:
 - failure to progress could lead to increased revenue costs associated with boarding and elongated lengths of stay;
 - a failure to meet the 4 hour unscheduled care standard and targets laid out in the Health and Social Care Delivery Plan;

- that actual demographic changes differ from those projected and that activity projections could be higher or lower than modelled; and
- issues with planning consent and/or reaching agreement with Consort may impact on proposed timescales.

Financial implications

25. The resource implications are summarised in the table below:

Area of Investment	Whole Time Equivalent (WTE)	Cost £k
Revenue costs:		
Pay	19.66	768
Non pay		195
Total revenue	19.66	963
Projected capital expenditure		1,200

26. As noted in above, there is the potential for this resource to be phased funded from winter capacity allocations. The pan Lothian budget for winter amounts to £2.6m, and the pro-rated costs of the AMU expansion for 2017/18 would be £0.25m.

Involving people

27. As above.

Impact on plans of other parties

28. As above.

Background reading/references

29. None.

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NHS Lothian Standard

BUSINESS CASE

**ACUTE MEDICAL UNIT EXPANSION
ROYAL INFIRMARY OF EDINBURGH**

2017 v.19

May 2017

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1. EXECUTIVE SUMMARY

- 1.1.1 Currently, NHS Lothian is not meeting the 4 hour Emergency Care Standard of 95%, consistently. All Health Boards are expected to work towards 98% which the Royal Infirmary of Edinburgh (RIE) will struggle to accomplish in the current bed model.

The target, measures how well the whole health and social care system is performing and requires the engagement, of all partners involved in the delivery of emergency care, and impacts on all specialties across the system.

Other key deliverables which are attributed to this target are to improve reliability, safety, outcomes of care and the patient and carer experience. It is also well recognised that long emergency waits increase the propensity to admit patients, and are also linked to increased mortality rates.

- 1.1.2 The RIE is the largest of the 4 acute sites and sees circa 46 - 52% of all unscheduled care activity with the main reason for patients breaching being due to "Wait for Bed". This has been a consistent theme since the Emergency Care Standard was introduced.

Patients who are admitted on an unscheduled pathway for medical specialties, will be admitted to the Acute Medical Unit (AMU). This functions as a short stay area before patients are discharged or transferred elsewhere in the RIE, or other sites for specialist care.

- 1.1.3 Demand in AMU far exceeds the capacity available and NHSL commissioned a bed modelling service from Capita in 2012. A key finding was that the "front door" capacity is 'too small to prevent boarding and delays for either the current clinical model or for the model preferred by clinicians'.

- 1.1.4 Boarding is a recognised symptom of high levels of occupancy and the problems associated with this practice are:

- Poor patient experience
- Inefficient care- ward rounds take far longer
- Poor communication with clinical teams due to unpredictable timing of ward rounds, lack of familiarity of clinical teams and poorer links with social care
- Increased risk of loss of notes
- Late discharge letters
- Increased length of stay
- Potential for reduced patient safety
- Increased risk of Hospital Acquired Infection (HAI)
- Increase risk of delirium

The Scottish Government also recognised the negative impact of boarding and advised in 2009 "...to work towards eliminating the boarding of patients as a solution to bed occupancy problems. Specifically, the boarding of patients from the Admissions Unit and/ or Emergency Department should never occur".

- 1.1.5 Another key strategic theme which NHSL requires to work towards is reshaping its services to support the 2020 vision, of more people living at home. This includes reducing the numbers of hospital admissions and discharging patients as soon as possible to allow their ongoing care requirements to continue in the community. At present the current boarding

on the RIE site detracts away from the site fulfilling this requirement, due to the issues highlighted in 1.1.4.

- 1.1.6 The NHS Lothian strategic plan and the strategic plans of the Lothian Integrated joint Boards (IJBs) have signalled the closure of Liberton Hospital in summer 2017. Both Midlothian and East Lothian H&SC Partnerships have presented plans for re-providing services for those patients in Liberton Hospital and all IJBs have indicated the management of delayed discharges as a high priority. However there will need to be re-provision for those who need hospital settings particularly those from Edinburgh. An expansion of AMU will support the re-provision for these patients.
- 1.1.7 This business case sets out the requirements for additional investment of both capital and revenue funding to support the expansion of AMU, to assist in contributing to further improvement of the Emergency Care standard, augmenting frailty at the front door, reduce boarding and with the longer term goal of eliminating boarding from AMU and improve the patient experience.
- 1.1.8 AMU is under intense pressure on a daily basis to create sufficient capacity to meet the capacity demands placed on it from ED. This has resulted in excessive boarding throughout the site, adversely impacting on other services being able to deliver effective care, and resulting in the deferral of electives and the creation of high occupancy levels.
- 1.1.89 This Standard Business Case (SBC), forms part of the original Business Case (BC) for the expansion of AMU, which was to provide in total an additional 21 beds and 2 additional trolley spaces over 9 phases. This SBC sets out Phase 1 of the programme and would deliver 8 additional beds within AMU. It also details the service changes, associated efficiencies, productivity gains that will be achieved by increasing capacity and improving the service.

Of note a further Business Case will be compiled for further expansion of additional beds, once a review and an agreement has been reached for the best fit for both the Department and Site.

1.1.9 The required investment consists of:

- Capital – Construction and Equipment.
- Revenue – Predominantly staffing, but also maintenance and depreciation.

2 THE STRATEGIC CASE

This chapter;

- Sets out the national and local context for the project.
- Describes the scope of the project.
- Describes the objectives and benefits of the project.
- Highlights the constraints and dependencies.

2.1. Strategic Context

2.1.1 National Strategy

In summer 2015, the Scottish Government announced a renewed focus on the 4 hour Emergency care Standard. In recognition that performance against the 98% target had fallen, the government re-introduced a HEAT target of 4 hours for 95% of patients with an expectation that Health Boards would work towards 98%.

In addition the 2020 vision supports more people living longer healthier lives in a homely setting through integration of health and social care with focus on the prevention of hospital admissions and supported self-management. There should be easily accessible alternatives to admission for the frail elderly. Appropriate hospital discharge should be without delay and minimise risk of readmission.

The strategic objectives proposed in this business case have been aligned with the four IJB's strategic plans and directions and in particular "whole systems capacity plans" and "locality workings".

The strategic objectives proposed in this SBC are:

- To implement patient pathways that work towards improving the 4 hour Emergency Care Standard.
- Provide high quality and efficient patient care, thus improving the patient experience
- Support the Scottish Government requirement to "eliminate boarding of patients as a solution to bed capacity problems. Specifically the boarding of patients from the Admissions Unit and/or Emergency Department should never occur."¹
- Discharging patients as soon as possible to assess their ongoing needs at home, instead of retaining in hospital beyond their acute episode
- Rehabilitating patients in their home, rather than undertaking this in the hospital setting
- Ensure that the clinical accommodation is accessible and is located in proximity to support services.

2.2. Organisational Overview

2.2.1 NHS Lothian Strategy

In April 2014, NHS Lothian Board approved a draft Strategic Plan "Our Health, Our Care, Our Future", which was subsequently issued for public consultation. A subsequent plan has been developed to allow both IJBs with NHSL to work towards 2020 Vision. It is recognised that this is a significant challenge to the

¹ Dr Woods letter/Dr Becketts report <http://www.shiftingthebalance.scot.nhs.uk/initiatives/sbc-initiatives/emergency-access-delivery-programme/winter-planning/>

organisation in delivering this at a period in time, of significant financial challenges.

Areas of focus include:

- Identifying the right configuration for acute services to meet performance targets including 4 hour emergency access, treatment time guarantees and reduction in delayed discharges
- Sustainable shift of balance of care with full health and social care integration with joint responsibility to achieve these standards.
- Phasing out the provision of delayed discharge beds in hospitals, in favour of appropriate levels of social care;
- Reducing the length of stay

The Strategic Plan also outlines the challenges facing unscheduled care services in Lothian. It recognises that the population of over 75s in Lothian will increase by 22% between 2013 and 2020. The fastest rise is in the oldest old. There is an increasing shift in patterns of disease presentation to those with long term conditions with growing numbers of frail older people with multiple conditions, including dementia and functional impairment relying on multiple services often on multiple medications.

2.2.2 Integrated Joint Boards (IJB's)

There are 4 IJBs across NHS Lothian namely Edinburgh, East, Mid and West Lothian. The capacity of acute hospitals to deliver high quality, targeted and timely services depends upon community services being able to prevent inappropriate or avoidable admissions and ensuring the fastest possible discharge.

