NHS Knowsley Clinical Commissioning Group
NHS Liverpool Clinical Commissioning Group
NHS South Sefton Clinical Commissioning Group
NHS Southport and Formby Clinical Commissioning Group

NORTH MERSEY JOINT COMMITTEE
KNOWSLEY, LIVERPOOL, SOUTH SEFTON AND SOUTHPORT & FORMBY CCGS

WEDNESDAY 28TH NOVEMBER 2018

BOARDROOM , SOUTH SEFTON CCG
BOARDROOM 3RD FLOOR MERTON HOUSE, SOUTH SEFTON CCG, STANLEY ROAD, BOOTLE, L20 3DL

TIME 9.30AM –11.30AM

AGENDA

1.	Welcome, Introductions and Apologies	Jan Ledward
2.	Declarations of interest	ALL
3.	Orthopaedic Business Case	Carole Hill Report No: NMJC 02-18
4.	Any other business	ALL
5.	Date and time of next meeting: TBC	

Report no: NMJC 02-18

NORTH MERSEY JOINT COMMITTEE
KNOWSLEY, LIVERPOOL, SOUTH SEFTON AND SOUTHPORT & FORMBY CCGS

WEDNESDAY 28th NOVEMBER 2018

Title of Report	Proposal for a Single Service for Orthopaedic & Trauma Services for North Mersey
Lead Governor	Jan Ledward, Chief Officer, Liverpool CCG
Senior Management Team Lead	Carole Hill, Director of Strategy, Communications and Integration
Report Author	Carole Hill, Director of Strategy, Communications and Integration
Summary	The proposal for a single service for orthopaedic and trauma service for the North Mersey population is intended to reduce variation in quality and outcomes and to improve patient care; also enabling solutions to the fundamental shared challenges around workforce capacity, skills and financial sustainability. The proposal aligns with the vision for acute services offered from a centralised university teaching hospital campus with single-service, city-wide delivery, delivered through centres of academic, clinical and service excellence. Knowsley, Liverpool, South Sefton and Southport and Formby CCGs, as commissioners for these services, are responsible for the decision to approve this proposed major service change.

	The decision has been delegated by the four CCGs to the North Mersey Joint Committee.
Recommendation	That the North Mersey Joint Committee: ➢ Approves the proposal for the establishment of a single service for orthopaedic and trauma surgery to delivered over two sites.
Relevant standards/targets	Supporting the Delivery of the NHS Five Year Forward View and the objectives of One Liverpool. Getting it Right First Time. NHS Constitutional Targets.

ORTHOPAEDIC AND TRAUMA SERVICE BUSINESS CASE

1. PURPOSE

The proposal for a single service for orthopaedic and trauma service for the North Mersey population is intended to reduce variation in quality and outcomes and to improve patient care; also enabling solutions to the fundamental shared challenges around workforce capacity, skills and financial sustainability.

The proposal aligns with the vision for acute services offered from a centralised university teaching hospital campus with single-service, city-wide delivery, delivered through centres of academic, clinical and service excellence.

Knowsley, Liverpool, South Sefton and Southport and Formby CCGs, as commissioners for these services, are responsible for the decision to approve this proposed major service change.

2. RECOMMENDATIONS

That the North Mersey Joint Committee:

- Approves the proposal for the establishment of a single service for orthopaedic and trauma surgery to delivered over two sites.

3. BACKGROUND

In 2016 the North Mersey health system agreed the vision for acute services, which was to establish *"a centralised university teaching hospital campus with single-service, city-wide delivery, delivered through centres of academic, clinical and service excellence."*

A review of orthopaedic services was initiated by the clinicians from both adult acute trusts, the Royal Liverpool and Broadgreen University Hospitals Trust (RLBUHT) NHS Trust and Aintree University Hospitals Foundation Trust (AUH). The decision to review these services was supported by North Mersey commissioners as it aligned with the vision for single service, city wide delivery. Commissioners, through the

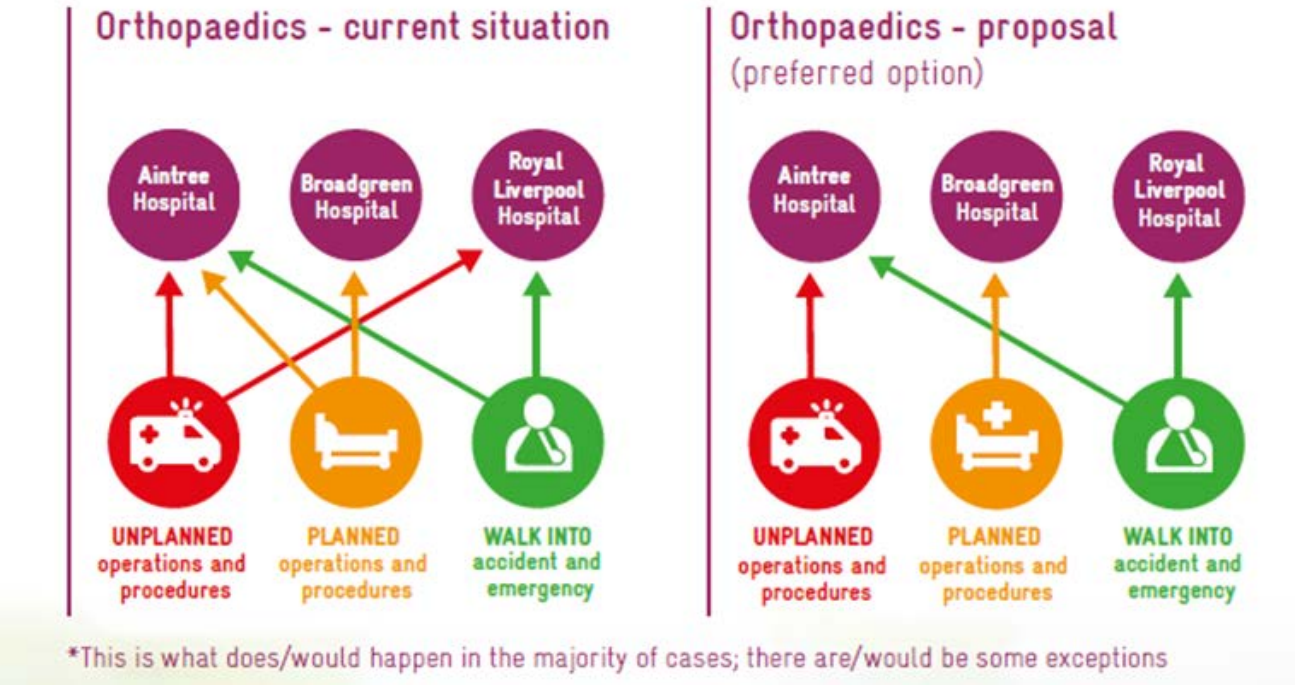
Healthy Liverpool Programme, supported the trusts to develop a feasibility study.

The proposed single service model for orthopaedics is intended to reduce variation in quality and outcomes and to improve patient care; also enabling solutions to the fundamental shared challenges around workforce capacity, skills and financial sustainability.

A clinically-led option appraisal process determined a preferred option, which was to establish a unified Liverpool Orthopaedic and Trauma Service across both trusts. The proposed reconfiguration is summarised below:

- Development of a single elective orthopaedic centre on the Royal Liverpool's Broadgreen site, to enable delivery of high quality and high volume planned services and sub-specialist service delivery;
- Transfer of all orthopaedic trauma, including spinal trauma, to the Aintree (AUH) site;
- All orthopaedic pathways standardised to best practice to eliminate unwarranted variation;
- Decreased waiting times for inpatient orthopaedic trauma and flexibility in dealing with ambulatory orthopaedic trauma and elective cases, to reduce waiting times and length of stay;
- A single service across two sites, delivered by a combined consultant rota.

The diagram below sets out the current service and the proposed new service configuration:



The proposal for a two site orthopaedics service is also dependent on the relocation of ENT inpatient and day case surgery, currently delivered from AUH and the Royal Liverpool's Broadgreen site.

3.1 Major Service Change Process

This proposal represents a substantial service change, which requires commissioner ownership and approval. The NHS guidance states: *"All service change needs commissioner ownership, support and leadership (even if change is initiated by provider or other organisation). This is so any major service change aligns with commissioning intentions and plans. Where services are commissioned by two or more commissioners, it is essential that proposals align with each organisation's commissioning intentions, including estates strategies. Commissioners (or providers leading service change) should:*

- *be active in leading service design and change;*
- *ensure commissioning intentions reflect the local commissioning plans and vice versa; and*
- *work closely with local authorities who have an important role in the development of proposals, as well as discharging their scrutiny functions."*

The major service change process followed in developing this proposal is summarised below:

- The Case for Change was formally approved by the trusts-led Orthopaedic Executive Oversight board and accepted by the Healthy Liverpool Programme Board.

- The development of the proposed model of care was based around the 'Getting it Right First time methodology.

- The Orthopaedic Oversight Board undertook a robust options appraisal process, supported by commissioners, which included the adoption of an options appraisal framework with agreed critical success factors (CSFs) and a weighting and scoring mechanism. Options were appraised through a three stage process – a clinically-led workshop which scored against the quality and feasibility CSFs; Options where reviewed and scored against the Strategic Fit CSF's by commissioners and reviewed by the Oversight Executive Group; a finance workshop reviewed and scored the Financial CSF's, with involvement by finance leaders and clinical representatives from both trusts and commissioners. Sensitivity Analysis was performed to ensure the scores were robust to different variants of the methodology.

- Commissioners have a statutory role to involve service users in the development of proposals. Pre-consultation engagement was conducted with service users to inform proposal development.

- The RLBUHT and AUH Boards endorsed the preferred option that emerged through the options appraisal process and the North Mersey Committees in Common (CIC) recommended to the North Mersey CCG governing bodies that the pre-consultation business case be put to the North Mersey population through a formal public consultation.

- A North Mersey Joint Overview and Scrutiny Committee, encompassing Liverpool Sefton and Knowsley Councils, was convened to scrutinise the proposal and the plan for consultation.

3.2 Engagement & Consultation

The National Health Service Act 2006 sets out the legislative framework for public involvement (Sections 13Q (NHS England), 14Z2 (CCGs) and 242 (NHS Trusts and FTs)). Consultation with local authorities is provided for in the Local Authority (Public Health, Health & Wellbeing Boards and Health Scrutiny) Regulations 2013 ("the s.244 Regulations") made under section 244 (2)(c) of the NHS Act 2006.

Service change is any change to the provision of NHS services which involves a change in the way front line health services are delivered, usually involving a change to the range of services available and/or the geographical location from which services are delivered. There is no legal definition of 'substantial development or variation' and for any particular proposed service change, commissioners and providers work with local authority or local authorities Overview and Scrutiny Committee (OSC) to determine whether the change proposed is substantial. If the change is substantial it will trigger the duty to consult with the local authority under the s.244 Regulations.

This proposal is considered by commissioners, NHS England and North Mersey local authorities OSCs this proposal does represent a major service change.

Public consultation is informed by statutory requirements and legal principles, known as the Gunning Principles, which have been developed and tested through case law and which support the delivery of a defendable consultation process. The principles are:

1. **Consultation must take place when the proposal is still at a formative stage.** Meaningful consultation cannot take place on a decision that has already been made. Decision makers can consult on a single proposal or 'preferred option' so long as they are genuinely open to influence.
2. **Sufficient information and reasons must be put forward for the proposal to allow for intelligent consideration and response:** Those being consulted should be provided with sufficient information to enable them to understand what the proposal is, the reasons for it and why it is being considered.
3. **Adequate time must be given for consideration and response:** People must have enough time to properly consider and respond to the consultation. There is no automatically required timeframe within which the consultation must take place.

4. **The product of consultation must be conscientiously taken into account**: Decision makers must properly consider what they have heard during the consultation when the ultimate decision is taken.

North Mersey CCGs conducted a formal public consultation on the proposal for a single service for orthopaedics, from 26th June - 15th September 2017. Commissioners were able to gain significant reach, with 2,000 people responding to an online and print survey about the proposed changes, along with feedback from face to face conversations conducted with groups, such as community groups, BME communities and directly with patients.

Key findings from the consultation:

- The perspective of survey respondents on the orthopaedic plans were generally positive, with only 12% (207/1719) believing it was not the best plan;
- The predominant reason cited by those not supportive of the proposal was the distance to be travelled for some service users;
- The distribution of views was broadly consistent across geographic areas, although residents of South Sefton were the least likely to agree with the plans (53% compared with 60% overall);
- The main impact was felt to be travel times, with 40% reporting they would have to travel further and 5% travelling a shorter distance;
- Faced with a future need to travel further for services, over half of survey respondents (53%) did not consider this to be a problem for one-off surgical procedures, with 44% considering it would present some or a serious problem. A small number (3%) considered it would prevent them from using services altogether, usually because of poor transport options or their physical capacity to travel;
- More vulnerable people – older people, people with disabilities, and those who did not own a car had most concerns about the proposed changes.

The two main themes identified within the consultation related to access and the ability of the services to accommodate different people's needs. The proposal would mean that some patients requiring inpatient surgery would face a slightly longer journey for their in-patient and day-case activities.

In terms of access, the vast majority of patient interactions with the orthopaedics service for elective care would be as out-patients and it is

planned that this care would continue to take place locally, in community or local hospital settings.

Using recorded activity for each GP Practice and the Practice location as a proxy for the patients' home location, the average additional distance patients would have to travel to the various sites was calculated. The assessment is that the majority, 59% of patients, would be advantaged or unaffected by the proposed change. 41% of patients will have to travel an average of an additional 2.3 miles to access services.

Access to 'unplanned' orthopaedic medical care at both emergency departments at RLBUHT or AUH would be unaffected for patients who "self -present" at the emergency departments. Patients who require an emergency ambulance will be assessed and taken to the clinically appropriate emergency department.

In response to the findings of the public consultation, a mitigation plan was developed to address concerns raised. An Equality Impact Assessment (EIA) was also produced to reflect the findings and mitigating actions that would be implemented by the trusts to address issues and concerns raised in the public consultation. The key concerns and associated mitigating actions are detailed below:

Issue	Mitigation
Impact on quality of care	Further engagement with service users to understand perceptions around quality of care and how these could be addressed/reassurance offered.
Transport	***Actions:*** MerseyTravel app embedded on each Trusts website – offers access route information to hospital sites. Patient letters - include a reminder of how people can find information regarding travel options. Have information available of criteria for accessing patient ambulance service. Implement a model of staggered admissions for elective surgery lists, enabling patients to choose a later slot to allow more time to travel/access public

	transport. Monitoring DNA data by protected characteristics to ensure equality of access.
Impact - older people and people with learning disabilities	Use pre-op assessment proforma as a check for staff to ensure older people and people with learning disabilities can visit the centre in advance to see the environment and ask questions, if they wish. (This already happens in AUHFT).

The findings from the public consultation, and subsequent mitigating actions to address concerns, were incorporated into the final business case, which is at **Appendix 1.** The EIA is at **Appendix 2.**

The final business case has been approved by both trust boards. The trusts have been successful in securing requested capital funding from NHSI to make the necessary improvements across both sites.

Commissioners, through the North Mersey Committees in Common, have also reviewed the final business case, including activity and financial assumptions, which are confirmed as being aligned with CCG plans.

After consultation, NHS England has a role in assuring proposals for major service change before a decision is made. They will scrutinise proposals to ensure they are clear, evidence–based and that they meet the Government's five tests for service change, which are:

1. Strong public and patient engagement;
2. Consistency with current and prospective need for patient choice;
3. Clear, clinical evidence base;
4. Support for proposals from clinical commissioners;
5. Assurance that any proposal which plans to significantly reduce hospital bed numbers can demonstrate that sufficient alternative provision is in place.

The final business case was shared with a joint NHS England and NHS Improvement assurance panel. Feedback was positive with recognition that the business case was comprehensive, met the above tests, and addressed the findings from public consultation.

It is now at the point for commissioners to make a decision regarding the proposed change to services. The four North Mersey CCGs have agreed to delegate this decision to the new North Mersey Joint Committee.

Subject to the Joint Committee approving the proposal the final stage in the process will be to share the outcome of the consultation and the decision to the North Mersey Joint Overview and Scrutiny Committee, which will review the findings, the mitigation plan and the overall process.

4. MOBILISATION

High level mobilisation plans for the new service model are set out in the final business case. Detailed mobilisation plans are currently being developed and will begin to be implemented once a decision has been made by commissioners. The trusts have indicated that the service would go live towards the end of 2019.

5. STATUTORY REQUIREMENTS (only applicable to strategy & commissioning papers)

5.1 Does this require public engagement or has public engagement been carried out? Yes - completed

5.2 Does the public sector equality duty apply? Yes – see Equality Impact Analysis.

5.3 Explain how you have/will maximise social value in the proposal: describe the impact on each of the following areas showing how this is constructed to achieve the most:

- **a) Economic wellbeing**
- **b) Social wellbeing**
- **c) Environmental wellbeing**

This proposal has been developed and consulted upon in line with the CCGs' social value ethos. The design process has taken regard of these three factors in delivering improvements in clinical quality, value for money and patient and environmental wellbeing, as well as addressing issues regarding health inequalities.

5.4 Taking the above into account, describe the impact on improving health outcomes and reducing inequalities

This proposal has identified clear and measurable intentions for the delivery of improved health outcomes and reduced inequalities.

6. DESCRIBE HOW THIS PROMOTES FINANCIAL SUSTAINABILITY

The Business Case sets out a detailed financial case which provides assurance around efficiency savings and improved value for money.

7. CONCLUSION

The proposal to establish a single service for orthopaedics services delivered across the two adult acute trusts serving the populations of North Mersey is considered able to deliver clinical and financial improvements as well as to ensure these services are sustainable in the longer term. Comprehensive demand and capacity analysis has provided assurance that the proposal is feasible and deliverable, supported by funded capital investment. The proposal is closely aligned with the North Mersey acute vision for single-service, city-wide delivery, delivered through centres of academic, clinical and service excellence.

Appendix 1

The Royal Liverpool and Broadgreen University Hospitals NHS Trust

Aintree University Hospital NHS Foundation Trust

Liverpool Orthopaedic & Trauma Service

Feasibility Study and Business Case

May 18

24

Document Control

Title			Liverpool Orthopaedic & Trauma Service Feasibility Study	
Author			Mr Daniel Brown, Mr Paul Carter, Andrew Cleary, Lesley Black, Angela Whittaker, Hayley Thomas	
Target Audience			Trust Board of Directors, CCG Governing Bodies, Clinicians, operational and corporate services colleagues	
Version History				
Version	Date	Status	Author(s)	Change Description
1.0	20/10/2016	For approval	Andrew Cleary, Angela Whittaker, Debbie Smith, Lesley Black.	
2.0	18/01/2018	For approval	Hayley Thomas, Andrew Cleary, Angela Whittaker, Lesley Black, Debbie Smith, Derrie Lizzi.	Re-ordered sections, workforce modelling added, public consultation outcomes, updated risk register.
3.0	14/05/2018	For approval	Angela Whittaker, Hayley Thomas	Updates to workforce modelling and finance chapter
Approved by:		Orthopaedic Executive Oversight Group		
Governance route:				
Group		**Date**		**Purpose**
RLBUH Trust Board		25th October 2016		For approval
Aintree Trust Board		26th October 2016		For approval
LCCG Governing Body		26th October 2016		For approval
Liverpool, Sefton and Knowsley Overview and Scrutiny Committees		March 2017		For consultation

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Glossary of Terms

Acronym	Meaning
ALOS	Average Length of Stay
AUHFT	Aintree University Hospital NHS Foundation Trust
BGH	Broadgreen Hospital
BPT	Best Practice Tariff
BOAST	British Orthopaedic Association of Audits Standards
CCG	Clinical Commissioning Group
CEO	Chief Executive Officer
CMA	Competition and Markets Authority
CIMA	Centre for Integrated Research into Musculoskeletal Ageing
COO	Chief Operating Officer
CQC	Care Quality Commission
CRN	Clinical Research Network
CSF	Critical Success Factor
CST	Core Surgical Trainee
DoH	Department of Health
DToC	Delayed Transfer of Care
EA	Emergency Ambulances
ED	Emergency Department
ENT	Ear Nose & Throat
EPR	Electronic Patient Record
FAQs	Frequently Asked Questions
FBC	Full Business Case
FICM	Faculty of Intensive Care Medicine
F&P	Finance and Performance Committee
FT	Foundation Trust

Acronym	Meaning
FTE	Full Time Equivalent
GIRFT	Getting It Right First Time
GP	General Practitioner
GPwSI	General Practitioner with a Special Interest
HR	Human Resources
IM&T	Information Management Technology
IPT	Integrated Planning Team
IT	Information Technology
JV	Joint Venture
KPI	Key Performance Indicators
LCCG	Liverpool Clinical Commissioning Group
LCH	Liverpool Community Health NHS Trust
LDS	Local Delivery System
LHCHFT	Liverpool Heart & Chest Foundation NHS Foundation Trust
LiVES	Liverpool Vascular and Endovascular Service
LOS	Length of Stay
LOTS	Liverpool Orthopaedic and Trauma Service
LWHFT	Liverpool Women's Hospital NHS Foundation Trust
MCAS	Musculo-skeletal Assessment Service
MDT	Multi-Disciplinary Team
MET	Medical Emergency Team
MoU	Memorandum of Understanding
MRC	Medical Research Council
MTC	Major Trauma Centre
NHS	National Health Service
NIHR	National Institute for Health Research

Acronym	Meaning
NICE	National Institute for Health and Care Excellence
NHSE	NHS England
NHSI	NHS Improvement
NM	North Mersey
NMLDS	North Mersey Local Delivery System
NOF	Neck of Femur
NW	North West
NWAS	North West Ambulance Service
OBC	Outline Business Case
ODEP	Orthopaedic Data Evaluation Panel
PA	Programmed Activity
PMO	Programme Management Office
PTIP	Post Transaction Implementation Plan
QEP	Quality Efficiency & Productivity
R&D	Research & Development
RLH	Royal Liverpool Hospital
RLBUHT	The Royal Liverpool & Broadgreen University Hospitals NHS Trust
RLiMBS	The Royal Liverpool Metastatic Bone Service
RTT	Referral to Treatment
SLA	Service Level Agreement
SOP	Standard Operating Procedure
SSI	Surgical Site Infection
STF	Sustainability and Transformation Fund
STP	Sustainability and Transformation Partnership
STR	Specialty Registrar
TCI	To Come In

Acronym	Meaning
T&O	Trauma & Orthopaedics
TOR	Terms of Reference
TPB	Transaction Programme Board
TPSG	Transaction & Integration Programme Steering Group
TTA	Trauma Team Activations
UK	United Kingdom
WCFT	Walton Centre NHS Foundation Trust
WTE	Whole Time Equivalent
#NOF	Fractured Neck of Femur

1 Executive Summary

1.1 Introduction

Three years ago over 200 senior clinicians from the Aintree University Hospital NHS Foundation Trust (AUHFT) and the Royal Liverpool and Broadgreen University Hospitals NHS Trust (RLBUHT), the two largest hospitals in the city, with a combined turnover in excess of £850M, met and overwhelmingly made the clinical case for merger of the two organisations. As a result of that dialogue the Orthopaedic Clinicians from both trusts have developed a clinical model for a single orthopaedic service.

The Orthopaedic Consultants developed a consistent clinical view that joint working is essential in order to improve patient outcomes, improve efficiency and decrease costs.

It is their view that these changes are essential, not only to sustain clinical services in the local health economy, but also to comply with national standards and facilitate the growth of Liverpool as a centre of excellence for orthopaedic and trauma care.

The Orthopaedic Consultants of both Trusts are in agreement that consolidation of both departments into a single service, with dedicated elective and trauma units, would be most likely to facilitate these improvements in care.

This document outlines proposed changes to the Trauma and Orthopaedic Services delivered by both AUHFT and the RLBUHT.

It will outline the case for change and the commitment to deliver the preferred inpatient two-site model, one site for orthopaedic trauma and a separate site for elective procedures. It will provide detail on the feasibility of the proposal and consider the impact on stakeholders.

The proposed orthopaedic reconfiguration is phase 1 of both Trusts stated intent to merge hospital services in 2019/20, which is aligned to the Cheshire and Merseyside Strategic Transformation Plan (STP) and the Liverpool Clinical Commissioning Group (CCG) Healthy Liverpool Programme (HLP).

1.2 Current Orthopaedic Service Model

Within Liverpool, adult Orthopaedic services are provided by both AUHFT and RLBUHT. These services provide emergency and non-emergency care.

The current model is shown in Figure 1A.

Fracture clinic appointments are provided at both the Royal Liverpool Hospital (RLH) site and Aintree University Hospital (AUH) site.

Elective clinics (scheduled/non-emergency procedures) are currently provided at AUH and in the Orthopaedic centre on the Broadgreen Hospital (BGH) site (except hand and spinal clinics which are provided at RLH).

Elective orthopaedic inpatient care is provided at the AUH and BGH sites. However, as BGH does not currently have level 2 or level 3 beds (i.e. ICU), some RLBUHT patients are not fit for surgery at BGH and have surgery at RLH.

Orthopaedic trauma care and spinal surgery is provided at AUH and RLH which have high dependency and intensive care unit beds.

AUH became the single receiving site for major trauma (adults) in July 2016.

1.3 Case for Change

The fragmented configuration of hospital services means that patient care is also fragmented and variable. This, in turn, prevents care being provided in a multi-disciplinary, joined-up way resulting in the sub-optimal outcomes and inequalities experienced by the North Mersey population.

When viewed in the national context of improving clinical and financial sustainability for an ever changing population and in addressing clinical variation it is clear that the presence of two competing university hospitals is inhibiting the transformational process that is required at this time.

The current set up of orthopaedic services in Liverpool requires change for the following reasons:

- Services are overwhelmed due to an increase in demand.
- Elective activity is delayed or cancelled due to non-elective demand.
- Separate, on-call medical rotas are unsustainable and trauma surgery is delayed as a consequence.
- There is an unbalanced consultant skill mix across the two organisations.
- Both organisations are unable to comply with National 'Getting it Right First Time' (GIRFT) recommendations[1].

1.3.1 Scope

The following areas are included within the scope of the project:

- Inpatient trauma services at AUHFT and the RLBUHT
- Elective inpatient and day-case services at AUHFT and RLBUHT
- Elective and fracture clinic outpatient services at AUHFT and RLBUHT
- RLBUHT Ear, Nose and Throat (ENT) inpatient and day case surgery at BGH
- RLBUHT General Surgery and Urology inpatient activity at BGH

The following areas are out of scope of the project:

- Inpatient spinal services; city-wide spinal services are being reviewed separately.

[1] Briggs T. Getting it Right First Time: improving the quality of orthopaedic care within the National Health Service in England. London: British Orthopaedic Association; 2012.

- Outpatient ENT, Urology and General Surgery services.

1.4 Preferred Model

An options appraisal was conducted to identify the preferred model for the Liverpool Orthopaedics and Trauma Service (LOTS). Five options were shortlisted and a review of these was undertaken.

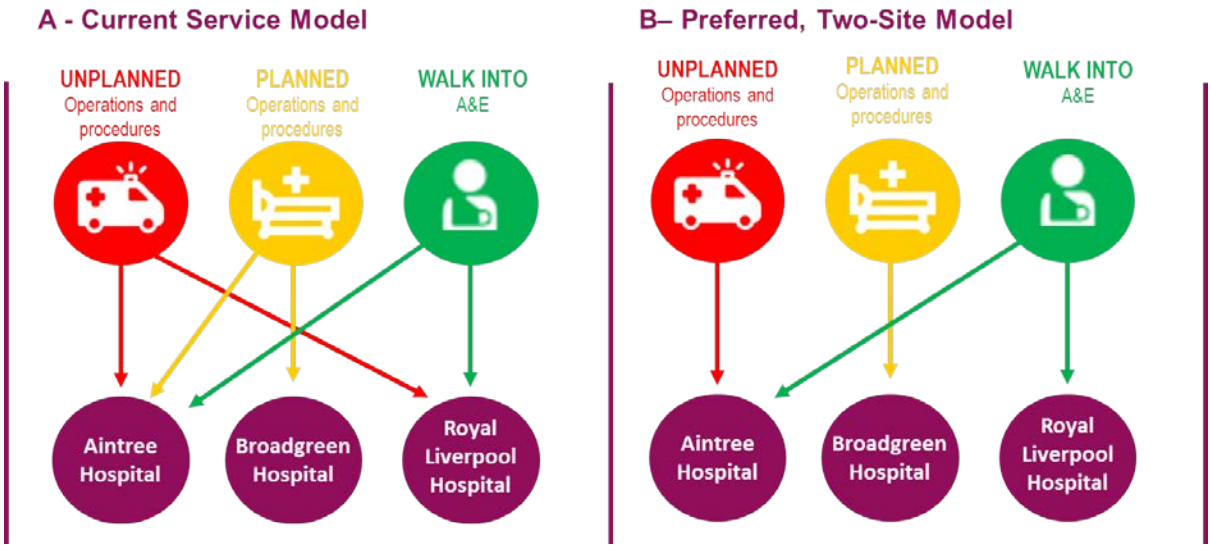
A three stage process was used to appraise the options and was supported by Liverpool CCG. A mix of clinical and non-clinical experts participated in the process and the joint Trust Orthopaedic Executive Oversight Group governed the process.

A sensitivity analysis was performed to ensure the results were robust to different variants of the methodology. The sensitivity of the results of the options appraisal to changes in critical success factor (CSF) weightings was tested through a targeted sensitivity analysis.

