

# Saolta University Health Care Group

## Regional Elective Hospital Scoping Study

August 2019

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## Definitions

### Definitions

<b>Detailed Business Case</b>	The deliverable for the Planning stage of Project Appraisal and Management Process as per the PSC
<b>DRG</b>	Diagnosis-Related Group
<b>ED</b>	Emergency Department
<b>NPRO</b>	National Programme for Radiation Oncology
<b>Preliminary Business Case</b>	This Report as the first stage of the approvals process, and preceding the Detailed Business Case, in line with the Public Spending Code.
<b>Project</b>	A new Model 4 tertiary hospital, located in Galway, for the North West region.
<b>Project Team</b>	KPMG Ireland, KPMG Netherlands, Scott Tallon Walker, AECOM and MJ Medical
<b>Region</b>	West/Northwest of Ireland including Donegal, Galway, Mayo, Roscommon, Sligo and Leitrim
<b>Report</b>	Options Appraisal for an Acute Hospital in Galway offering tertiary and secondary care Services to the West and, North West region and secondary care services for Galway.
<b>Saolta Group</b>	Saolta University Health Care Group
<b>Steering Group</b>	The Steering Group includes clinical staff and members from the Saolta management team. Members listed in Appendix B

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# 1 Executive summary

## 1.1 Report context

The purpose of this report is to outline the capacity requirements, vision, indicative location and objectives for the delivery of a new elective hospital facility as part of Galway University Hospitals (GUH), which would act as a regional hub in servicing patients across the West/North-West of Ireland. The hospital would cater not just for elective care, but it would also be an important ambulatory, non-surgical and primary care facility.

This report is supplementary to the Saolta University Hospital Group Options Appraisal for Saolta Model 4 Hospital Services in Galway Report, which sets out a longer term vision for the improvement of both acute and elective health services in Galway. An elective hospital represents one of the first and most important phases of realising that vision, whereby GUH move all of its services to MPUH. The elective hospital outlined in this report is consistent with that vision. However, it will take the full relocation of GUH's services to a single site to realise the best practice benefits of an integrated model of care.

In addition, the vision for new model 4 hospital capacity in Galway is fundamental to the efficient patient flow and regional access from other Saolta Hospitals. However, this investment at GUH should in no way be seen as replacing or in any way limiting the urgent need for investment in Saolta's other regional model 3 and model 2 hospitals.

## 1.2 Key Findings

### Case for Change & Strategic Context

Saolta is responsible for the care of over 800,000 people across the West/North-West of Ireland. It is currently unable to meet demand for elective services. Saolta requires a transformation strategy in respect of elective services that – at a minimum – aims to:

 <p>Service the 14,000 patients within the Saolta region treated in Dublin annually</p>	 <p>Eliminate the 46,000 person waiting list at GUH – and greatly reduce, if not eliminate, the 102,000 person waiting list across Saolta</p>
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A study carried out into the existing infrastructure showed that 64% and 95% of the infrastructure in UHG and MPUH (respectively) is 'not satisfactory/unacceptable' for its current function. Although configuring low risk care in lower standard areas of the estate has maintained the hospitals operationally while minimising risk, it is evident that existing facilities are not sufficient to provide long-term sustainability to GUH. Although Saolta continues to make substantial progress in improving its operational efficiency, such measures are unlikely to fully bridge its current demand capacity gap now or in the near future. By 2031:

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Saolta will face increases of 45% and 71% in the 65-84 and over 85 years old age ranges. Even with the full implementation of Sláintecare efficiency and substitution measures, the demand capacity gap will grow to a shortfall of 276 beds at GUH alone.

Without substantial capital investment in the near future, Saolta will face significant service delivery challenges at GUH – its largest hospital and one of the busiest in Ireland.

**The case for change is, therefore, self-evident. Do nothing is not an option.**

Given the long lead time required to deliver major infrastructure projects of this scale, planning for replacement of these facilities is required now.

### **National Development Plan elective hospital implementation**

Under the NDP, the Government committed to the delivery of new dedicated elective-only hospitals in Galway, Cork and Dublin.

The NDP describes these elective hospitals as providing high volume, low complexity procedures on a day and outpatient basis. It indicates that a key principle underpinning these initiatives is the need to achieve greater separation between scheduled and unscheduled care, so that the system can respond better to emergency needs without adding to waiting lists for elective procedures.

The NDP commitment aims to increase capacity in the hospital system by separating scheduled and unscheduled care, consistent with the recommendations of the 2017 Sláintecare Report and the 2018 Health Service Capacity Review. Indeed, the Sláintecare Report specifically identified the need – in the short term – to designate certain hospitals within hospital groups as elective, in order to manage waiting lists for elective care.

### **Consistency with Sláintecare**

Sláintecare is a vision for the delivery of integrated care, whereby people receive as much care as is appropriate at the lowest level of complexity in the community, rather than in hospitals. This approach aims to improve care, health and cost. This is consistent with the Saolta Strategy 2019-2023, which specifies that the provision of fully integrated care will require further significant realignment to ensure that there is clarity of responsibility, accountability and authority for all aspects of the care pathway between home, community and hospital and back, with hospital avoidance being the overriding priority, where possible.

Sláintecare recommends an integrated, single-tier health system should be introduced across Ireland. Under this model, healthcare should be delivered at the lowest level of complexity possible with an emphasis being placed on primary and community care. This reorientation of healthcare from acute settings to the community aims to free up space in acute hospitals as an enabler to deliver the right care, at the right time, in the right place and improving the model of service delivery. This formed the basis of the efficiency assumptions when estimating the future capacity requirement for the Elective Hospital.