To enable this to occur IJBs have the responsibility of the strategic overview for unscheduled care, with a view that they will set the direction to avoid patients accessing both front door and in-patient services, where applicable and maximising the efficiency of the hospital systems. There are 3 main areas of focus within the IJBs:

- Admission Prevention
- Facilitating early discharge
- Intermediate care

As described above the IJBs role is key in working within NHS Lothian and assisting in delivering the 4hour emergency care standard by allowing both front and back doors to function across the hospital settings.

2.2.3 Emergency Care Standard

NHS Lothian has been unable to reliably deliver the 4 hour standard for adults, either at a pan Lothian or at site level. Recent clinical evidence on the effect of ED overcrowding on the associated mortality and clinical outcomes of patients^{2,3} has increased awareness of the need to address the problem.

NHS Lothian's average performance for 2015 was 93.03%. The RIE takes between 46-52% of all unscheduled care activity across Lothian. Whilst there has been a 0.2% improvement in to the standard, comparing 2015 to 2014, the average performance for 2015 remained considerably short of the target, with a performance of 93.02% for RIE. The main reason for patients breaching was "Wait for Bed", which equated to 44% of all breaches for the site and this has remained a consistent theme since the inception of the Emergency Care Standard.

To address the challenges detailed in 2.2.1-2.2.3.2 there is a requirement for service models to change and be reshaped to provide a robust model of integrated care, with the additional AMU beds at RIE being an important part of this.

2.3 Existing Arrangements

2.3.1 AMU comprises of 48 beds in total, over 6 bays, and a Primary Assessment Area (PAA), with 10 trolley spaces.

The unit facilitates rapid definitive assessment, investigation and treatment for patients admitted urgently or as an emergency with medical conditions. It enables timely access to assessment and decision making by a consultant-led multidisciplinary team. Thus, assessment, care and treatment can be instigated within the first 48-hours of a patient's journey. It enhances patient safety, increases efficiency and dramatically reduces length of stay in the ED. Essentially it acts as a short stay area before patients are discharged or transferred elsewhere in the RIE for specialist care.

There are 3 specialist areas within the unit:

- Bay 1, an 8 bedded monitored unit which has the ability to provide continuous cardiac monitoring.
- Bay 6, a 10 bedded toxicology area, with 4 monitored beds, and specialises in patients who have presented with poisoning/ overdose. Patients with behavioural difficulties secondary to mental health issues or intoxication can be detained within the facility
- PAA, comprises of 10 trolleys, and is responsible for the assessment of medical referrals from primary care (GP) as well as non- acute hospitals and functions between 08:00-20:00 hrs Monday-Friday. The team assesses patients and directs them to the appropriate pathways:
 - Admission into AMU
 - Ambulatory Care
 - Discharge to GP
 - Discharge with follow up in an outpatient setting

Another service which is led by and housed in AMU is Ambulatory Care. Patients identified as suitable by either ED or PAA may be referred to

² *Myths versus facts in Emergency Department overcrowding and hospital access block, Richardson, DB, Mountain D MJA Volume 190 Number 7 369-374,*

³ *Increasing wait times predict increasing mortality for emergency medical admissions Plunkett PK, Byrne DG, Breslin T, Bennett K, Silke B European Journal of Emergency Medicine 2011, 18 : 192-196*

ambulatory care. This allows patients to be discharged home, but re-attend on a planned daily basis for treatment for a specified period.

- 2.3.2 It is recognised that AMU does not meet the capacity demands now required on the unit. The impact of having insufficient capacity requires the unit to board out to other specialties on a daily basis. PAA is mostly bedded over night for admission of patients who are expected to be discharged early the following morning, this allows AMU to maintain its flow without being full with admitted patients. Frequently this group of patients are not discharged/ transferred until later in the day which impacts on the ability of PAA to deliver a full service resulting in further pressure within the ED as patients are diverted through the ED.

The unit was constructed in 2003, based on 2002 bed modelling. Since that time annual emergency attendances have increase by circa 1% year on year, with the exception of the last 3 years where the increase in attendances has been 8%. This increase in attendance results in a proportional increase in admission, with a current conversion rate of 29.1% of unscheduled care attendances being admitted. It is also worth noting that between 2015 and 2025 the population of Lothian is projected to increase by circa 81,000 people.

As indicated The Royal College of Physicians recommends that an AMU should calculate bed complement as follows:

$$\text{Average daily intake} + 10\% \text{ for peaks in activity} = \text{bed complement}$$

During the 12 months to 31st December 2015 there were a total of 24,149 admissions and transfers into Acute Medical Unit (source MIDAS) this is equivalent to an average of 66 per day compared to an existing bed compliment of 48 beds.

To follow the Royal College of Physicians recommendations the Acute Medical Unit would therefore need an additional 24 beds to provide capacity for an average take of 72 in total, which is summarised in the table below.

RIE - AMU	
Average daily intake	66
+ 10%	6
Recommended bed complement	72
Current Beds (includes Toxicology, excludes PAA)	48
New Beds Required (gap)	24

2.4 Business Needs/ Case for Change

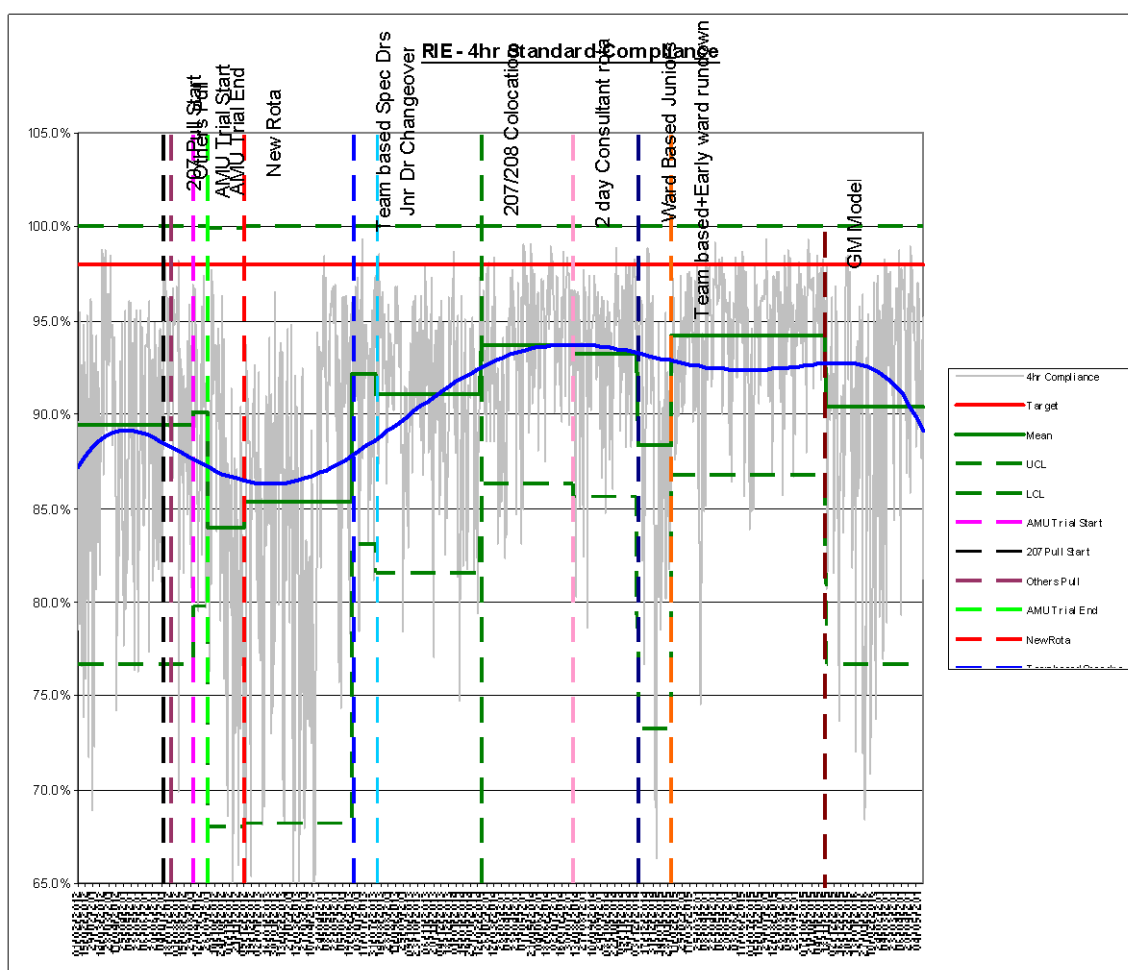
- 2.4.1 Having insufficient capacity within AMU significantly impacts across the RIE and can also impact on other sites. The main areas of impact are:

- Reduced 4 hour performance
- Increased boarding across the site, which adversely impacts on patient safety
- Increased bed occupancy throughout the site, impacts on HAI
- Discharging occurring later in the day and into the evening
- Poor patient experience

2.4.2 Overall bed pressures on the RIE site lead to a high level of breaches impacting on care provided. The key challenges at the 'front door' are:

- Patient delays within the ED while waiting for a bed
- A significant number of unscheduled GP referrals from the South Edinburgh catchment being diverted to other adult sites
- Patients being admitted and then boarding to inappropriate ward locations
- Primary Assessment Area (PAA) being converted to beds overnight to reduce/ avoid queue in ED overnight
- Patients being boarded overnight to Medical, Surgical Day Cases and Surgical Observation Areas

Whilst it is acknowledged that the site has made steady progress in improving compliance against 4 hours, the site is still unable to consistently maintain performance of 95%, graph 1 depicts 4 hour performance.