The two-site option (elective activity at BGH and non-elective at AUH) was identified as the preferred option. The preferred model is shown in Figure 1B and would deliver an orthopaedic service as described below:

- A comprehensive inpatient and day case orthopaedic trauma service at AUH.
- Orthopaedic elective inpatient and day case work to be conducted at dedicated specialist elective orthopaedic centre at BGH. This will be facilitated by RLBUHT's ENT inpatient activity being transferred from BGH to AUH.
- Both Trusts' EDs will continue to deliver orthopaedic trauma care.
- Complex sub specialty MDT clinics will be run at BGH with less complex out-patient services offered in all current locations, and possibly expanded to other community locations.

Figure 1: A) Current orthopaedic service model and where activity takes place and B) the preferred, two-site orthopaedic service model.



1.4.1 Benefits of the Preferred Model

The LOTS two-site model, set out above, would ensure the service continues to meet the Department of Health (DoH) requirements of being a regional Major Trauma Centre (adults) whilst developing improved capacity to meet the orthopaedic trauma needs of the local population.

The model will deliver specialised complex elective orthopaedic care that meets national standards laid down by the GIRFT project and delivers reconfiguration to facilitate delivery of subspecialisation, critical mass and minimal volumes. This is to ensure both quality and financial sustainability and protection of specialist services.

The project will be financially beneficial by delivering flexible, efficient and sustainable services through formation of a single service, with specialised and dedicated orthopaedic elective and trauma units with a focus on productivity and efficiency. Decreased duplication and increased volumes will reduce both staff and procurement costs.

One of the key drivers to the development of the two-site model was to minimise the variation between the two orthopaedic departments by adopting the existing best practice. In some circumstances this involves RLBUHT adopting an AUHFT initiative and in others it is the opposite way round. This approach will enable the single, city-wide service to meet the increase in demand, which is anticipated as a result of demographic changes, to be accommodated within a reduced bed base.

The benefits associated with the preferred model are presented in Box 1.

Box 1: Benefits of the preferred model.

- Enhanced orthopaedic trauma teams with sub-speciality surgeons available at all times – speeding up time to surgery.
- More surgeons available to allow a team approach to complex cases – leading to better outcomes for patients.
- Optimised MDT working – reduces variation in clinical practice and releases clinical time to focus on patient care.
- Extension of the successful Virtual Fracture Clinic model – avoids unnecessary visits to hospital.
- The new unit will be one of the biggest Trauma and Orthopaedics (T&O) units in the country – attract the best trainees both locally for Core Surgical Trainee (CST) and Specialty Registrar (STR) posts and nationally for our fellowships.
- Dedicated elective units have shown to deliver increased throughput, decreased length of stay (LOS), shorter waiting times and reduced complications.
- Deliver ‘Home First’ and Early Orthopaedic Discharge – reducing LOS and bed capacity requirements
- Increased research activity and profile – attracting research funding.
- Development of unit as a Centre of Excellence – attracting external funding.

1.5 Feasibility Assessment

A detailed feasibility assessment of the delivery of a two-site model has been undertaken by the LOTS Project Team. This has included comprehensive analysis of activity data and capacity requirements, engagement of key stakeholders and the review and development of patient pathways.

Figure 2 demonstrates the shift in activity across the system post-reconfiguration (on day one and 3 to 4 years post-implementation) and the impact of this on infrastructure requirements i.e., beds and theatres. Table 1 shows the overall system demand and capacity and the change in workforce capacity by whole time equivalent (WTE).

Figure 2: Schematic showing the current set up for orthopaedics services across Liverpool (A and D) and the movement of activity across the system post-implementation of LOTS, both on day one (B and E) and when improvements will have been embedded and benefits will be realised (C and F).

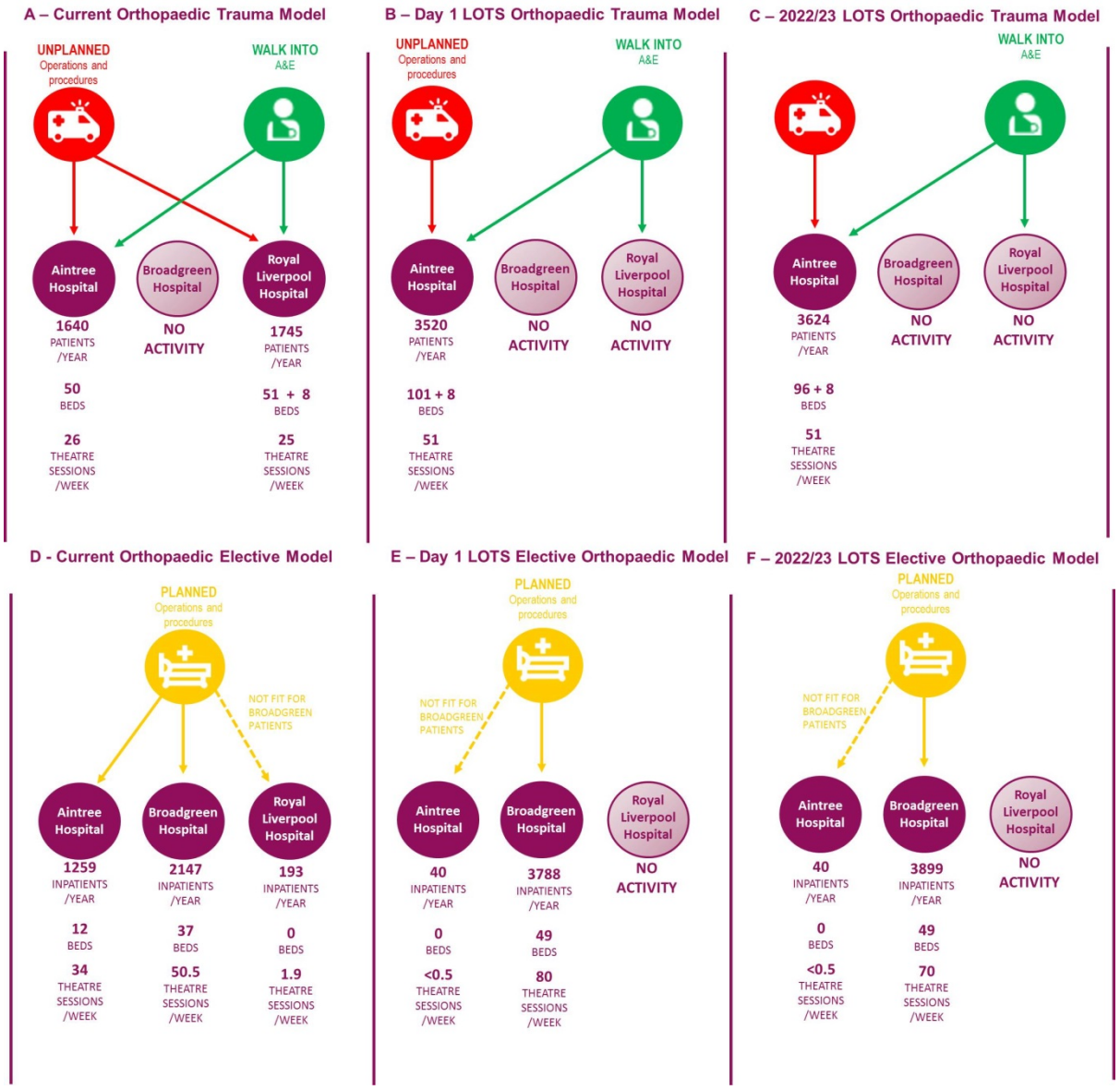


Table 1: Combined, system-wide annual activity and resource modelled for LOTS, on day 1 and at year 5, compared with current service delivered by two separate Trusts (data presented is combined activity and resource; change for workforce is compared to budget, all other change calculations are compared to actual utilisation).

		Current Activity / Budget	Actual Utilisation	Day 1		Year 5	
					Change		Change
Orthopaedic Trauma	Inpatient Admissions	3385		3520	+135	3624	+239
	Beds	80	101	101	0	96	-5
	Theatre Sessions per week (half day)	51	51	51	0	51	0
Elective Orthopaedic	Inpatient Admissions	3599		3828	+229	3939	+340
	Beds	62	49	49	0	49	0
	Theatre Sessions per week (half day)	86.4	86.4	80	-6.4	70	-16.4
Medical	Inpatient Admissions	250		250	0	250	0
	Beds	8	8	8	0	8	0
Workforce	T&O Workforce (WTE)	441.04	393.81	446.23	+5.19	430.40	-10.64
	Support Services Workforce (WTE)	245.94	238.81	262.72	+16.78	247.70	+1.76

There is sufficient theatre capacity, on ‘day one’ at each site to accommodate the shifts in activity described. However, AUHFT and RLBUHT (BGH site) require theatre upgrades to accommodate the move of orthopaedic activity. Post-implementation it is expected that theatres efficiency and productivity benefits will be realised through the dedicated elective orthopaedics centre, and the same volume of work can be delivered in one less theatre.

There is an existing pressure of 8 beds in the system caused by orthopaedic trauma demand. This trauma demand will be accounted for in the future model. The increase in 3 beds across the health system relates to T&O other specialty bed usage which cannot be removed from RLBUH (1.2 beds critical care, 0.2 beds emergency department, 1.5 beds other specialty use). AUHFT require capital investment to fund ward upgrades and reconfiguration to safely accommodate the increase in orthopaedic trauma activity. Post implementation it is anticipated that a 5 orthopaedic trauma bed reduction will be realised through the embedding of the combined Consultant rotas and the improved discharge pathways.

The medical bed demand for the lower limb fracture and pubic rami activity has been assessed as 4 beds. Furthermore, the impact of ambulance transported patients with a medical condition and a query lower limb fracture that would be transported to AUH and subsequently admitted has been assessed as an additional 164 patients, with a requirement for an additional 4 beds. The transferred medical bed demand as a result of reconfiguration is therefore 8 beds (shown on Figure 1 and Table 1).

As part of the feasibility assessment the LOTS project team reviewed opportunities to improve service delivery models and deliver efficiency savings.

In order to deliver the new service model additional workforce requirements have been identified in support services and affected specialties to ensure the delivery of sustainable clinical care (Table 2). These include:

- Additional ortho-geriatric resource
- Orthopaedic Post-operative Enhanced Recovery Area (OPERA) staffing at BGH
- Enhanced medical cover at BGH
- Enhanced ENT consultant availability

These additional revenue costs have been scrutinised by the Orthopaedic Executive Oversight Group and are essential to allow the reconfiguration to proceed.

The delivery of the proposed service model is considered feasible and post reconfiguration significant savings are anticipated.

1.6 Financial Analysis of the Two-Site Model

The proposed model will enable the delivery of operational efficiencies, which will accommodate the predicted increase in service demand anticipated as a result of demographic change, as well as delivering financial savings in the future. Albeit with initial revenue and capital investment to pump prime the changes.

The current forecast efficiency savings net of pump priming investment total £1.3 million 5 years post implementation (Table 2).

Cost avoidance includes procurement savings, reduced bank and agency spend and the ability of the single city-wide service to accommodate increased demand anticipated as a result of demographic changes within a reduced bed base. Financial efficiencies relate to improved theatre productivity and improved management of rotas. As the operational work streams are mobilised, it is anticipated further efficiencies will be identified.

Revenue funding is required to deliver the merged service; in particular the enhanced post-operative care model and enhanced medical cover on the BGH site are essential requirements for the successful delivery of the reconfigured service model. These revenue costs have been scrutinised by the LOTS project team and the Orthopaedic Executive Steering Group and are finalised at £696k in total.

Detailed workforce modelling has been undertaken which takes into consideration the improvements in service delivery and the requirement to accommodate increased demand as a result of demographic changes. This analysis has demonstrated a 3.6% saving in workforce costs against the current workforce establishment budget (T&O plus support services related to delivery of the T&O service).

Table 2: Efficiency savings delivered through workforce and procurement. Workforce savings are presented as net of investment required.

Scheme Description	Anticipated efficiency savings (£'000)				
	Year 1	Year 2	Year 3	Year 4	Year 5
Elective pathways	£678	£678	£678	£678	£678
Non-elective pathways	-£786	-£660	-£534	-£409	-£409
Medical workforce efficiencies	-£107	£13	£133	£237	£237
Management and administrative efficiencies	£0	£107	£107	£107	£107
Improved theatre efficiency	-£440	-£440	£43	£43	£526
Bank and Agency Spend	£141	£141	£141	£141	£141
Total workforce efficiency savings	**-£513 (-1.44%)**	**-£159 (-0.45%)**	**£569 (1.59%)**	**£798 (2.23%)**	**£1,281 (3.58%)**

Supported by some capital enablement monies, the proposed two-site model enables the implementation of a single city-wide service which addresses the existing clinical risks and challenges.

For the RLBUHT the capital costs for the theatre upgrade and delivery of an enhanced post-operative care model on the BGH site are £1.3m.

For the Aintree this amounts to £2.65m to support the upgrade of two theatres and the upgrade and reconfiguration of three wards. Both Trusts have received approval from NHS Improvement (NHSI) and the Department of Health (DoH) for capital loans to support these upgrades.

1.7 Information Technology and Support Infrastructure

A joint information technology system will facilitate the delivery of LOTS. This will be in implemented through the Integration and Transaction (Trust Merger) and Electronic Patient Record (EPR) programmes. Implementation timelines will see the EPR system going live in AUHFT in October 2018 and in RLBUHT in March 2019.

However, there is a risk that EPR will not be fully embedded at RLBUHT for the 'go-live' of the orthopaedic single service. A proven, short-term solution has been identified, which will meet the requirements of the service should the EPR implementation be delayed.

1.8 Wider Service Implications

The impact of the proposed change extends beyond Trauma and Orthopaedics. Many of the planned improvements outlined in this business case will be led by services such as theatres, anaesthetists and therapists, and investment is therefore required in these areas in

order to deliver the benefits identified. Continued work with all stakeholders and most importantly patients is required. The impact of the reconfiguration on support services and other specialties, in terms of workforce (WTE), has been worked through and is summarised in Table 3.

The preferred option of a two-site service is dependent upon the relocation of ENT inpatient and day case surgery, currently performed at BGH, to AUH. This has its own independent case for change and patient benefits case.

The shift of all orthopaedic trauma activity to AUH will have an impact on AUHFT's ED and medical bed base. The impact has been quantified in terms of activity and infrastructure required.

Support services, including Pharmacy, Therapies, Imaging, Theatres and Anaesthetics, are engaged through the work streams and continue to work with the project team to define the service specification for the two-site model.

Table 3: Impact of reconfiguration on support services and non-T&O specialties in terms of whole time equivalents.

Staff details	BUDGET		DAY-1		FUTURE
Department	TOTAL WTE		TOTAL WTE		TOTAL WTE
Therapies	49.55		53.15		53.15
Ortho Trauma Theatres	60.62		56.38		56.38
Elective Ortho Theatres	79.20		86.90		71.88
ENT Inpatient	11.60		13.87		13.87
ENT Theatres	10.90		10.81		10.81
OrthoGeri Medical	2.20		2.20		2.20
Medical Cover at BGH	0.00		1.50		1.50
OPERA	0.00		1.88		1.88
Pharmacy	1.00		1.00		1.00
Imaging - Elective	1.70		1.70		1.70
Imaging - Non- Elective	5.77		9.93		9.93
Medical	23.40		23.40		23.40
TOTAL	245.94		262.72		247.70

1.9 Public Consultation

A public consultation was undertaken between the 26th June and the 15th September 2017 on the proposals for Orthopaedics and ENT services.

The public consultation was undertaken in accordance with agreed objectives to inform the service reconfiguration and decision making process.

A range of methods were used to capture views and perceptions from Liverpool, South Sefton and Knowsley residents.

Overall, there were 2,000 responses to the consultation; 1,757 received through a completed survey and 243 individuals involved in 19 focus groups.

The perspective of survey respondents on the orthopaedic plans were generally positive, with only 12% (207/1719) thinking it was not the best plan. However, over a quarter of respondents (28%, 489/1719) could not decide whether it is the best plan or not.

The predominant reason cited was the distance needing to be travelled for service users, although fears about quality of patient care and increased waiting times and general preference for an existing hospital's character over another were also voiced.

In light of the findings of the Public Consultation, Liverpool CCG and the LOTS Project Team have worked together to develop mitigation plans to address the concerns raised. The project Equality Impact Assessment has also been updated to reflect the findings and mitigation actions.

The proposed reconfiguration of orthopaedic services in Liverpool is subject to scrutiny and approval from local and national bodies including CCGs and NHS England. Table 4 shows all key approval milestones associated with the proposed orthopaedic and ENT service changes.

Table 4: Tasks and timescales for approval of the single, city-wide orthopaedic service.

Deadline	Approval Task
January 2018	Initial report on Public Consultation received from CCG.
February 2018	Decision required by Finance and Performance Committee (F&P) and Trust Board to approve Laminar Flow Payment Options and Capital costs. Decision required by F&P and Trust Board regarding project revenue costs.
May 2018	T&O Redesign Final Business Case approval by Trust Boards.
TBC 2018	Anticipated date of response from NHSE with regard to the T&O Redesign Final Business Case.
TBC 2018	T&O Redesign Final Feasibility Study submitted to CCG Governing Bodies, Council OSCs and Joint OSC for approval.

1.10 Implementation and Service Mobilisation

The 'go-live' date for LOTS is aligned to the Transaction and Integration Programme and will coincide with the opening of the new Royal Liverpool Hospital.

Implementation and phasing of the service model required to deliver the strategic intent of a single city-wide T&O Service is being developed as part of the project work streams. The high level implementation steps include:

- Formal approval of revised care pathways and operational delivery models

- Recruitment to enabling workforce posts
- Completion of the theatre and ward infrastructure improvement programme
- Staff consultation and engagement
- Staff education and training programme
- Clarification of data capture, recording and reporting processes
- Communications plan and on-going service user engagement activities

The high-level mobilisation steps include:

- Step 1: Cessation of elective activity at AUH to create capacity for orthopaedic trauma
- Step 2: Transfer of orthopaedic trauma from RLH to AUH
- Step 3: Transfer of General Surgery and Urology inpatient and day case activity from BGH to RLH and transfer of BGH ENT inpatient and day case activity to the AUH site.
- Step 4: Recommencement of AUH elective activity on the BGH site.

1.10.1 Governance

An Orthopaedic Executive Oversight Group provides the governance for the project, which reports into both Trust Boards and the Transaction Programme Steering Group.

1.11 Project Risks

The key risks to delivery of this project are set out in below. An assessment of the risk implications has been undertaken and mitigation plans have been developed and are continually reviewed in LOTS Project Team meetings. Key risks include:

- Transaction Programme does not proceed.
- Lack of availability of pump priming revenue funding
- Clinical Sustainability
- Financial Sustainability
- Delayed implementation
- Failure to plan and deliver workforce service change
- Judicial Review
- Failure to deliver BGH Orthopaedic Enhanced Recovery Area
- (OPERA) and supporting Medical Cover
- Activity levels differ from projections.
- Information Technology

1.12 Conclusion

This business case has clearly set out the need to merge and reconfigure orthopaedic services in Liverpool to deliver clinical and financial improvements as well as to ensure services are sustainable in the local and national health economy. The Public Consultation findings demonstrate that the public think the plans to create a single orthopaedic service in Liverpool is in the best interest of the city and its residents.

The benefits of this redesign include:

- **Improved patient outcomes** arising from increased volumes of activity in elective orthopaedic specialties and major trauma (adults), ensuring consultant delivered services, providing improved access to related specialty advice and better access to sub-specialty advice.
- **Improved patient experience** as a result of closer to home outpatient services, reduction in unnecessary hospital visits, improved inpatient care delivered at a specialist orthopaedic trauma centre and delivery of a ring fenced elective service with access to level 2 care beds. Both with seven day consultant cover.
- **Improved clinical sustainability** arising from achieving sufficient scale to protect specialist services, maintaining sustainable consultant rotas and consequently the ability to recruit and retain highly skilled staff.
- **Improved value for money** due to a reduction of waste through duplication of MDTs; and, smoother patient pathways, a reduction in the cost of moving to 7-day services, reducing patients' length of stay and the number of beds required.

Comprehensive demand and capacity analysis and modelling for the proposed model has provided confidence that the model is feasible and deliverable within existing resources, albeit with some capital and revenue investment required in the first instance.

The project is aligned with both the Transaction and Integration Programme and the EPR Programme to ensure that key, overarching work is considered into the planning and delivery of the LOTS Project.

Further work is now required to develop and approve the detailed service specifications in line with the safety and quality standards of both Trusts. Following this, a detailed mobilisation plan is required from each work stream that details move requirements and timescales.

2 Introduction

Chapter Summary
• **Currently both Aintree University Hospital Foundation Trust (AUHFT) and Royal Liverpool and Broadgreen University Hospitals Trust (RLBUHT) provide elective orthopaedic and orthopaedic trauma services.** • **The orthopaedic clinicians from both Trusts have developed a consistent clinical view that joint working is essential to improve patient outcomes and to sustain clinical services in the local health economy.** • **As part of that joint working, key stakeholders have proposed a consolidation of both departments into a single service.** • **The purpose of the business case is to build on the work conducted in the feasibility study to further clarify the financial and workforce benefits case, provide an overview of the public consultation findings and how these will be considered and detail the next stage of mobilisation work.**

Aintree University Hospital NHS Foundation Trust (AUHFT) and The Royal Liverpool and Broadgreen University Hospitals NHS Trust (RLBUHT) have been working on a programme to deliver improved health outcomes and acute hospital sustainability for the North Mersey population.

This chapter describes the background to the development of the case for change for the merge and reconfiguration of orthopaedic services in Liverpool. It outlines the proposed model and the purpose of the business case.

2.1 Background

Liverpool experiences amongst the highest levels of poor health outcomes and health inequalities, both within the city and compared to the rest of the country. Modern medicine has changed and increasing sub specialisation has improved care and outcomes but this means that care for an individual patient needs to be delivered by several specialist teams working together.

The configuration of hospital services across Liverpool is highly fragmented and variable. This in turn prevents care being provided in a multidisciplinary, joined up way resulting in inequality being experienced by the North Mersey population. The fragmented hospital landscape also drives up costs and inefficiencies due to duplication and overlaps in services.

Three years ago over 200 senior clinicians from AUHFT and RLBUHT, the two largest hospitals in the city, with a combined turnover in excess of £850m, met and overwhelmingly made the clinical case for merger of the two organisations. As a result of that dialogue the orthopaedic clinicians from both Trusts have developed a clinical model for a single orthopaedic service.

The orthopaedic clinicians from both Trusts have developed a consistent clinical view that joint working is essential to improve patient outcomes and to sustain clinical services in the local health economy. The clinicians and other stakeholders have concluded that consolidation of both T&O departments into a single service would be most likely to facilitate these improvements in care.

2.2 Purpose of the Business Case

This business case provides a detailed assessment of a joint model that would integrate the orthopaedic services from both Trusts, with a proposed redesign of services to provide a single site specialist orthopaedic trauma service at AUHFT, a Specialist Orthopaedic Centre on the Broadgreen Hospital (BGH) site and for outpatient services to remain operational from all three sites.

The purpose of the business case is to:

- Detail the current Trauma and Orthopaedic service provision across Liverpool.
- Detail the clinical and financial case for change, as well as the strategic local and nation context.
- Outline the options appraisal process and provide details of the preferred joint service model.
- Demonstrate the feasibility of the joint model in terms through a detailed analysis of demand, capacity and impact on support service and affected specialties.
- Describe the clinical quality, safety and patient experience benefits that are expected to be delivered through the implementation of the orthopaedics service reconfiguration in Liverpool.
- Provide a detailed description of the financial and workforce benefits to be realised through the implementation of the orthopaedics service reconfiguration in Liverpool.
- Outline identified risks to project delivery and how they will be mitigated.

3 Current Provision of Orthopaedic Care in Liverpool

Chapter Summary
• **RLBUHT and AUHFT provide extensive, elective orthopaedic and orthopaedic trauma services delivered by a large, skilled team.** • **Inpatient orthopaedic trauma services are provided at AUH and RLH.** • **Elective orthopaedic inpatient services are provided at AUH and BGH.** • **Outpatient appointments are delivered from all three sites.** • **AUH became a single receiving site for adult major trauma services in July 2016.** • **RLBUHT provides a regional limb reconstruction service, which serves the whole of the North West of England.**

This chapter describes the current orthopaedic service provided, separately, by AUHFT and RLBUHT.

Table 1: Current Provision of Orthopaedic CareTable 1 summarises the current provision of orthopaedic care across Liverpool. A detailed description of the current service model is provided in Appendix 1.

Table 1: Current Provision of Orthopaedic Care

RLBUHT	AUHFT
Overview	
• Major provider of orthopaedic trauma in Cheshire and Merseyside. • Provides elective, complex elective and trauma services to the local population. • Largest tertiary referral centre for orthopaedic trauma within the North West. • Offers a regional limb reconstruction service which supplies hospitals throughout Cheshire and Mersey as well as Greater Manchester, Lancashire, Isle of Man and North Wales. This service works very closely with the plastic surgeons from Whiston Hospital to form the Mersey ortho-plastic group.	• Single receiving site for adult major trauma across Cheshire and Merseyside. • Major provider of orthopaedic trauma in Cheshire and Merseyside. • Provides elective, complex elective, trauma and adult major trauma services to the local population and the population of the North West. • Lower limb services specialise in treatment of all complex lower limb trauma and elective work. • Consultants have interests in hip, knee and foot and ankle surgery. • Undertakes complex soft tissue knee injuries and peri-prosthetic fractures.
Annual Demand (2016/17)	
• 1,744 orthopaedic trauma admissions. • 2,340 elective orthopaedic inpatient	• 1,640 orthopaedic trauma admissions. • 1,259 elective orthopaedic inpatient

RLBUHT	AUHFT
admissions. • 4,014 elective orthopaedic day case patients. • 13,984 fracture clinic and non-elective orthopaedics outpatient attendances (including telephone clinics). • 30,489 elective orthopaedics outpatient attendances.	admissions. • 2,135 elective orthopaedic day case patients. • 13,931 fracture clinic outpatient attendances. • 21,021 elective orthopaedics outpatient attendances.
Consultant Workforce	
30 Consultant surgeons with various sub-speciality interests, covering the whole of orthopaedics: - 4 upper limb surgeons - 3 foot and ankle surgeons - 4 spinal surgeons - 10 lower limb surgeons - 3 hand surgeons - 4 limb reconstruction surgeons - 2 sarcoma surgeons. • 21 of orthopaedic surgeons regularly undertake trauma surgery. • Operates a team based approach to trauma such that at any time there are 7 consultants available to manage trauma covering all sub-specialities. • Has an extended multi-disciplinary team: - Consultant orthogeriatric support - 3 Consultant musculoskeletal radiologists - A specialist in musculoskeletal microbiology. • 3 trauma co-ordinators. • A large team of specialist nurses and extended scope physiotherapists. • **Highly experienced ward and clinic team.**	• 18 Consultant surgeons with various sub-specialty interests: - 4 upper limb surgeons - 3 foot and ankle surgeons - 1 spinal surgeon - 9 lower limb surgeons - 1 trauma surgeon. • 16 of the Orthopaedic Surgeons regularly undertake Trauma Surgery and on the Trauma Rota. • 5 surgeons lead on the major trauma rota and are available 9am to 5pm Monday to Friday to perform major trauma ward rounds and attend the trauma calls. • At the weekend there are 2 consultants on call: - 1 manages the trauma list - 1 manages the major trauma ward round; trauma calls and reviews patients on the ward • Has an extended multi-disciplinary team: - 2 consultant ortho-geriatricians - Consultant musculoskeletal radiologists - A specialist in musculoskeletal microbiology (based at RLH). • 3 surgeons trained in pelvic and acetabular trauma surgery and form part of the North West Pelvic and Acetabular Group.
Orthopaedic Trauma	
• Trauma services are provided with access to high dependency and intensive care unit beds. • An average of 2 trauma lists are utilised per day. • 41 orthopaedic trauma beds are allocated and 51 beds are currently	• Trauma services are provided with access to high dependency and intensive care unit beds. • An average of 1 trauma list is utilised per day and is supported by access to the adult major trauma centre theatre on a daily basis.

RLBUHT	AUHFT
utilised.	• 30 orthopaedic trauma beds are allocated plus 9 beds which have been open since winter 2016/17. • 50 beds are currently utilised for orthopaedic trauma at AUHFT.
Elective Admitted Care	
• The majority of elective orthopaedic care and limb reconstruction services are provided at the BGH site. • An average of 6 elective lists run per day. • 42 elective beds are allocated and 37 beds are currently utilised. • BGH does not currently have access to level 2 and level 3 beds and therefore all patients undergoing surgery on the BGH site require pre-operative assessment to assess fitness for surgery to be undertaken on the BGH site.	• Elective orthopaedic care services are provided. • An average of 2 elective lists and 1 day case list per day are currently utilised. • 20 elective beds are allocated and 12 are utilised.
Outpatient Services	
• Virtual fracture clinic service managed on the RLH site. Appointments are provided at a designated fracture clinic on the RLH site. • Elective clinics are currently provided in the orthopaedic centre on the BGH site. • Hand clinics are provided on the RLH site.	• Outpatient services for both fracture and elective clinics are provided and are supported by a devolved orthopaedic patient booking and scheduling team.
Specialist Commissioned Services	
• NHS Standard Contract for Specialised Orthopaedics (Adult).	• Major Trauma Service (Adults). • NHS Standard Contract for Specialised Orthopaedics (Adult).