Notwithstanding this re-orientation towards primary and community care, Sláintecare recognises the important ongoing role of major public hospitals, such as GUH. The target operating model – and the resultant capacity – for the new elective hospital in Galway

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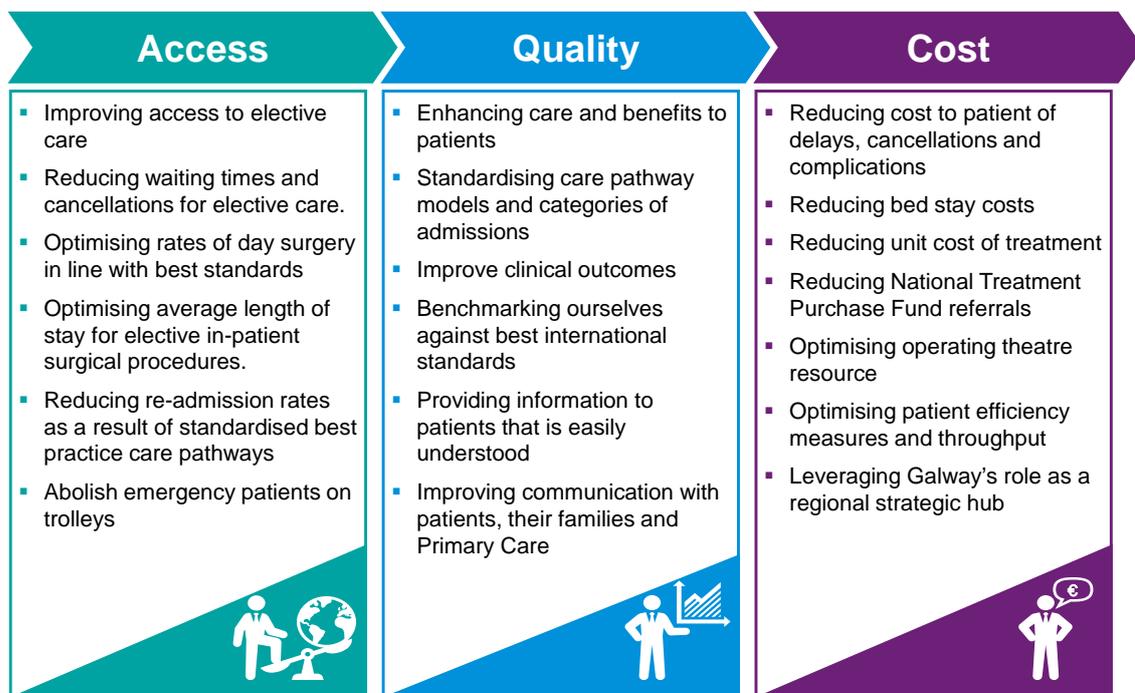
represents full implementation of the efficiency and substitution measures identified in Sláintecare, as outlined below.

Measure	Outcome
Efficiency	<ul style="list-style-type: none"> <li>— Lower length of stay on average across all services</li> <li>— Less return visits for outpatients</li> <li>— Process improvements (i.e. theatre optimization and use of current infrastructure) and implementation of improved IT systems</li> </ul>
Substitution	<ul style="list-style-type: none"> <li>— Decrease in elderly inpatient and ED visits, due to increased primary and residential care</li> <li>— Chronic disease management partly at home</li> <li>— Shift some care to appropriate lower complexity care facilities</li> <li>— Decrease in ED visits, due to increased primary care</li> </ul>

### Service Objectives for the Elective Hospital

The ultimate aim for the national elective programme is to improve the patient journey along the elective pathway by delivering on Access, Quality and Cost. In the context of GUH, the following objectives are proposed.

Figure ES1 Objectives for the elective hospital



## Global Best Practice Service Delivery Models

The development of a dedicated elective hospital is in line with best practice from leading healthcare systems globally. Notwithstanding that, there is no one model that is clearly optimal globally.

Elective hospitals in different jurisdictions offers different services to cater for the specific needs of their patients and region. Key differences include:

- whether the elective hospital has an ICU or not
- the extent to which it is specialised (e.g. ENT only) or multi-disciplinary
- whether it treats lower or higher complexity patients (ASA 1-5)
- the length of its opening hours.

**Figure ES2 International Case Study: Golden Jubilee Hospital**

**Golden Jubilee  
Hospital  
Scotland**



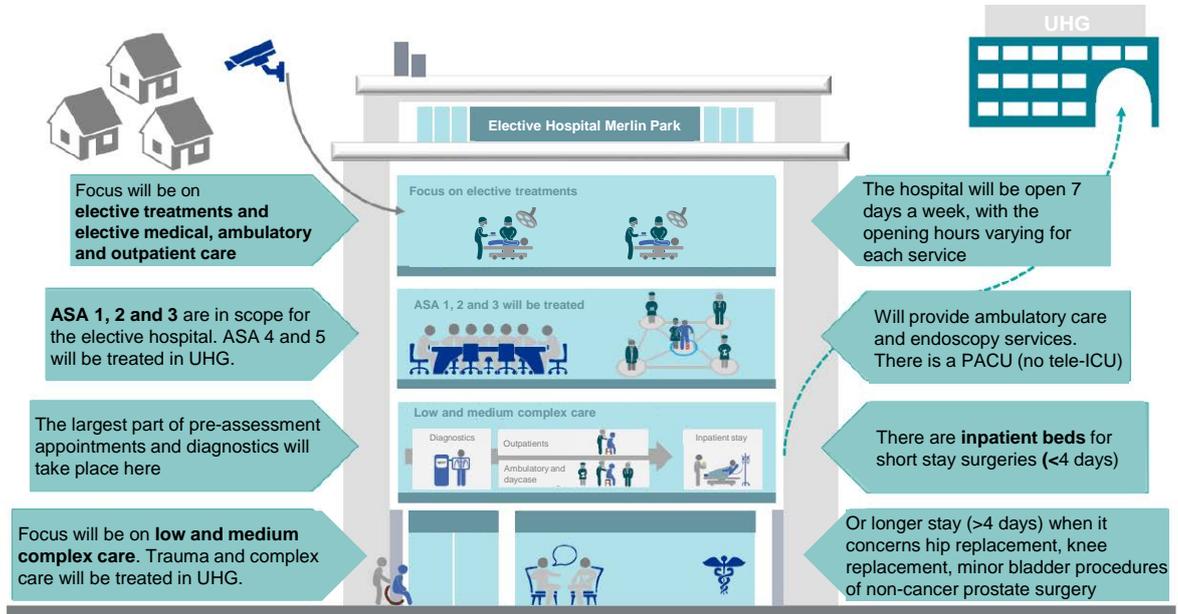
**Case study:** The 2017 Sláintecare Report specifically noted that an elective only hospital approach had been successfully implemented in Scotland. The Golden Jubilee Hospital near Glasgow is Scotland's flagship hospital for reducing patient waiting times. Home to the West of Scotland Heart and Lung Centre, it carries out the most thoracic surgeries in the UK and is one of the UK's leading hospitals for orthopaedics. In late 2018, the Minister for Health advised the Joint Committee on Health this hospital "had a really dramatic impact on waiting times across Scotland" and encouraged members of the Committee to visit it, as he had done.