Graph 1: 4 hour standard compliance

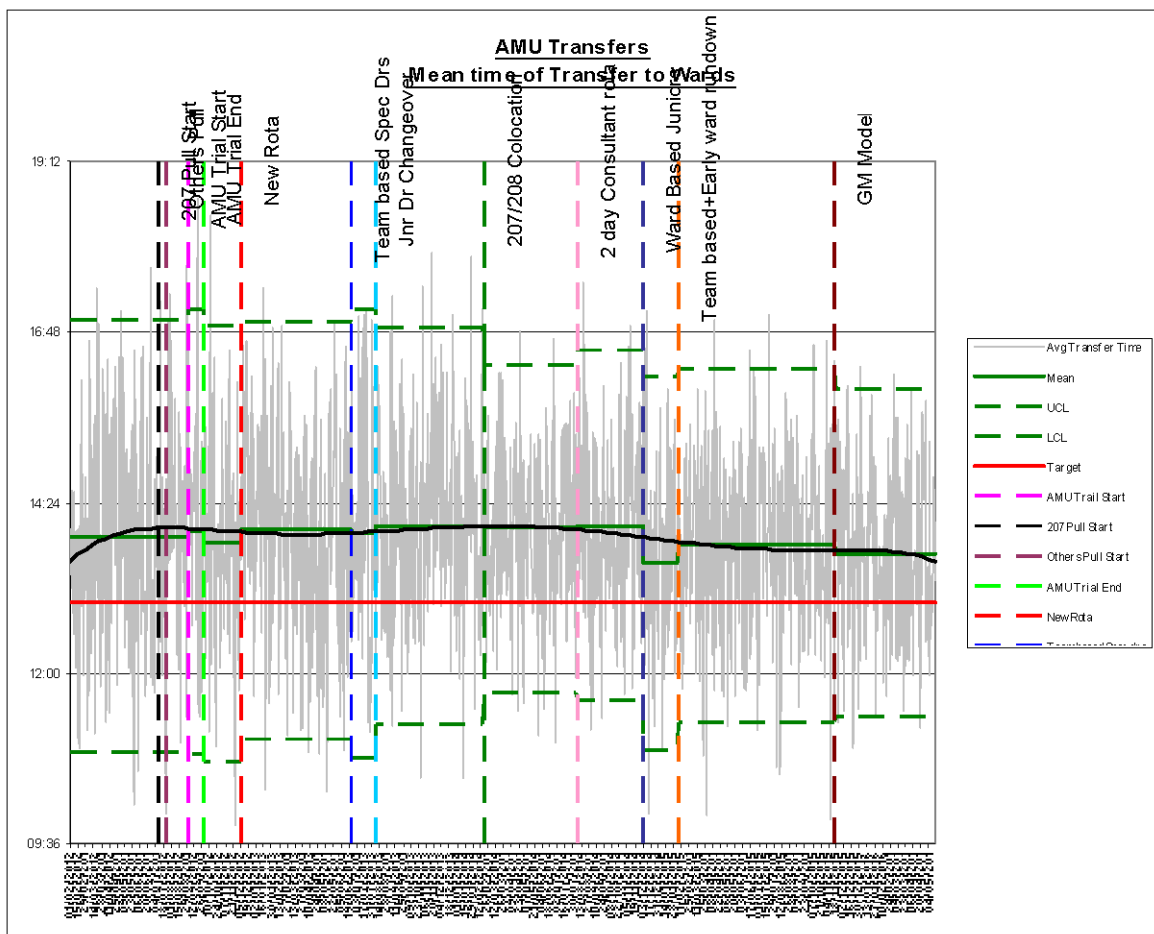
As highlighted earlier the main reason for breaching is "Wait for Bed" into AMU, which accounted for 44% of all breaches in 2015. To attempt to create sufficient capacity the unit requires to board patients out into other areas within the hospital.

2.4.3 The total number of occupied bed days of boarders from General Medicine, which is predominately AMU, for the 12 months for 2015 was 7,159 (Trak). This equates to a daily average of 19.5 occupied beds across the RIE site.

The problems associated with boarding are referenced in 1.1.4 and these are having a recognised impact on the performance of the site and the quality of the patient experience. Some key markers are detailed below.

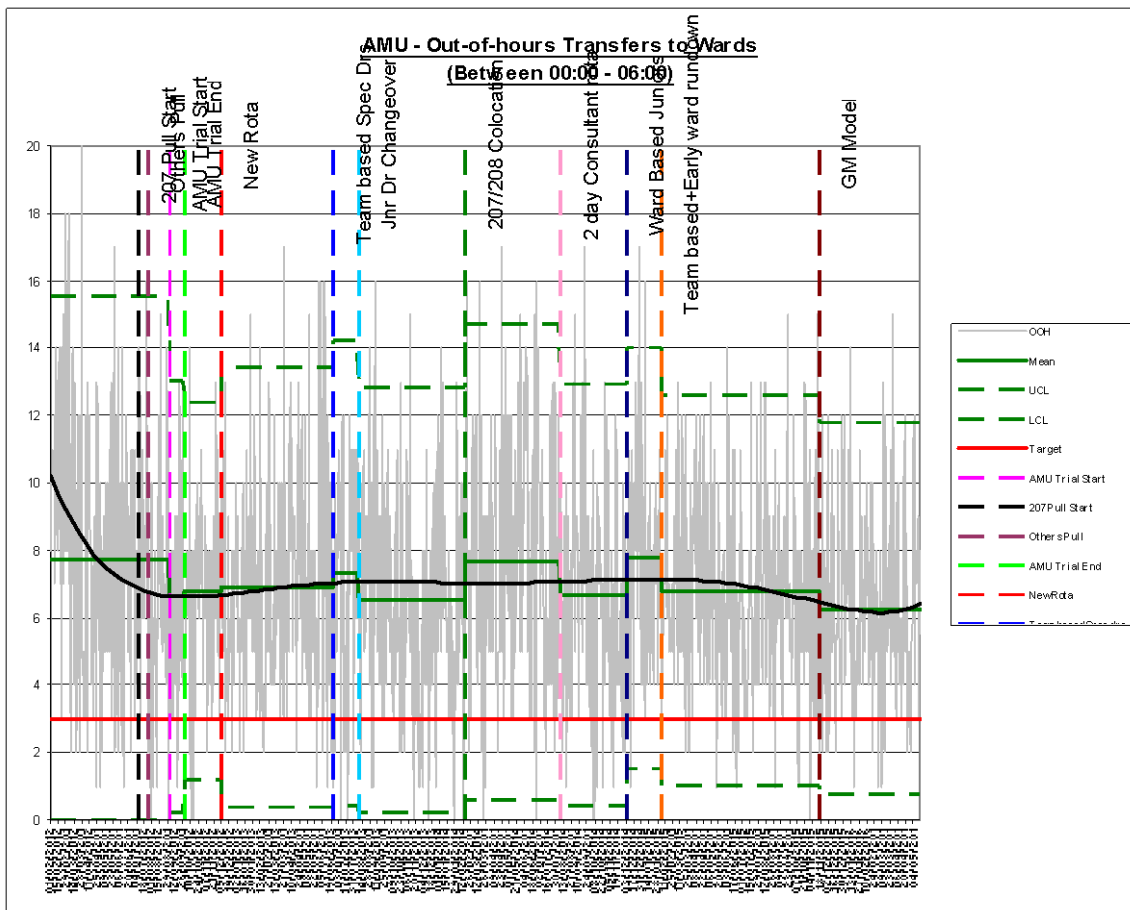
2.4.4 The requirement for consultants to review their patients out with their base is resulting in delays in reviewing patients and in turn leads to a delay in the time of discharge. This subsequently impacts on the site, as discharges occur later in the day and subsequently delays the pulling of patients from AMU.

Graph 2 demonstrates the majority of transfers occur after 14:00 hrs, which impacts on the unit being able to respond to the first predicted peak of activity from the ED, which occurs at 13:00 hrs and contributes to patients breaching "Wait for Beds".