4 Case for Change

Chapter Summary
• **The Getting it Right First Time Programme for orthopaedic services has outlined key recommendations for improving outcomes and reducing surgical complications such as infections. The current provision of orthopaedic services in Liverpool cannot meet these recommendations.** • **The Healthy Liverpool Programme and the Cheshire and Mersey Sustainability and Transformation Plan are clear about the ambition for the creation of single services across the region to improve the financial position and future-proof the services for an aging population.** • **Each Trust currently has a small, separate medical, orthopaedic workforce; adequately staffing on-call orthopaedic trauma rotas and the major trauma rota, to ensure that the right clinician is in the right place at the right time, is difficult.** • **RLBUHT and AUHFT perform differently in terms of key performance indicators (KPIs) including referral to treatment (RTT) standards and achievement of Best Practice Tariffs (BPT).** • **Finally, many orthopaedic services are duplicated across AUHFT and RLBUHT, which has inevitably led to inefficiencies and waste.**

The fragmented configuration of hospital services in Liverpool means that patient care is also fragmented and variable. This, in turn, prevents care being provided in a multi-disciplinary, joined-up way resulting in the sub-optimal outcomes and inequalities experienced by the North Mersey population.

When viewed in the local and national context of improving clinical and financial sustainability for an ever changing population, and in addressing clinical variation, it is clear that the presence of two competing university hospitals is inhibiting the transformational process that is required at this time.

This chapter describes national and local initiatives and programmes that have set the context for discussions concerning the orthopaedics service redesign in Liverpool. The clinical rationale for change is also presented. The financial case for change is summarised in this chapter and explored in detail in Chapter 10

4.1 Strategic Case for Change

There are several local and national strategic initiatives with associated recommendations and/or aims that will not be met with the current provision of orthopaedic services in Liverpool, where two traditionally competing departments exist servicing the city.

4.1.1 National Trauma and Orthopaedic Initiatives

Major Trauma Centre (Adults)

In 2011/12 the Department of Health (DoH) instituted a major plan under the leadership of Sir Keith Willet. In this, the UK was divided into 22 regions each served by a Major Trauma Centre (MTC). Due to the complexities of speciality units in Cheshire and Merseyside a collaborative approach between AUHFT, RLBUHT and The Walton Centre was agreed. This was implemented very successfully in 2012 and saw the survival rates in Cheshire and Merseyside improve from amongst the worst in the country to the 2nd best.

The final stage of this reconfiguration was implemented in July 2016 with AUHFT being designated the single MTC for Cheshire and Merseyside and RLBUHT being designated a trauma unit. This has caused a significant increase in the number of major trauma patients being taken to AUHFT; the Trust have seen an increase of 46 trauma team activations (TTA) per month (80 to 126) this ranged from an increase of 7 TTA per week to 14 TTA per week. This has also meant that there has been an increase in tertiary referrals of complex lower limb (and other) trauma being transferred from AUHFT to the RLBUHT. This move has also resulted in more open fractures being taken to AUHFT despite the regional orthoplastic and limb reconstruction unit being located at RLBUHT.

'Getting it right first time' (GIRFT)

The 'Getting it right first time' (GIRFT) report published by Professor Briggs in late 2012, considered the current state of England's orthopaedic surgery provision and suggested that changes can be made to improve pathways of care, patient experience, and outcomes with significant cost savings.[2] The report takes the view that this approach has the potential to deliver a timely and cost effective improvement in the standard of orthopaedic care across England. It has been approved by DoH and is moving to an implementation phase. The key themes, requirements and recommendations include[3]:

- The creation of a 'cold' elective orthopaedic centre, either within an existing hospital environment or separate on the same site.
- Bringing together groups of surgeons undertaking significant volumes of routine and complex cases.
- The whole theatre nursing team must know the procedure, be experienced in elective orthopaedic procedures (especially joint replacement), and work regularly in teams with the orthopaedic clinicians to maintain productivity and reduce complications.
- Reducing low-volume operating by surgeons and units when appropriate.
- For low volume procedures, two-surgeon operating will be necessary to maintain good practice whilst improving the distribution of procedure numbers.
- Provision of enhanced care for more complex patients.

[2] Briggs T. Getting it Right First Time: improving the quality of orthopaedic care within the National Health Service in England. London: British Orthopaedic Association; 2012.

[3] BOA Professional Guidance to Implement Getting it Right First Time in England, February 2016.

Whilst the two orthopaedic departments in Liverpool remain independent, each will continue to be impacted upon by the acute services delivered at each site and with the restriction of having separate clinical teams; meeting the GIRFT recommendations will be difficult.

Liverpool is surrounded by other specialist centres providing orthopaedic services; namely The Robert Jones & Agnes Hunt Orthopaedic Hospital NHS Foundation Trust (Oswestry), Wrightington Hospital and Central Manchester University Hospitals NHS Foundation Trust. If the GIRFT recommendations are enforced is there is the potential that neither RLBUHT nor AUHFT will continue to be commissioned for complex and specialist work. This would result in the loss of activity to the other centres which would be detrimental, not only to the Trusts but also to patients.

4.1.2 Local Health Economy Transformation

Healthy Liverpool Programme

NHS Liverpool Clinical Commissioning Group (LCCG) is leading a programme, Healthy Liverpool, which aims to transform health within the city. The plan has been part of on-going discussions with Liverpool communities over the last two years and has five priority areas including Hospital Services.

The vision for the Hospital Services project is to create a co-ordinated service approach across the city's hospitals which maximises clinical staff skills, other resources and expertise to improve the quality of services available to patients and improve health outcomes and efficiency.

Cheshire and Merseyside Sustainability and Transformation Plan

The Cheshire and Merseyside Sustainability and Transformation Plan (STP) was published in June 2016. It highlights key drivers for change in the delivery of healthcare in the region to meet a growing and ageing population that accesses healthcare more often and is living longer with one or more long term conditions. The plan forecast an affordability gap for the regions services with the sum cost of service delivery rising faster than allocations.

The Cheshire and Merseyside STP set out the following vision for hospital services in the North Mersey Local Delivery System (including RLBUHT and AUHFT):

"To deliver better services at lower cost to create the financial and workforce capacity to enable a shift of care from acute to community settings. Our vision is for a centralised University Teaching Hospital Campus with a single service, system-wide delivery, delivered through centres of clinical and academic excellence".

As previously highlighted, the current fragmented configuration of hospital services, including orthopaedics services, does not currently align with the vision for the city as set out in the Healthy Liverpool Programme and the STP.

4.2 Clinical Rationale for Service Change

These national and local strategic drivers have supported the clinical team in their establishment of a robust clinical rationale for change. The following issues have been taken into account in developing the proposed model.

Fluctuations in trauma demands

Demand for trauma services in Liverpool can fluctuate over time; there are times when AUHFT is inundated with trauma while RLBUHT is relatively quiet and *vice versa*.

Having two individual NHS Trusts each with a separate, clinical workforce means that both can become stretched in times of increased demand. At these times patients do not receive the best care and can wait extended periods of time to receive treatment by the appropriate subspecialist clinician.

Reduced throughput of elective activity

RLBUHT and AUHFT, in common with many acute NHS providers, can have extended waiting times and cancellation of elective procedures during peak periods. In organisations where acute services are delivered, patients access the Emergency Department (ED) and become inpatients. It has become increasingly difficult to discharge patients to a more suitable social or healthcare setting to continue their treatment and/or rehabilitation. Consequently beds that should be allocated to elective, surgical patients (i.e. for a knee replacement) are not available and therefore procedures are cancelled. This is particularly true of 'winter' periods.

Lack of cover for on-call Rotas

Currently AUH and RLH require full, medical staff on-call rotas, and BGH a reduced rota to deliver immediately necessary treatment and interventions outside core hours. In addition AUH have enhanced on-call rota demands due to the requirements to meet MTC standards.

With separate consultant bodies across the two organisations, full on-call rotas are difficult to staff. The situation is worse for junior doctors where Specialty Registrar (STR) level trainees must be resident on 2 sites and junior numbers have fallen by over 50% in the last 5 years.

It is important that full on-call medical rotas are in place to ensure safe levels of cover and that both organisations have the right clinicians in the right place. The size of the workforce at each organisation is restrictive and currently makes this difficult to achieve Monday to Friday. The ambition of RLBUHT and AUHFT, in line with national initiatives, is to move 7 day working with consultants available 7 days per week. This is difficult to achieve under the current fragmented service delivery model.

Unbalanced Consultant Skill Mix

Changes in the provision of major trauma care have caused an unbalanced skill mix amongst consultant surgeons. On each site, RLBUHT and AUHFT have several consultants with a specialist interest in major trauma. Under the current service model surgeons at RLBUHT are not able to utilise and maintain their current major trauma skills and capabilities (despite being offered the opportunity to undertake trauma sessions at AUHFT) as these sessions are not 'job planned' for RLBUHT consultants.

Increased demand on orthopaedic services

By 2021 there will be 9% (5,700) more people living beyond the age of 65 in Liverpool with the biggest growth in those aged 70-75 and 85+.[4] As a consequence, there will be an ever

[4] Healthy Liverpool: The Blueprint, November 2015

increasing demand on health resources, which are already stretched; orthopaedic referrals from GPs to secondary care providers are increasing by 7-8% per annum.[5]

In a system where demand is increasing and resources are limited, providers need to work together to identify opportunities to increase the efficiency of service delivery in order to ensure there is capacity to meet the increased demand.

Variation in Practice

There is variation in service delivery between the Trauma and Orthopaedic (T&O) departments in AUHFT and RLBUHT.

Both AUHFT and RLBUHT have adopted different approaches to ensure they deliver best practice but these are not aligned, resulting in variation in performance and (Table 2).

Table 2: Variation in performance between AUHFT and RLBUHT (based on 2016/17 data, except for AUHFT Best Practice Tariff (BPT) from Jan – Mar 2017).

	AUHFT	RLBUHT
Average length of stay (ALoS; Non-elective)	10 days	10.4 days
ALOS (Elective)	3.3 days	3.9 days
Referral To Treatment (RTT) Standard	92.22%	82.51%
Cancellation Rate (Elective procedure, cancelled on the day)	5.9%	5.5%
Achievement of BPT for fractured neck of femur case (#NOF) (% operated within 36h)	79.5%	83.0%
Time to surgery (Non-elective, 0-1 days length of stay (LOS))	74%	73%

4.3 Financial Case for Change

The current and projected future financial challenge faced by the NHS requires change in the way services are provided in order that services are clinically and financially viable and sustainable.

The C&M STP highlights the importance of hospital reconfiguration and improved demand management in securing the delivery of service improvement and financial efficiencies.

Discussions between AUHFT and RLBUHT regarding the reconfiguration of trauma and orthopaedic services are aligned to the Healthy Liverpool vision to establish single city wide services.

Trauma & Orthopaedic services across both Trusts represent 7% of the combined turnover, with revenue in excess of £50m. Given the backdrop of growing demand for services in a region with one of the fastest growing ageing populations' action must be taken to improve demand management and ensure that future service design is sustainable clinically and financially for the health economy.

[5] Briggs T. Getting it Right First Time: improving the quality of orthopaedic care within the National Health Service in England. London: British Orthopaedic Association; 2012.

5 Options Appraisal

Chapter Summary
• **Liverpool CCG has led an options appraisal process to identify a preferred Orthopaedic service model.** • **A review was undertaken of the five shortlisted options.** • **A three stage process was used to appraise the options.** • **Sensitivity analysis was performed to ensure the results were robust to different variants of the methodology.** • **Delivery of a two site option, with orthopaedic trauma delivered at the AUH site and elective orthopaedic care delivered at the BGH site, has been identified as the preferred option.**

This chapter sets out the options that were put forward for consideration and the ranking of these options. It outlines what each option means for each service and site, and the high level implications for activity, workforce and estates. It then describes the high-level benefits.

5.1 Options Considered

Liverpool CCG led the options appraisal process; this involved key stakeholders from Liverpool CCG, AUHFT, RLBUHT and North West Ambulance Service (NWAS). See Appendix 2 for detailed option appraisal document.

5.1.1 Option 1 – Two site option

A comprehensive orthopaedic trauma service and fracture outpatient clinic at AUH, delivery of existing fracture clinic at RLH and an elective orthopaedic centre at BGH. Both EDs would continue to deliver trauma care.

The two-site option has a dedicated elective and inpatient day case orthopaedic centre at BGH, with ENT inpatient activity being transferred to AUH, to allow for almost all elective orthopaedic inpatient activity to be undertaken at a single site with the benefit of the required staff and equipment being in one location. Elective orthopaedic outpatient clinics would be delivered at BGH and AUH, with complex multi-disciplinary team (MDT) sub specialty clinics at BGH.

Inpatient bed capacity would be required to transfer from RLH to AUH to accommodate the combined RLBUHT and AUHFT orthopaedic trauma activity. There would be sufficient theatre capacity available at AUH following transfer of elective orthopaedics to BGH.

If a proportion of non-orthopaedic suspected lower limb fractures ambulance transfers were taken to AUH, then there would be a requirement for additional medical beds on the AUH site; at the time of the option appraisal this was estimated to be between 3 and 16 beds but

this has subsequently been revised as per the development of the business case (see Chapter 8).

The care of patients requiring critical care at BGH would be through the proposed Orthopaedic Post-operative Enhanced Recovery Area (OPERA). Patients known or expected to require post-operative care up-to and including level 2 will be cohorted and operations performed during identified time periods. Care will be led by a consultant in Intensive Care Medicine (Faculty of Intensive Care Medicine (FICM) standard). Complex patients requiring Level 3 Care would have their elective surgery delivered on the AUH site. However, analysis of the data has shown that only 1.1% of elective patients would require this.

5.1.2 Option 2 – Split site option

Comprehensive orthopaedic trauma service and fracture outpatient clinic at AUH, delivery of existing fracture clinic at the RLH with both EDs delivering trauma care. Majority of elective orthopaedic activity delivered at BGH with some activity remaining at AUH.

The split-site option has elective day case and inpatient work at BGH but some day case work would remain at AUH and ENT inpatient activity would remain at BGH. However, this would constrain the delivery of theatre activity and would reduce the efficiency impact of the delivery of a single site, ring-fenced service for patients.

If this option were to be implemented there would be a shortage of theatre space at BGH and reduced opportunity to deliver increased elective activity and consequently reduced waiting time for theatre. It would also have workforce and procurement efficiency implications, due to the need to maintain a staffed and equipped elective theatre at the AUH site.

Additional inpatient beds would be required over and above the current orthopaedic establishment on AUH site. Sufficient orthopaedic theatre capacity would be available at AUH following transfer of elective orthopaedic activity to BGH.

If a proportion of non-orthopaedic query lower limb fractures ambulance transfers were taken to AUH, then there would be a requirement for additional medical beds on the AUH site, as per Option 1.

The care of patients requiring critical care at BGH would be through the proposed Orthopaedic Post-operative Enhanced Recovery Area (OPERA) as per Option 1.

5.1.3 Option 3 – Single Site, using existing facilities (AUH)

All orthopaedic trauma at AUH and all orthopaedic inpatient day case and elective at AUH through use of existing facilities and associated reconfiguration of theatre and ward space with upgrade of theatre facilities to laminar flow.

This single-site option requires theatre and ward upgrades and for other surgical services to be displaced from AUH to either BGH or RLH. In order to accommodate this, AUH would have to displace a service the size of Digestive Diseases (Colorectal, Gastro intestinal and

Hepatobilliary services) and Urology and this would require major reconfiguration of services between both organisations.

If a proportion of non-orthopaedic query lower limb fractures ambulance transfers were taken to AUH, then there would be a requirement for additional medical beds on the AUH site, as per Option 1.

5.1.4 Option 4 – Single site, Inpatient New build (RLH)

Development and build of an elective and trauma orthopaedic unit in the New Royal Hospital.
Option 4 would require a total 12 operating theatres, 10 of which would need to be laminar flow and approximately 5 wards, with associated access to therapy services, diagnostic and radiology services. This would also require the transfer of a satellite unit for head injuries including neurological intensive care unit as well as the facility to treat major injuries not involving the head or skeleton. This would require wider strategic service reconfiguration across the whole of the city and significant capital investment.

5.1.5 Option 5 – Single site, Inpatient New build (AUH)

Development and build of an elective orthopaedic unit AUH.

Option 5 would require eight operating theatres, six of which would need to be laminar flow, approximately 2 wards of inpatient beds, a day-case ward and associated access to therapy services, diagnostic and radiology services for elective orthopaedic services.

Comprehensive trauma service and fracture outpatient clinic would be provided at AUH (within existing build), delivery of existing fracture clinic at the RLH. This would require 4 operating theatres, all of which would need to be laminar flow, approximately 3 wards of inpatient beds and associated access to therapy services, diagnostic and radiology services above the current ortho-geriatric establishment on the AUH site for orthopaedic trauma services.

If a proportion of non-orthopaedic query lower limb fractures ambulance transfers were taken to AUH, then there would be a requirement for additional medical beds on the AUH site as per Option1.

5.2 Process for appraising the options

A three stage process was used to appraise the options:

- **First** – the options where reviewed in a workshop and scored against the Quality and Feasibility Critical Success Factors (CSFs), the attendees where split into two groups, each with an even mix of clinical and non-clinical representation facilitated by Liverpool CCG.
- **Second** – the options were reviewed and scored against the Strategic Fit CSFs by Liverpool CCG with assistance from the project team, and distributed to members of the Orthopaedic Executive Oversight Group for feedback.

- **Third** – a finance workshop was arranged to review and score the Financial CSFs, the workshop was attended by financial and clinical representatives from both Trusts and support from Liverpool CCG.

The following assumptions were made and agreed prior to scoring:

- When looking at costs and benefits it was agreed to look at the next five years only.
- Option 1: Assumption that AUH could absorb ENT activity with regard to theatres and beds, with transfer of orthopaedic day case activity to BGH.
- Option 1 and 2: Assumption that the orthopaedic trauma theatre activity can be absorbed within existing AUH theatre capacity because of the loss of elective activity. However theatre configuration may require investment in additional laminar flow (agreed to be reviewed prior to or at the workshop).
- Option 3: Assumption that the model would require service reconfiguration between both AUH and RLH due to the scale and size of the displaced service. That reconfiguration of affected services could only occur within a single, merged organisation.

5.3 Sensitivity Analysis

A sensitivity analysis was performed to ensure the results were robust to different variants of the methodology.

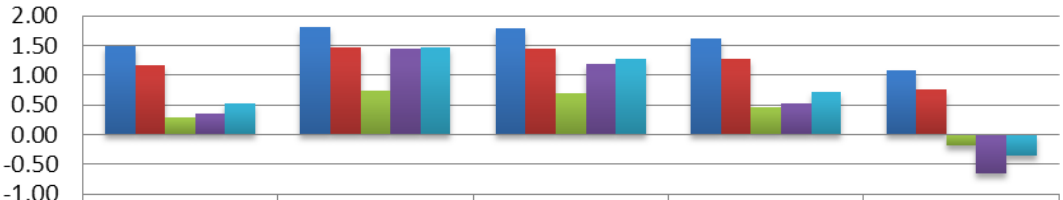
The sensitivity of the results of the options appraisal to changes in CSF weightings was tested through a targeted sensitivity analysis. The alternative sensitivity tests were as follows:

- **Base Case**: weighted average scores using the agreed weights of quality (35%), feasibility (20%), financial sustainability (30%) and strategic fit (15%).
- **Clinical focus**: the clinical quality scores are given a much higher weight of 65%, with the remaining 35% distributed between feasibility (10%), financial sustainability (15%) and strategic fit (10%).
- **Clinical and non-clinical parity**: the clinical CSFs have an aggregate weight of 50% and remaining CSFs have an aggregate weight of 50% (divided evenly amongst remaining CSFs).
- **Overall parity**: each CSF category has an equal weight, i.e. quality (25%), feasibility (25%), financial sustainability (25%) and strategic fit (25%).
- **Financial and non-financial parity**: the financial CSFs have an aggregate weight of 50% and remaining CSFs have an aggregate weight of 50% (divided evenly amongst remaining CSFs).

The results from the sensitivity tests are shown in Figure 1 below.

The overall rankings of the options under the different weightings are shown in Table 3. The sensitivity analysis shows a break between the options with a clear front runner (Option 1) in all cases and runner up (Option 2) in four of the five cases. Option 3 is ranked last in 4 of the 5 scenarios, whilst Option 4 and 5 vary throughout.

Figure 1: Sensitivity Analysis



	Base Case	Clinical Focus	Clinical and non-clinical parity	Overall Parity	Financial and non-financial parity
Option 1	1.49	1.82	1.79	1.63	1.08
Option 2	1.16	1.46	1.44	1.28	0.77
Option 3	0.28	0.73	0.69	0.47	-0.19
Option 4	0.35	1.44	1.19	0.53	-0.65
Option 5	0.53	1.47	1.27	0.72	-0.36

Table 3: Option ranking

Rank	Base Scenario	Clinical focus	Clinical / non-clinical parity	Overall parity	Financial and non-financial parity
1	Option 1	Option 1	Option 1	Option 1	Option 1
2	Option 2	Option 5	Option 2	Option 2	Option 2
3	Option 5	Option 2	Option 5	Option 5	Option 3
4	Option 4	Option 4	Option 4	Option 4	Option 5
5	Option 3	Option 3	Option 3	Option 3	Option 4

6 The Preferred Option

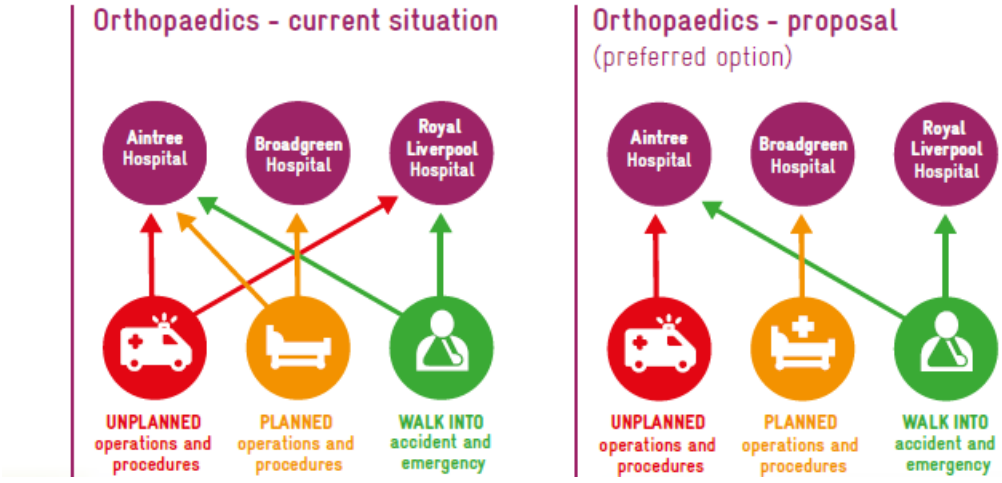
Chapter Summary
• **The options appraisal identified Option 1, 'Two Site Model', as the preferred option.** • **Inpatient Trauma care will be provided on the AUH Site.** • **Orthopaedic elective inpatient and day case work will be based at BGH, supported by an OPERA unit.** • **Both Trusts' EDs will continue to deliver trauma care.** • **BGH will continue to provide the limb reconstruction service.** • **Elective orthopaedic outpatient clinics will be provided at AUH, RLH and BGH, with complex, sub-speciality clinics at BGH.** • **Outpatient orthopaedic fracture clinics will be provided across both sites – AUH and RLH.**

The options appraisal identified Option 1, 'Two Site Model', as the preferred option. In this chapter development of the model by key stakeholders is outlined and the preferred model for the Liverpool Orthopaedic and Trauma Service (LOTS) is described.

6.1 Overview of the Liverpool Orthopaedic and Trauma Service (LOTS) Model

The options appraisal identified Option 1, 'Two Site Model', as the preferred option. The model is outlined in Figure 2 and in this section.

Figure 2: Current and Proposed Future Model (Option 1)



Implementation of the two-site model would see all orthopaedic surgery in Liverpool, both trauma and elective, managed as a single collaborative service. This service will also provide tertiary orthopaedic services for the wider region.

Trauma surgery and elective surgery will be managed, in the main, on separate sites. This will allow both aspects to be managed efficiently and ensures that orthopaedic trauma and other emergency demands do not impinge upon the ability to deliver elective orthopaedic care. This principle ensures elective inpatient care is delivered from ring fenced beds.

The aim of the new service model is to conduct surgery out of no more than two sites to minimise duplication of services and support improved levels of cover on both sites. It is accepted that the service would ideally be based on a single site but the achievement of this aim is not possible in the short term.

The elective centre requires safe medical provision, including access to critical care or higher dependency beds, to ensure that all elective care, irrespective of complexity, can be performed at the elective centre and there should be no need to move patients from the elective centre for medical reasons.

All orthopaedic trauma surgery will be concentrated on one site to ensure clinical resilience both in terms of volume and sub-speciality input. Orthopaedic trauma surgery will move to day-case and on the day of admission where possible.

Shared decision making will be embedded into the service delivery model to ensure that all patients have choice, autonomy and involvement in clinical decision making.

6.2 Developing the Operational Model – Internal Engagement

Early engagement with service leads and clinicians from other specialties, diagnostic support services and corporate support services departments who are central to the delivery of orthopaedic services and who would be impacted by the proposed service redesign was undertaken as part of the options appraisal. This included; ED, radiology, orthogeriatrics, pharmacy, therapy, critical care theatres & anaesthetics, outpatient departments and procurement.

Engagement with all disciplines has been on-going and will continue throughout the course of the project. One of the purposes is to develop the detailed operating model for future service delivery. To date engagement activity has included:

- Three process mapping workshops to review current patient pathways and agree options for developing pathways to improve both patient experience and operational efficiency.
- The establishment of elective service task and finish groups to develop the operational model and standard operating procedures (SOPs) for OPERA, increased medical cover at BGH, pre-operative assessment, theatre utilisation & scheduling and outpatient clinic configuration.
- The establishment of trauma service task and finish groups to develop the operational model and standard operating procedures for the virtual fracture clinic, the orthopaedic direct admissions unit and orthogeriatric input.

- The establishment of an ENT task and finish group to develop the operational model and understand the requirements for the transfer of day case and inpatients services to AUH and the wider impact on the service.
- The establishment of a procurement task and finish group who will work with clinical leads to align existing contracts so that procurement savings can be realised.
- Stakeholder engagement and update workshop to receive feedback on the emerging operational model.

6.3 Detailed LOTS Model Description

6.3.1 Orthopaedic Trauma Care

Accident and Emergency Care

The principle of the emergency care model is that patients who require immediate orthopaedic admission are taken to AUH and patients unlikely to need immediate admission are taken to their nearest ED.

The aim is that the change in trauma service delivery should minimise, where possible, the number of NWAS patient transfers from the RLH ED to AUH. However, this will mean that some patients, who are taken by NWAS to AUH directly and found not to have a fracture, could be admitted with an existing medical condition or injury that precludes them returning directly home.

These service delivery responses are dependent upon discussion and agreement of triage tools and bypass protocols between the RLBUHT, AUHFT and NWAS. These service responses will build on the good practice that has already been established across Cheshire and Merseyside. The proposed model is presented in Appendix 3.

An ED / NWAS joint work stream has been set up, which involves clinicians from both RLBUHT and AUHFT EDs, orthopaedic clinicians and clinical and service development staff from NWAS. It is exploring patient pathways and the pathfinder tools that will support paramedic crews in making decisions as to which ED to take patients. It is also considering the impact on turnaround times for vehicles and crews. At present there is agreement that the proposal is workable and no obvious barriers have been identified.

RLH ED will continue to provide trauma service capability as it will need to be able to deal with trauma patients who may present at the department or those NWAS feel are not fit enough to bypass. This will be supported by orthopaedic registrar cover, a daily orthopaedic Consultant ward round and availability of an on-call Consultant for BGH and RLH out of hours. Care pathways for common orthopaedic conditions are provided in Appendix 4.

Orthopaedic Admissions Unit

The Orthopaedics Admissions Unit (OAU) will be established at AUH for patients referred from ED, fracture clinic or day case trauma patients.

Patients accepted from GP by on call team or GP hotline in clinic will attend ED for assessment by the orthopaedic on call team, or be offered a fracture clinic appointment.

Once admitted to the OAU patients will be assessed by the on call team with the intension of patients being seen within the hour of admission.

All admitted patients will be reviewed by the on call orthopaedic registrar (ST3+) within 6 hours. All admitted patients will be discussed with the oncoming team at handover times.

Orthopaedic Trauma Inpatient Care Pathway and Trauma Team Model

Orthopaedic trauma services will be offered as both inpatient and day case surgery at AUH.

The Consultant-delivered, seven day trauma team model was successfully introduced at RLBUHT in 2012. It is proposed that the service reconfiguration would facilitate the delivery of this model through the merger of the Consultant teams into a single orthopaedic trauma rota, thus providing the resource to deliver the trauma team model.

The model is described as follows:

- All patients are required to be reviewed at least once a day.
- The trauma surgeons work in two teams, each team takes it in turn to manage all trauma admissions, operating and fracture clinics for a week.
- Each team consists of a pelvic surgeon, hand surgeon, foot & ankle surgeon, limb reconstruction surgeon, upper limb surgeon and one other surgeon.

This model allows for all patients to be reviewed at least daily and for trauma theatres to be staffed with the right surgeon, enabling reduced waits for trauma theatre and daily sub-specialty Consultant input to fracture clinics.

Orthogeriatric Trauma Inpatient Care Pathway

Delivery of #NOF BPT standards will be through a dedicated neck of femur (NOF) unit at AUH. This will be led by Consultant orthogeriatricians.

The unit will offer an early supported discharge service led by therapists to allow for early assessment of patients discharge needs in their home environment and deliver high quality discharge planning and reduction in LOS.

The service will require access to dedicated orthogeriatric rehabilitation beds on the AUH site. Following discharge patients will be offered a follow up appointment at either the AUH site or the RLH site.