## Proposed Model of Care

It is envisaged that high volume, low- and medium-complex elective and ambulatory care will be treated at the new elective hospital, as illustrated in Figure ES3 below, with trauma and complex care services remaining on the UHG site.

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**Figure ES3 Initial Concept of the Elective Hospital**



*Note: ASA is a physical status classification system. ASA 1 to 3 are patients with a normal health to a severe systemic disease. From ASA 4 and up there is constant threat of life.*

**Indicative Capacity & Cost**

The estimated resource requirement for the Elective Hospital were calculated as part of this study and the results are presented in Figure ES4 below. For more information on how these estimates were reached, please see Section 4.3 and Appendix A of this report. It should be noted that these values are indicative at this stage and will be further refined as part of the Detailed Business Case where the scope could potentially be expanded to serve a wider regional population.

**Figure ES4 Estimated Resource Requirements**

Elective hospital – Indication of Resources Needed		
	Elective Inpatient beds	75
	Daycase beds	125
	Operating theatres	11
	Scope rooms	8
	Outpatient Rooms	71

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Based on the above capacity requirements, a high-level estimate for the required gross internal area (GIA) and cost for the Elective Hospital were calculated. These are presented in the table below:

Indicative Scale & Cost	
Indicative GIA	60,000m <sup>2</sup> to 80,000m <sup>2</sup>
Indicative Cost per m <sup>2</sup>	€12,000 to €15,000
Indicative Cost Range	€720 million to €1,200 million

### Service Delivery Benefits

Consistent with the objectives outlined in the NDP, an elective hospital in Galway has the potential to transform the capacity of not just elective care at GUH, but also the regional capacity of Saolta Group as a whole, including acute / specialist care delivery.

Key target benefits of the elective hospital include:

**Eliminate GUH's c. 46,000 person waiting list** – By segregating GUH's elective care capacity, all care would be scheduled. This would significantly increase GUH's efficiency, due to higher productivity and throughput, as well as reduce waste from cancellations. As a regional hub, the elective hospital will also greatly reduce, if not eliminate, the c. **102,000 person waiting list across Saolta**.

**Improvements in the health of over 800,000 people across the West / North-West of Ireland** – The elective hospital would service patients from across Saolta's catchment area, not just in Galway. As the elective hospital is one of the three new proposed facilities in Ireland as per Project 2040 (others are Dublin and Cork), it is likely that the elective hospital in Galway will have a broader catchment area in the future.

**Enhancements to patient experience and outcomes** – The elective hospital would:

- provide the 14,000 patients each year who travel to Dublin from the Saolta region with treatment options that are closer to home (with limited exceptions, such as neurosurgery)
- implement best practice services and facilities (including single patient rooms).

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**Enhancing Galway as an innovation hub and regional population centre** – by improving Saolta’s academic and research capabilities.

**Improved staff recruitment and retention** – by providing fit for purpose work and training facilities.

### **Next steps**

Based on stakeholder feedback, the estimated timeline for the delivery of the Elective Hospital is around 10 years (i.e. from site planning to full operational commissioning). Even with efficiency and substitution measures, any delays in the programme will directly impact the ability of Saolta to provide the high standard of care expected in the Region.

Therefore, Saolta should progress – as soon as possible – to the next stage of project development process, which will require a Detailed Business Case in accordance with the Public Spending Code.

## 2 Scope

The Project Team was initially engaged by Saolta to deliver the “Options Appraisal for the Acute Hospital Services in Galway” report – the full scope of which can be found outlined within the report itself. The recommendations which the Options Appraisal report outlined led to the commissioning of this report.

### Scope of this Report

Following the submission of the Options Appraisal Report, Saolta requested the Project Team to provide a more detailed analysis to assess the requirements, refine the scope and to work with the Steering Group to outline the vision for the proposed elective hospital. This study presents the outputs from this analysis.

The specific scope of this Report, as outlined in KPMG’s task order, is as follows:

— Determine the indicative floor space required and the estimated costs.	Section 4.4
— Identify the appropriate locations on the MPUH site for the elective hospital.	Section 4.4
— Provide a high-level service delivery model for the integration of the proposed elective hospital on MPUH site with services on UHG.	Section 3.2
— Outline next steps for the process, approvals and documents (tender, design, accommodation etc.) required to deliver the elective hospital.	Section 4.5

### Development stage

The content of this report is designed to facilitate early conversations with the numerous stakeholders involved. It has been undertaken by KPMG, STW and AECOM, as part of a larger assignment considering future infrastructure options for GUH as a Model 4 hospital serving the West and North West.

A Detailed Business Case will be required in the next stage of the project development process. It should be noted that all calculations performed in this report are high-level, indicative and only for the purposes of assessing early feasibility and estimating the floor area and approximate cost for the development. The underlying assumptions will need to be further refined at the later stages and are subject to change substantially. For example; calculations in this document are based on the capacity required to meet the projected demand for services in GUH but this may need to be expanded to the wider west, including the population area projected in Area F of the recently published report on integrated care areas.

## 3 Strategic Context

### 3.1 The Case for Change

Galway University Hospitals (GUH) is one of six hospitals included in the Saolta Group serving the West/North West of Ireland. The combined 714 bed numbers across GUH's two sites, University Hospital Galway (UHG) and Merlin Park University Hospital (MPUH) makes it the largest hospital in the Saolta Group, holding 37% of the total bed capacity. As the Model 4 Hospital providing tertiary/specialist services for the Saolta population of over 800,000 people GUH receives referrals from all hospitals across the Saolta Group.