Graph 2: Mean Time of Transfer from AMU

2.4.5 The boarding of general medical patients into other specialties beds impacts on patients accessing the expert care that they require. Additionally it can impact on how the specialties are able to manage their own speciality patients needing access to beds. To attempt to mitigate the impact on these specialties, not all available beds are utilised on site until much later in the day, if flow allows. Additionally some specialties are still discharging patients late into the night, impacting on bed availability. This has a subsequent impact with AMU having to undertake transfers during the out of hours period and overnight. Graph 3 demonstrates transfer activity between 00:00-06:00 hrs, which averages between 6-8 patients.



Graph 3: Out of Hours Transfers

2.4.6 The impact of boarding into specialties can cause disruption and impact on their ability to deliver services, including scheduled procedures. The main speciality on the RIE site which is affected by the deferral of elective surgery is Orthopaedics.

The total number of deferrals for elective surgery for 2015 was 142, of which 80 were in Orthopaedics, with the main reason for deferral being lack of bed capacity. The largest number of these deferrals occurred in February and totalled 23.

This has a significant impact on patients who have prepared themselves for coming in for surgery, including taking time off work, arranging child care etc. It also impacts on the service meeting Treatment Time Guarantee (TTG) targets, putting further pressure on waiting lists. To attempt to prevent this group of patients breaching TTG, a percentage of these patients may have been offered in 2015, to have their procedure carried out in the private sector, which had a significant financial consequences for NHSL.

To put this in context of utilisation of the Private Sector in 2015, by applying an average cost for an orthopaedic procedure at Spire, for example a joint replacement, of £3,650, equates to a cost incurred by NHSL of **£292,000**. Of note NHS Lothian since April 2016 has no longer utilised Private Sector for elective surgery.

It should be noted that the prevention of boarding into orthopaedic areas will support the RIE as it moves towards being a Major Trauma Centre. Additionally it will also assist with the planned move of Orthopaedic Rehabilitation from Liberton into the RIE, to create an integrated Orthopaedic Unit. To assist in reducing boarding, which would include orthopaedic areas,

requires AMU to have sufficient capacity to complete assessments and increase discharge.

2.4.7 As previously mentioned boarding patients into wards, increases bed occupancy levels, which can lead to increased acquisition of Hospital Acquired Infections (HAI).

Analysis has been undertaken by Infection & Prevention Control based on the boarders from General Medicine, boarded outside of their base wards between November 2013- October 2014. It has identified that the conversion rate of HEI is approximately 13 acquisitions, based on 7,159 bed days used for boarding patients. By applying the average cost of £10,000 per patient, it equates to a total spend of **£130,000** to NHSL. This also has a significant impact to the patient's well being

2.5 Investment Objectives

Taking into consideration the points raised in section 2.4, the investment objectives of this development are detailed below.

Investment Objective	Existing Arrangement	Business Need
To deliver a clinical model for the RIE site that significantly reduces patient boarding.	Insufficient front door capacity within Medicine resulting in high levels of boarding and patients not being able to reliably access specialist care. Inpatients lost in the system. RCP report ⁴ also provides evidence on impact of boarding.	Support delivery of 4 hour emergency care standard Reduced LOS through reduced boarding out with parent ward. Improved mortality/morbidity through more rapid assessment on arrival.
To support delivery of the 4 hour emergency standard to support high quality unscheduled care	Flow is disrupted and so 4 hour standard not currently not reliably met at RIE with consequent impact on quality measures.	Support delivery of the 4 hour emergency care standard
To support the delivery of the 18 week Referral To Treatment access standard through appropriate elective bed capacity	Boarding of medical patients into surgical beds affects reliable planning for elective capacity. Elective planning based on elective capacity not overall combined flow demands.	Supports delivery of 18 week standard with more robust capacity and demand model through decreased boarding into elective capacity.
To support delivery of HAI targets	Inappropriate boarding of patients into other speciality beds increases risk of spread of infection. Insufficient flow to support activity.	Supports delivery of HAI targets by minimising patient movement. It will also provide an additional 3 side rooms, which will allow appropriate patients to be isolated.
To support the NHS Lothian Clinical Strategy with the continuation of RIE as one of three acute sites in NHS Lothian with the continuation of 24/7 medical receiving.	Insufficient capacity to allow appropriate admissions from south side of city to nearest hospital	Assists in delivering balanced unscheduled care capacity across Lothian with RIE playing full part in meeting unscheduled care pressure Fewer patients transferred across town reducing pressure on SAS.
To demonstrate planned bed resources match demand and are linked to peer benchmarks for length of stay and occupancy to demonstrate	Some acute specialties show an opportunity to reduce Length of Stay compared to peer group. Potential to shift some inpatient activity to ambulatory care. Principle opportunities for LOS	Productivity gains from reduced LOS in highlighted specialties offset need for increased investment.

⁴ <http://www.rcplondon.ac.uk/sites/default/files/documents/hospitals-on-the-edge-report.pdf>

value for money. /bed reduction lie with sub acute sites and rehab pathways Lack of co-location of Gen Med wards creates some inefficiencies.

<p>To support the implementation of the RIE becoming 1 of the 4 Major Trauma Centres and support the transfer of Orthopaedic Rehabilitation from Liberton to RIE</p>	<p>Boarding of patients into orthopaedics affects access to beds which would be used to support Major Trauma and Orthopaedic Rehabilitation</p>	<p>Supports the implementation of the Major Trauma Centre and associated standards. Create an Integrated Orthopaedic Unit. Decreases boarding into Orthopaedics.</p>
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2.6 Agreed Service Requirements

2.6.1 Initial Proposal AMU Service

Previous studies have shown that when AMU is able to provide a prompt and efficient multidisciplinary assessment, investigation and management of unscheduled patients with acute illness, that up to 70% of patients including those boarded out, can be discharged back to the community without admission to a ward. Studies in Merseyside, Teesside and Dublin have demonstrated that appropriately managed acute medical units have the following beneficial effects:

- Decreased mortality,
- Decreased length of stay and,
- Increased numbers of patients managed in an ambulatory care setting.

With the proposed additional beds, AMU will be the assessment area for the majority of patients with acute medical illness. Some key principles will be:

- Patients should only be admitted to downstream wards when the expected length of stay is to be greater than 48 hours.
- The average length of stay in the unit should be approximately 18 hours as patients should be discharged to the community or to a downstream ward promptly. The current average is 22 hours, with the exception of 25 hours in winter.
- Primary care practitioners should refer direct to PAA rather than referring to the ED. This will alleviate the pressure on the ED and shorten the pathway for patients with acute medical illness.

For the elderly there will be proactive clinical management. The AMU Frailty Model must be seen within a wider context of a more outward focussed MoE service aiming to support the 2020 vision by shifting the balance of care from hospital to community and support the closure of MoE beds. Features of the frailty model include:

- Dedicated Geriatrician input to front door on a daily basis offering support to the frail elderly attending the Emergency Department and early assessment and management of the frail elderly admitted to AMU. They will also provide a single point of contact to locality hubs and GPs offering secondary care support to provide alternative to admissions.
- The re-provision of the new Integrated Older Peoples Service currently based at Liberton Day Hospital to integrate with AMU and enhance the acute assessment of frail elderly in ambulatory and short stay settings increasing the opportunities for senior multidisciplinary assessment and earlier safer discharge and ongoing case management into community settings. Liberton Day Hospital providing an acute assessment setting for frail elderly potential admissions referred by GPs via bed bureau or directly to a single point of contact.

- The Integrated Older Peoples Service incorporates the South Edinburgh Hospital at home service and embedding this service into AMU offers the best opportunity to identify those best suited for supported ongoing management within community settings that would otherwise be provided in hospital. Additionally a virtual ward for South Edinburgh working collaboratively with similar services in Mid and East Lothian including discharge to assess and hospital to home models.
- These services will work closely with the Health and Social Care Partnership locality hubs accessing the whole range of community supports.
- There are opportunities to provide an infrastructure that provides a 24/7 response. With enhanced IT solutions this offers the potential for remote consultations and support to care homes and SAS.

There will continue to be support both at the front door and downstream wards from The Elderly Care Assessment Nursing Team (ECAT) which will offer:

- A robust seven day service
- Improved clinical decision making
- Two staff 7 days 8 am – 8pm and 9am – 5pm
 - Front door including direct transfer from ED
 - Downstream identifying post acute rehab flow
- Supported by Advanced Nurse Practitioner

2.6.2 Bed Modelling

Capita's recommendations were endorsed by the JMT. It was recognised that both WGH and RIE have insufficient acute beds to support the current model of acute care. This applies to both assessment (front door) beds and for acute ward beds.