Orthopaedic Trauma Outpatient Services

Patients will still attend both EDs as walk-in/self-presenting patients. They will require treatment and follow-up in fracture clinic. The service will continue to deliver fracture clinics at both AUH and at RLH sites.

RLBUHT has introduced a virtual fracture clinic (VFC) model led by a Consultant surgeon, Advanced Therapy Practitioners and an administrator. All patients who have attended ED and have been treated for an orthopaedic injury are assessed based on clinical history and review of diagnostics. The patients are then contacted by telephone and are either discharged to their GP or offered a booked sub-specialty follow-up appointment in fracture clinic. Shared decision making is a central part of this model. The model has resulted in

reduced waits for follow-up appointments as it has reduced unnecessary visits and ensures “right first time” review by the correct sub-specialty. There has been a 25% reduction in new Fracture Clinic attendances since commencement of the model in January 2016.

This model will be expanded to cover AUH activity, which will allow patients a choice of follow up appointments nearer home.

Implementation of VFC will mean that post-operative Trauma patients who have had an admission will also be able to be offered a choice of location for post-operative follow-up.

Trauma Care Pathway and Patient Scenario

An example of the proposed trauma care pathway and patient scenario is shown in Figure 3.

6.3.2 Elective Orthopaedic Care

Referral Management and Patient Appointment Centre

It is proposed that the service will have a devolved patient appointment centre which will take responsibility for the booking of all patient appointments and meet the aim of a single service functioning across both sites. This will help support the shared decision making principles as it will improve access and provide a single point of contact for patients.

All patients will have attended the Musculoskeletal Community Assessment Service (MCAS) and will have made a decision via the e-Referral service to attend the BGH elective orthopaedic centre, outpatient clinics at AUH or an alternative Trust. All referrals will then be reviewed by senior therapists to ensure clinical appropriateness.

The booking of follow-up appointments and the scheduling of admission dates will be made by a face-to-face discussion with a patient pathway coordinator. This will provide a single point of contact for the patient and support good communication and flexibility in delivery of the service. In response to the public consultation, the Orthopaedics patient scheduling service will be reconfigured to allow staggered admission times; this is likely to be linked to the pre-operative assessment and will require development of clear eligibility criteria. This will be subject to co-production between staff and patient groups, to ensure the service meets patient needs whilst still effectively managing demand and theatre capacity.

Figure 3: Patient Pathway Example - Low Energy Orthopaedic Trauma Patient

Mrs Rose Jones is an 84 year old frail woman who lives in a residential home. She has a fall onto her right hip and is found in pain and unable to weight bear by the residential home staff. An ambulance is called.

Outpatient Services and Pre-operative Assessment

The outpatient design principle is that it offers a seamless service that is aligned to the CCG musculoskeletal service strategy. Therefore it will deliver short waits for new Consultant-led appointments with a choice of times. Evening and weekend clinics will be offered, where appropriate.

The patient will have access to a named single point of contact and all next steps will be fully booked or partially booked before the patient leaves the clinic. Shared decision making between the patient and the clinician is fundamental to the delivery of the outpatient service to ensure that the choice of treatment decision is the right one for the patient and is chosen with the patient and the clinician reaching the choice together.

Following assessment in community-based Musculoskeletal Assessment Centres, patients choosing LOTS will be offered a Consultant-led specialist outpatient clinic at the elective centre at BGH or at AUH. It is envisaged that the service will also, in the future, be able to offer Consultant-led outpatient clinics in community locations.

Triage at MCAS service appointments will be completed to determine whether the patient requires a routine or a complex first appointment; complex MDT clinics will be offered at BGH on a subspecialty basis.

Following Consultant-led assessment, diagnostic imaging will be provided either on the day (where possible) or, if not, the patient will leave the clinic with a booked diagnostic appointment and booked follow-up appointment. Patients requiring arthroplasty surgery will be offered and leave clinic with a booked appointment for an arthroplasty patient education session.

Following a decision to list the patient for surgery, the patient will be offered a choice of same day pre-operative assessment or an agreed appointment within a short timeframe.

The theatres and pre-operative assessment teams will come together to design a pre-operative assessment triage process to ensure that elective patients are seen by the right clinician, first time. Currently, all patients attend pre-operative clinics, to assess their fitness for surgery, where all patients will see a pre-operative nurse. However, some healthy, low-risk patients could complete their pre-operative screening through a paper-based questionnaire, whereas other, more complex patients need to see a Consultant anaesthetist. This ‘one-size-fits-all model is not efficient; complex patients attend a nurse-led pre-operative clinic only to return to see a Consultant anaesthetist on a separate occasion, for example.

Elective Inpatient and Day Cases

All elective inpatient activity will be provided at the elective orthopaedic centre at BGH and delivered against clinical pathways supported by complex MDT delivering pre-habilitation, excellent peri-operative care and discharge planning. The aim is to deliver highest quality service with appropriate LOS in line with Specialist Commissioning Team requirements for a Specialist Orthopaedic Centre.

The model will deliver a ring fenced service that is unaffected by emergency demand thus reducing the risk of on the day cancellations due to emergency bed demand.

Orthopaedics Post-operative Enhanced Recovery Area (OPERA)

Access to critical care or higher dependency beds is a key part of the National Standards for orthopaedics. To support the delivery of a ring fenced elective orthopaedic service on the BGH site an Orthopaedic Post-operative Enhanced Recovery Area (OPERA) will be established.

This model has been developed by the Clinical Director of Theatre and Anaesthetics, Critical Care Consultants and the Cheshire and Mersey Major Trauma & Adult Critical Care Operational Delivery Networks. There was consensus within the stakeholder group to support the flexible provision of post-operative critical care at BGH.

The key principles of the OPERA model are:

- Patients will be optimised for surgery to reduce perioperative risk. The pre-operative assessment team will identify patients at increased risk preoperatively in cooperation with the patient's surgeon and anaesthetist.
- Any patient known or expected to require level 3 critical care post-operatively will be operated on at AUH. This is estimated to be approximately seven patients per year.
- The current four bedded post-operative care unit will be upgraded to accommodate level 2 patients with the capability to stabilise and transfer level 3 patients should the need arise.
- Patients known or expected to require post-operative care up to and including level 2 will be cohorted and operations performed during identified time periods (to be determined according to patient numbers, theatre and post-operative care capacity).
- Any BGH in-patient requiring level 2 or level 3 care outside the immediate post-operative period will require an inter-hospital transfer to a critical care unit. This includes patients who are admitted and subsequently discharged from OPERA whose condition then deteriorates.
- Care will be led by a consultant in Intensive Care Medicine.

The implementation of the enhanced recovery area will enable more complex elective work to be conducted at BGH. The current 4 bedded post-operative care unit would be upgraded to accommodate level 2 patients with the capability to stabilise and transfer level 3 patients should the need arise.

Elective Care Pathways and Patient Scenarios

An example of the proposed elective care pathway and patient scenario is shown in Figure 4 below. The patient scenario is as follows:

Mr John Smith is a 71 year old retired man with increasing right knee pain. His GP has previously prescribed pain killers, which are not controlling his symptoms. A previous x-ray showed advanced osteoarthritis of his knee. The GP requires an opinion as to further treatment.

Figure 4: Elective Patient Pathway Example

Discharge Pathways

A number of new initiatives and revised processes have recently been implemented, which should significantly reduce the current levels of Delayed Transfers of Care (DToCs)

experienced by many patients in the acute Trusts. This is being led jointly by the therapy teams at AUHFT and the RLBUHT. Home First is a new initiative which supports patients to return home with therapy and re-ablement care, enabling earlier discharge prior to social work assessment, and ensuring the patient continues to progress once home.

Early results show that the need for on-going therapy and long term care can be significantly reduced. The Intensive Community Care Team will be able to provide specialist multi-disciplinary input to patients in their own homes so that patients can return home sooner. For those patients who cannot return home immediately on discharge from the acute bed, the community bed base has been redesigned, and the pathways into the bed base simplified, enabling complex assessments to be carried out in community beds instead of in the acute Trusts.

Once these measures are fully implemented and associated delays are minimised, it will give a better opportunity to assess the ability to move activity through the bed base.

7 Benefits of a Single Orthopaedic Service in Liverpool

Chapter Summary
• **The LOTS project will deliver the merge and reconfiguration of orthopaedic service in Liverpool along with many service improvements and adoption of best practice such as orthopaedic supported discharge and the virtual fracture clinic model.** • **The project is expected to realise benefits for the patient including quality, efficiency, safety and experience benefits.** • **Several of the project deliverables aim to ensure that the patient sees the right clinician at the right time (e.g. the combined trauma rota, pre-op triage and virtual fracture clinic); these will not only deliver improved patient outcomes and experience but will also enable reduction in unnecessary appointments, quicker access to emergency surgery and decreased LOS.** • **The creation of a dedicated elective orthopaedic centre will see the clinical team performing a larger volume of elective work meaning a more experienced and skilled workforce. This combined with ring-fenced beds for elective patients will mean a reduction in the number of cancelled operations, waiting times and surgical complications.** • **Many of the quality and efficiency benefits described will translate into workforce and financial benefits which have been modelled and are presented in Chapters 8, 9 and 10.**

The implementation of LOTS will see the merge and reconfiguration of the RLBUHT and AUHFT T&O departments. As a result, proven, best clinical practice will be adopted across the organisations and support the most effective use of resource across the city.

The purpose of this chapter is to describe how implementation of the model will translate into pathway improvements and ultimately clinical quality, productivity, safety and patient experience benefits. The benefits will be measured through a series of key performance indicators which have been baselined and, for which, targets have been agreed. The financial benefits are detailed in Chapter 10.

7.1 Project Deliverables and Benefits

Chapter 6 details the proposed model for LOTS; Figure 5 and Figure 6 show the changes from the current pathway to the proposed pathway, and how these translate into improvements. In the following sections the benefits of the key service elements of LOTS (deliverables) are described qualitatively. Table 4 and Table 5 demonstrate the alignment of the project deliverables to the benefits using key performance indicators (KPIs).

7.1.1 Efficiency of dedicated elective unit

There is very good evidence that dedicated, elective orthopaedic units have significant improvements in efficiency both clinically and financially. This has been seen in other specialist elective units including SWELEOC and Guy's and Thomas'.

Proven benefits of dedicated, elective orthopaedic units include[6]:

- Increased throughput.
- Decreased LOS.
- Shorter waiting times.
- Decreased complication and readmission rates.

The dedicated elective unit will deliver improved clinical sustainability arising from achieving sufficient scale to protect specialist services, maintaining sustainable Consultant rotas and consequently the ability to recruit and retain highly skilled staff.

7.1.2 Adoption of best practice and reduction in variation

Both RLBUHT and AUHFT have developed and implemented service improvements that have positively impact patient outcomes, experience and safety. The creation of a single orthopaedic service is an opportunity to extend these improvements across the city so that a high-quality, safe service is available no matter where a patient receives their orthopaedic care.

The following sections describe elements of best practice that will be extended to the whole of the single orthopaedic service and the associated benefits.

OPERA

The implementation of the enhanced recovery area will enable more complex elective work to be conducted at BGH. The current 4 bedded post-operative care unit would be upgraded to accommodate level 2 patients with the capability to stabilise and transfer level 3 patients should the need arise. Revenue funding is required to support in hours (Mon-Fri, 9-5) medical cover for a daily orthopaedic Consultant ward round, medical cover in-reach and rapid response to medical emergency calls; medical cover out-of-hours at BGH for the future model is for a medical registrar from an acute specialty, on site, out of hours.

The benefits of the model are:

- Good patient experience.
- Continuity of care and clinical ownership maintained.
- Reduced need to transfer patients to other hospitals.
- Supports "Getting It Right First Time" recommendations.
- Supports good use of resources (space, theatres, staff, and equipment) at BGH and RLH.

[6] Briggs T. Getting it Right First Time: improving the quality of orthopaedic care within the National Health Service in England. London: British Orthopaedic Association; 2012.

- Supports AAGBI, NCEPOD and RCS recommendations.
- Feasible and sustainable despite current financial pressures.

Preoperative Assessment

Implementation of a triage model for pre-operative assessment would mean that patients will attend the appropriate pre-operative clinic first time, reducing the need to come back for a second appointment or, in some case, eliminate the need for an appointment entirely.

Orthopaedic Admissions Unit

The implementation of the orthopaedics admissions unit (OAU) at AUH will mean that patients who are being transferred from RLH ED (and have been accepted by orthopaedics) can be directly admitted to AUHFT ward without having to attend AUHFT ED, which will help support patient flow.

Furthermore, the co-location of the unit with the orthopaedic trauma wards will mean that all trauma patients will be located in the same place helping to streamline processes and support patient flow in theatres. The OAU will be a 7 day service.

Orthogeriatric-Led #NOF Unit

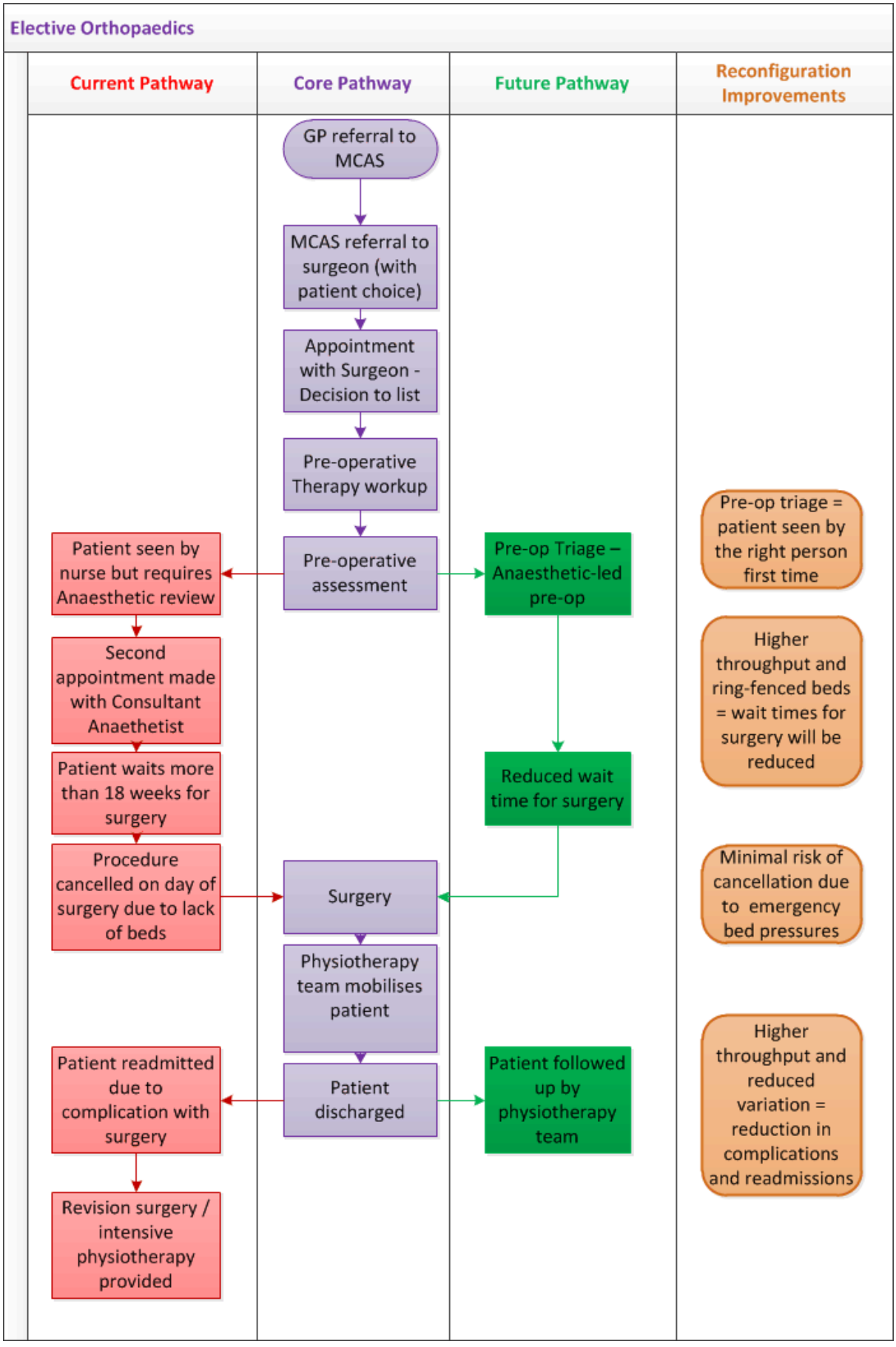
The principles of the orthogeriatric-led #NOF unit are described in Chapter 6.

The unit, supported by the improved orthopaedic Consultant model and the therapies team, will deliver benefits in line with the best practice tariff criteria[7]:

- Time to surgery within 36 hours from arrival in an emergency department, or time of diagnosis if an inpatient, to the start of anaesthesia.
- Admitted under the joint care of a consultant geriatrician and a consultant orthopaedic surgeon.
- Admitted using an assessment protocol agreed by geriatric medicine, orthopaedic surgery and anaesthesia.
- Assessed by a geriatrician in the preoperative period: within 72 hours of admission.
- Postoperative geriatrician-directed multi-professional rehabilitation team.
- Fracture prevention assessments (falls and bone health).

[7] Best Practice Tariff (BPT) for Fragility Hip Fracture Care User Guide.

Figure 5: High-level elective orthopaedic pathway and associated benefits.



Trauma Team Model and Enhanced On-call Rotas

The weekly Trauma Team model was described in Chapter 5. The system has resulted in improved outcomes for patients at RLBUHT including shorter waiting times; from September 2010 to August 2011 49% of patients waited less than 24 hours and 70% less than 48 hours from admission to surgery, in 2015/16 62% of patients waited less than 24 hours and 81% less than 48 hours. It has resulted in fewer complaints and provides more job satisfaction for the Consultants themselves.

The following benefits are expected when the model is implemented for LOTS:

- Improved trauma theatre capacity utilisation to allow the treatment of patients within target time frames.
- Improvements in time to theatre have been forecast to deliver a bed saving of 5 orthopaedic trauma, inpatient beds at AUHFT post implementation.
- Achievement of best practice in LOS for orthopaedic trauma patients.
- Continued delivery of a seven day service.
- Minimum risk of developing a peri-operative infection.

Team approach to complex elective cases

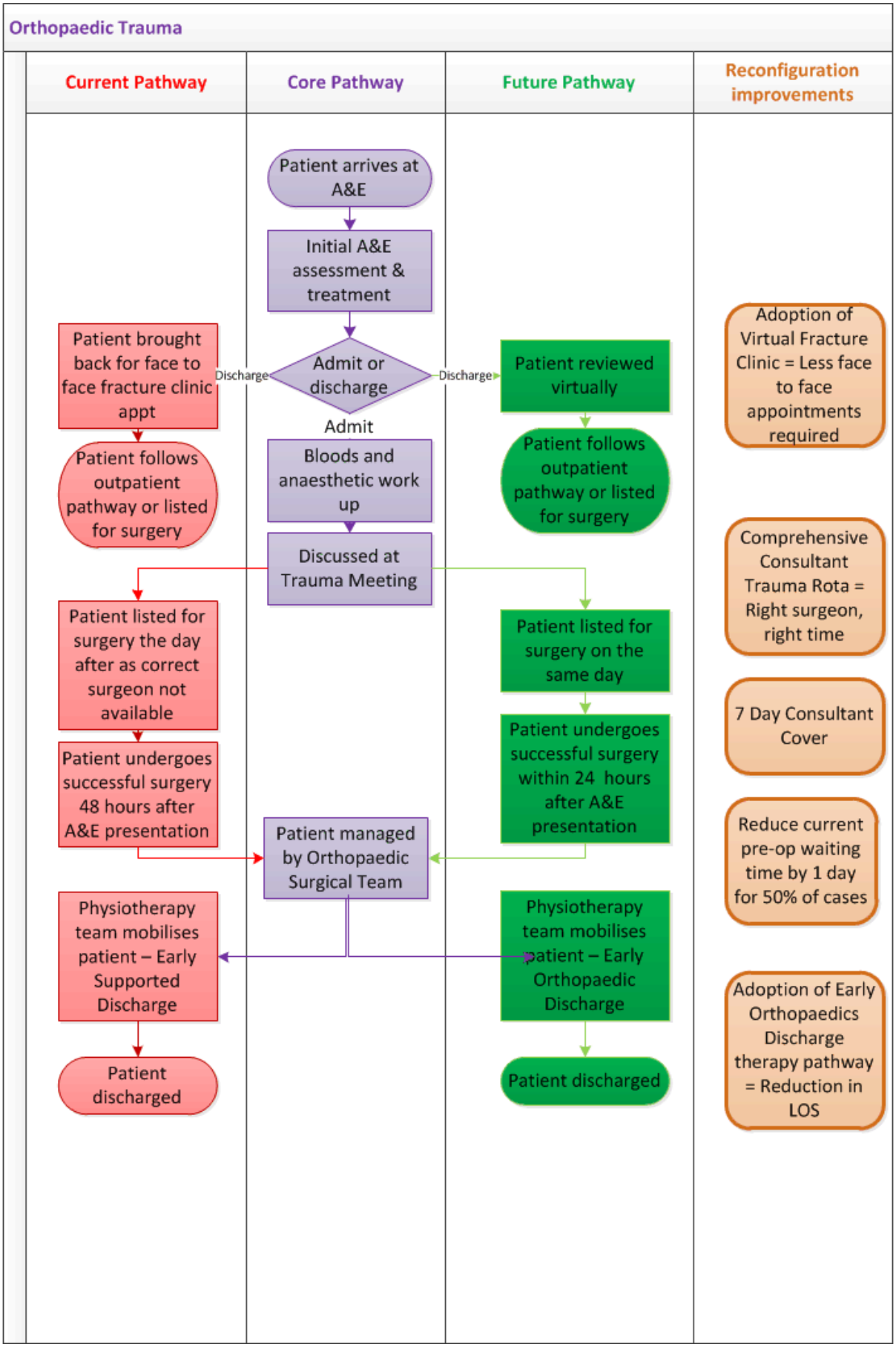
The same concept can also be applied to the elective unit; by grouping outpatient activity to sub-speciality days the service can ensure several consultants of a sub-speciality are in clinic together. This allows free discussion of cases in real-time, and third and fourth opinions can be available as required.

This again facilitates shared care as all treatment options can be discussed with and offered to the patient and an instant transfer to a more suitable Consultant made if required. This system has been in place for several years at BGH and will be available to all patients in the new system.

Optimised multi-disciplinary team working (MDT)

Trauma and Orthopaedics lends itself to multidisciplinary team working with Consultants working alongside specialist nurses, physiotherapists and occupational therapists. At all three sites there have been new and innovative ways to use and extend the roles of the MDT and this will be developed and enhanced going forward. Not only does this provide more streamlined and continuous care, it can often facilitate significant cost savings and allow Consultant surgeons to focus on the surgical treatment of the patients. Further, the formation of two specialised units will not only improve and enhance these MDT services it will also serve to reduce their duplication.

Figure 6: High-level orthopaedic trauma pathway and associated benefits.



Virtual Fracture Clinic

The VFC model was described in chapter 6.

It significantly reduces multiple clinic attendances. It allows the ED to discharge certain patient/fracture types directly (whilst ensuring that that decision is checked) and other patients can be discharged following a telephone conversation with the ESP. Further, it significantly reduces multiple clinic attendances.

At present this is only available at RLBUHT; however the creation of the single orthopaedic service will allows this to be extended to all patients in Liverpool and will also help provide increased choice as to the most convenient time and place a patient could be seen.

'Home First' and Early Orthopaedic Discharge

These initiatives involve T&O departments, therapies departments and social services working to reduce hospital admissions and facilitate early discharge, thus decreasing LOS. It has been forecast that these changes will improve bed capacity, by up to 7 beds, enabling the single city-wide service model to accommodate the increased demand as a result of demographic changes.

They have been utilised in certain groups of patients in certain locations in Liverpool with great success and the plan will allow these to be available to all patients, maximising their benefit and minimising variation.

7.1.3 Improved research and training opportunities

Improved training opportunities

The new unit will be one of the biggest T&O units in the country and will therefore be an excellent place for trainees of all levels to learn orthopaedics.

The unit will be able to attract the best trainees both locally for Core Surgical Trainee (CST) and Specialty Registrar (STR) posts and nationally for fellowships. There may be an opportunity to increase overseas fellowship positions, a lot of which are funded by the home government and sometimes come with a payment for training as well.

All of this will not only be good for the trainees but also for the staffing of the unit and will help to provide the highest quality of staff to treat patients.

Improved research opportunities

Clinical research is undertaken in both departments and there are several National Institute for Health Research (NIHR) portfolio studies on-going. It is not, however, at the level where Liverpool is considered a 'major player' in orthopaedic research.

Research profiles normally improve by initially recruiting into NIHR portfolio studies and later by hosting these. This is all volume related and combining patients into a single pool will make the region more likely to be able to take part in, host and later initiate trials which are likely to receive national funding.

Not only does this bring in funding it also significantly increases reputation that makes recruitment and retention of the best staff significantly easier and also attracts referrals.

Creation of a Centre of Excellence

The city is already a centre to teach and train surgeons both nationally and internationally. Several implant manufacturers request the delivery of courses as well as having surgeons to visit the departments to learn new techniques.

Again, these requests tend to be related to case volume (more complex surgery) and reputation. It is expected that these requests will increase with the new model. They will bring external funding and further increase reputation, therefore improving recruitment and retention.

7.1.4 Summary of deliverables and benefits

The project deliverables, outcomes and alignment to key performance indicators are provided in Table 4. Detailed KPIs, including baseline figure and targets, are provided in Table 5.

Table 4: Project deliverables, outcomes and benefits

Deliverable	Outcome	Benefit	KPI Reference
Implementation of a pre-operative triage process.	Patient will be seen by the right person, first time.	Reduction in the number of unnecessary pre-operative appointments.	P6
		Reduction in elective clinical cancellations.	Q1, Q3
		Reduction in 'not-fit-for-BGH' patients.	Q12
Creation of a dedicated Orthopaedic Elective Centre at BGH.	Unit and surgeons undertaking increased procedure volumes.	Increase procedure volumes and procedures per list.	P4, P5, Q12
		Reduction in clinical variation; consistently delivering 4 joints.	P4, P5
		Reduction in surgical readmissions	S1
		Reduction in surgical infection rate and never events.	S2, S3, S4, S5, S6
	Ring-fenced beds for elective orthopaedic patients.	Reduction in elective non-clinical cancellation.	Q2, Q4
		Reduction in waiting times for elective orthopaedic surgery.	Q7, Q8
		Achievement of RTT standard.	Q7, Q8
	Dedicated booking and appointment staff.	More efficient use of theatre resources.	P1. P2, P3, P4, P5
	Dedicated theatre staff.	More efficient use of	P1. P2, P3,

Deliverable	Outcome	Benefit	KPI Reference
		theatre resources.	P4, P5
Implementation of the OPERA model at BGH.	More elective orthopaedic patients can be operated on at BGH.	More efficient use of theatre resources.	P1, P2, P4, P5,
		Reduction in 'not-fit-for-BGH' patients.	Q12
		Improved patient experience.	PE1, PE2, PE3
Extend VFC across both Trusts.	Shared decision making.	Improved patient experience.	PE1, PE2, PE3
	Patient will be seen by the right person, first time.	Reduction in the number of unnecessary fracture clinic appointments.	P7
	Patients will have access to telephone advice.	Improved patient experience.	PE1, PE2, PE3
	Patient choice to attend a follow-up clinic closer to home.	Improved patient experience.	PE1, PE2, PE3
Implementation of the combined Consultant trauma rota.	Improved access to surgery by Consultants with major trauma expertise.	Improvement in proportion of Consultant grade surgeons treating patients with open limb injuries (BOAST 4).	Q11
		Reduction in LOS for orthopaedic trauma patients.	Q15
		Reduction in trauma, non-clinical cancellations	Q6
Implementation of the orthopaedic Trauma Team model at AUHFT.	Patient seen by the right surgeon without delay.	Reduction in waiting time for both inpatient and day case trauma surgery.	Q7, Q8, Q9
		Reduction in LOS for orthopaedic trauma patients.	Q15
	7 day Consultant delivered service.	Reduction in LOS for orthopaedic trauma patients.	Q15
Implementation of Orthopaedic Supported Discharge and Home First.	Improved patient pathways would enable patients to go home quickly and receive rehabilitation and therapy in their own home.	Reduced LOS for orthopaedic trauma and elective orthopaedic patients.	Q10, Q14, Q15

Deliverable	Outcome	Benefit	KPI Reference
#NOF Unit at AUH	Meeting BPT #NOF criteria.	Achievement of BPT for #NOF	Q10
		Reduction in trauma LOS	Q15
Orthopaedics Admission Unit	Transferred patients can be directly admitted rather than attending ED.	Reduction in waiting time for orthopaedic trauma surgery	Q9
	Co-location with trauma wards will improve theatre flow.	More efficient use of theatre resources.	P1. P2, P3, P4, P5

Table 5: Detailed KPIs, including baseline figure and targets

ID	LOTS Project KPIs	RLBUHT Baseline	AUHFT Baseline	Combined Baseline	Combined Target
	Quality KPIs				
Q1	On the day cancelled Elective Orthopaedic operations – Clinical.	2.0%	5.8%	3.50%	TBC
Q2	On the day cancelled Elective Orthopaedic operations – Non-clinical	2.9%	2.2%	2.50%	TBC
Q3	0 to 7 day cancelled Elective Orthopaedic operations – Clinical.	6%	not available	6%	TBC
Q4	0 to 7 day cancelled Elective Orthopaedic operations – Non-clinical	6%	not available	6%	TBC
Q5	On the day cancelled Orthopaedic Trauma operations – Clinical.	3.1%	not available	3.1%	TBC
Q6	On the day cancelled Orthopaedic Trauma operations – Non-clinical	14.2%	not available	14.2%	TBC
Q7	Referral to Treatment (RTT) – incomplete pathways	83.0%	91.4%	85%	92%
Q8	Referral to Treatment (RTT) – 52 week waiters	2	0	2	0
Q9	Time to Theatre for Orthopaedic Trauma	73%	74%	74%	86%
Q10	Achievement of BPT for #NOF	74%	65.0%	69%	90%
Q11	BOA Standards for Trauma 4 (BOAST 4)	47%	56.30%	51%	100%
Q12	% Not fit for BGH	16.4%	N/A	16.40%	1.10%
Q13	AQ TKR and THR	CPS = 89.9% ACS = 52.9%	CPS = 96.9% ACS = 82.1%	N/A	TBC
Q14	Elective LOS	3.9	3.3	3.6	3.6

Q15	Trauma LOS	10.4	10	10.2	9.1
	Productivity KPIs				
P1	Theatre session utilisation (Occupancy)	84.0%	80.0%	84.0%	93%
P2	Session Occupancy	82.0%	79.0%	82.0%	90%
P3	Clinical Utilisation	90.0%	69.0%	90.0%	95%
P4	Planned '4 joints lists' completed per month.	No data	88%	88%	TBC
P5	Procedure volume (monthly)	367	TBC	TBC	857
P6	Elective orthopaedic new to follow up ratio.	3.53	2.03	2.77	TBC
P7	Proportion of virtual fracture clinic appointments.	30%	0%	17%	30%
	Safety KPIs				
S1	30 Day Readmission Rate	TBC	29	TBC	TBC
S2	Surgical Site Infection (SSI) Rate: Total Hip	1.3%	1.2%	1.3%	TBC
S3	SSI Rate: Elective Knee	1.0%	1.0%	1.0%	TBC
S4	SSI Rate: Reduction of Long Bone	0.8%	n/a	0.8%	TBC
S5	SSI Rate: NOF Repair	0.3%	1.5%	0.9%	TBC
S6	Never events	0	6	6	0
	Patient Experience KPIs				
PE1	Positive FFT Rate	93.7%	not available	93.7%	TBC
PE2	Complaints (annual)	TBC	16	TBC	TBC
PE3	Compliments (annual)	TBC	197	TBC	TBC

7.2 Financial Benefits

Historically both Trusts have competed with each other, with some key services duplicated, leading to inefficiencies and a shortage of clinical expertise, impacting on workforce sustainability, training and education. The aim of the single service is to secure long-term clinical and financial sustainability of services in the city, rather than protect the status quo for service delivery.