UHG is one of the busiest hospitals in the country in terms of outpatients and daycases, treating over 256,000 outpatients and 86,000 day-cases in 2018<sup>1</sup> (second is Mater Hospital in Dublin which served 221,000 outpatients and 59,000 day-cases). It is also in the top three in terms of the number of patients seen within its Emergency Department (ED). Despite this, UHG has one of the greatest challenges in managing access for emergency and elective services. The UHG site caters for all acute care and is extremely constrained due to its configuration and limited capacity in ward blocks, theatres and ED.

Conversely, MPUH provides limited services and is considered to be underutilised given the size of the site and access to regional road networks. The campus consists of multiple, predominantly low-rise buildings dating from the early 1950s, currently accommodating both clinical and administrative functions with limited access for patients and staff.

The patient levels at GUH have reached capacity. The following table provides an overview of waiting lists at GUH and Saolta's other hospitals:

**Table 1 Saolta waiting lists by hospital**

Hospital	In-Patient	Day Case	Out-Patient	Total
<b>GUH</b>	<b>3,260</b>	<b>7,880</b>	<b>35,760</b>	<b>46,900</b>
LUH	427	3,103	15,621	19,151
MUH	303	2,264	7,785	10,352
PUH	28	397	3,079	3,504
RUH	6	660	3,997	4,663
SUH	1,032	2,307	14,304	17,643
<b>Saolta</b>	<b>5,056</b>	<b>16,611</b>	<b>80,546</b>	<b>102,213</b>

*Source: Saolta figures (as at 15 August 2019).*

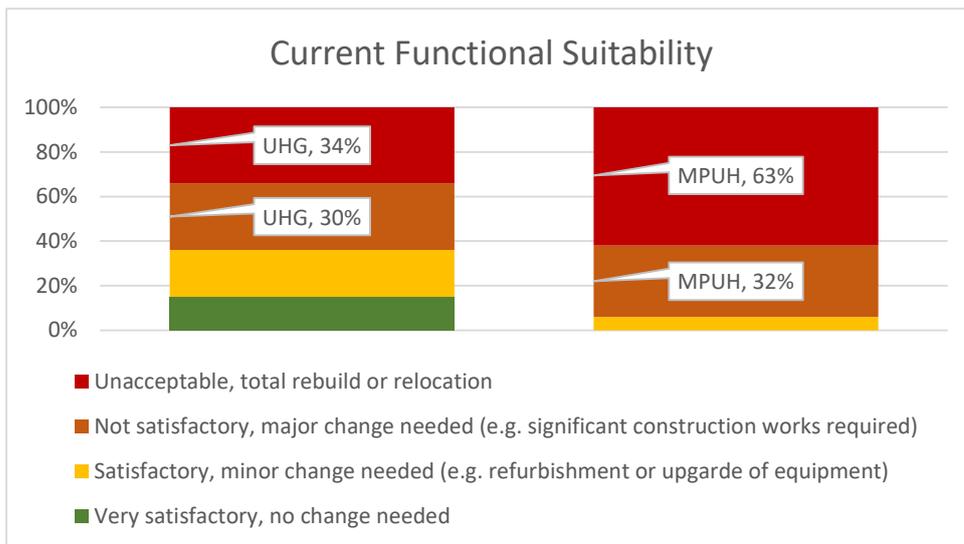
AECOM and STW, on behalf of the Project Team, conducted a review of the current infrastructure across both sites. 48% and 99% of the UHG and MPUH building stock, respectively, are greater than 40 years old, indicating they are approaching the end of their economic life. Consequently, the study showed that 64% and 95% of the

<sup>1</sup> Acute Hospital Summary Statistics 2018 – BIU

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infrastructure in UHG and MPUH (respectively) is ‘not satisfactory/unacceptable’ for its current function, shown in Figure 1 below.

**Figure 1 Current functional suitability of infrastructure**



Although configuring low risk care in lower standard areas of the estate has maintained the hospitals operationally while minimising risk, it is evident that significant investment is required in the near future to provide new health facilities. This is combined with forecasts that estimate significant growth in demand, even after adjusting for projected proposed efficiency gains and substitution effects as planned for in national policy, particularly Sláintecare.

One of the priority developments to address the challenges of capacity requirements and deficient infrastructure is to develop a new elective hospital which will support the protection of elective care and address the emergency demand pressures on the UHG site.

### 3.2 Strategic vision of the elective hospital

Project Ireland 2040<sup>2</sup> identified the need for new dedicated elective-only hospital facilities in Galway. These facilities aim to provide high volume, low and medium complex

*“They will provide increased, protected capacity for elective treatment and free up capacity in major hospitals to address higher complexity and emergency care. Additional benefits from this include improved quality outcomes for patients and increased efficiency due to higher productivity and throughput, together with reduced waste from cancellations.”<sup>1</sup>*

<sup>2</sup> Project Ireland 2040, National Development Plan, 2018—2027 - <https://www.gov.ie/pdf/?file=https://assets.gov.ie/7336/b0a7bcedecc9478ca07582c5461a4776.pdf>