The work concluded that an agreed model of care for unscheduled medical pathways would seek to achieve a maximum length of stay for assessment beds of 48 hours with a mean of 18 hours with increased rates of ambulatory care activity. Importantly, it concluded that different levels of occupancy should be set to maintain flow across the whole clinical pathway with the lowest levels set for assessment areas to ensure the ability to accommodate flow reliably.

2.6.3 Bed Modelling Validation

Scottish Government benchmarking demonstrated that the supply of beds in NHS Lothian was the lowest in Scotland with a rate of 3.2 per 1,000 population. This translates into operational and clinical pressures where occupancy levels are high. ISD analysis of bed occupancy in NHS Scotland for Acute beds for 2013 and 2014 was 83.3% for both years.

At IA stage, Civil Eyes and Capita validated the assumptions and bed requirements, using benchmarking data from peer hospitals. The bed model is refreshed annually and benchmarked against peer sites. The most recent (2013/14) validates the bed model numbers in the IA, achieving upper quartile performance against a peer group. This is corroborated by work undertaken by NHS Lothian Bed Capacity Model for the RIE.

2.6.4 Future Proofing

The expanded AMU will have staff and facilities to provide a comprehensive frailty model; it will also support business continuity and variations in activity. It will provide 8 of the required 24 beds based on the 2011 Capita recommendations. The next phases would deliver the additional beds, but

would be planned in conjunction, with the Acute Hospital Strategy plans which would include requirements of the unit to meet demands. This plan will also engage with the 4 IJBs and link to their strategies.

2.6.5 Workforce planning principles

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. A workforce plan has been developed and agreed with the clinical management team.

The proposed workforce plan takes into account the bed model and the physical specification for the new development, such as single bedrooms, the impact of increased bathrooms and toilets, and the impact of layout on patient flow.

2.6.6 Workforce Planning Implementation

A recruitment exercise will be required, particularly around nursing and would potentially coincide with winter recruitment.

There will be no organisational change required for existing staff.

2.7 The Royal Infirmary of Edinburgh

2.7.1 Commercial Context

The RIE facility was procured as a PFI contract between the former Royal Infirmary of Edinburgh NHS Trust and Consort Healthcare (ERI) Ltd. The RIE facility was financed, designed and built by Consort Healthcare, and a range of soft and hard facility management services are also provided through the PFI RIE Project Agreement.

The RIE site is leased to Consort Healthcare Ltd for a term of 130 years, thus any site development requires the approval of Consort Healthcare and their lenders, with changes to the project agreement. A Supplemental Agreement (SA) to the RIE Project Agreement will provide a framework for this part of the enabling works.

2.7.2 AMU

The challenge in creating additional assessment beds in RIE is associated with the design of the area and finding space adjacent to the current unit in which to develop more capacity. Taking this into consideration, it has been agreed that Phase 1 of the expansion should go forward separately, to allow teams to review the best fit for the expansion, based on clinical adjacencies. Section 3.3 outlines the options that were considered to date.

Of note, the additional beds within Phase 1, does not involve any other areas within the RIE site and would be created within the existing AMU footprint.

2.7.3 Relocation of services

Some therapy office accommodation in OPD 5 has been relocated elsewhere in RIE, previously as part of preparation for the works.

2.8 Agreed Scope

2.8.1 AMU Construction

The construction phase is planned to take 14 weeks and there will be lead in time for procuring of materials. Additionally due to the previous progress made with Business Case version 17, have been advised that an adjustment can be made to previous building warrant, which should assist in reducing some of the lead in time.

2.8.2 AMU Accommodation

Phase 1 of the project will:

- Provide an additional 8 beds to support the 4 hour standard and reduce boarding.
- Ensure that the clinical accommodation is provided in the most cost efficient way.
- Provide the best fit for purpose facility.
- Provide an effective layout for patient flow.
- Support the reprovision of Liberton patients requiring short stay (< 48 hour) hospital settings particularly those admitted to the acute MoE Liberton wards
- Support the implementation of Major Trauma within the RIE site
- Support the repatriation of Orthopaedic Rehabilitation from Liberton, to create an integrated Orthopaedic Unit at RIE

The detailed design has covered the recommendation contained in HBN 04-01: Adult in-patients facilities. Due to the constraints of the existing footprint, a derogation for room sizes was agreed with the SGHD.

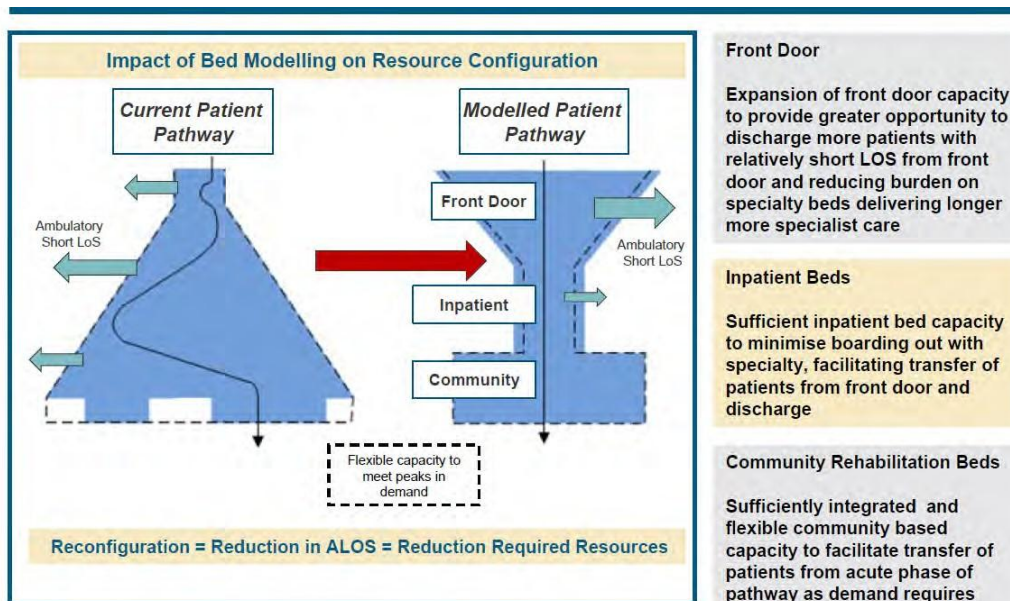
2.9 Benefits

2.9.1 Overall

Phase 1 of an expansion in the AMU bed capacity would realise the following benefits:

- Assist to meeting the 95% 4-hour Emergency Care Standard.
- Assist in supporting the closure of Liberton by summer 2017 in re providing those requiring short stay admission (< 48 hour) to hospital and transfer of Orthopaedic Rehabilitation
- Reduce in the risk of overcrowding in the ED.
- Reduce the risk of boarding from AMU and associated adverse impacts
- Support the delivery of the elective Treatment Time Guarantee.
- Reduce the numbers of Unscheduled Care patients being diverted away from the site, although this needs to be taken in the context of the changes with the WGH model.
- Minimise the infection risk to the main arc.
- Reduce the clinical risk to 'direct transfer' patients.
- Ensure that the new accommodation will meet necessary standards and guidance.
- Reduce bed occupancy within wards
- Support the implementation of Major Trauma
- Support the implementation of an integrated Orthopaedic Unit

2.9.2 Impact of additional 8-beds



The diagram below depicts the impact of the proposed expansion on the available capacity and how this will change the patient pathway, with admissions within AMU rather than direct to wards.

The additional capacity will enable AMU to accommodate appropriate patients within AMU rather than being admitted to wards, which will assist in reducing bed occupancy which could release the following benefits:

- Reduce HAI, a 50% reduction would reduce cost associated by £75,000
- Reduce the impact of deferring elective surgery. By reducing 50% reduction in deferrals in Orthopaedics alone equates to £146,000
- Improve flow and responsiveness to patients requiring to be admitted
- Improve compliance against 4 hours, modelling has suggested that performance could improve by 0.2% based on 2015 performance
- Reducing beds in areas which have high levels of boarding. Renal have identified that they could reduce by 4 beds and still maintain an average bed occupancy of 85%. This could release £164,000 in savings, based on staff reduction only.
- Support closure of Liberton releasing funding from that site.

2.10 Strategic Risks

2.10.1 Service Risks

The construction of the additional 8 beds in Phase 1 is not as complex as Phases 2-9, as they are within the AMU footprint. There should be no issues with access and egress for workmen into this part of the hospital.

2.10.2 Commercial Risk

It is necessary that this project is properly facilitated through a SA with Consort to deliver Trust Additional Works Order[s]?

2.10.3 Organisational Capacity

The Project Manager will be relying on the clinical and service teams to support the delivery of the project, whilst recognising that these teams have a priority for the operational activities within their services.