Key financial benefits and efficiencies that have been identified are:

- Improved value for money due to a reduction of waste through duplication of multidisciplinary pathways.
- A reduction in the cost of providing a 7-day services and reducing patients' LOS.
- Delivery of improved theatre scheduling services and efficiency.
- Increased procurement efficiencies due to combined purchase volumes for both the Trauma and Elective Orthopaedic Services.

- Delivery of a ring fenced elective service on a separate site from emergency services. This reduces the risk of patients being cancelled on the day due to emergency pressures and lack of beds. This means that the efficiency and throughput through the elective centre will increase.
- 'Home First' and early supported discharge which will facilitate early discharge, thus decreasing LOS.
- Safeguarding of regional complex elective services, through delivery of critical mass and high volume services.
- Future-proofing the service against growth in demand.

Further details of the financial impact of the creation of the single service are provided in Chapter 10.

8 Feasibility of the Liverpool Orthopaedic and Trauma Service Model

Chapter Summary
• **Activity shifts required for the implementation of the dedicated elective and orthopaedic trauma units can be accommodated within existing theatre capacity; however other specialties will be required to move to enable this.** • **There is an existing pressure of 8 beds in the system caused by orthopaedic trauma demand. This trauma demand will be accounted for in the future model. The increase in 3 beds across the health system relates to T&O other specialty bed usage which cannot be removed from RLBUH (1.2 beds critical care, 0.2 beds emergency department, 1.5 beds other specialty use).** • **Despite the apparent gap in resource, the consolidation of all orthopaedic trauma activity on to one site, across 3 wards, means that this activity can be delivered within existing resource.** • **AUHFT require ward upgrades and reconfiguration to safely accommodate the increase in orthopaedic trauma activity.** • **AUHFT and RLBUHT (BGH site) require theatre upgrades to accommodate the move of orthopaedic activity.** • **The single orthopaedic service will deliver workforce efficiencies in T&O staff between years 1 and 5 post-implementation.**

Movement of Trauma and Orthopaedic activity across the city will occur as part of the merge and reconfiguration of services. There is therefore a need to move resource and capacity between the three sites, AUH, RLH and BGH, to accommodate this shift in activity.

This chapter details the analysis undertaken to understand the demand of the combined service, factoring in demographic changes and growth, and the impact of implementation of improved service delivery models. Based on this analysis, the required bed and theatres capacity is presented by site. The workforce required to staff the service has been modelled and is presented in this Chapter.

8.1 Activity Demand and Capacity Analysis

This analysis has been undertaken to assess the potential workload and capacity implications that would follow a change in orthopaedic service configuration. The detailed assessment is contained in Appendix 5.

The analysis provides projections of non-elective, elective and outpatient activity and the associated capacity requirements.

8.1.1 Demographic Change

The year on year demographic growth has been calculated using the sub-national population projections from the 2014-based Subnational Population Projections for CCGs published by Office for National Statistics.

The change in demography of the natural catchment population is the principal factor influencing activity change. This takes into account both growth in population and change in age profile (Appendix 5, Annex 1).

The need for healthcare is heavily influenced by the age of the population and whilst overall the population of the natural catchment (Liverpool, Knowsley, and South Sefton) is projected to rise only slightly in the period 2016 to 2021, the numbers in the older age groups increase significantly. This can be expected to result in increasing demands of the acute hospital.

8.1.2 Elective Activity Demand and Capacity

AUHFT elective orthopaedic activity totalled 1,259 inpatient admissions, with an ALOS of 3.3 days, and 2,135 day cases in 2016/17. AUHFT currently have 20 beds to accommodate this activity, although only 12 beds were utilised for elective orthopaedic inpatients in 2016/17.

In the same financial year, RLBUHT elective orthopaedic activity totalled 2,340 inpatient admissions, with an ALOS of 3.9 days, and 4,014 day cases. Elective orthopaedic inpatients at RLBUHT receive their care at the BGH site where there are 42 beds allocated. In 2016/17, 37 beds were utilised at BGH and average bed occupancy was 69%.

Following the merge and reconfiguration of the trauma and orthopaedic departments, elective orthopaedic inpatient and daycase services will be provided at BGH. The integration of the medical, nursing and therapy teams from both Trusts will include the adoption of best practice and implementation of proven patient pathways which will support an ALOS performance of 3.6 days for all elective orthopaedic activity in Liverpool. In addition, BGH will work at increased bed occupancy of 77% at day 1 increasing to 79% post redesign and implementation of new service delivery models (Table 6).

The combined elective activity for 2019/20 is forecast to be 3,828 inpatients and 6,461 day cases. With an ALOS of 3.6 days and percentage occupancy of 77%, it calculated that 49 beds will be required at BGH. Forecast activity for 2022/23 is 3,939 elective inpatients, which in the absence of improved elective pathways would mean an increase in the bed requirement to 50 beds, however, planned improvements will mean that LOS will be reduced by 1 day for patients who stay for 5 days or more (non-Limb Reconstruction Service (LRS) patients) and therefore the bed requirement will remain at 49 beds (Table 6).

T&O have 42 beds allocated at BGH; the RLBUHT Urology and ENT inpatient bed base will move from BGH to RLH and AUH, respectively, which will free up the additional beds required to accommodate the combined elective orthopaedic activity.

The impact on workforce is described in Sections 8.3 and 8.4.

Table 6: Combined Elective Orthopaedic Activity and Bed Requirement on 'Day One' (2019/20) and in 2022/23.

	2019/20	2022/23
Elective Inpatient activity	3828	3939
Elective AOLS	3.6	3.5
% Bed Occupancy	77%	79%
Bed Requirement Total	49	49
Orthopaedics	48	48
Critical Care	1	1
Elective Day case Activity	6461	6650

8.1.3 Orthopaedic Trauma Activity Demand and Capacity

In 2016/17 AUHFT orthopaedic trauma activity totalled 1,640 inpatient admissions (excluding major trauma), with an ALOS of 10 days (Table 7). Orthopaedic trauma inpatients at RLBUHT receive their care at the RLH site where there are 41 beds allocated, however in 2016/17 51 beds were utilised (a pressure of 10 beds) at RLH for orthopaedic trauma patients (including surgical T&O beds and other surgical and medical beds).

In total, RLBUHT and AUHFT are currently carrying a pressure of 21 orthopaedic trauma beds. In AUHFT some of this pressure is absorbed by the available bed capacity in the elective orthopaedic bed base as they are on the same site.

There are also approximately 164 non-orthopaedic ambulance lower limb fracture patients and 86 pubic-rami patients that are admitted at RLBUHT annually (Table 7). These are patients who attend with a medical condition and have a concomitant orthopaedic injury that does not require orthopaedic surgery (for example fractured pubic ramus, trochanteric fracture). These patients occupy medical beds, not T&O beds.

Table 7: Orthopaedic Trauma Admissions by Site

2016-17	Orthopaedic Trauma		
	AUHFT	RLBUHT	Total
Non-elective	1,640	1,531	3,170
Planned trauma	-	214	222
Ambulatory trauma	-	359	359
Lower limb fracture, pubic rami etc.	-	250	250
Total	**1,640**	**2,354**	**3,994**

The reconfigured service will see all orthopaedic trauma activity conducted in AUH. The combined orthopaedic trauma inpatient activity for 2019/20 is forecast to be 3,520 with an ALOS of 10 days and percentage bed occupancy of 93%.

101 beds are required to accommodate this non-elective T&O activity in 2019/20. By 2022/23 it is forecast that the orthopaedic trauma activity will have increased to 3,624 inpatient admissions, which would require an additional 6 beds at AUH. However, implementation of Orthopaedic Supported Discharge and reduction in 'time to theatre' through a more effective Consultant rota will support a decrease in LOS for some patients and bring the ALOS stay down to 9.1 days. This will translate into a decrease in the number of beds required by a total of 11 beds (7 for Orthopaedic Supported Discharge and 4 for reduction in 'time to theatre'). Not only will increased demand, caused by the demographic changes, be accommodated by these improvements there will also be a 5 orthopaedic trauma bed reduction compared to 2019/20 (Table 8).

The medical bed demand for the lower limb fracture and pubic rami activity has been assessed as 4 beds (Section 9.4.3). Furthermore, using the NWAS triage tool described in Section 9.4.3, the impact of ambulance transported patients with a medical condition and a query lower limb fracture who would be transported to AUH and subsequently admitted, has been assessed as an additional 164 patients, with a requirement for an additional 4 beds. The additional medical bed demand as a result of reconfiguration is therefore 8 beds (included in bed summary in Section 8.1.4 and shown on Table 13).

The impact on workforce is described in Sections 8.3 and 8.4.

Table 8: Combined Orthopaedic Trauma Activity and Bed Requirements on 'Day One' (2019/20) and in 2022/23.

	2019/20	2022/23
Trauma Inpatient activity	3,520	3,624
Elective AOLS	10.0	9.1
% Bed Occupancy	93%	93%
Total Bed Requirement	109	104
Orthopaedics	101	96
Pubic rami	4	4
Lower limb fractures	4	4

8.1.4 Trauma and Orthopaedics Bed Capacity

System-wide bed capacity

There are already bed pressures in the system due to imbalanced capacity and demand for orthopaedic trauma. Table 9 shows the current and future demand for beds used by orthopaedic patients across the city (in both surgical and medical beds). At AUHFT 9 escalation beds were opened in 2016/17 bringing the current bed allocation up to 39 beds. However, additional bed pressures are continuing to compromise the ability to deliver elective activity increasing total non-elective bed utilisation to 50 in AUHFT.

The financial impact of this does not manifest as an increase in actual WTE (compared to budget WTE; Appendix 6), instead demand is absorbed by the elective establishment and through use of bank and agency (Chapter 10). Detailed workforce modelling against the

proposed LOTS model has been led by key stakeholders from each area (Matrons and Divisional Directors of Nursing); the modelling suggests that the service will be able to service the required beds with the workforce indicated (Appendix 6) and with a reduction in the use of nursing bank and agency spend.

Table 9: Current and future orthopaedic bed provision including medical beds.

		Current Bed Allocation(T&O)	Current Pressure (+) or Underutilisation (-)	Current Bed Utilisation	Bed Requirement 2019/20	Future Bed Requirement
Medical	AUHFT	0	0	0	8	8
	RLBUHT	8	0	8	0	0
	Subtotal	**8**	**0**	**8**	**8**	**8**
Orthopaedic Trauma	AUHFT	39	+11	50	101	96
	RLBUHT	41	+10	51	0	0
	Subtotal	**80**	**+21**	**101**	**101**	**96**
Elective Orthopaedics	AUHFT	20	-8	12	0	0
	RLBUHT	42	-5	37	49	49
	Subtotal	**62**	**-13**	**49**	**49**	**49**
Grand Total		**150**	**+8**	**158**	**158**	**153**

Capacity by site and movement of resource

In order to accommodate the reconfiguration there is a need to move resource around the system to match the future bed demand on each site.

AUHFT Ward Upgrade and Reconfiguration

The wards at AUHFT require upgrading and reconfiguring to accommodate the combined orthopaedic trauma activity. The Trust has upgraded many of its inpatient wards and in doing so has improved the patient and staff environment to modern standards. A previously unutilised ward area requires investment to deliver similar benefits as soon as possible to provide a high quality environment for all inpatients.

An existing unused ward area will be re-commissioned which will require a full refurbishment of the internal building fabric and services. Due to increased demand LOS (due to complex co-morbidities) additional capacity will be required for orthogeriatric rehabilitation.

Several wards require minor investment to improve the configuration to be suitable for the needs of orthopaedic trauma patients i.e. increased availability of side rooms and therapy spaces to manage postoperative infections and aid rapid recovery.

This work has been estimated to cost £2.4m which is included in a capital loan application to NHSI (Chapter 10, Table 21).

8.1.5 Trauma and Orthopaedics Theatre Capacity

Elective Orthopaedic Theatres

Currently AUHFT use 34 theatre sessions per week for elective orthopaedics and RLBUHT use 53 theatre sessions per week.

Combined elective activity (87 sessions) can be accommodated on the BGH site with ENT inpatient activity moving from BGH to AUH, and Urology and General Surgery inpatient activity moving from BGH to RLH. On 'day one' it is expected that 8 theatres will be required to deliver the combined elective activity. Once the improved pathways are embedded and benefits associated with increased volumes are realised (i.e. increased throughput and productivity), it is expected that less theatres will be required to deliver the same volume of elective orthopaedic activity.

A minimum of two operating theatres require laminar flow upgrades at BGH in order to accommodate the increase in elective orthopaedic activity. This work has been estimated to cost £1.3m (Chapter 10, Table 21).

Orthopaedic Trauma Theatres

Currently AUHFT use 26 theatre sessions per week for orthopaedic trauma and RLBUHT use 25 theatre sessions.

Combined orthopaedic trauma activity (51 sessions per week) can be accommodated on the AUH site, with elective orthopaedics moving to BGH and RLBUHT's ENT moving from BGH to AUH. It is envisaged that AUHFT would run 4 all day trauma lists Monday to Friday with 2 full day trauma lists operating three session days on both Saturday and on Sunday. Potential activity up to 2021 has been estimated and it is anticipated that the reconfigured theatre capacity will be able to deal with predicted demand (workforce implications are detailed in Chapter 9, Table 11).

In order to safely accommodate the additional trauma work AUHFT require the 'Main A' theatres to be upgraded. The ventilation plant serving two operating theatres requires upgrading to ultraclean to allow for additional capability and resilience to support the delivery of the reconfigured orthopaedic service. This will avoid disruption to operating lists, cancellations and increased risk of perioperative infections. This work has been estimated to cost £250k which is included in a capital loan application to NHSI (Chapter 10, Table 19).

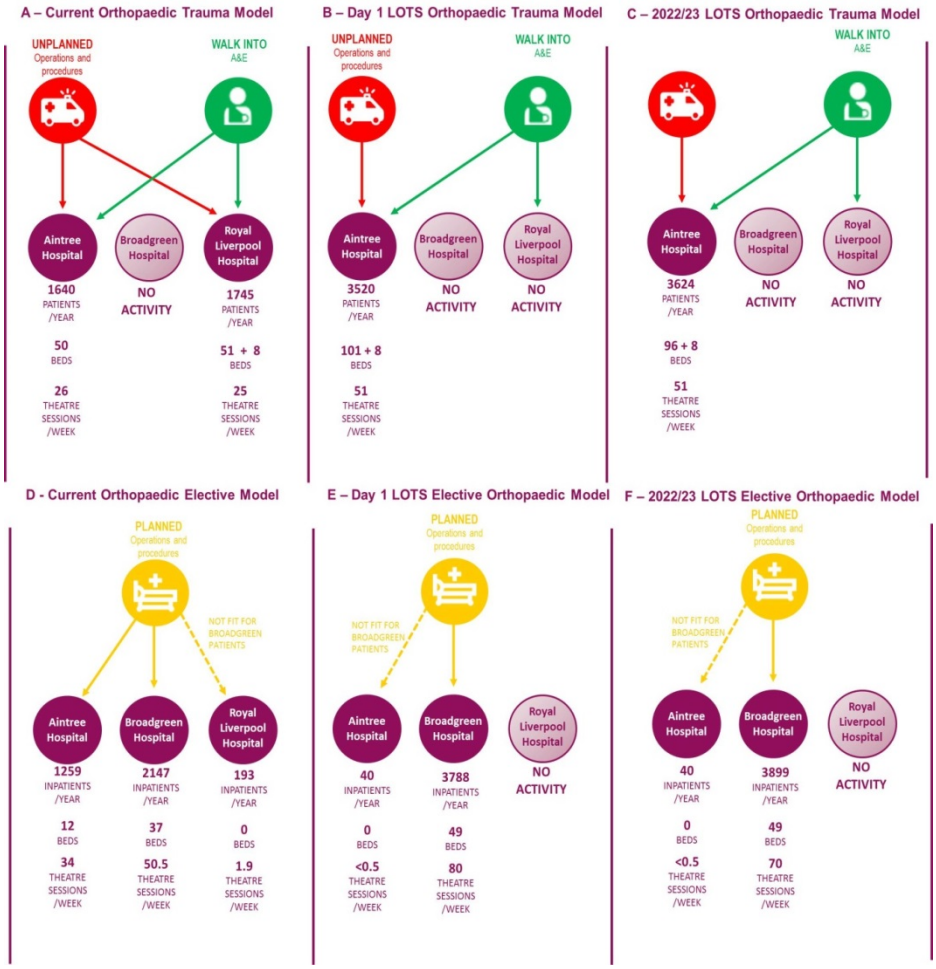
8.1.6 Outpatient Clinics Activity Demand and Capacity

The configuration of elective and trauma outpatient clinics will remain the same in the first instance on creation of the single orthopaedic service. Improvements in pathway will allow the service to absorb demographic growth.

8.1.7 Summary of Impact on Trauma and Orthopaedics Departments

Figure 7 shows the details of the proposed orthopaedic reconfiguration and impact on theatres and beds required based on current and forecast activity (this is based current utilisation not on bed allocation). The 8 medical beds required are also shown in the diagram. The elective activity for RLBUHT is split between BGH and RLH due to a proportion of the patients requiring a higher level of care and therefore their surgery conducted at RLH. This proportion reduces in the future scenarios due to the implementation of OPERA.

Figure 7: Current and future delivery of orthopaedic services across Liverpool



8.2 Workforce Implications for T&O

Detailed workforce modelling has been undertaken to understand the shift in workforce requirements, in line with the movement of orthopaedic activity, across the three sites. The detailed work is presented in Appendix 6 and a summary is presented in Table 10. On 'day one' it is anticipated that, due to physical reconfiguration of the service and integration of teams and service models, there will be some reduction in workforce numbers, particularly within elective nursing, medical (locums) and administrative/management staff groups. Within 1 to 5 years it is expected that, due to the implementation of service improvements (bed reductions and increased theatre efficiency) and the embedding of a single department, further workforce efficiencies will be realised.

Table 10: Impact of the reconfiguration on Trauma and Orthopaedic workforce.

	BUDGET (2017/18)			DAY 1			FUTURE		
Department	WTE at RLBUH	WTE at AUHFT	TOTAL WTE	WTE at RLBUH	WTE at AUHFT	TOTAL WTE	WTE at RLBUH	WTE at AUHFT	TOTAL WTE
Elective Ortho Nursing	59.70	26.08	85.78	71.13	0.00	71.13	71.13	0.00	71.13
Ortho Trauma Nursing	63.55	61.19	124.74	0.00	147.62	147.62	0.00	138.31	138.31
Outpatients	12.20	12.84	25.04	12.20	12.84	25.04	12.20	12.84	25.04
T&O Medical	58.74	39.96	98.70	59.30	35.75	95.05	56.66	35.75	92.41
Admin	58.37	35.72	94.09	58.37	35.72	94.09	56.27	33.94	90.21
Specialist Nursing & Trauma Co-ordinators	11.69	1.00	12.69	6.80	6.50	13.30	6.80	6.50	13.30
TOTALS	264.25	174.60	441.04	207.80	238.43	446.23	203.06	227.34	430.40

T&O Clinical workforce

The reconfiguration of orthopaedic services in Liverpool is an opportunity to extend best practice and implement proven service improvements; the proposed initiatives are outlined in Chapter 6.3. Many of the changes will improve pathway delivery and decrease LOS for elective and trauma patients; combined with more effective use of space and capacity at BGH this will deliver the workforce efficiencies summarised in Chapter 10.

The movement of AUHFT elective activity to BGH will allow a more efficient use of BGH Ward 3 and Ward 2 and will allow for an increase in elective beds without the need for additional nursing management input (Band 7 ward managers from 3 WTE to 1 WTE; Appendix 6). Ward 3 and Ward 2 can be joined to create a single ward.

With a combined nursing workforce, it is expected that the single T&O service will be able to cover leave and sickness more effectively and therefore will be less reliant on bank and agency staff. A cost avoidance saving is anticipated as outlined in Chapter 10.

Administrative functions and management

The creation of a single orthopaedics service will facilitate a redesign in both the management structure and the administrative functions for LOTS. Both areas have been reviewed at a high-level and it is anticipated that at least a 5% saving can be made across the budget lines. Further work is required to detail how this will be operationalised and the final model will have to be in line with the newly merged organisation's model for administrative functions.

Medical staffing and Orthopaedic out of Hours Rotas

In order to deliver the service model as outlined, it has been agreed that there will be a requirement to establish combined out-of-hours medical rotas for the city. Currently acute services are provided across two sites and on-call Consultant cover is provided across three sites; RLH, BGH and AUH. The proposed two-site model will allow for the delivery of a consultant trauma team model at AUH. The rotas in principle have been agreed, and the detail is being defined as part of the medical staffing work stream.

The reconfiguration of orthopaedics will see an increase in theatre productivity due to having a higher volume of elective activity on one site. As such the service should realise an efficiency benefit from a reduction in the theatre time required. In addition, the extension of the Virtual Fracture Clinic will realise a reduction in Consultant–led trauma clinics. The modelling has demonstrated that a Consultant workforce reduction of at least 27 programmed activity (PA) sessions will be realised.

With a larger medical workforce, it is expected that the single T&O service will be able to cover leave and sickness more effectively and therefore will be less reliant on locum and agency staff. A cost avoidance saving is anticipated as outlined in Chapter 10.

Intensity payments will be aligned to the intensity of the work undertaken and through this mechanism it is anticipated that there will be no increase in on-call costs.

9 Impact on Supporting Specialties and Services

Chapter Summary
• **Orthopaedic services rely on several departments and services in order to provide patient care, and therefore, the reconfiguration of orthopaedic services across Liverpool will significantly impact these departments.** • **Many of the planned improvements outlined in this business case will be led by services such as theatres, anaesthetists and therapists, and therefore investment is required in these areas in order to deliver the benefits identified.** • **However, the single orthopaedic service will deliver workforce efficiencies between years 1 and 5 post-implementation, which will largely offset these initial investments.**

In this Chapter the impact of the orthopaedic reconfiguration on supporting specialties (e.g. ENT and Urology) and services (e.g. theatres, therapies, etc.) is considered. The impact on services is described and detailed workforce modelling has been undertaken with leads from each area to model the current and future WTE required to deliver the LOTS model.

9.1 Workforce impact on supporting specialties and services

The working assumption is that the workforce to deliver the service is within the existing system. However, the implication of the proposed model is that it will require reconfiguration of workforce between AUHFT and RLBUHT and this could affect a wider range of services and disciplines as set out below. The impact of the reconfiguration on support services and other specialties, in terms of workforce (WTE) is summarised in Table 11.

Table 11: Impact of reconfiguration on support services and non-T&O specialties in terms of whole time equivalents.

Staff details	BUDGET		DAY-1		FUTURE
Department	TOTAL WTE		TOTAL WTE		TOTAL WTE
Therapies Elective	49.55		53.15		53.15
Ortho Trauma Theatres	60.62		56.38		56.38
Elective Ortho Theatres	79.20		86.90		71.88
ENT Inpatient	11.60		13.87		13.87
ENT Theatres	10.90		10.81		10.81
OrthoGeri Medical	2.20		2.20		2.20
Medical Cover at BGH	0.00		1.50		1.50
OPERA	0.00		1.88		1.88
Pharmacy	1.00		1.00		1.00
Imaging - Elective	1.70		1.70		1.70
Imaging - Non- Elective	5.77		9.93		9.93
Medical	23.40		23.40		23.40
TOTAL	245.94		262.72		247.70

There has been engagement with staff within the affected areas to inform them that the feasibility study is being undertaken. Workforce change processes will take place as part of the mobilisation and implementation phases pending formal approval of the Business Case.

A series of engagement meetings have been held with supporting specialties, Allied Health professionals and corporate service teams so that the wider organisational impact of the future vision for orthopaedic service delivery could be understood in terms of both workforce and infrastructure. These discussions are being continued at a work stream level to develop and agree detailed operational plans. The key findings of these discussions are presented below.

9.1.1 North West Ambulance Service

Impact on ambulance travel and costs

NWAS have conducted a report on the proposed change and the impact on emergency response times and transportation of patients (refer to Appendix 7). The report also assesses the projected impact and requirements to deliver the transfer of patients from the RLH site to AUH.

Emergency Ambulances (EAs) from Cheshire and Mersey North, East and West Sectors are predicted to travel noticeable additional distance each year, with vehicles from Warrington, Toxteth, South Liverpool and Runcorn particularly travelling more. The impact of this is taken into account in the additional service costs (Chapter 10).

In total, EAs are predicted to travel an additional 47,228 miles per year following the service change, with all NWAS vehicular resources travelling a total additional 55,062 miles. There are therefore fuel and wear-and-tear cost implications for NWAS.

EAs would be predicted to be additionally utilised for an extra 3 hours and 35 minutes per day if this service change is implemented. In terms of the job cycle, most of the additional time expended would be spent transporting patients from incident scene to AUH. This indicates a resourcing implication for NWAS.

It has been calculated that to support the additional activity would require an investment of £125k, which is inclusive of extended job cycle time, mileage, vehicle wear and tear and fuel.

Ambulance turnaround times

During 2017/18 AUHFT struggled to achieve the national standard required for ambulance turnaround times. Therefore an assessment was undertaken of the additional impact this would have on NWAS emergency response times. AUHFT has recently implemented an ambulance handover improvement plan, based on good practice already in place at RLBUHT, and since November 2017 ambulance turnaround times at AUHFT have been comparable to the performance that is achieved at RLBUHT. If there had been no improvement in ambulance turnaround time performance at AUFHT it is anticipated that the total impact of delays in ambulance handover would equate to 27 minutes per day.

In summary, the NWAS report and the analysis of ambulance turnaround times has shown that the proposed transfer of service and the capability to deal with the transfer of patients to

AUH as the orthopaedic trauma site is feasible, without compromising safety and performance.

An ED / NWAS joint work stream has been set up. This involves clinicians from both RLBUHT and AUHFT EDs, orthopaedic clinicians and Clinical and Service Development representation from NWAS. It is refining patient pathways and the pathfinder tools that will support paramedic crews in making decisions as to which ED to take patients. It is also considering the impact on turnaround times for vehicles and crews. At present there is agreement that the proposal is workable and no obvious barriers have been identified.

9.1.2 AUH Emergency Department

The proposed transfer of orthopaedic trauma services to AUH will place additional demands on the AUH ED.

Demand modelling indicates that the additional demand related orthopaedic trauma patients who will be admitted to AUH is anticipated to be in the region of an additional four to five orthopaedic trauma cases per day (see Appendix 5 Annex 5). The impact of the increased demand will be mitigated through the implementation of pathway improvements such as the VFC and OAU.

The forecast demand of patients who attend ED with a medical condition and who have a concomitant orthopaedic injury that does not require orthopaedic surgery (for example fractured pubic ramus, trochanteric fracture etc.) has been considered; the modelled annual demand is 86 cases per year and an average of 0.2 cases per day.

In line with the principle that patients who do not require orthopaedic care are taken to their nearest ED, the project team have worked with NWAS to develop a draft triage tool for the urgent presentation of trauma. This is to inform ambulance crews' decisions about whether a patient requires admission to their nearest ED or requires admission to the orthopaedic trauma service at AUH (see Appendix 3).