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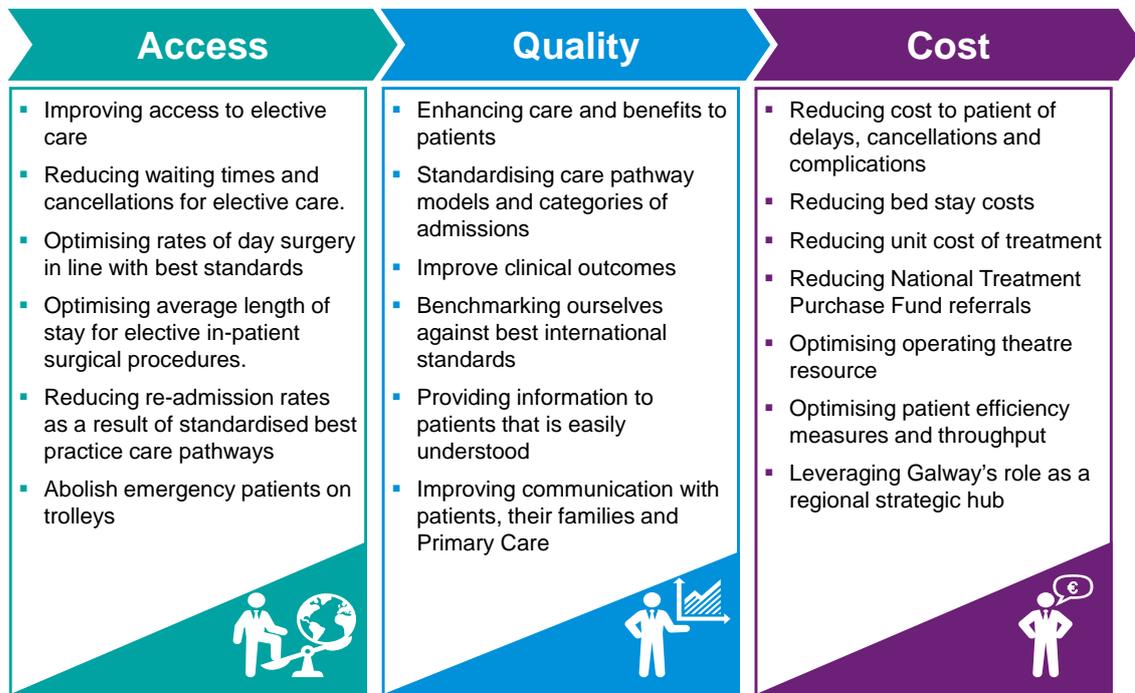
procedures on a day and outpatient basis, together with a range of ambulatory and diagnostic services. The aim is to both increase capacity in the hospital system and provide a better separation of scheduled and unscheduled care, in line with the recommendations of the Sláintecare Report.

The Model of Care for Elective Surgery<sup>3</sup> report highlighted the fundamental changes in elective services required to reduce waiting times and shorten hospital stays in Ireland. The consensus is that the pressure from emergency admissions has led to a lack of capacity for elective surgery and, as a result, elective facilities have been impacted greatly by emergency patients. Additionally, the longer term impact of reduced elective care is to increase pressures on emergency care as patients on waiting lists for long periods of time will often present to the acute hospital as an emergency. The ultimate aim for the National Elective Surgery Programme, outlined within HSE's report, is to improve the patient journey along the elective surgical pathway by delivering on objectives relating to Access, Quality and Cost. In the context of GUH, the following objectives are proposed.

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<sup>3</sup> Model of Care for Elective Surgery, National Clinical Programme in Surgery (*Health Service Executive, the Royal College of Surgeons in Ireland and the College of Anaesthetists of Ireland*)

**Figure 2 Objectives for the elective hospital**



*National plans for the future of elective surgery care are well developed, though the direction for elective medical care, ambulatory, endoscopy and outpatients is less advanced. As such, this report has used the guidance already available to estimate the requirement for the elective facility, though this will need to be revisited as part of the Detailed Business Case as the national programme is developed. The proposed Elective Hospital will cater for not just surgical treatments, but also elective medical and outpatient care.*

One of the major challenges currently faced by GUH is the growing patient waiting lists. The numbers on waiting lists are as a result of numerous contributing factors, but ultimately comes down to the fact that the UHG site is operating above capacity. Patients on waiting lists are generally waiting for elective services, therefore a new elective hospital must be prioritised when considering mechanisms to relieve the pressure from the UHG site for emergency and complex patients, while a new acute hospital is being developed.

Currently, there are a number of inefficiencies in terms of elective care at UHG. For example, there are no theatres dedicated solely to elective care – those which deliver planned care also cater for emergency procedures – and elective procedures are very often cancelled due to higher-priority acute and emergency operations and lack of inpatient bed capacity, accelerating the growth in waiting list numbers. These pressures have and will be further exacerbated from the increase in referrals to GUH as the Model 4 hospital from the surrounding Model 3 and 2 hospitals within Saolta. Separating acute and non-acute services through designing and developing a purpose built elective facility

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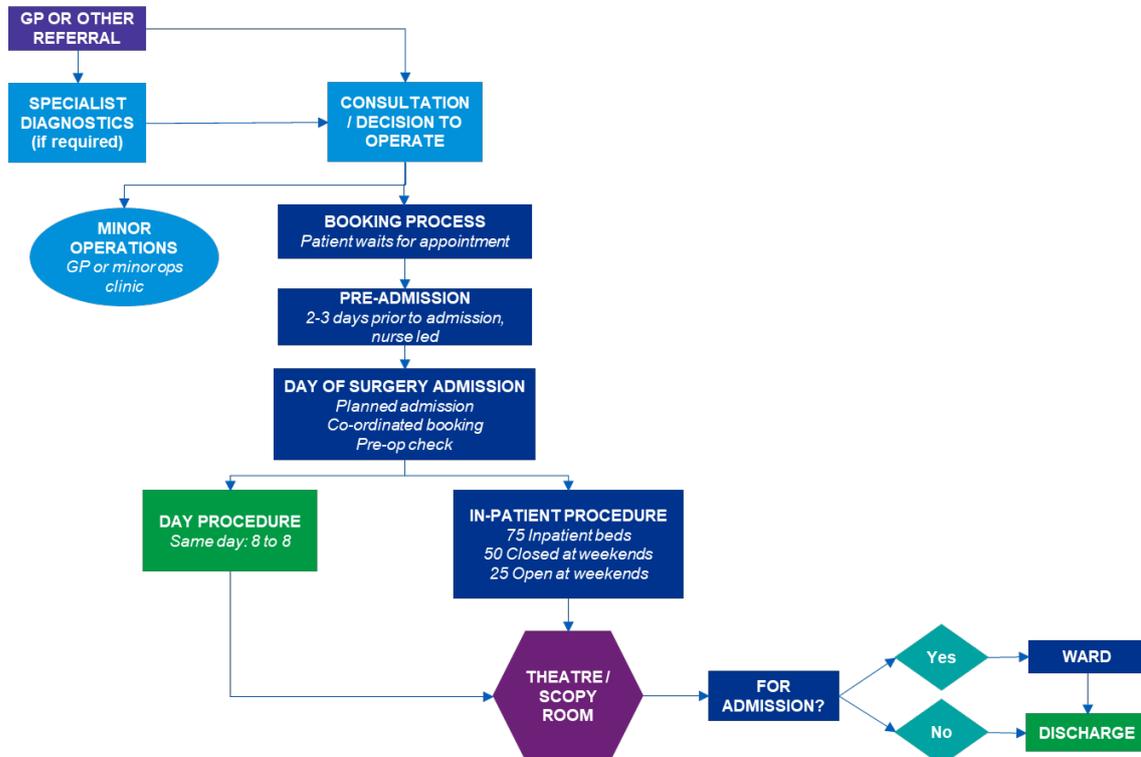
gives rise to significant operational efficiency opportunities. Procedures in the new elective hospital will be high volume, low-to-medium complexity surgeries. These surgeries can be efficiently planned as the procedure times are predictable and dedicated theatres will be provided.