2.11 **Constraints**

There is an acute focus on managing these constraints which are:

- TAWO 159 has been constructed
- Delivery of TAWO within the agreed timetable
- Ability to deliver the project within the agreed capital budget.
- Use of existing services/ utilities infrastructure
- The signing of a SA with Consort Healthcare. It is envisaged that the previous SA would amended to capture the changes are only in relation to Phase 1 of the full project brief and could be linked to the Laboratories SA

The environment is constrained, programming for the project has taken any risks into consideration and a detailed pre-tender phasing plan has been developed jointly between NHSL, the design team and Consort.

2.12 **Dependencies**

The dependencies of the project are:

- The availability and condition of the site; the SA agreement with Consort confirms the programme of works
- The ability of staff to support the project and provide expert clinical advice as and when required.
- The approval of the business case

3. THE ECONOMIC CASE

3.1 Overview

This chapter provides evidence to show that the option selected best meets the service needs.

3.2 Background

The preferred option was selected during the IA process. Since that time, two strands have been progressed in parallel;

- The preferred option has been further developed
- There has been a re-evaluation of other options.
- A feasibility study and detailed design has been concluded.
- Given the complexity of the scheme and the need for detailed planning it has been decided to construct Phase 1 of the total planned 9 phases initially, with a separate Business Case to be compiled for phases 2-9. This will allow the service to review and take into consideration other key strategies including Acute Hospitals Review, IJBs strategic intentions and identifying the best model for the unit.

The option appraisal that was previously carried out is relevant to this SBC.

3.3 Option Appraisal

The long list of options (2012) was:

Option A	Do nothing
Option B	Upgrade PAA to 24 hours beds
Option C	Reconfigure AMU/PAA/Toxicology
Option D	Single Storey New Build adjacent to CAA
Option E	Modular Build Adjacent to ward arc
Option F	Modular build in CAA courtyard

Option A, B and F were discounted at the first stage. Option A, status quo was not an option as provided no benefit. Both options B and F were discounted as cost prohibitive.

Shortlisted Options

Option C, D and E were shortlisted, with option 1 as a baseline comparator. The table on the following page lists the long list of options and outcomes from 2012

	Option A	Option B	Option C	Option D	Option E	Option F
Description	Do Nothing	Upgrade PAA to 24/7 beds And loss of trolley & ambulatory care capacity space	Use OPD 6 for beds – CAA to OPD6, OPD 6 to OPD5, and OPD5 to elsewhere. Conversion of PAA to beds and PAA to OPD6	Single storey New Build adjacent to CAA	Modular build adjacent to end of ward arc	Modular build in CAA courtyard
No of additional beds	0	10 beds	36 beds (incl 16 trolleys)	24 or 38	16	
Meet bed modelling requirements	No	No	Yes	Almost	Yes if linked to 6&7	
SA or TAWO	N/A	TAWO	SA	SA	SA	SA
Consort or NHSL tender	None	Consort	Consort	Consort	Tender	Tender
Length of construction programme	None		21 months	14 or 18 months	Awaiting detailed feasibility	X months plus SA
Disruption	None	Medium	Major	Minimal	Minimal	Medium
Cost	Nil		£3.35M	£6.7 or £9.7m	awaiting costs – circa £3M	Not costed
Cost per bed	N/A		£105k	£279K or £255k	£187.5k per bed	
Feasibility	Yes	Significant operational service disruption	Significant operational disruption plus additional decant costs	Noise disruption and may interfere with RHSC/DCN works	Would require planning permission adding to time delay	Affects light and expensive to crane in. Footprint too small for ward
Comments	Delivers no improvement	Loss of PAA capacity so overall reduction in space	Best location for front door beds	insufficient capital	Interferes with timeline for RHSC/DCN	
Summary	Discount	Discount	Proceed	Discount	Discount	Discount

The Preferred Option

Option C's benefits over the others are:

- Provides the additional beds required.
- Provides the first 8 beds in 2017.
- Integrated with other assessment beds.
- Proximal to the Emergency Department and associated services.
- Less disruptive than Option 3.

It should be noted that this business case is concerned with Phases 1 of option 4. More beds would be delivered in future phases

3.4 Benefits Appraisal

The preferred option was derived through discussion with clinical and management teams, architects, quantity surveyors and by applying benefit criteria to each of the options.

3.5 The Preferred Option

The preferred option was option C as it achieves the following:

	Description	Strategic Fit	Benefits Optimisation
Real time assessment	Consultant led teams supporting acute medical and frailty assessment in a real time setting 7 days per week, expediting time to first assessment and improve senior decision making. This model will also provide support to ED and provide a single point of contact within secondary care to support GPs, SAS and locality hubs.	Yes	Reduce % of bed wait breaches. Increase % of patients discharged from AMU
Ambulatory care	Appropriate ambulatory care patients will be triaged directly from GP/Bed Bureau through PAA and onto ambulatory care for management. This will involve selected patients from initial visit and the majority of patients on return visits. This is designed to free-up capacity pressure in PAA enabling the area to improve flow. These patients will include frail elderly benefiting from early senior multidisciplinary assessment to expedite early and safe discharge into community settings for ongoing management.	Yes	Increased follow-up ambulatory activity undertaken as OP not in PAA. Increased ambulatory approach to frail elderly including falls assessment
Alternative to admission pathways	Closer working with flow centre to develop robust multi-speciality pathways around alternatives to admission. This will include multimorbidity management and management of frail elderly within assessment or home settings with hospital at home teams.	Yes	Patient activity diverted from attending PAA to alternative pathway

3.6 Changes to Construction since Initial Agreement

There was no construction plan in the IA, since that time:

- A feasibility study by Keppie Design was undertaken
- A detailed design exercise was completed with users and Keppie Design
- A pre-tender estimate was provided by Capita Symonds
- The pre-tender estimate was reviewed by NHSL advisors, Thomson Gray
- There have been detailed discussions between NHSL and Consort around the terms of the SA.
- For Phase 1 there is no intention to deviate from the initial design

The phasing plan has been revisited as the initial plan had loaded the costs in the front end and delivered the beds in the latter phases.

Construction is scheduled to be undertaken over the financial years 2016/17 and 2017/18.

3.7 Equipment

3.7.1 Equipment Schedules

During detailed design, an equipment schedule has been drawn up to identify the furniture, fittings and equipment required for phase 1. A detailed schedule of equipment to be procured, and equipment to be transferred is being discussed.

Upon completion of the development of the 1:50 Room Layout Drawings, a requirement for some new equipment and furniture was identified and is included in the overall project capital cost.

3.7.2 Equipment Groups

The equipment is categorised into three groups:

- Group 1** Items will be supplied and fixed within the terms of the contract by the Principal Contractor. The cost of this equipment is contained within the Capital Price.
- Group 2** Items will be supplied by NHSL and fixed by the Principal Contractor.
- Group 3** Items will be supplied by NHSL.

Group 2 and 3 Equipment supplied by NHSL will be procured through Health Facilities Scotland using national contracts and conventional competitive tendering.

The Project Manager will be responsible for the logistics, installation, commissioning of all furniture, fittings and equipment and will also be responsible for ensuring that the appropriate training is available.

4. THE COMMERCIAL CASE

4.1 Overview

The construction work is needed to meet the operational and service requirements associated with meeting and maintaining the 4 hour standard.

4.1.1 Procurement Route

Because the construction works are within the existing footprint of the RIE, they are being procured through Consort Healthcare as a capital funded project. Consort will be responsible for providing all aspects of design, construction, and ongoing facilities management throughout the course of the project term.

NHSL will manage the programme of enabling works, carried out by Consort Healthcare.

4.2 Agreed Scope and Services

4.2.1 The scope of the works is within AMU

4.2.2 The contracts will be with traditional contract responsibilities but NHSL will carry the majority of the risk through indemnity provided to Consort to keep the original PFI Project Agreement 'whole'.

4.2.3 The programme of works will be completed by May 2017

4.3 Equipment

An equipment responsibility matrix has been prepared, detailing all equipment by description, group reference, location and responsibility between NHS Lothian and Consort in terms of supply, installation, maintenance and replacement over the course of the operational term.

4.4 Agreed payment mechanism

Unitary Charges (unitary charge) to Consort will be made within the current arrangement. They will continue to be managed and regulated by means of the payment mechanism that will protect NHSL if there are failures in availability or performance.

4.5 Agreed Contractual Arrangements

A Supplemental Agreement (SA) will be signed with Consort Healthcare. Part of any project undertaken at the RIE is to enter into a supplemental agreement (SA), NHSL and Consort have now developed a standard set of Heads of Terms and this sets the context from the SA.