A desktop audit of the use of the triage tool for patients who were admitted under medicine but who had a lower limb x-ray within the ED has provided an estimate on the numbers of patients that would be transported to RLH or AUH ED as appropriate.

Through application of the triage tool and review of NWAS pre hospital reports, the evidence is that 18.5% of the modelled group would require admission to the orthopaedic trauma unit at AUH.

The anticipated daily additional demand on AUH ED is therefore 6 patients per day (Table 12).

Initial discussions with the Department leads have indicated that this additional demand could be accommodated by ED if the proposed changes to GP urgent pathways and acute frailty pathways realise their intended benefits. These are all aimed at improving delivery of the 4 hour ED target and reducing ambulance handover times to the national standard of 15 minutes.

Furthermore, the project subgroup has worked with wider clinical teams to establish new pathways which will further mitigate the risks to AUHFT ED capacity. These redesigned service models include the establishment of:

- An orthopaedic virtual fracture clinic at AUH.

- An orthopaedic direct admissions unit at AUH.

Table 12: Daily Additional Demand on AUH ED

Patient Categories	Annual Activity	Annual Transferred Activity	Daily Demand
RLBUHT T&O attendances who are admitted non-electively	1,745	1,745	4.7
Pubic Rami Annual Demand 2016-17 data	86	86	0.2
Medical Admissions with a lower limb ray 2016-17 data. Based on 18.5% shift to AUH using triage tool	807	164	0.5
RLBUHT T&O attendances with suspected lower limb fractures who are not admitted	836	167	0.5
Total	**2,831**	**2,162**	**6**

9.1.3 Medical Bed Demand at AUH

The wider admitted medical demand assessment of the forecast impact of patients who attend with a medical condition and have a concomitant orthopaedic injury that does not require orthopaedic surgery (for example fractured pubic ramus, trochanteric fracture etc.) has been considered. The medical bed demand for this patient cohort has been assessed as 4 beds.

Using the triage tool described above the impact of ambulance transported patients with a medical and a query lower limb fracture who are subsequently admitted and would be transported to AUH has been assessed as an additional 164 patients, with a requirement for an additional 4 beds.

The transferred medical bed demand as a result of reconfiguration is therefore 8 beds (included in bed summary in Section 8.1.4 and shown on Table 13).

Table 13: Pubic Rami and Medical Admissions with a lower limb x-ray

Patient Categories	Additional Spells	Additional Bed Demand
Pubic Rami2016-17 annual demand	86	4
Medical Admissions with a lower limb ray 2016-17 data. Based on 18.5% shift to AUH	164	4
Total	**250**	**8**

The workforce associated with additional medical bed demand is under discussion and which would be transferred from RLBUH.

The anticipated workforce impact is a transfer of approximately 20 WTE clinical staff from RLBUHT to AUFHT (Table 11, Medical).

9.1.4 Radiology

Radiology is a key clinical support services for trauma and orthopaedics providing a mix of elective and acute Radiology input. The proposed reconfiguration does not seek to change the outpatient model to a point where it impacts on radiology.

The impact of orthopaedic service redesign on the AUHFT radiology team is predominantly linked to the change in where orthopaedic trauma activity is delivered. Combined orthopaedic trauma activity will be delivered at AUHFT and this will mean an increase in requests for the following services at AUHFT:

- Acute CT
- Plain imaging
- MRI
- Theatre

However, there will be a simultaneously decrease in requests at RLH due to the movement of orthopaedic trauma to AUHFT and a decrease in elective imaging requests at AUHFT due to movement of elective orthopaedic activity to BGH.

Table 14 sets out the anticipated increase in imaging activity that will occur on the AUH site as a result of the service reconfiguration.

Table 14: additional imaging activity on the AUH site post-reconfiguration

Modality	Change at AUH
Angiography	11
CT	341
Fluoroscopy – Theatre	270
Fluoroscopy – non-theatre	(-519)
MR	166
Nuclear Medicine	37
Plain film	1,365
Ultrasound	200
Total	**1,871**

The following arrangements are suggested to support the transfer in orthopaedic trauma activity to the AUH site:

- From a medical workforce perspective consideration will be given to the skill mix and job plans of Consultant Radiologists. It has been suggested that a single city-wide out-of-hours rota should be established.

- System interoperability has facilitated Consultant radiologists being able to provide reports from scans undertaken at either hospital site irrespective of where they are located.
- An additional radiography staff would need to be available on the AUH site in order to staff the ED scanner on a 24/7 basis.

The impact of orthopaedic service redesign on radiology activity at BGH relates to the transfer of intra-operative and post-operative elective imaging activity from AUH. Table 15 sets out the additional imaging activity at BGH.

Table 15: Imaging activity at BGH post-reconfiguration

Modality	Change at BGH
Angiography	2
CT	33
Fluoroscopy – Theatre	814
Fluoroscopy – non-theatre	533
MR	1
Nuclear Medicine	-
Plain film	632
Ultrasound	29
Total	**2,044**

Radiology input at BGH site currently is provided by Liverpool Heart and Chest Hospital (LHCH). The service level agreement (SLA) will be reviewed accordingly to reflect the changes.

The mini C arm intensifier currently in use at the RLH for trauma would transfer to BGH. The elective demand from AUH in theatre is not predicted to require an increase in equipment and resource. Engagement with the radiology team is continuing.

9.1.5 Anaesthetics and Theatres

Elective Orthopaedic Theatres Staff

On 'day one' it is anticipated that there will be a 6.6 WTE increase in the theatre staff required at BGH to deliver the elective orthopaedic work. This is likely due to a difference in how theatres are currently staffed at the respective Trusts and the movement to a single model. Once the pathways are embedded and benefits associated with increased volumes are realised (i.e. increased throughput and productivity), it is expected that less theatres will be required to deliver the same volume of elective orthopaedic activity. The impact has been modelled and it is anticipated that once the reconfiguration has been embedded one less theatre will be required and a saving of 11.12 WTE from the day one establishment. This includes a reduction of 4.52 WTE against the current elective theatre establishment. (Appendix 6).

Orthopaedic Trauma Theatres Staff

Resource in the system is sufficient to meet future demand. All resource required for orthopaedic trauma will be located at the AUH site (Table 11, 'ortho trauma theatres').

Anaesthetic Workforce

From a medical workforce perspective initial discussions have indicated that consideration should be given to the skill mix and job plans of Consultant anaesthetists. Some anaesthetists have developed robust working relationships with specific orthopaedic Consultants with specific elective sub-specialty interests and therefore may prefer work at the BGH site in order to maintain this portfolio of expertise.

In addition, in order to maintain a safe and effective orthopaedic trauma out-of-hours service there needs to be a city-wide pooling of Consultant anaesthetist resources made up of the Consultant anaesthetists from RLBUHT and from AUHFT.

Junior doctor rotas and job plans will need to be considered in order to ensure junior doctors have sufficient access to training opportunities available in both elective care and non-elective / trauma care.

Due to the reduction in theatre capacity requirements for elective orthopaedics, between years 1 and 5 post-implementation, there is an impact on the Consultant anaesthetic requirement. This has been modelled at a reduction of 2.8 WTE.

9.1.6 Critical Care/Higher Dependency Care Bed Access (OPERA)

The implementation of the enhanced recovery area will enable more complex elective work to be conducted at BGH (described in Chapter 6). The current 4 bedded post-operative care unit would be upgraded to accommodate level 2 patients with the capability to stabilise and transfer level 3 patients should the need arise. Revenue funding is required to support in hours (Monday to Friday, 9am to 5pm) medical cover for a daily orthopaedic Consultant ward round, medical cover in-reach and rapid response to medical emergency calls; medical cover out-of-hours at BGH for the future model is for a medical registrar from an acute specialty, on site, out of hours.

Investment is required to deliver OPERA which is estimated to be £50k capital and £96k revenue costs. The revenue costs are associated with the change in workforce requirements to safely implement the OPERA model (Table 16).

Table 16: Staff required to implement the Orthopaedic Peri-operative Enhanced Recovery Area at BGH.

Staff Group	WTE	Cost
Critical care nurse	1.16	£63,974
Anaesthetist – STR	0.47	£34,934
Consultant Intensivist	0.25	£32,500
Total	**1.88**	**£131,408**

9.1.7 BGH Medical Cover and Increased Geriatric Consultant Resource

Senior medical registrar cover is required for a Monday to Friday 0800 ward round and to provide support for the Nurse Practitioners. In addition to providing daily scheduled medical input to elective orthopaedic patients on the BGH site, the additional STR resource will allow Clinical Gerontology to add a mid-grade tier of support to the in-hours Medical Emergency Team (MET) team at BGH with a Gerontology STR attending MET calls. This will enhance the seniority of the BGH in hours MET team, improving the team's decision making ability and patient safety on the wider BGH site. This would require funding for 1.5 WTE registrars.

9.1.8 Division of Medicine for the Elderly

The reconfiguration of orthopaedic services will mean that AUH will become the single receiving site for patients who have sustained a hip fracture. Activity is expected to increase from circa 400 to 800 cases per year. These patients will need to be managed in a dedicated fracture neck of femur (#NOF) unit on the AUH site which has ortho-geriatrician input.

Key stakeholders from both AUHFT and RLBUHT have agreed that the model to service the future #NOF demand at AUH and meet the requirements of the best practice tariff would be:

- Daily ward review undertaken by 2 Consultant geriatricians: each patient would be seen by an orthogeriatric Consultant each day Monday to Friday.
- A daily MDT/board round and mental health liaison will be provided by Mersey Care Trust
- The Consultant team should be supported by 8 junior staff (ideally 6 FY1 junior doctors, 1 Senior House Officers (SHO), 1 SHO or ANP and 2 #NOF nurse specialists.
- Specialist Registrar training sessions (2 per week as currently) should continue to take place once the service moves to the AUH site.
- This is for a 5 day service.

This level of Consultant input would require 4 consultants providing 18.6 direct clinical care (DCC) sessions per week to be available to allow for some cover during periods of annual leave. There is also a requirement for 3 SPA sessions. Therefore funding for an additional 1.3 PAs is required to support the delivery of the agreed service model.

9.1.9 Therapy

Therapy teams from AUHFT and RLBUHT have been working together to redesign the service they provide to orthopaedics in light of the proposed reconfiguration. The teams are sharing best practice and are developing new pathways with the best from both organisations to deliver the best possible service. Adoption and implementation of best practice such as Early Orthopaedic Discharge are predicted to enable many of the improvements and benefits described in this document e.g. reduced LOS.

The impact of the orthopaedic reconfiguration on the therapies workforce has been assessed; the therapies teams have modelled the workforce requirements and can deliver these within existing establishment with the exception of the Virtual Fracture Clinic. The expansion of the Virtual Fracture Clinic to accommodate the combined activity of AUHFT and RLBUHT which will require uplift in therapies staff. The additional staff required would be 2.6 WTE ESP (Band 8A) and a Band 3 administrative post.

9.1.10 Pharmacy

Pharmacy input to elective orthopaedic patients includes medicines reconciliation prior to surgery, a daily post-operative review until discharge and a validation of the 'to take out' medication on the day of discharge. Pharmacy input to orthopaedic trauma patients is generally more complex, compared to elective orthopaedics, due to multiple comorbidities.

The transfer of all elective orthopaedic services to the BGH site will need to be accompanied by a transfer of 1 WTE Band 8a pharmacist from RLBUHT.

The redesign of orthopaedic services provides an opportunity to implement a number of service improvements to improve the quality, and efficiency for example the development of a dedicated pharmacy trauma team. Discussion has taken place with the Clinical Director for Pharmacy (RLBUHT and AUHFT) who has confirmed that the reconfiguration can take place within existing resources.

9.1.11 Plastics

AUHFT are currently working with colleagues at St Helens and Knowsley Teaching Hospitals NHS Trust to deliver plastic surgeon input to major trauma services.

There is currently a joint post of one WTE Plastic Surgeon employed by RLBUHT and St Helens and Knowsley Teaching Hospitals NHS Trust. It is envisaged that the current level of orthopaedic trauma support would transfer with the service to AUH. Discussion with St Helens and Knowsley is underway.

9.1.12 Impact on Ear Nose and Throat Services

Inpatient and day case ENT activity at RLBUHT takes place at BGH. This activity is currently 10 sessions of theatre time spread across 5 days at BGH. It is proposed that this activity is transferred to AUH. Capacity at AUH has been identified and the proposal is feasible in terms of theatre and bed capacity. ENT outpatient services would remain at BGH and would be unaffected by the proposal.

The ENT medical workforce will be required to work across three sites and to continue to provide emergency and critical care airway support at the RLBUHT. This means that the recruitment of an additional ENT consultant using existing funding is required. There is also the requirement for the funding of an additional 4 PA's of consultant sessions. This is included in Table 20 in Section 10 of this report.

9.1.13 Impact on Urology and General Surgery

Implementation of the two-site model is dependent upon relocation of Urology and General Surgery inpatient services currently undertaken at BGH. This is an internal reorganisation of services within RLBUHT.

General Surgery

General Surgery at RLBUHT currently use 6 theatre sessions on the BGH site and requires access to one inpatient and three day-case beds.

There is agreement that the inpatient service will move to the RLH site to allow AUHFT's elective orthopaedic activity to be accommodated. Options for alternative accommodation within the RLBUHT are being explored through a dedicated work stream.

Urology

Urology currently has 12 beds on the RLH site for acute admissions and for RLH site only cases (i.e. not fit for BGH patients). The specialty also provides day case and elective services through the urology centre at BGH using 21 theatres sessions.

As part of the reconfiguration proposal it has been agreed that BGH urology activity would transfer into the two theatres in the RLH vacated by the transfer of RLBUHT orthopaedic trauma to AUHFT. This would include specialist services such as robotic surgery.

The transfer of inpatient urology would align the service with the Specialist Cancer services at the RLBUHT. This includes gynaecological and colorectal cancer.

Currently patients requiring critical care access have to be planned onto bespoke lists at RLH. The transfer to the RLH site resolves this issue as the patients can be planned onto standard lists at the RLH. Furthermore, it would allow the acute urology admissions to be collocated with elective patients, enabling efficiencies through having dedicated urology nursing and medical cover on one ward.

The transfer would require movement of the Robot Equipment to the RLH with an estimated cost of approximately £10K.

9.2 Conclusion

Orthopaedic services rely on several departments and services in order to provide patient care, and therefore, the reconfiguration of orthopaedic services across Liverpool will significantly impact these departments. Furthermore, the LOTS Project Team have been working with the impacted services throughout the project to date and will continue to do so.

Many of the planned improvements outlined in this business case will be led by services such as theatres, anaesthetists and therapists, and therefore investment is required in these areas in order to deliver the benefits identified. The required resource has been worked through with key stakeholders and is reflected in the workforce modelling (Table 11 and Appendix 6); in total there is an increase of 16.78 WTE on 'day 1' compared to current budget and an increase of 1.76 WTE by 2022/23 compared to current budget.

10 Finance

Chapter Summary
• **Supported by some revenue and capital enablement monies, the proposal enables the implementation of a single city wide service which addresses the significant existing clinical risks and challenges without increasing the existing cost base.** • **The proposal provides the basis for delivering operational efficiencies which enable the delivery of future activity projections and the basis for the delivery of future financial efficiencies.** • **Gross savings across workforce lines against actual spend amount to £2.6m (7.1%).** • **Net savings across workforce lines against actual spend amount to £1.8m (5.2%).** • **Gross savings across workforce lines against establishment budgets amount to £1.9m (5.5%)** • **Net savings across workforce lines against establishment budgets amount to £1.3m (3.6%)** • **£381k procurement savings will be realised at the start of year 2.**

10.1 Financial Impact

The development of a single city wide T&O service will serve as an example of how service reconfiguration and new models of care can release financial savings whilst improving service delivery and clinical outcomes.

The aspiration of the service development is that alongside the clinical improvements the Trusts will drive out duplication, reduce inefficiency and identify efficiencies of c. 10% over five years, with the substantive proportion of that being delivered on bringing the services together.

From a commissioner perspective, the proposal provides a significant opportunity to improve close working between commissioners and hospital based clinician thus improving consistency of alignment with STP aspirations. The aim is to enable more effective and targeted initiatives to manage demand pressures in a city wide consistent way ensuring future service design is optimised and planned more effectively. It is not anticipated that the cost to commissioners will be adversely affected as a result of the development of a single service; in fact the development of a single service provides the optimum platform to ensure commissioner demand management projections are deliverable.

The anticipated financial improvements will be delivered through the adoption of best practice, scaled economy procurement, supplier rationalisation, improved rota management and more efficient management of staffing resources. The development of a single city wide service also presents an opportunity to review theatre utilisation and productivity.

Detailed workforce modelling has been undertaken to assess the current and future workforce costs of the service delivery model. This modelling has taken into account; anticipated demographic changes, identified improvements in the service delivery model and the requirement for additional workforce investment to ensure the new service delivery model is safe and sustainable.

This analysis has demonstrated a 3.6% saving against the current combined T&O budgeted workforce costs and a 5.5% saving against actual service delivery workforce costs. These workforce savings take in to account the pump priming investment which is required to support the delivery of new service models and pathways of care.

Table 17 profiles the anticipated savings by year post service reconfiguration.

Table 17: Summary of workforce costs against budget

	T&O Pay Budget	Forecast Saving
Current Year	£35.73m	
Year 1	£36.24m	-£0.5m (-1.44%)
Year 2	£35.89m	-£0.2m (-0.45%)
Year 3	£35.16m	£0.56 (1.59%)
Year 4	£34.97m	£0.8m (2.23%)
Year 5 (2023/24)	£34.45m	£1.3m (3.58%)

Table 18 and Table 19 set out the current revenue costs by site and then how they change following the implementation of LOTS. This information is broken down by staff discipline and includes directly related T&O staff and also the impact on wider specialties and disciplines.

Table 18: T&O Workforce Costs by site and over time (current budget, day 1 and future).

Costs	BUDGET			DAY-1			FUTURE		
Department	RLBUH	AUHFT	TOTAL	RLBUH	AUHFT	TOTAL	RLBUH	AUHFT	TOTAL
Elective Ortho Nursing	£2,492,752	£1,058,703	£3,551,455	£2,872,149	£0	£2,872,149	£2,872,149	£0	£2,872,149
Ortho Trauma Nursing	£2,539,883	£2,279,616	£4,819,499	£0	£5,705,560	£5,705,560	£0	£5,328,724	£5,328,724
Outpatients	£371,013	£391,277	£762,290	£371,013	£391,277	£762,290	£371,013	£391,277	£762,290
T&O Medical	£5,577,413	£3,654,310	£9,231,723	£5,650,213	£3,348,252	£8,998,465	£5,307,013	£3,348,252	£8,655,265
Admin	£1,597,815	£935,369	£2,533,183	£1,597,815	£935,369	£2,533,183	£1,536,737	£888,968	£2,425,705
Specialist Nursing & Trauma Co-ordinators	£631,154	£52,436	£683,590	£350,859	£333,536	£684,395	£350,859	£333,536	£684,395
Staff Bank and Agency	£0	£141,100	£141,100	£0	£0	£0	£0	£0	£0
Medical Bank and Agency	£0	£0	£0	£0	£0	£0	£0	£0	£0
Total	£13,210,031	£8,512,811	£21,722,841	£10,842,048	£10,713,994	£21,556,042	£10,437,771	£10,290,757	£20,728,528

Table 19: Support services Workforce Costs by site and over time (current budget, day 1 and future).

Costs	BUDGET			DAY-1			FUTURE		
Department	RLBUH	AUHFT	TOTAL	RLBUH	AUHFT	TOTAL	RLBUH	AUHFT	TOTAL
Therapies Elective	£567,175	£109,482	£676,657	£676,657	£0	£676,657	£676,657	£0	£676,657
Therapies Trauma	£594,949	£369,571	£964,520	£183,072	£964,520	£1,147,592	£183,072	£964,520	£1,147,592
Ortho Trauma Theatres	£1,718,477	£1,948,934	£3,667,412	£0	£3,435,597	£3,435,597	£0	£3,435,597	£3,435,597
Elective Ortho Theatres	£2,800,186	£2,208,336	£5,008,521	£5,419,556	£0	£5,419,556	£4,453,337	£0	£4,453,337
ENT Inpatient	£641,827	£0	£641,827	£0	£738,877	£738,877	£0	£738,877	£738,877
ENT Theatres	£588,239	£0	£588,239	£0	£616,966	£616,966	£0	£616,966	£616,966
OrthoGeri Medical	£156,000	£130,000	£286,000	£0	£286,000	£286,000	£0	£286,000	£286,000
Medical Cover at BGH	£0	£0	£0	£111,490	£0	£111,490	£111,490	£0	£111,490
OPERA	£0	£0	£0	£131,408	£0	£131,408	£131,408	£0	£131,408

Costs	BUDGET			DAY-1			FUTURE		
Pharmacy	£44,476	£0	£44,476	£0	£44,476	£44,476	£0	£44,476	£44,476
Imaging - Elective	£180,000	£93,755	£273,755	£273,755	£0	£273,755	£273,755	£0	£273,755
Imaging - Non- Elective	£443,892	£464,545	£908,437	£0	£857,123	£857,123	£0	£857,123	£857,123
Medical	£952,097	£0	£952,097	£0	£952,097	£952,097	£0	£952,097	£952,097
Total	£8,687,318	£5,324,624	£14,011,942	£6,795,939	£7,895,655	£14,691,594	£5,829,720	£7,895,655	£13,725,375

10.2 Financial Resource Requirements: Revenue Costs

In order to deliver the new service model additional workforce requirements have been identified to ensure the delivery of safe sustainable clinical care. These additional revenue costs have been scrutinised by the Orthopaedic Executive Steering Group and are essential to allow the reconfiguration to proceed.

Table 20: Recurrent Revenue Expenditure Required

Annual Revenue Investment Required	£'000
Additional Orthogeriatric Resource **Additional Consultant orthogeriatric input is required (1.3 PAs) to support the delivery of a safe orthogeriatric service within the redesigned model of care for T&O.**	£16
BGH OPERA Staffing **The implementation of the enhanced recovery area will enable more complex elective work to be conducted at BGH.**	£96
Virtual Fracture Clinic Staffing **The expansion of the VFC service to accommodate combined trauma activity will reduce number of hospital attendances and support physio-led patient management.**	£183
BGH Medical Cover and Increased Geriatric Resource **Senior registrar cover is required for a Monday to Friday 0800 ward round and to provide support for the Nurse Practitioners.**	£98
ENT Additional Consultant PAs **Additional Consultant ENT input is required (4.0 PAs) to support the delivery of a safe ENT service on the RLH site and allow for service delivery across sites.**	£52
NWAS Vehicle Costs **Emergency ambulance would be predicted to be additionally utilised for an extra 3 hours and 35 minutes per day if this service change is implemented. Costs cover extended job cycle time, mileage, vehicle wear and tear and fuel.**	£126
Employee Travel Costs	£10
Servicing of Capital **at 3.5% PDC**	£115
TOTAL REVENUE	**£696**

10.3 Financial Resource Requirements: Capital Costs

The reconfiguration also requires capital investment in ward and theatre infrastructure and these costs have been included in separate Trust loan applications to NHSI/DoH.

The initial estimate of capital funding requirement was £2.265m and this figure was included in the capital projections for both Trusts for 2017/18. However this estimate has been revised due to the deterioration in the financial position of both Trusts.

In summary, for the RLBUHT the capital costs for the theatre upgrade and delivery of an enhanced post-operative care model on the BGH site are £1.3m. For the AUHFT this amounts to £2.65m to support the upgrade of two theatres and the upgrade and reconfiguration of three wards. This is summarised in Table 21. Capital costs funded through NHSI capital funding loans.

Table 21: Recurrent Capital Expenditure Required

Capital Investment Required	£'000		
	Aintree	RLBUH	Total
AUHFT Additional Orthopaedic Ward	£1,250		
AUHFT Additional Orthogeriatric Ward	£750		
AUHFT Orthopaedic Ward Reconfiguration	£400		
AUHFT Main A Theatre Upgrade	£250		
BGH Theatres Upgrade		£1,250	
BGH OPERA Equipment. .		£50	
TOTAL CAPITAL	**£2,650**	**£1,300**	**£3,284**

10.4 Financial Efficiencies

Cost avoidance savings include procurement savings and the ability of the single, city-wide service to accommodate increased demographic demand anticipated within a reduced bed base. Financial efficiencies relate to improved workforce productivity and new models of care.

Post implementation against budget, the gross projected workforce efficiency savings total £1.9m (5.5%). Net of the recurrent financial investment in workforce and infrastructure required to deliver the new service model the workforce efficiency savings total £1.3m (3.6%) (see Table 20 and Table 21). Against actual spend, savings across workforce lines amount to £2.6m gross (7.1%) and £1.8m net (5.2%).

The value of projected savings increases by £381k when forecast procurement savings are accounted for.

These efficiencies assume that there is no increase in demand from GP referrals and/or tertiary referrals. They also assume that the service is able to recruit to all clinical roles negating the requirement for bank and agency staff.

As the operational work streams are mobilised, it is anticipated further efficiencies will be identified.

The schemes set to deliver the anticipated workforce efficiencies savings are detailed in the Table 22.

10.5 Financial Governance

It is proposed that the redesign of trauma and orthopaedic services will be the first service to be redesigned as part of the Trust transaction and service reconfiguration programme.

The proposed timescale for the T&O reconfiguration to be fully implemented will be aligned with the opening of the new Royal Liverpool hospital.

Table 22: Anticipated workforce efficiency savings through the implementation of the orthopaedic reconfiguration.

Scheme Description	Anticipated efficiency savings (£'000)				
	Year 1	Year 2	Year 3	Year 4	Year 5 (2023/24)
Elective pathways: More efficient use of the bed base at BGH, delivery of a single scheduling system and reduced variation. The benefit will be an increase in occupancy of BGH Bed base from 69% to 79% and a reduction in ALoS by 1 day for those stays over 5 days.	£678	£678	£678	£678	£678
Non-elective pathways: Improved non-elective care pathways resulting in a reduction in the 'pre-operative' waiting time by 1 day for 50% of cases and more effective early support discharge on the AUH site. Thereby allowing the service to accommodate increased demographic demand within a bed base.	-£786	-£660	-£534	-£409	-£409
Medical workforce efficiencies: Improved efficiency of service delivery as a result of elective capacity not being compromised by the requirement to respond to peaks in demand for trauma care and a reduction in duplication of clinical leadership posts will allow a reduction in consultant PA's	-£107	£13	£133	£237	£237
Management and administrative efficiencies: It is anticipated that the merger of the two orthopaedic services will enable the realisation of efficiencies in Management and Administrative Structures post-merger. It is estimated that a 5% saving will be made.	£0	£107	£107	£107	£107
Improved theatre efficiency: It is anticipated that the movement of AUHFT elective activity to BGH and a standardised booking and scheduling team will enable Improved pre-op, scheduling and throughput enabling one additional daycase per list. Resulting in one less theatre being required at a point in time post implementation.	-£440	-£440	£43	£43	£526
Bank and Agency Spend	£141	£141	£141	£141	£141
Total workforce efficiency savings	**-£513 (-1.44%)**	**-£159 (-0.45%)**	**£569 (1.59%)**	**£798 (2.23%)**	**£1,281 (3.58%)**

11 InformationTechnology and Support Infrastructure

Chapter Summary
• **A joint information technology system will facilitate the delivery of the orthopaedic single service. This will be in implemented through the Trust Merger and Electronic Patient Record (EPR) programmes.** • **There is a risk that EPR will not be fully embedded at RLBUHT for the 'go-live' of the orthopaedic single service.** • **A proven, short-term solution has been identified, which will meet the requirements of the service, should any delays to the single EPR arise.**

On creation of a single orthopaedic service patient information will need to be transferred between organisations so that, for example, patients who are seen in a trauma clinic at RLH can be listed for surgery at AUH. A joint information technology system is required to ensure transfer of patient information is efficient and secure.

AUHFT, LWH and RLBUHT have formed a strategic alliance and have jointly signed a memorandum of understanding to deliver integrated care and improve efficiency through the sharing of an Electron Patient Record (EPR) system as well as through other strategic initiatives. This partnership will look at achieving a more integrated service for patients, improving quality in clinical services and delivering more seamless patient pathways between the Trusts. In addition the initiative will deliver significant economies of scale in terms of IT systems, implementation and support costs, and act as an enabler for the Healthy Liverpool strategy and blueprint, the Cheshire and Mersey STP.

The aim is to deliver a patient-centric record that opens up the possibility for information to be shared seamlessly across health and social care in a controlled and accountable way. The EPR Solution is called TrakCare.

TrakCare is planned to be rolled out across RLBUHT, AUHFT and LWH in 2018/19. The current EPR implementation plan is that TrakCare will be operational in AUHFT in October 2018 and in RLBUHT in March 2019. However there is a risk that the system will not be fully embedded (bugs fixed and staff fully trained) for the launch of LOTS on April 1st 2019.

If the EPR programme is delayed, the two Trusts will be running different IT systems (as they do currently). Therefore, a short-term, single IT solution may be required to enable the single orthopaedic service to be delivered. From review of the Liverpool Vascular and Endovascular Service (LiVES) model the systems and processes that have been adopted by the LiVES team who work in clinic at AUH and operate at the RLUH could offer a potential mitigation solution should the TrakCare system not be in place at both the RLUH and AUH on April 1st 2019.