Following discussions with the Steering Group, it became clear that there was a common view that focusing on high volume elective care would likely to lead to increased productivity as the higher volume would lead to reduced procedure times through identifying more efficient work practices and processes. For example, by designing the layout of the new facility in line with best practice models, clinical pathways will be significantly improved, thereby reducing the average length of stay per patient.

The Model of Care for Elective Surgery report outlines the need for a pre-assessment clinic 2 or 3 days in advance of the operation to ensure optimum planning in advance of theatre, reduce cancellations and length of stay, and support Day of Surgery admission. Day patients and inpatients who require general or local anaesthesia will attend. This is in support of national plans to reconfigure models of care and enable Primary Care to support in the pre-assessment process within communities.

Plans for discharge will also be considered at this assessment which will improve the efficiency of discharge. The typical elective surgery patient journey is illustrated below in Figure 3.

**Figure 3 Elective Surgery Patient Journey**



Source: KPMG analysis based on publically available information

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International evidence suggests that 75%<sup>4</sup> of patients who require in-patient surgery are admitted on the day of surgery. The effective planning and management of elective services aims to treat the greatest number of patients possible and shorten lengths of hospital stays. Effective delivery of elective services will also:

- Decrease the current waiting list
- Reduce cancellations
- Lower risk of infection
- Release inpatient beds on the UHG site for acute and emergency cases
- Improve the experience of patients
- Provide cost-effective healthcare

Additionally, aims specific to Saolta and GUH are:

- Support the regional population, not just the immediate need for Galway
- Increase efficiencies by instilling modern practices and improved models of care
- Promote collaborative use of space across specialties to drive better outcomes for patients
- Enhance the ability to deliver appropriate disease-specific care

National policy and international evidence suggests elective hospitals should ideally be co-located, but separate from, acute hospitals.

MPUH was selected as the preferred location for a new Elective Hospital in Galway due to its proximity to the existing Model 4 Hospital allowing for linked-up service delivery without disrupting operations at UHG. Additionally, the use of MPUH removes the need to acquire land, as MPUH is already an HSE facilities and is core to Saolta's future development plans. The adjacency to major road infrastructure also makes it a perfect location to accommodate increased levels of service without the need for major infrastructure improvements.

Although developing the new facility at MPUH is, in effect, splitting the acute and elective services across two nearby sites, this is a medium-term scenario as the long-term goal, in line with the conclusions from the "Options Appraisal for the Acute Hospital Services in Galway" report, is to transfer all acute services to Merlin Park as soon as funding becomes available. The development of the new elective hospital at MPUH will act as the first phase of the wider development programme.

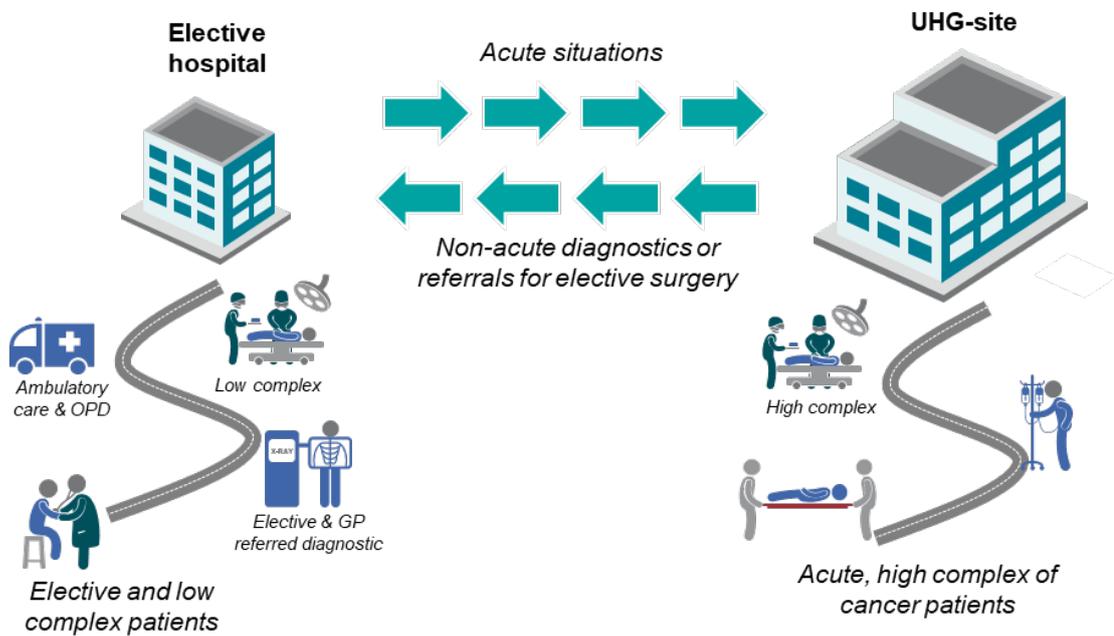
It is envisaged that low- to medium-complex and elective patients will be treated at the new elective hospital, as illustrated in Figure 4 below, with acute and complex services remaining on the UHG site. The new elective hospital will be located on a separate site

<sup>4</sup> Model of Care for Elective Surgery, National Clinical Programme in Surgery (*Health Service Executive, the Royal College of Surgeons in Ireland and the College of Anaesthetists of Ireland*)

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(until acute services transfer), from the acute facilities, however the two sites will still operate cohesively through referrals and transfer of patients whenever capacity constraints or complexity of services dictate.