The SA is used to ensure that the contract and indemnity that the Board retains as a consequence of the service enhancement is limited to the project and does not dilute the effectiveness of the Project agreement.

There are certain mechanisms within the SA that can be applied to both the contractor and the service provider should there be a project defect. These are not as onerous as the original project agreement. The maximum penalty is £200 per occasion.

4.6 Advisors

The following teams have advised NHSL on the procurement stages and shall continue to do so to completion of construction works and commissioning:

- Technical – Thomson Gray
- Legal – MacRoberts LLP

HFS provides advice and support on equipment procurement.

5. THE FINANCIAL CASE

5.1 Overview

5.1.1 This chapter:

- Builds on the financial assumptions set out in the Initial Agreement
- Sets out the capital and revenue costs of the proposed development
- Summarises the overall affordability

5.2 Initial Agreement

- The Initial Agreement (IA) made the following assumptions
- The capital cost of the proposals will have to be managed through the 10 year Capital Plan
- NHS Lothian will be required to fund capital charges and additional Consort service charges arising from this development
- There will be an increase in staffing levels and revenue costs arising from the additional capacity being added to reduce boarding levels

5.3 Capital Costs

5.3.1 Summary of Capital Costs

The overall capital costs comprise construction and equipment costs and are summarised by Project in the table below-

AMU ADDITIONAL BEDS PROJECT OVERALL COST SUMMARY		
<u>Item</u>	2014/15	Note
Construction Costs	385,000	1
Consort Costs		
Project Management Fees (Construction)	21,175	2
Admin Fees (Construction)	10,593	3
Legal Fees	32,000	4
Commercial Costs	22,892	5
Building Warrant	1,500	
Sub-Total	88,161	
NHSL Costs		
Legal Fees	10,667	
Sub-Total	10,667	
TOTAL	483,827	
EQUIPMENT	95,170	
OVERALL	578,997	

Notes

- 01) As per analysis provided by Thomson Gray.
- 02) Based on same % as for full project (5.5%).
- 03) Based on same % as for full project (2.4%).
- 04) Legal Fees based on same % as for TAWO 181 construction cost £314K. (8.3%).
- 05) Based on other costs for TAWO181 prorated for bigger construction cost.
- 06) Based on 1/3 of Consort Legal Fees as per agreed approach for other projects.

- The construction costs relate to the building works required to implement this service development and
- The fitting of equipment purchased by NHS Lothian.

A tendering exercise took place previously to identify a preferred contractor to undertake this work and this would require to be re-visited. These capital costs are based on pre-tender figures issued in January 2015. Following recent planning with Consort a more realistic cost, would be a **projected Capital spend of £1,200,000**. Capital costs will be updated when the tendering process is complete.

VAT has been excluded on the assumption that NHS Lothian will continue to recover VAT on payments to Consort

The table above splits the construction costs between the different elements of the project:

- TAWO181 – relates to the preparatory works undertaken to allow the relocations of services and staff to enable this development to progress
- TAWO140 – relates to the main construction and redesign works.

The equipment costs relate to a range of items totalling £95k. The high value items include ceiling mounted hoists and patient monitors.

5.3.2 Value for Money Analysis

The pre-tender construction costs above were reviewed by Thomson Gray (NHSL cost advisors) in January 2015. They concluded that 'Although there are areas where Thomson Gray have concerns about the costs submitted by Consort / Capita, overall we are generally satisfied that the pricing is competitive and reflects the scope of work proposed it will only be when the current tender process is completed that a fully accurate picture will be available as to the overall project cost'⁵.

A Senior Project Specialist from Health Facilities Scotland (HFS) has been appointed as an expert advisor to ensure best value for money. He will also lead on the procurement of equipment.

5.3.3 Capital Affordability

A provision has been made in the 5 Year Property and Asset Management investment programme to meet the projected capital costs. Whilst funding is included in the Capital Plan it should be noted that this plan is currently out of balance.

5.4 Revenue Costs

The IA made no reference to the revenue requirement. The staffing and non pay costs herein have been recently developed with the Business and Service Management Teams.

To assess the revenue implications of the project, the cost of the additional beds/clinical footprint were established. Two elements were examined:

- Cost of clinical services (workforce in the main).

⁵ TAWO 140A – AMU Additional Beds Project, Review of CONSORT pre-tender Estimate: Thomson Gray, Jan 15

- Unitary Charge

5.4.1 Key Revenue Assumptions

The revenue implications of the proposed model of care have been costed using current pay scales and reflect appropriate enhancements.

The staff costs reflect:

- The increase in bed numbers.
- New models of care
- Increased clinical activity in AMU

5.4.2 Summary of Revenue Costs

The table below summarises the revenue costs associated with the proposed model of care.

Area of Investment	WTE	Cost £
PAY		
Specialty Doctor	1.00	70,700
Nursing B5	10.47	432,230
Nursing B2	5.24	156,772
Occupational Therapist B5	0.60	22,048
Physiotherapist B4	0.70	21,752
Dietetics B5	0.05	1,605
Speech & language Therapy B5	0.10	3,213
Pharmacist B7	1.00	46,460
Pharmacy Technician B4	0.50	13,527
Sub-total Pay	19.66	768,307
NON-PAY		
Non-pasy costs		110,000
Facilities Costs		85,000
Sub-total Non_Pay		195,000
Total Revenue Costs	19.66	963,307

The revenue costs identified above are recognised in the 2017/18 Financial Plan on a phased basis from December 2017. No source of funds was specifically identified against this investment, and there remains a significant gap in available resources to deliver the plan as at May 2017.

It is proposed that the revenue funding for the period December 2017 to March 2018 is financed from the overall NHS Lothian Winter Plan, for which total resources of c.£2m are identified.

Options for recurrency of funding beyond March 2018 continue to be explored, including the reprioritisation of resources currently deployed elsewhere to support unscheduled care flow across the Lothian region. It is recognised that any change in application of existing funds will require management of disinvestment timelines and the agreement of relevant Integrated Joint Boards with strategic planning responsibility for unscheduled care services.

The key highlights arising from the proposed model of care are summarised below

5.4.1 Medical Staffing

The current AMU has capacity for 48 patients but operates at 101% capacity, due to PAA having to convert to beds at times of peak flow challenges. There are two consultant physicians on duty between 08.30hrs and 21.30hrs.

Currently there are 24 doctors who participate on the AMU rota each with 3 Direct Clinical Care programmed activities i.e. a total of 72 Direct Clinical Care PA's to support the existing 48 beds.

In addition a further 20 Direct Clinical Care Programmed Activities are available for PAA providing consultant cover from 0800 to 2000 Monday to Friday.

In September 2016 MoE commenced input into the back bays of AMU seeing those identified as frail. This successful service will be expanded into front bays and to support ED in summer 2016. The MoE service consists of a MoE consultant, Advanced Nurse Practitioner and Clinical Fellow. A similar nucleus will provide input into front bays and ED. These services will provide input across 7 days. It is proposed that the current medical staffing within IOPS will be redeployed within AMU so no additional medical staffing is required to support this model. To deliver a high standard multidisciplinary MoE service enhancements in therapy, pharmacy and social work support is highly recommended.

The Geriatricians will also work closely with Elderly Care Assessment Team (ECAT) - a nurse led service identifying frailty at the front door and downstream ward settings to drive multidisciplinary assessment and improved pathways for frail patients in in-patient settings.

The Geriatricians will also work closely with the SAFE-HOME AHP service and will further develop the MDT working for the AHP team in AMU and PAA, they will provide a single point of contact for these areas.

The frailty model at the front door will allow for a range of outcomes;

- Easily accessible clinical advice to ED, PAA and AMU including specialist advice on interface working, management of frailty including delirium, polypharmacy, anticipatory care and end of life decisions.
- Improved liaison with ED to facilitate direct MoE admission on or off site as appropriate.
- Improved and more timely assessment of frail elderly within ED and PAA to allow earlier discharge.
- Collaborative working with AHPs in developing supported discharge models within Edinburgh, East, West and Midlothian.
- Improved access for ECAT to senior decision makers.
- Improved MDT working within AMU allowing more robust assessment and safer more timely discharge.
- Improved knowledge around opportunities within community for extended supports to prevent readmission.
- Opportunities for early next day if needed follow up at Day Hospital in north Edinburgh.
- Enhanced opportunities to identify suitable patients for supported discharge.
- Greater use of hospital at home models to facilitate discharge
- Improved pathways for groups of patients with non-operative fractures

- Improved knowledge of community services and closer working with locality and discharge hubs.

It should also be noted that if and when more beds are commissioned for the remaining phases of this project, that no additional consultants will be required.

The expansion of the Acute Medical Unit will allow an increased assessment time and in context of full multi-disciplinary team including Geriatricians is expected to help increase discharges and reduce boarding numbers.