12 Public Consultation

Chapter Summary
• **As part of the development of the Healthy Liverpool Programme, pre-consultation engagement on the principles underlying the Orthopaedics & ENT reconfiguration was undertaken.** • **To further inform the service redesign process, a formal public consultation was led by NHS Liverpool CCG between 26th June 2017 – 15th September 2017** • **The main consultation feedback centred on travel and the ability of the services to respond to individual's needs.** • **People were asked to consider the benefits of specialised care from establishing a single orthopaedics team and concentrating elective and urgent services on two different sites. These principles were supported.** • **Mitigations are proposed in response to public consultation insights. These have been incorporated into the proposal now presented and included in a full Equality Impact Assessment (EIA).**

12.1 Pre-Consultation Engagement

From January 2016 to March 2016 Liverpool communities were asked to comment on the next stage of Healthy Liverpool Programme and the hospital programme in particular;

- Understand how Liverpool people feel about a co-ordinated service approach across the city to create one team and service for specialist areas.
- Understand how Liverpool people feel about hospital specialists working more closely with Community Care Teams and others
- Understand attitudes to travelling for care and use of digital healthcare.

The engagement included the following elements:

- Online discussions, videos, information and survey which was circulated widely and involved
- 15 community organisations carried out wide ranging and varied discussions within their communities, including addressing public sector equality duty requirements.
- 60 roadshows were held by the Commissioning Support Unit in areas of high footfall.

It shared with people the vision for single service city wide and how specialist services could work in a more coordinated way with community care teams. The example of a single cardiology services was shared as an example of how the approach may work.

The engagement identified participants did not understand how current hospital services are organised or commissioned and struggled to understand the new systems being proposed.

Being offered the same high quality of treatment regardless of where treatment takes place and being seen by the right staff who are experts in the identified needs of patients were identified are clear priorities for patients, above location of services. However, participants did want care as close to home as possible. This was especially important for the elderly, those with multiple/long term conditions and those without transport.

12.1.1 Formal Consultation

Findings from the pre-consultation engagement process were used to inform the development of the single service city wide principles, which have shaped the Orthopaedics and ENT proposals, reflecting the need for local services were practicable and central were necessary.

A public consultation was undertaken between the 26th June and the 15th September 2017 on the proposals for Orthopaedics and ENT services.

A range of methods were used to capture views and perceptions from Liverpool, South Sefton and Knowsley residents.

The consultation activities included:

- LCCG's website was used to share information about the review and host an online survey. The webpage received 3,870 visits during the consultation period and 436 people responded to the survey.
- A consultation document, which included a tear-out paper survey, was distributed to a range of community venues and hospital sites; this activity was enhanced by the option of supported completion of the survey in 22 community-based health settings across Liverpool, Knowsley and South Sefton. The volunteer teams at AUHFT and RLBUHT also supported patients to complete the survey – including Orthopaedic and ENT clinics/wards. AUHFT's volunteer team gave out 2160 surveys and directly supported 306 people to complete the survey. Volunteers at the RLBUHT gave out 907 surveys and directly supported 58 people to complete the survey.
- Healthwatch organisations across Liverpool, Knowsley and Sefton shared information about the review across their networks and promoted opportunities for people to share their views. In addition, Healthwatch Knowsley and Healthwatch Sefton hosted an event for their members to hear more about the review and share their views.
- Partner organisations, including AUHFT and the RLBUHT, NHS Knowsley CCG and NHS south Sefton CCG promoted the consultation through their networks – both to patients and staff. Information was also shared on partner's websites and through their social media
- Teams across the local NHS shared information with their patients during the consultation period, including the Falls Teams across Liverpool and South Sefton, Liverpool's Community Equipment service and Liverpool's Social Inclusion Team.
- LCCG's engagement team attended 20 community meetings across Liverpool, Knowsley and South Sefton to discuss the review with attendees and support them to complete the survey.

- Community engagement was also undertaken by six engagement partners (local community organisations) who were commissioned to work in partnership with LCCG to enable input from diverse communities who would not usually engage and share their views with the NHS.
- Social media campaign, which reached 57,860 people via Facebook and generated 94,204 Twitter impressions.
- Local media coverage included Liverpool Echo and BBC Radio Merseyside.

12.2 Findings

Overall, there were 2,000 responses to the consultation; 1,757 received through a completed survey and 243 individuals involved in 19 focus groups. These cannot be assumed to be 2,000 separate individuals as some participants in a focus group may also have completed a survey. A full breakdown of survey numbers and profiles can be found in Appendix 8.

Perspective on Proposed Plans

The perspective of survey respondents on the orthopaedic plans were generally positive, with only 12% (207/1719) thinking it was not the best plan. However, over a quarter of respondents (28%, 489/1719) could not decide whether it is the best plan or not.

The predominant reason cited was the distance needing to be travelled for service users, although fears about quality of patient care and increased waiting times and general preference for an existing hospital's character over another were also voiced.

The distribution of views was broadly consistent across geographic areas, although residents of South Sefton were the least likely to agree with the plans (53% compared with 60% overall).

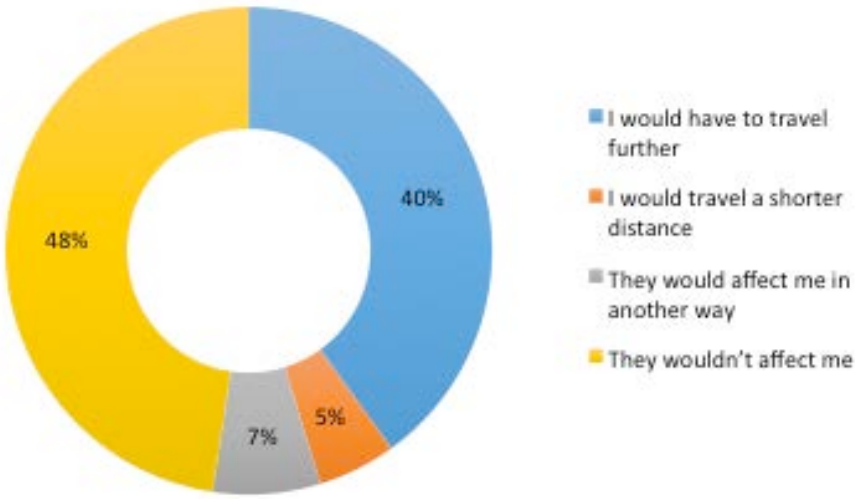
The perspective of survey respondents on the ENT plans were generally positive, with only 9% (162/1711) thinking it was not the best plan. However, a third of respondents (33%, 559/1711) could not decide whether it is the best plan or not. As with orthopaedics, the predominant reason cited was the distance that would need to be travelled for service users, with a similar spread of other concerns to those voiced for orthopaedics.

As with orthopaedics, the distribution of view was broadly consistent across geographic areas, except conversely residents of south Sefton were the *most* likely to agree with the plans (65% compared with 58% overall).

Personal Impact

When asked how the changes would affect themselves, of those completing the survey nearly half did not consider that the changes would have any impact on them (48%, 815/1711; Figure 8). Amongst the other respondents, the main impact was felt to be travel time with 40% (685/1711) reporting they would have to travel further and 5% (89/1711) travelling a shorter distance. Amongst the 'other' impacts reported, travel issues and concerns on decreasing quality of patient care were the most frequently mentioned.

Figure 8: Responses to the question: How might the changes affect you?

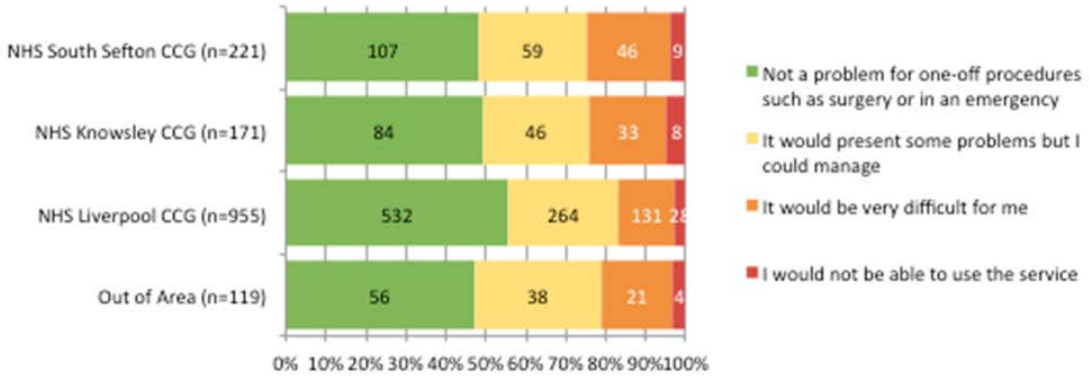


Perspectives differed by region with respondents outside the area of the consultation feeling least affected by the changes (66% reporting no affect compared with 48% overall) and respondents in South Sefton most likely to feel they would need to travel further (47% compared with 40% overall).

Faced with a future need to travel further for services, over half of survey respondents (53%, 796/1514) did not consider this to be a problem for one-off procedures, with a further 44% (667/1514) considering it would present some or a serious problem. A small number (3%, 51/1514) considered it would prevent them from using services altogether, usually because of poor transport options or their physical capacity to travel (Figure 9).

The more vulnerable members of society: the elderly, the disabled, those with sensory impairments, those with learning disabilities, and particularly those who did not own a car had most concerns about the proposed changes.

Figure 9: Views on Travel Times by geographical area.



Around two-thirds of survey respondents were willing to travel up to 45 minutes to a one-off planned procedure and this was similar in each area (see below). Respondents from out of the area were generally willing to travel for longer or had no preference.

12.2.1 Having Due Regard for Consultation Findings

The proposed reconfiguration of Orthopaedic and ENT services relate to threshold changes i.e. patients going to different places - they do not change criteria for accessing services. The two main issues identified within the consultation relate to access and the ability of the services to accommodate different people's needs.

The vast majority of patient interactions with the T&O service are as out-patients and it is planned that these would continue to take place 'close to home'.

Access to orthopaedic medical care through local emergency department at either the RLH or AUH is unaffected for patients who "self -present" at the emergency departments. Patients who require an emergency ambulance will be assessed and taken to the clinically appropriate emergency department.

The proposed option would mean that some patients requiring inpatient surgery would face a slightly longer journey for their in-patient and day-case activities.

Using actual activity for each GP Practice and the Practice location as a proxy for the patients' home address, the average additional distance patients would have to travel to the various sites has been calculated.

The assessment is that the majority, 59% of patients, would be advantaged or unaffected by the proposed change. 41% of patients will have to travel an average of an additional 2.3 miles to access services.

For patients who do not access to a motor vehicle access to public transport between their local hospital and the inpatient care provider hospital is essential.

The full consultation report, which details engagement mechanisms, reach and findings, can be found in Appendix 8 and at www.healthyliverpool.nhs.uk.

Mitigation Actions

Mitigations in response to public views on transport and the ability of the services to accommodate different people's needs are summarised in Table 23 and within the Equality Impact Assessment (EIA) – see Appendix 9.

Table 23: Key concerns and mitigating actions in response to public views expressed in the public consultation

Issue	Mitigation
Concerns regarding impact on quality of care.	Further engagement with service users to understand perceptions around quality of care and how these could be addressed/reassurance offered. This can run in parallel with approval processes.
Transport concerns.	***Immediate actions:*** MerseyTravel app embedded on each Trusts website – offers access routes to hospital. Patient letters - include a reminder of how people can find information regarding travel options – i.e. link to MerseyTravel and their phone number. Have information available of criteria for accessing patient ambulance service. ***Short-term actions:*** Staggered admissions and scheduling – opportunities for coproduction and can run in parallel with approvals process. Consideration is being given to the approach adopted by other Trusts. Monitoring DNA data by protected characteristics to ensure equality of access.
A change of service location can cause anxiety for older people and individuals with learning disabilities	Use pre-op assessment proforma as a check for staff to flag up that patients with LD can go to the centre in advance to get used to the environment if they wish. This already happens in AUHFT.

Approval Timescales

The proposed reconfiguration of orthopaedic services in Liverpool is subject to scrutiny and approval from local and national bodies including Council Overview and Scrutiny Committees, CCGs and NHS England. Table 24 shows all key approval milestones associated with the proposed orthopaedic and ENT service changes.

Table 24: Tasks and timescales for approval of the single, orthopaedic service.

Deadline	Approval Task
January 2018	Initial report on Public Consultation received from CCG.
February 2018	Decision required by Finance and Performance Committee (F&P) and Trust Board to approve Laminar Flow Payment Options and Capital costs. Decision required by F&P and Trust Board regarding project revenue costs.
May 2018	T&O Redesign Final Business Case approval by Trust Boards.
TBC	Anticipated date of response from NHSE with regard to the T&O Redesign Final Business Case (Response to December 2016 NHSE Service Change Assurance Document in Appendix 10).
TBC	T&O Redesign Final Feasibility Study submitted to CCG Governing Bodies, Council OSCs and Joint OSC for approval.

13 Project Implementation and Governance

Chapter Summary
• **Implementation and phasing of the service model required to deliver the strategic intent of a single city-wide Liverpool Orthopaedic and Trauma Service is being developed as part of the project work streams.** • **Key pieces of work include the capital upgrade works, development and approval of the new service specifications, staff engagement and consultation, and recruitment.** • **The detailed phasing and mobilisation requirements will be developed through the project subgroups.** • **The LOTS Project Team are governed by the Orthopaedic Executive Oversight Group**

Implementation and phasing of the service model required to deliver the strategic intent of a single city-wide Liverpool Orthopaedic and Trauma Service has been scoped and is set out in this Chapter. Key milestones are provided and the project governance structure is described.

13.1 Service Mobilisation and Implementation

Preparing for operational delivery

The project to date has involved an assessment of the feasibility of the proposed LOTS model (from a capacity and demand perspective) and the approval of the plans to move the project forwards from both Trust's Boards, the public, local stakeholders, such the LCCG and local councils; and from national bodies, NHSI and NHS England. Although further approvals of this final business case are required, the project is now moving towards the preparations for implementation and operational delivery of LOTS. Key milestones are described in Table 25.

Preparing for operational delivery will require the services to develop detailed clinical and operational service specifications and standard operating procedures (SOPs). The LOTS Project Team will facilitate the continued engagement and communication of the various support functions throughout the development of their plans to ensure that these are aligned and complementary. The Project Team will also support the approval of these through the relevant programme and operational boards and committees.

The clinical leads and Project Team have identified service elements that can be implemented prior to the launch of LOTS. These include OPERA at BGH, extension of VFC at AUHFT, the OAU at AUHFT and improved pre-op pathways at RLBUHT and AUHFT. This will help to spread the load of work across the year and will allow some of the service elements to become embedded before the reconfiguration. Some of these changes will require recruitment of new staff which has been considered in the implementation plan (Appendix 11).

As described in previous chapters, there are estates upgrades required to enable the reconfiguration. There are on-going works to theatres at AUHFT which are required to accommodate the combined orthopaedic trauma demand; these are expected to be completed by summer 2018. Further capital works are required for wards at AUHFT and theatres at BGH (as outlined in Chapter 8). Capital investment for these works is anticipated at the start of the financial year 2019/20 and a 6 month completion timeline has been confirmed.

Stakeholder engagement

Workforce engagement is key to the successful mobilisation of the service. To date wider staff engagement has been secured through a number briefing events which have been held at RLBUHT and AUHFT. This has been supported through the production of Orthopaedic Redesign Frequently Asked Questions (FAQs) which have been made available on both Trust internet sites. Staff have also formed part of the work stream activity as part of the pre-mobilisation planning and have therefore been involved in the shaping and design of the future operational service models. This engagement will continue during the mobilisation and implementation phases.

Table 25: Project milestone Milestones

	Milestones	Start	End
	Estates and Accommodation		
MS5	AUHFT Theatre Upgrades Complete	15/09/17	27/04/18
MS6	BGH Theatre Upgrades Complete	16/04/18	22/10/18
MS7	AUHFT Ward Upgrades		
	Service Models and SOPs		
MS8	Approval of Service Specifications and SOPs - Orthopaedic Executive Oversight Group	April 18	July 18
MS9	Approval of Service Specifications and SOPs - Clinical & Safety Governance	July 18	Sept 18
MS10	Launch Orthopaedic Admissions Unit	3 months prior to go live	
MS11	Launch new pre-op pathways	3 months prior to go live	
MS12	Launch OPERA at BGH	3 months prior to go live	
MS13	Launch Virtual Fracture Clinic	3 months prior to go live	
MS14	Reassess potential impact of NWAS Triage Tool	July 18	October 18
MS15	Launch Patient Scheduling Hub	6 weeks prior to go live	

Workforce (Recruitment/Training/Engagement)		
MS16	Staff Engagement Briefings #2	Ongoing
MS17	Staff Engagement Briefings #3	Ongoing
MS18	Recruitment for Early Launch Services	6 months prior to go live
MS19	Prepare for Staff Consultation process	9 months prior to go live
MS20	New staff inductions (OPERA/VFC/Med Cover)	3 months prior to go live
MS21	Staff Engagement Briefings #4	Ongoing
MS22	Formal Staff Consultation	3 months prior to go live
MS23	Recruitment for go live	3 months prior to go live
Public and Stakeholder Engagement		
MS24	Implement Public Consultation Mitigation Plan	2 months prior to go live
Specialty Moves and Implementation		
MS25	Elective T&O at AUHFT Stops	4 weeks prior to go live
MS26	Prepare AUHFT for Increase in Orthopaedic Trauma	4 weeks prior to go live
MS27	NWAS Divert Starts	3 weeks prior to go live
MS28	Orthopaedic Trauma at RLH Stops	3 weeks prior to go live
MS29	ENT Inpatients Move from BGH to AUH	3 weeks prior to go live
MS30	Urology Inpatients Move from BGH to RLH	2 weeks prior to go live
MS31	General Surgery Inpatients Move from BGH to RLH	2 weeks prior to go live
MS32	Elective Orthopaedics moves from AUH to BGH	Service redesign complete

13.2 Project Governance

13.2.1 Orthopaedic Executive Oversight Group

The Orthopaedic Executive Oversight Group (EOG) comprises of key stakeholders from Trusts and Commissioners across Merseyside, and leads and directs the planning and implementation of the LOTS Model.

The Group is responsible for:

- The direction, management, delivery and governance of the orthopaedic redesign programme

- Managing the strategic risks relevant to its area of responsibility and to provide assurance that the risks are being managed.

The Orthopaedic EOG is chaired by the Trust Integration Director.

This group includes clinical, managerial representation from both AUHFT and RLBUHT, representation from Liverpool CCG, North of England Specialised Commissioning Team, Cheshire & Mersey Major Trauma & Adult Critical Care Operational Delivery Networks and the North West Ambulance Service NHS Trust (NWAS).

The Orthopaedic EOG reports to the Transaction Programme Steering Group. Via this route the Boards of each respective Trust will be informed of key decisions, risks and mitigations associated with the design, delivery and implementation of the orthopaedic redesign programme.

13.2.2 LOTS Project Team

LOTS Project Team is authorised by the Orthopaedic EOG to lead and direct activities so that the requirements of the project are delivered.

The Team is authorised to establish task and finish subgroups with relevant membership to ensure that the project deliverables are completed in line with the project plan and expected completion dates

The Transaction Programme Board, looking at the wider merger process and creation of a single service model across the city has also established subgroups into which the LOTS Project Team will be expected to feed into as one of the first services to go live with single service. These are outlined in Figure 10.

13.2.3 Reporting

The actions arising from all meetings of the LOTS Project Team meeting are formally recorded and circulated after each meeting.

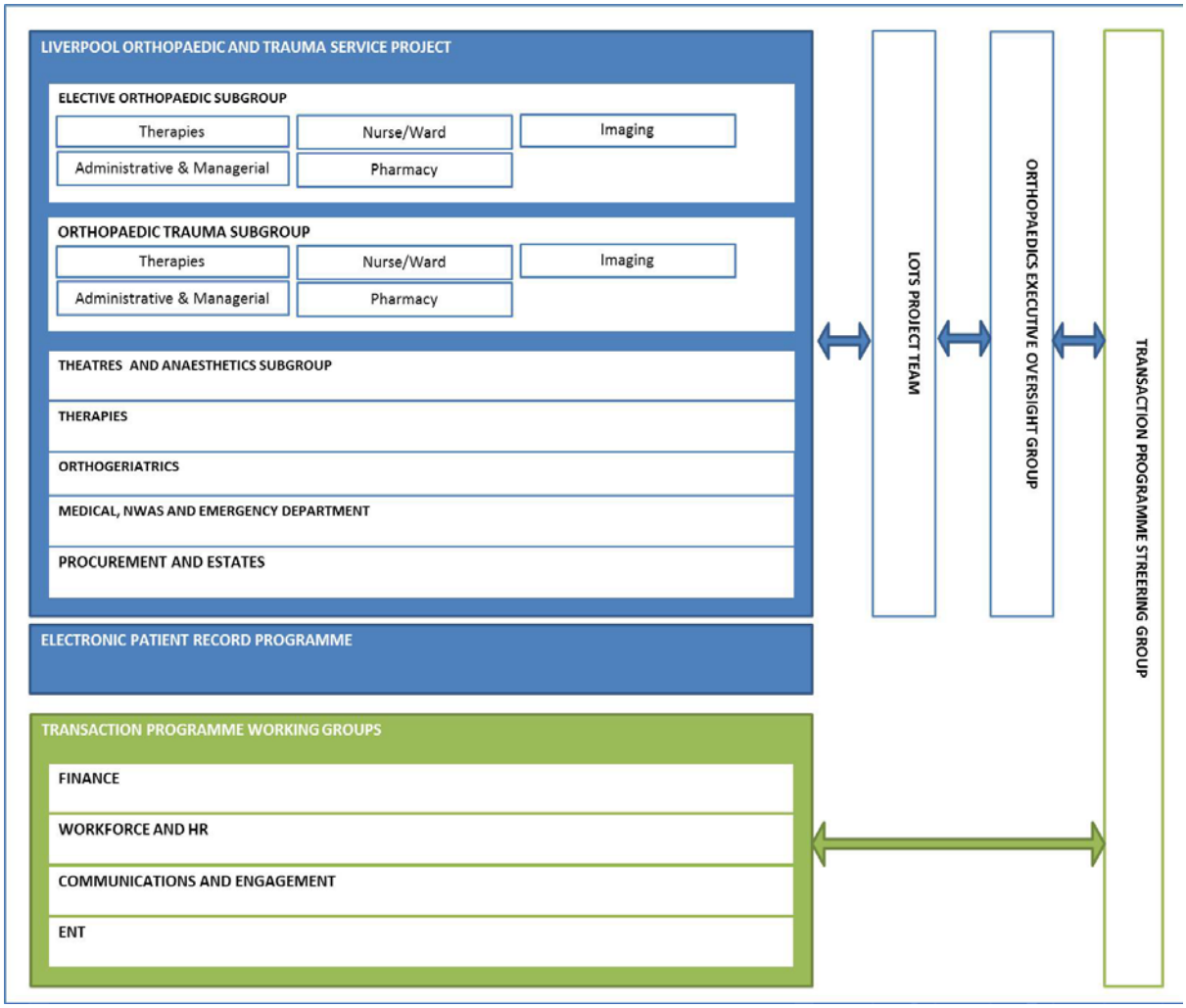
The project subgroups and task and finish groups will report into the LOTS Project Team via a nominated lead from the LOTS Project Team outlining progress and highlighting any risks or issues.

The LOTS Project Team will report to the Orthopaedic Executive Oversight Group (EOG) and will ensure it receives regular updates from any group reporting in via, for example, highlight reports and exception reports.

13.2.4 Benefit Realisation

The success of the project will be measured against key performance indicators (KPIs). The LOTS Project Team are responsible for monitoring project benefits against the identified KPIs detailed in Chapter 7.

Figure 10: Work stream set up for the LOTS project.



14 Project Risks

Chapter Summary
• **Risks to project delivery are identified and raised at LOTS Project Team Meetings and project subgroup meetings.** • **Risks are captured on a risk log and are regularly reviewed.** • **High scoring risks are escalated to the Orthopaedic Executive Oversight Group.** • **Key risks to project delivery are related to:** – **Transaction and Integration Programme not proceeding.** – **Lack of availability of capital and revenue funding required.** – **Failure to engage all stakeholders including the public.** – **EPR system not in place prior to reconfiguration.**

14.1 Risk Management

Risk will be managed as per the Transaction and Integration Programme risk management process.

14.2 Risk Log

A number of risks have been identified during the development of the project. These risks, together with mitigation strategies, are incorporated into a risk register and a regular review and reporting process has been embedded into the project. High scoring risks are escalated to the Orthopaedic Executive Oversight Group.

A summary of key project risks and mitigations is provided in Table 26 and the full risk register is provided in Appendix 12.

Table 26: Key project risks and mitigations.

Project Risk	Impact	Controls and mitigation
Transaction Programme does not proceed.	Redesign of orthopaedic services does not proceed. This will impact negatively on both RLBUHT and AUHFT. In terms of the orthopaedic reconfiguration project, if the Transaction Programme and the merger does not go ahead, the project cannot continue.	• Contingency plan for the transfer of the RLBUHT orthopaedic trauma service into the New Royal building is under development with the New Royal Build team. • Contingency planning at specialty level to support mitigation plans for New Royal bed pressure reduction due to transfer of Orthopaedic Trauma Service into New Royal. • AUHFT mitigation: Reducing elective capacity, prioritise workforce towards trauma.
Lack of availability of revenue funding	Lack of availability of revenue funds mean that additional workforce requirements will not be recruited: OPERA staffing, NWAS costs and Laminar flow upgrade costs. This would prevent the implementation of new service models and therefore the reconfiguration proceeding.	• Detailed scrutiny of all revenue costs by project team and Executive Steering Group to challenge and validate revenue costs. • Communication of required revenue costs to Trust Executives highlighting requirements and risks. • Contingency plan for the transfer of the orthopaedic trauma service into the New Royal building is under development with the New Royal Build team. • AUHFT mitigation: Reducing elective capacity, prioritise workforce towards trauma.
Delayed implementation	Delay in implementation of the agreed two-site model for the joint orthopaedic service could affect workforce capacity to deliver current Orthopaedic services. Uncertainty will further reduce staff retention, increase staff turnover and create difficulties for staff recruitment.	• Preferred option has the support of each Trust Board and Liverpool CCG. • Extensive clinical and management engagement confirms that the Service Delivery Model can be implemented successfully. • Continued engagement with staff and key stakeholders in development of service model and implementation planning.

Project Risk	Impact	Controls and mitigation
		• Communication updates to staff supported by Human Resources and Communications teams. • Clinical management of clinical teams and rotas and vacancy management and recruitment.
Failure to plan and deliver workforce service change	Risk of gaps in workforce provision following the reconfiguration of services as a result of failure to engage all stakeholders, leading to lack of stakeholder support.	• Clarity of workforce planning. • Stakeholder mapping. • Separate work streams and delegation of workforce planning to specialty and support service management. • Service improvement methodology agreed with monthly Orthopaedic Executive Oversight Group level scrutiny panel to prioritise and approve project work streams. • Engagement issues escalated to Orthopaedic Executive Oversight Group. • Programme Management Office support to project. • Significant progress in partnership working with Staff Side. • Human resource engagement and support. • Staff engagement strategy. • Stakeholder and staff engagement in work streams for revised service delivery model and patient pathway development. • Additional workforce costs scrutinised and to be offset against efficiencies over 5 years. • Financial team involvement in workforce modelling.
Inability to secure the workforce capacity required in key specialties	Risk of gaps in workforce provision following the reconfiguration of services as a result national and local recruitment difficulties.	• Clinical sustainability issues escalated to Orthopaedic Executive Oversight Group. • Human resource engagement and support to promote recruitment opportunities

Project Risk	Impact	Controls and mitigation
Judicial Review	With any major service change there is risk of judicial review that could delay any major service changes taking place. Robust governance and	• CCG led Public Consultation took place July to September 2017. With wide engagement of patients and affected patient groups in the region (see Public and Patient Involvement) • Project managed and coordinated with Liverpool CCG Hospital Services Team. Prior to agreement to proceed to public consultation the case for change was completed and signed off by RLBUHT Executive board, AUHFT Executive board, Healthy Liverpool Programme Board and the CCG's Committee's in Common. • The case for change was sent to the Liverpool, South Sefton and Knowsley Council Overview and Scrutiny Committee prior to Public Consultation. • Site visits by OSC Committee to AUHFT and BGH to see proposed sites of reconfiguration and speak directly to staff. • Options appraisal & sensitivity analysis process that included a number of workshops with both CCG, clinical and managerial representation from both Trusts.
Public & Patient Involvement	Failure to involve the public in planning during business case development process, in accordance with legislation and guidance is likely to lead to legal challenge to the process; this could result in significant delay or failure of the programme.	• Liverpool CCG has led a public consultation for the proposed orthopaedic reconfiguration, under the umbrella of Healthy Liverpool and involving partners in Sefton & Knowsley CCG's. • Engagement with Liverpool, Sefton and Knowsley OSC's. • Orthopaedic public consultation has taken place - completed September 2017. • Engagement programme established with clear identification of stakeholders and required levels of

Project Risk	Impact	Controls and mitigation
		involvement.
Failure to deliver BGH Orthopaedic Enhanced Recovery Area (OPERA) and supporting Medical Cover	Failure to deliver the OPERA model and supporting medical cover. This would prevent the transfer of elective activity to the BGH site and prevent the proposed reconfiguration from proceeding.	• Engagement with all Clinical Stakeholders to ensure scrutiny and consensus on delivery of OPERA model and medical cover model. • The provision of 1.5 registrar grade posts would provide medical specialty cover for BGH as well as wider in-hours medical cover for the BGH site. Out of hours cover is being explored. • Revenue costs for medical cover provision submitted to Trust Executives as part of the capital and revenue requirements for project delivery.
Activity levels differ from projections.	Following reconfiguration there is a risk of significant variation in activity that would result in operational pressures that affect service delivery or demonstrate shortfall in available workforce.	• Demand and capacity work has been completed as part of the feasibility study. Projections have been made based on extensive activity modelling and this has been regularly refreshed to monitor for fluctuations over time. • Modelling has allowed for increased growth in service demand due to ageing population, clinical scenarios and degree of tolerance for fluctuations and increases in demand. • Stakeholder engagement in capacity and demand modelling. • Ownership of workforce modelling at service and subspecialty level. • Specific analytical support through feasibility study development to ensure continuity and consistency of activity modelling.