**Figure 4 Service delivery between elective hospital and UHG-site**



Further work is to be carried out as part of the Detailed Business Case to determine how the proposed Elective Hospital would work alongside other hospitals in the Hospital Group, particularly the model 3 hospitals and model 2 hospital.

## 4 Initial Concept of the Elective Hospital

### 4.1 Approach

A Steering Group was established which included senior clinical and managerial representatives from across the Saolta Group, as well as representatives of the Estates Division of HSE, in order to incorporate the views and opinions from all directorates within Saolta. The Steering Group provided governance and cohesive collaboration in determining the most appropriate solution for the proposed elective hospital and the form it would take. A series of workshops was held to discuss and refine the initial vision and strategy for the elective hospital in Galway. For the full list of individuals which made up the Steering Group, please see Appendix B.

Three workshops were organised with the Steering Group to develop and reach a consensus for the concept, strategy and vision for the elective hospital. The purpose and theme for each workshop is summarised below:

1. Workshop 1: The purpose of the first workshop was to establish the vision and concept for the elective hospital. In the absence of a national framework for elective hospitals, international examples were reviewed to gain insight into the potential archetypes which could be adopted in the proposed Galway hospital.
2. Workshop 2: The aim of the second workshop was to further refine the concept and set out at a high level the strategy for the proposed elective hospital. Furthermore, the capacity forecasts developed as part of the initial scope (*Options Appraisal for Acute Hospital Services*) were challenged and validated based on the agreed vision for the elective hospital.
3. Workshop 3: The purpose of the third workshop was to agree the services and estimate the capacity requirements for the proposed development.

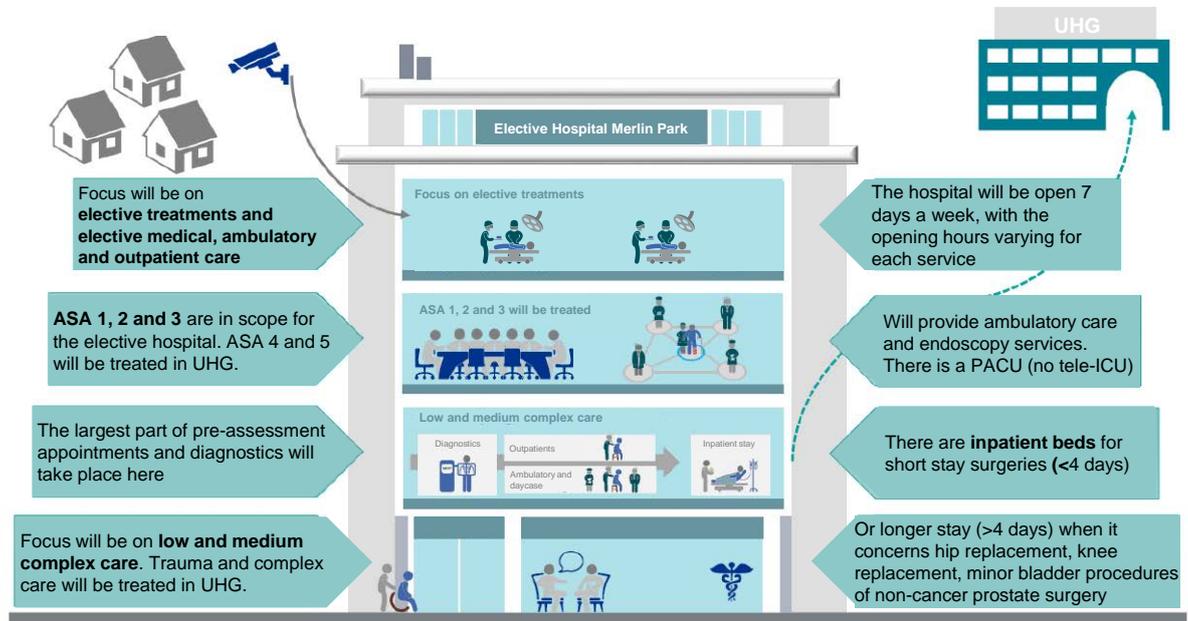
In the periods leading up to each workshop, the Project Team developed various options for discussion and consideration with the Steering Group. Please see Appendix C for more detail on the process which led to the selection of the preferred option and rationale for this decision.

### 4.2 The Preferred Option

Following the results of the Options Appraisal, it is envisaged that the new elective hospital will focus on providing low-to-medium complex care (i.e. non-acute services). The figure below illustrates the concept, vision and strategy.

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**Figure 5 Initial Concept of the Elective Hospital**



Note: ASA is a physical status classification system. ASA 1 to 3 are patients with a normal health to a severe systemic disease. From ASA 4 and up there is constant threat of life.

More detail on the key attributes of the preferred clinical offering are outlined below:

- *The ASA<sup>5</sup> 1, 2 and 3 patients.* Due to complexity the ASA 4 and 5 patients will be treated in the UHG site.
- *Only low or medium complex surgical treatments.* These are defined as surgical treatments with an expected length of stay of less than 4 days. Although hip, knee, bladder and prostate (non-cancer) surgeries at GUH have a longer stay than 4 days on average, these are also in scope. These surgeries are known to be low and medium in terms of complexity, planned and predictable treatments. Care related to surgeries with a higher complexity and/or a longer average stay are often unable to be pre-planned and require access to an IC.
- *All outpatient care with the exception of cancer and rapid access clinics.* Outpatient care is perfectly suited for the elective hospital as it is considered low complexity and requires few resources.
- *All types of day-cases.* As like outpatient care, day case interventions are almost always low/medium complex with a minimum risk of the need for IC afterwards.
- *All types of diagnostics and pre-assessment consultations.* Both pre-assessments consultations and diagnostics are low-medium complex care, including endoscopy procedures.

<sup>5</sup> ASA is a physical status classification system. ASA 1 to 3 are patients with a normal health to a severe systemic disease. From ASA 4 and up there is constant threat of life. <https://www.asahq.org/standards-and-guidelines/asa-physical-status-classification-system>

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The Steering Group excluded some specific elective services whose care is not in scope:

- Due to efficiency and better patient service all oncology care will take place in one place, on the UHG-site. This includes all day-case chemotherapy.
- All obstetrics activities related to births, except outpatient visits. These activities are often more complex and will be concentrated in the Women and Children's centre located at the UHG-site.