Specialty Doctors

There are two specialty doctors currently working within the Integrated Older People Service and as part of the revised model to support the additional beds there will be a requirement of 1 additional Specialty Doctor.

Junior Doctors

Currently Acute Medicine and General Medicine (Wards 207 and 208) are supported by a team of 43 Junior Doctors comprising 18 FY1's, 17 FY2's / ST1/2's / GPST's and 8 Registrars.

These Junior Doctors provide 24/7 cover in to Acute Medical Unit, cover for PAA as well as day time cover into Wards 207/208.

There is no specific proposals to increase cover of the Junior Doctors with the increased number of beds. There are currently a GPST and community FY2 based at IOPS and these staff will also be redeployed to the front door. It should be acknowledged that some of these medical staff will support the hospital at home service.

Nursing Staff

The proposed increase in Nursing staff is in line with existing Nurse to bed ratios and significantly reduces the skill mix of qualified to unqualified nurses.

It is noted that the current establishment for AMU has benchmarked below the national benchmark for nursing establishments. However this business case is not intended to address this situation and it is not accounted for in the costing.

Other Staffing

The Other Staffing costs comprise Pharmacy and Allied Health Professional, are required to support the changes in bed numbers.

Non Pay Costs

Non Pay costs have been estimated on the basis of existing spend per bed. It's recognised that the majority of these costs are being incurred across the range of services currently accommodating boarders from the referral process into AMU. There is an expectation that these costs will reduce in wards with boarders as patients are assessed and managed within the expanded AMU

Other Revenue Costs

These costs comprise depreciation, soft FM (patient portering) costs and an estimated increase in the Lifecycle Costs element of the Unitary Charge paid to Consort.

5.5 Overall Affordability for NHS Lothian

This development is linked to the NHS Lothian site rationalisation programme. Whilst the programme is in its early stages, it is recognised that this development is within that overall financial envelope. The timing of the revenue requirement of this development and any releases arising from the programme will impact on the affordability.

6.0 THE MANAGEMENT CASE

6.1 Overview

This section of the SBC describes how the scheme will be successfully delivered.

6.1.1 Governance Framework

The Little France Campus Working Group has been established as a project management interface for all partners on the site to co-operate in establishing arrangement for a safe working environment.

6.1.2 Management Arrangements

Management Arrangements for the Project	
Role	Name
Executive Lead	Jim Crombie
Project Manager	Neil McLennan- TBA
Site Director	Lyn McDonald
Operational Manager	Gillian Cunningham
Clinical Service Manager	Gareth Clinkscale
Clinical Service Manager	Billie Flynn
Finance Lead	Andrew Bone
Contractor Lead	John Creedican
Lead Nurse	Linda McIntosh
General Manager	Janice Alexander
Medical Lead	Johanne Simpson / Andrew Coull

This project will report to the Capital Management group which reports to the CMT and F&R Committee.

6.1.3 Project Manager

A Project Manager (PM) from Capital Planning has been assigned to manage the project on behalf of NHSL. The PM will:

- execute the project plan
- ensure the management and evaluation of the project are carried out
- lead and control the appointments, design, tender, construction, and commissioning stages
- Authorise payments of the project.
- Work closely with the clinical and management teams
- Procure equipment
- Commission beds
- Undertake other roles as and when required
- Act as the main link between:
 - NHSL
 - The Little France Campus Group
 - The Project Director
 - The Clinical and Management Teams
 - Consort Healthcare

6.2 Project Plan

The next table is a 'high level' summary of the construction programme.

Draft High Level Summary of AMU Additional Beds Project		
Main Works TAWO 140A	Contract Awarded	
	Mobilisaton	8 weeks
	Phase 1	14 weeks

Table: Key Milestones from Tendered Construction programme

6.3 Project Management Stakeholders

6.3.1 The key roles of the NHSL PM have been outlined in 6.1.2

6.3.2 The stakeholders in the project are:

- NHS Lothian, comprising Lothian Partnership Forum, clinical management teams and corporate services.
- Statutory authorities and public bodies such as the Health & Safety Executive, City of Edinburgh planning department, Architecture and Design Scotland.

6.3.3 All governance functions are supported by a range of reports, including the Project Progress (dashboard), Risk Register Report, Financial Report and a range of supplementary reports.

6.4 Risk Management

6.4.1 This project sits within the risk management framework for the RHSC/DCN re-provision project.

6.4.2 Five red rated risks applied to this project, and are shown below.

Risk Register for New CAA Additional Beds Project – February 2015

Risk	Mitigation	Probability	Impact	Score	Rate
Late commencement of works due to lack of agreement on SA.	Regular meetings with Consort and regular updates from G Curley.	5	5	25	Red
Lack of reception capacity during first phase of upgrade	Increase use of discharge lounge. Consider any other options	5	4	20	Red
Difficulty in recruiting appropriately skilled staff	Commence liaison with the recruitment team	5	4	20	Red
Health & Social Care unable to support the demand for supporting patients in the community	Commence liaison with the IJBs around models of care and expectations of pulling patients	5	4	20	Red
Financial implications of revenue streams, where it is assumed that Liberton bed reductions will off set	Work being progressed detailing how savings associated with Liberton will be attributed	5	5	25	Red

6.5 Workforce Planning

Recruitment planning will need to be undertaken by a member of the Service Management team.

6.6 Commissioning.

6.6.1 The NHSL Project Manager, will develop, monitor and implement the NHSL commissioning and equipping programme.

6.6.2 The Consort Project Manager is responsible for managing the programme for the building and service transfer.

6.7 Post Project Evaluation

Evaluation of the project will begin one month after commissioning: critical success factors will be:

- Contribution to the achievement of 4 hour target of 95%. It is envisaged that 0.2% improvement will come from this project.
- Reduction in mean waiting time in Emergency Department
- Reduction in numbers of breaches attributable to wait for bed and modelling has anticipated a reduction of 1,000 breaches attributed to "Wait for Bed"
- Reduction in numbers of patients boarding, it is estimated that this will reduce by 6 patients boarding on average

In the formal 12-months post-project evaluation, the following issues will also be reported:

- Changes in mean length of stay,
- mortality rates of patients admitted to medical beds
- Ratio of patients managed in an ambulatory setting can be monitored.
- Did the project deliver on time/within budget
- Successes
- Challenges
- Learning for any additional construction phases

6.8 Contingency Plans

Contingency Plans will need to be developed by the service with support from the NHSL PM. These will be delivered through the General Management Structure.

END

PROJECT: AMU,RIE

What are the Current Arrangements: AMU comprises of 48 beds in total, over 6 bays, and a Primary Assessment Area (PAA), with 10 trolley spaces. The unit facilitates rapid definitive assessment, which is currently hindered by a “front door” capacity that is too small and results in patient boarding and delays..

What is the need for change?	What benefits will be gained from addressing these needs?	How do these benefits link to NHSScotland’s Strategic Investment Priorities?	What solution is being considered
Insufficient front door capacity causes delays within the ED and boarding.	<p>Identify Links</p> <p>Improved efficiency and productivity gains from increasing capacity and improving patient flow</p>	<p>Identify Links</p> <p>Person Centred</p> <p>Prioritisation Score</p> <p>4</p>	<p>Service Scope / Size</p> <p>Edinburgh Royal Infirmary AMU</p>
Boarding increases length of stay and increases risk of Hospital Acquired Infection.	<p>Ultimately patients can be rehabilitated in their home, rather than undertaking this in the hospital setting.</p> <p>Timely discharge from hospital resulting in reduced bed occupancy and overcrowding.</p>	<p>Safe</p> <p>4</p>	<p>Service Arrangement</p> <p>Expansion of AMU facility</p>
Patients are boarded to other, often inappropriate, wards and specialities.	<p>Minimised risk of infection.</p>	<p>Effective Quality of Care</p> <p>4</p>	<p>Service Providers</p> <p>NHS Lothian and Consort</p>
Boarded patients exert extra pressures within the ED, impacting on ineffective patient care.	<p>Support the Scottish Government requirement to eliminate boarding as a solution to capacity problems.</p> <p>High quality and efficient patient care provided, thus improving the overall patient experience.</p>	<p>Health of Population</p> <p>2</p> <p>Value & Sustainability</p> <p>3</p>	<p>Impact on Assets</p> <p>Capital grant as PFI site</p>
Failure to consistently meet 4 hour Emergency Care Standard of 95%.	<p>Implementation of patient pathways that work towards improving the 4 hour Emergency Care Standard.</p>	<p>TOTAL SCORE</p> <p>17</p>	<p>Value & Procurement</p> <p>Traditionally funded, approx £0.6m</p>