Project Risk	Impact	Controls and mitigation
Information Technology	At the point of reconfiguration the two Trusts will be running different IT and EPR systems. The reconfigured service requires the transfer of information between sites to allow for the scheduling of patient admissions, surgery and recording of clinical records.	• Engagement and support of the Trust's Director of Information technology. • Engagement with information governance stakeholders • Identification of existing proven models to provide a short-term IT solution for the single service. From review of the Liverpool Vascular and Endovascular Service (Lives) model the systems and processes that have been adopted by the Lives team who work in clinic at AUHFT and operate at the RLBUHT could offer a potential fixed term solution until the move to the new TrakCare system is in place at both the RLBUHT and AUHFT. • Proposed solution would be to develop an orthopaedic scheduling hub for the service to facilitate the registration of patients and the transfer of information between AUHFT and the RLBUHT systems in a controlled manner with minimal number of hand offs and process steps. • Remote access to clinical systems for clinicians on both sites.
Failure of new service model to deliver required efficiencies	Proposed financial savings will not be realised	• Specific analytical support through feasibility study development to ensure continuity and consistency of activity modelling. • Modelling has allowed for increased growth in service demand due to ageing population, clinical scenarios and degree of tolerance for fluctuations and increases in demand. • Project benefits will be monitored from the outset of service mobilisation so that remedial action plans can be developed if required

15 Conclusion

Chapter Summary
• **This business case has clearly set out the need to merge and reconfigure orthopaedic services in Liverpool to deliver clinical and financial improvements as well as to ensure services are sustainable in the local and national health economy.** • **The Public Consultation findings demonstrate that the public think the plans to create a single orthopaedic service in Liverpool is in the best interest of the city and its residents.** • **Comprehensive demand and capacity analysis and modelling for the proposed model has provided confidence that the model is feasible and deliverable within existing resources, albeit with some revenue and capital investment required.** • **Overall the capacity and demand work, workforce modelling and financial analysis has demonstrated that by 2022/23 a significant saving will be realised as a result of the merge and reconfiguration of orthopaedic services.** • **The project deliverables and associated benefits demonstrate the planned changes are in line with the case for change and will bring about benefits for patients in terms of improved clinical outcomes, safety and experience.** • **Further work is now required to develop and approve the detailed service specifications in line with the safety and quality standards of both Trusts. Following this, a detailed mobilisation plan is required from each work stream that details move requirements and timescales.**

RLBUHT and AUHFT both provide separate T&O services in Liverpool. This means there is a degree of duplication and waste in the system as a whole and variation in practice across the city. The current set up is not value for money nor does it meet national recommendations for orthopaedic services. National and local initiatives are driving a vision for hospital services that sees acute services running from a single NHS Trust to deliver services that meet the needs for an aging population whilst providing value for money.

Key stakeholders from both AUHFT and RLBUHT have agreed that merging the T&O services in Liverpool is the only way forwards to improve patient outcomes and to sustain clinical services in the local health economy. Through an options appraisal process, key stakeholders have proposed that a two-site model for orthopaedic services in Liverpool would be most likely to deliver required patient and efficiency benefits.

The Public Consultation findings demonstrate that the public think the plans to create a single orthopaedic service in Liverpool is in the best interest of the city and its residents.

The two-site model, or the Liverpool Orthopaedic and Trauma Service (LOTS), will see elective orthopaedic services delivered from a dedicated centre at BGH and orthopaedic trauma services delivered from a single site at AUH. Orthopaedic outpatient services would be unaffected with continued provision of service from all sites i.e. AUH, BGH and RLH. In

most cases, emergency orthopaedic trauma patients would be brought directly to AUH if being transported by ambulance and those on foot would be able to access orthopaedic emergency services from both EDs (RLH and AUH).

The proposal meets the government's four tests of service reconfiguration, namely:

- Strong public and patient engagement
- Consistency with current and prospective need for patient choice
- Clear, clinical evidence base
- Support for proposals from commissioners

Examples of these can be found in the sections and pages detailed in Table 27.

Table 27: Location of evidence for meeting the four tests of service reconfiguration.

Section	Page	Four tests area
Case for Change	19	Clear, clinical evidence base
Options Appraisal	23	Support for proposals from commissioners
Preferred Option	28	Consistency with current and prospective need for patient choice.
Feasibility of Preferred Option	47	Consistency with current and prospective need for patient choice.
Public Consultation	72	Strong public and patient engagement; Support for proposals from commissioners
Orthopaedic Options Appraisal Report. (Appendix 2)	92	Support for proposals from commissioners

Implementation of the dedicated elective and orthopaedic trauma units will mean that activity will shift across the city between the three sites. These changes can be accommodated within existing capacity; however other specialties will be required to move to enable this, in summary:

- AUHFT orthopaedic inpatient elective activity will move to BGH.
- RLBUHT orthopaedic trauma inpatient activity will move from RLH to AUH.
- RLBUHT ENT inpatient activity will move from BGH to AUH.
- RLBUHT Urology and General Surgery inpatient activity will move from BGH to RLH.

There is sufficient theatre capacity at each site to accommodate the shifts in activity described. However, AUHFT and RLBUHT (BGH site) require theatre upgrades to accommodate the move of orthopaedic activity. A minimum of two operating theatres require laminar flow upgrades at BGH in order to accommodate the increase in elective orthopaedic activity. In order to safely accommodate the additional trauma work, AUHFT require the

theatres to be upgraded; the ventilation plant serving two operating theatres requires upgrading to ultraclean to allow for additional capability and resilience.

There is an existing pressure of 8 beds in the system caused by orthopaedic trauma demand. This trauma demand will be accounted for in the future model. The increase in 3 beds across the health system relates to T&O other specialty bed usage which cannot be removed from RLBUH (1.2 beds critical care, 0.2 beds emergency department, 1.5 beds other specialty use). However, AUHFT require capital investment to fund ward upgrades and reconfiguration to safely accommodate the increase in orthopaedic trauma activity.

Orthopaedic services rely on several departments and services in order to provide patient care, and therefore, the reconfiguration of orthopaedic services across Liverpool will significantly impact these departments. Furthermore, many of the planned improvements outlined in this business case will be led by services such as theatres, anaesthetists and therapists, and investment is therefore required in these areas in order to deliver the benefits identified. However, workforce efficiencies scheduled to be delivered between years 1 and 5 post-implementation will largely offset these initial investments.

The LOTS model is expected to realise benefits for the patient including quality, efficiency, safety and experience benefits.

Several of the project deliverables aim to ensure that the patient sees the right clinician at the right time (e.g. VFC and Consultant trauma team model); these will deliver improved patient outcomes and experience through a reduction in unnecessary appointments, quicker access to emergency surgery and decreased LOS. The creation of a dedicated elective orthopaedic centre will see the entire clinical team performing a larger volume of elective work meaning a more experienced and skilled workforce. This, combined with ring-fenced beds for elective patients, will mean a reduction in the number of cancelled operations, waiting times and surgical complications.

Improved clinical sustainability will arise from achieving sufficient scale to protect specialist services, maintaining sustainable consultant rotas and consequently the ability to recruit and retain highly skilled staff.

Many of the quality and efficiency benefits will translate into workforce and financial benefits due to a reduction of waste through duplication of MDTs; and, smoother patient pathways, a reduction in the cost of moving to 7-day services, reducing patients' LOS and the number of beds required (despite demographic growth). Analysis has demonstrated a 3.4% saving against the current combined T&O budgeted workforce costs and a 5.2% saving against actual service delivery workforce costs. These workforce savings take in to account the pump priming investment which is required to support the delivery of new service models and pathways of care.

Summary

This business case has clearly set out the need to merge and reconfigure orthopaedic services in Liverpool to deliver clinical and financial improvements as well as to ensure services are sustainable in the local and national health economy. Comprehensive demand and capacity analysis and modelling for the proposed model has provided confidence that the model is feasible and deliverable within existing resources, albeit with some capital investment required. The project is aligned with both the Transaction and Integration

Programme and the EPR Programme to ensure that key, overarching work is considered into the planning and delivery of the LOTS Project. Further work is now required to develop and approve the detailed service specifications in line with the safety and quality standards of both Trusts. Following this, a detailed mobilisation plan is required from each work stream that details move requirements and timescales.

Appendix 2

Orthopaedic and ENT Reconfiguration
Equality Analysis Report

Section 1

Details of service / function: (Clearly identify the function & give details of relevant service provision and or commissioning milestones (review, specification change, consultation, procurement) and timescales.

This project involves changes to the way Liverpool's hospital based Orthopaedic and ENT services are delivered.

Orthopaedics covers injuries and diseases of the body's muscles, skeleton and related tissues including the spine, joints, tendons and nerves.

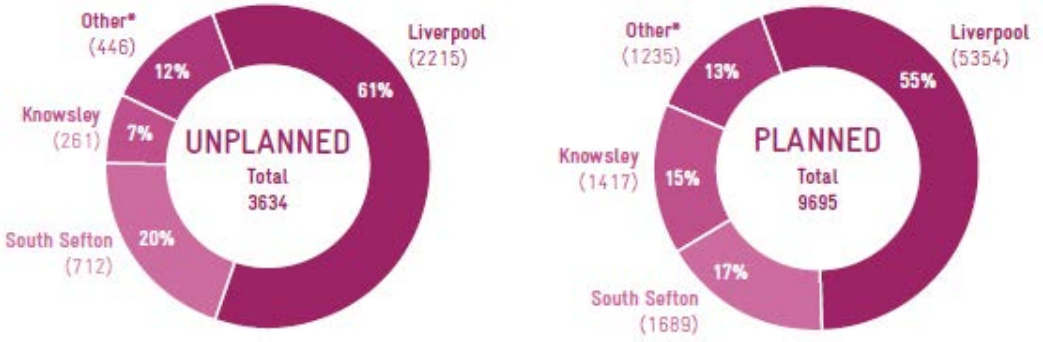
Within Liverpool, adult Orthopaedic services are provided by both University Hospital Aintree and the Royal Liverpool and Broadgreen hospital. These services provide emergency and non-emergency care that may:

- diagnose injuries or disorders using X-rays, blood tests or other tests
- treat injuries or conditions with medication or surgery
- recommend exercises or physiotherapy to restore movement, strength and functionality

Each Trusts offer a full range of Orthopaedic services, including Lower Limb, upper limb, hand, foot and ankle, spinal, pelvic, fracture services and Orthopaedic Trauma. In addition, University Hospital Aintree is the regional Major Trauma Centre for Cheshire and Merseyside.

In 2015/16, there were a total of 3,300 planned inpatient admissions for Orthopaedic services across Aintree and the Royal Liverpool and Broadgreen (not including planned spinal admissions). There were also 6,395 day case admissions. This makes 9,695 planned admissions in total. Over the same time period, there were 3,634 admissions for orthopaedic trauma.

The chart below shows which Clinical Commissioning Group area the people who made up these admissions came from.



(*Other includes people from areas such as Wirral, Southport & Formby, West Cheshire, St Helens, Halton, Warrington, West Lancashire and Wigan.)

Ear, Nose and Throat (ENT) services, diagnose and treat diseases of the ear, nose, throat and the head and neck along with providing head & neck cancer specialist treatment.

The current ENT services in Liverpool are split across The Royal Liverpool and Broadgreen Hospitals NHS Trust and Aintree University Hospital NHS Foundation Trust. Each Trust offers outpatients services, inpatient care and day care services. The Regional Head and Neck Cancer Service is provided by Aintree Hospital and services are spread across a number of other hospitals in the region.

The volume of planned in-patient/day case ENT activity, split by BGH/AUH site is shown below.

CCG	ENT	%
Liverpool	953	89%
Knowsley	123	11%
TOTAL	**1076**	**100%**

Section 2

What is the legitimate aim/s of the service change / redesign?

The reconfiguration has five core aims:-

To make the most of Liverpool's orthopaedics expertise

There is strong evidence that orthopaedics patients receive better care when they are treated by a doctor who specialises in their particular condition, and who carries out a procedure more regularly. Currently, Liverpool's orthopaedics expertise is delivered by two separate teams in two different hospital Trusts, across three sites, which reduces opportunities to bring expertise together for the best possible care.

To meet existing guidelines for orthopaedics care

'Getting it Right First Time', a national review of planned (elective) orthopaedic services for adults, made a number of recommendations for improving care; not all of these are possible under current arrangements at Aintree and the Royal Liverpool & Broadgreen. These recommendations include 'ring-fencing' hospital

beds so that they can only be used for people undergoing planned – rather than unplanned – care, to reduce the risk of infection.

To meet new standards and protect local services

New national standards for specialised orthopaedic service are expected soon. Current orthopaedic services at Aintree and the Royal Liverpool & Broadgreen will be unable to meet all of these standards, along with many other orthopaedic services. This means that people won't always receive the best possible orthopaedic care. It also means there is a risk that in the future some specialist services might be moved to other hospitals outside of Merseyside that can meet these standards, if we do nothing.

To make sure that the right staff are in the right place

All hospitals need to make sure they have the right number of doctors and nurses available, so that care is safe and high quality. Aintree is the Major Trauma Centre for Cheshire and Merseyside, meaning it receives seriously injured people from across the region, so it also has to follow additional guidelines for staffing numbers. Making sure that there are enough doctors to cover orthopaedics rotas is increasingly difficult. Demand for local orthopaedic services has been steadily increasing, and is expected to continue to rise as the population ages. Working in a different way would be an opportunity to find better ways of dealing with this demand, both now and in the future.

To make sure that services are value for money

Running two separate orthopaedic services, by two separate hospital Trusts in the same city, means there is duplication, which creates unnecessary waste.

Section 3 - Change to service

In looking at the project is there a change? (Change means anything that is changing with the criterion – who can use the service and any qualifying feature that enables someone to access a service, or a 'threshold' – reduction in service available or switch in location or time available).

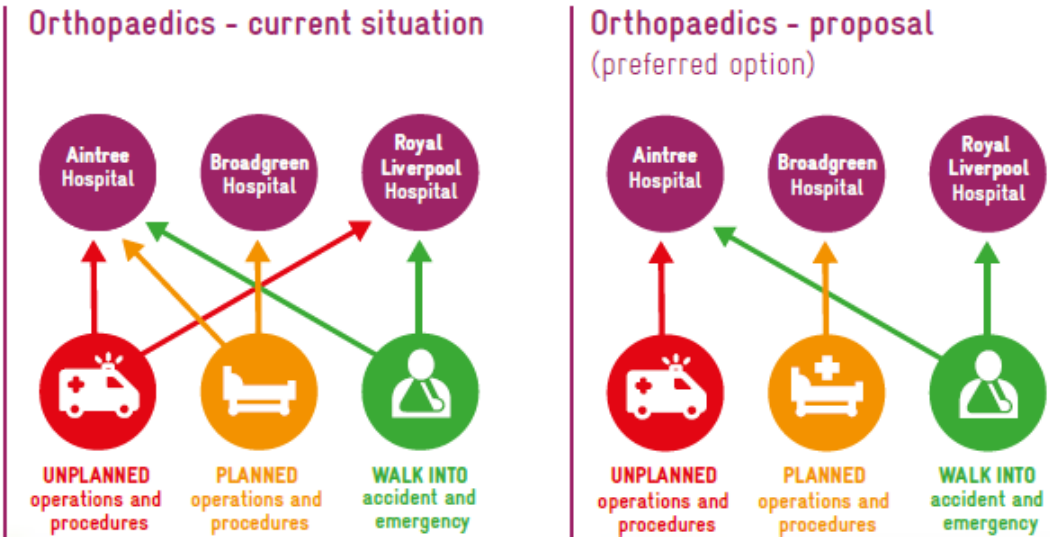
The proposed reconfiguration of services would affect the way Orthopaedic and ENT services are delivered and the access/ location of services. This will be the first redesign based on the Healthy Liverpool principles of single service, city wide delivery.

The proposal involves separating the majority of planned and unplanned Orthopaedic operations and procedures so that they happen on different sites. At the moment, most people needing planned orthopaedic operations or procedures go to either Aintree or Broadgreen. Under this proposal the majority of planned orthopaedic care in Liverpool would instead take place at Broadgreen – the exception being high risk patients. This, in turn, would allow Aintree to focus on caring for people who need un-planned operations straight away due to trauma.

As Aintree is the Major Trauma Centre for Cheshire and Merseyside, ambulances already take the most seriously injured people there directly (this applies to all types of injuries, not just orthopaedics). In Liverpool, people with less serious injuries are currently taken to the Royal Liverpool, if that is nearer than Aintree. Under these

proposals, ambulances would take all orthopaedic injuries – not just the most serious – to Aintree, even if the Royal Liverpool was nearer. People could still visit the accident and emergency (A&E) department at the Royal Liverpool themselves if they had an orthopaedic injury that needed urgent attention, but if once they were assessed it was decided that they needed an operation they would be transferred to Aintree.

The change is shown in the diagram below.



This proposal does not include inpatient spinal services which take place at the Royal Liverpool, which is out of scope.

In order for Broadgreen to carry out the majority of planned orthopaedics hospital care in Liverpool, additional space would need to be found on the Broadgreen site.

Inpatient and day case ear, nose and throat (ENT) services which currently take place at Broadgreen would move to Aintree. These types of ENT services require a hospital bed, either overnight or over the course of a day. Surgeons believe this proposal would be an opportunity to bring ENT expertise together, which would benefit patient care. There is strong evidence that specialist services are better concentrated in fewer centres.

In general, this way of working is linked to better results for patients because surgeons, nurses and other health professionals get better at doing things when they do them more often. It would reduce some of the duplication which comes with running two services at two different Trusts in the same city.

For both services, outpatient hospital services (those which don't require a hospital bed) would continue to take place as per existing arrangements.

Section 4

If the service is a 'new or redeveloped' service – has 'new money' been made available or have budgets been moved from one sector to another?

Both Aintree and Royal Liverpool and Broadgreen Hospital's finance departments have committed resource to the reconfiguration. The required pump priming investment is £1.2m, which is made up of the following revenue and capital costs:

- BGH Laminar flow upgrade
- Capital costs for BGH Post-operative care service delivery
- Image intensifier at AUH
- NWAS patient transfer costs

Section 5

Barriers relevant to the protected characteristics (where are the potential disadvantages)

Protected Characteristic	
AGE	
ISSUES / POTENTIAL BARRIERS Consultation findings indicate, that in general, younger respondents (under 25 years old) are the least likely to consider travelling further as any problem and those over 75 years old are the most likely to find further travel very difficult. However, older age groups are more willing to travel for over an hour (or express no preference about the time necessary), should travel be needed, perhaps reflecting the importance they put on attending services. South Sefton and South Liverpool were both highlighted as difficult places to travel to Broadgreen hospital form. There is	**MITIGATIONS** Notify patients of changes. Older people and carers may require a 'pre-familiarisations visit' and this will be offered during pre-op assessments. Work with relevant Voluntary organisations in preparation for switch in location. Patient satisfaction questionnaires will be sent out to all patients and carers that have spent time on the AUH and BGH sites. The results will be collated and analysed by the collaborative business intelligence team. Feedback to the respective clinical and operational management teams will occur via monthly multidisciplinary LOTS Team Meetings. It is accepted that with regard to transport immediate, short-term and long-term actions are required. The following mitigations will be put in place:- Immediate mitigations : • Links will be made available from both Aintree and the Royal and Broadgreen's website to Merseytravel's journey planner for patients to access when planning their journey to each hospital site. • A weblink will be included in all patient letters – regardless of the service they are accessing – to highlight Merseytravel's journey planner and a phone number for the service will be included, along with details of how to access the patient ambulance service and the process and criteria for patients to claim back

Protected Characteristic	
potential that older people from these areas will experience greater levels of disruption to their travel journeys. Service utilisation data suggests, 37% of elective orthopaedic patients are older people (aged 65+) and 43% of orthopaedic trauma patients are also older people, indicating a potential issue for this cohort of patients. Service provision: Ensure environment is user friendly	travel expenses for planned procedures. Short-term mitigation to align with commencement of the new service. • The orthopaedic patient scheduling service will be reconfigured to allow for staggering admission times. This is likely to be linked to the pre-operative assessment and will require development of clear criteria for which staggered admissions will be offered. This will require coproduction between staff and patient groups to ensure the service meets patient's needs, while still effectively managing demand and theatre capacity. • Ensure drop off zones are appropriately enforced to allow ease of access to the elective theatre suite. • Monitoring Orthopaedic and ENT service DNA data by protected characteristic group to ensure equity of service. Long-term mitigations : • Once a decision is known regarding the proposed merger of the two trusts, it presents possible opportunities to work with Merseytravel to discuss public transport provision to the sites, aligned to any shift in activity.
DISABILITY	
ISSUES / POTENTIAL BARRIERS Faced with the need for some patients to potentially travel further for services, 53% (n=796) of people who respondent to the consultation survey did not consider this to be a problem for one-off procedures. A further 28% (n=424) stated it would present some difficulties but they could manage. However, in considering changes to services, the	**MITIGATION** It is accepted that with regard to transport immediate, short-term and long-term actions are required. The following mitigations will be put in place: Immediate mitigations : • Links will be made available from both Aintree and the Royal and Broadgreen's website to Merseytravel's journey planner for patients to access when planning their journey to each hospital site. • A weblink will be included in all patient letters – regardless of the service they are accessing – to highlight Merseytravel's journey planner and a phone number for the service will be included, along with details of how to access the patient ambulance service and the process and criteria for patients to claim back travel expenses for planned procedures.

Protected Characteristic	
consultation process suggests travel disruption is more likely to affect people who have a disability. This impact was raised by both learning disability and physical disability groups, who whilst collectively supporting the change, had reservations that were travel related. Consultation respondents reporting some form of disability were more likely to consider travelling further as problematic and although preferring travel time of no more than 30 minutes, demonstrated a willingness to travel further (over 45 minutes) as those with no disability. Travel can be challenging for people with disabilities. Transport barriers encountered by disabled people affect their participation in society, including their access to health care provision. This came across strongly in focus group discussions and reflects national trends that show car access	Short-term mitigation to align with commencement of the new service. • The orthopaedic patient scheduling service will be reconfigured to allow for staggering admission times. This is likely to be linked to the pre-operative assessment and will require development of clear criteria for which staggered admissions will be offered. This will require coproduction between staff and patient groups to ensure the service meets patient's needs, while still effectively managing demand and theatre capacity. • Ensure drop off zones are appropriately enforced to allow ease of access to the elective theatre suite. • Monitoring Orthopaedic and ENT service DNA data by protected characteristic group to ensure equity of service. Long-term mitigations : • Once a decision is known regarding the proposed merger of the two trusts, it presents possible opportunities to work with Merseytravel to discuss public transport provision to the sites, aligned to any shift in activity. The following reasonable adjustments will also form part of the mitigation plan. • Carers will be notified in good time of changes and the possible need to arrange a familiarisation run will be highlighted. - The best method of communicating with individual patients will be identified and this will be recorded as described in the assessable information standard, to ensure that service level meets NHS reasonable adjustments in communicating with people with sensory impairments/ mental health and learning difficulties. • Information regarding drop off zones, blue badge parking and general parking will be provided to patients. • Patient experience data will be proactively monitored to identify lapses in service provision to disabled service users. Healthwatch will be invited to work with the Trusts to ensure equity of the service. • Staff will be trained in the need to offer patient choice of pre-operative assessment and compliance will be monitored. • Information will be shared with relevant VCSE organisations, particularly those supporting people with learning disabilities, to raise awareness of patient

Protected Characteristic	
tends to be lower for disabled people. People with disabilities are less likely to drive and more likely to be dependent on public transport.[1] Aside from travel, a theme emerged from people with learning disabilities who expressed a desire to be offered a choice of location for which hospital they would go to for their pre-operative assessment. For some, it would be better to have the assessment at the same site as the planned surgery to avoid the confusion of attending two different hospitals. For others, the convenience of local assessment was preferred.	choice and support education of reasonable adjustments available to patients. • Ensure signage in hospital is clear.
GENDER REASSIGNMENT	
ISSUES / POTENTIAL BARRIERS No discernible difference identified across gender reassignment.	**MITIGATION** While no specific issues were identified arising from this proposal. The following mitigations, based on potential disproportionate need, are consistent with each Trusts equality duties. • Ensure staff can support and are aware that trans people may use the facilities related to their own identity. • Ensure staff are trained to provide good quality non-judgemental services.

[1] CRSP (2006), 'Evidence base review on mobility: choices and barriers for different social groups', Key Findings.

Protected Characteristic	
PREGNANCY & MATERNITY	
ISSUES / POTENTIAL BARRIERS It was not possible to discern a difference in the consultation findings across women during pregnancy and maternity.	**MITIGATION** Based on assessment, no mitigations are required.
RACE	
ISSUES / POTENTIAL BARRIERS Consultation findings revealed Arabic respondents were more likely to be undecided regarding whether the proposed reconfiguration of services were the best plans. This topic also surfaced in focus group discussions and a number of potential reasons expressed. These respondents, who were mainly women, felt they could not make an informed decision because they have to reply on somebody else to take them to hospital. This meant they were not aware either where the hospitals are now, or how the changes	**MITIGATION** Monitoring orthopaedic and ENT service DNA data by protected characteristic group and CCG area to ensure equity of service. Promote access to interpreting policy to staff and the public and the availability/use of telephone interpreting for emergency situations. Ensure information is available in different language leaflets when contacting new patients (so the invite letter must have within it the sentence 'information is available in different languages 'and say how they can obtain information in a different language' and this sentence must be in the 5 most common languages used in the area). Linked to this the service will consider the new community language standard and monitor and makes corrective actions to mitigate issues as appropriate http://raceequalityfoundation.org.uk/node/1652 Contact local faith and cultural groups notifying them of changes to service provision. Consider public transport provision and safety of patients – linked to longer term mitigations as above.

Protected Characteristic	
would affect them. For these women to travel further, they would be reliance on others to support their transport. However, Arabic and Asian respondents were the least likely to have any problem with travelling further and Chinese respondents were much more likely to find travelling further 'very difficult' (42% compared with 16% average across all respondents).	
RELIGION AND BELIEF	
ISSUE It was not possible to discern a difference in the consultation findings across religion and belief.	**MITIGATION** While no specific issue has been identified across religion and belief, both trusts recognise the requirement to make reasonable adjustments based on religion and belief and will: • Consider religious observance days when booking/rebooking appointments, e.g. Friday for Jewish and Islamic patients. Ask the patient if they would prefer another day. • Ensure staff are trained to provide good quality non-judgemental services and that issues of privacy in treatment are understood and followed.
SEX	
ISSUE Transport: safety	**MITIGATION** Women use public transport more than men, ensure that bus routes are available and convenient (reaching in to the community and straight to the hospital where possible). Linked to longer term mitigations as above.
SEXUAL ORIENTATION	
ISSUE No discernible difference identified across sexual orientation.	**MITIGATION** While no specific issue has been identified across sexual orientation, both trusts recognise LGBT communities have comparatively low patient experience compared to the overall population and will monitor Orthopaedic and ENT service DNA data by protected characteristic group to

Protected Characteristic	
	ensure equity of service.

Section 6

Does this service go the heart of enabling a protected characteristic to access health and wellbeing services?

No, this is a generic service to be accessed by all patients and is not designed for any one protected characteristic group.

Section 7 - Consultation:

How have the groups and individuals been consulted with? What level of engagement took place? (If you have a consultation plan insert link or cut/paste highlights)

This proposal was subject to a full formal consultation process. The full consultation report, which details engagement mechanisms, reach and findings can be found at www.healthyliverpool.nhs.uk

Post consultation analysis:

What was the outcome of the consultation? How did different groups respond? Where any barriers potential discrimination highlighted by participants?

Section 8

Have you identified any key gaps in service or potential risks that need to be mitigated?

Ensure you have action for who will monitor progress.

Ensure smart action plan embeds recommendations and actions in Consultation, review, specification, inform provider, procurement activity, future consultation activity, inform other relevant organisations (NHS England, Local Authority

The proposed reconfiguration of Orthopaedic and ENT relate to threshold changes, i.e. patients going to different places, they do not propose to change criteria for accessing services. The main issues identified within the consultation process relate to disruption for patients. These present in two ways – transport and the ability of the services to accommodate different people's needs. The mitigations in section 5 are in response to the issues raised/potential risks.

Section 9

Is there evidence that the Public Sector Equality Duties will be met (give details)

Eliminate discrimination

Every effort will be made to notify and inform all service users to the changes in venue and facilities, this will take various forms and include adjustments for disability and language

New patients will be informed as a matter of course.

The waiting areas and service provisions can accommodate different needs.

Advance equality of opportunity

In considering the changes to services and the impact this will have, links to travel facilities, parking facilities and reception/ treatment facilities have been made. All protected characteristics have been considered in the table above and the indicated mitigation will be put in place. This ensures continued access to this service for all patients.

Training for staff to ensure that there will be no harassment or bullying will take place.

Foster good relations between different protected characteristics

This duty is not engaged as the service is not specific to fighting prejudice or promoting understanding between different groups.

Section 10

Recommendation to Board:

PSED is met on the relocation of these services and where services will be placed.

Actions that need to be taken:

Ensure mitigations are discussed and actions are implemented accordingly re section 5.