### Key Assumptions

The elective hospital will be open and available for use 7 days per week. For modelling assumption purposes however, we have assumed that care will primarily be provided during the five day working week, with opening hours and weekend care varying depending on the type of service.

- **Operating theatres (OTs)** are the most costly resource, the goal will be to use these as efficiently as possible, 5 days a week and 8 hours a day (traditional office hours).
- **Inpatient beds** – Opening hours of the wards will be adjusted to those of the OTs. A surgery scheme operating 5 days per week implies that some patients, having received treatment on Thursday or Friday, may have to stay over the weekend, requiring some wards to stay open during weekends.
- **Day-case beds** –The day case beds are expected to be operational on a 12-hour basis therefore facilitating both morning and afternoon theatre sessions, where required Efficiency can be gained by scheduling less complex surgeries in the afternoon to allow the day case beds close in line with OT closing hours.
- **Outpatient** – Outpatient care will be provided five days a week.
- **Diagnostics** – Given the high demand and relatively high resource costs, it is anticipated that diagnostic resources will be in use 6 days a week, 12 hours a day.

Although five days per week is the current working assumption for most of the services identified above, these hours could be extended to six (or even seven) days if demand indicates that this would be necessary. This would require additional staffing resources and/or changes to clinical practices.

## 4.3 Estimated capacity requirements

The number of key resources required to service the estimated capacity requirements were calculated based upon the forecasted patient numbers presented within the "Options Appraisal for the Acute Hospital Services in Galway" report. These are presented below and are based on a number of assumptions, including CSO population forecasts, changes to clinical practices and ways of working, and potential operational efficiency gains.

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**Figure 6 Forecast Activity Levels**

Bed days	Day cases	Outpatient visits	Theatre procedures	ED Visits	Diagnostics (Radiology)	Diagnostics (Cardiac)
290,102	100,871	318,688	17,835	58,609	211,981	33,578

The above forecasts include the estimated impact of moving care from a hospital setting to a homecare or primary care setting. It is important to recognise that this shift in delivery of care will have a similar impact on ambulatory care, though the direct impact on ambulatory care centres will be looked at in more detail as part of the Detailed Business Case.

The outputs of this analysis is presented in the figure below and discussed in more detail thereafter. For more information on the underlying calculations, please see Appendix A.

**Figure 7 The expected capacity needed for the five most important resources**

Elective hospital – Indication of Resources Needed		
	Elective Inpatient beds	75
	Daycase beds	125
	Operating theatres	11
	Scope rooms	8
	Outpatient Rooms	71

A comparison with existing resources for elective patients at GUH was not possible as current processes (acute and elective) are significantly integrated and it was not possible to extract purely elective facilities.

It should be noted that all of the figures presented within this section are subject to change at the Detailed Business Case stage as assumptions are refined and patient care pathways are looked at in more detail across each specialty. The scope could also potentially be expanded to serve a wider regional population, depending on the service requirements to be agreed with National stakeholders. A range of other services will also be provided and require accommodation (e.g. diagnostics, intervention radiology etc).

**4.3.1 Bed capacity**

Based on the assumptions outlined below, total bed capacity is expected to be circa 200 beds, made up of 75 elective inpatient beds and 125 day-case beds. Since the number of beds drive the levels of support staff and the service area needed, this was the main driver in translating resources into estimated floor area.

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Resource	Underlying assumptions
<b>Elective Inpatient Beds</b>  	— The 75 beds follow from around 18.000 inpatient bed days
	— It only concerns surgical beds. Medical beds already on Merlin Park are out of scope
	— Bed days were included when a DRG was classified as “fit for elective care center” (see grey box) <u>and</u> when length of stay is more than 6 hours and less than 4 days. As an exception on the length of stay rule all patients with an knee replacement, hip replacement, minor bladder procedure or transurethral prostatectomy were included.
	— Beds are shared between specialisms
	— Beds are in use 52 weeks a year, 5 days a week. Only a few beds will be open in the weekends for patient who have had surgery on Thursday or Friday or a longer stay than 4 days
	— Bed capacity has been planned at the optimum best practice level of 85%

**Note:** Inpatient beds are expected to close over the Christmas holidays and this is captured in the 85% bed capacity assumption.

Resource	Underlying assumptions
<b>Daycase Beds</b>  	— The 125 beds follow from 93.000 inpatient daycases
	— All daycases are low-complex
	— All daycases are elective
	— Beds are shared between specialisms
	— There are on average three daycases a bed a day
	— Beds are in use 50 weeks a year, 5 days a week, 12 hours a day

Note: An average number of three day cases per day has been assumed based on evidence of international best practice for facilities with 12 hour opening hours per day and efficiencies in recovery periods post procedures. The Steering Group advised 2.5 day cases per day is a more reasonable assumption. This would increase the number of day-case beds by 25. This assumption will need to be verified in the Detailed Business Case stage.

#### 4.3.2 Theatre capacity

Based on the capacity analysis and clinical requirements, a need for eleven operating theatres was estimated. In addition to these, there is an anticipated need for eight scope rooms which will include endoscopy, screening & surveillance, bronchoscopy, urology cystoscopy and interventional radiology procedures. The importance of scope rooms in providing diagnostic capabilities and enabling the overall functioning of the hospital cannot be overstated.

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Resource	Underlying assumptions
 	— The 11 theatres follow from around 15,000 hours of surgery
	— Average operation hour per specialism is used to calculate hours needed from number of patients
	— Theatres are in use 50 weeks a year, 40 hours a week

The number of theatres presented above assumes dedicated theatres for various specialties. However, following review from the Steering Group, it became evident that this may not be enough to practically serve the requirement. Therefore this will need to be revisited and further refined as part of the Detailed Business Case.

Resource	Underlying assumptions
 	— The requirement for 8 scope rooms arises from an identified workload of in excess of 12,000 scopes per year (6,000 hours). This number is expected to grow due to current waiting list and expected increase demand for screening and surveillance scopes
	— Included are bronchoscopy, gastroscopy, colonoscopy, sigmoidoscopy, ERCP, cystoscopy and EBUs
	— Average time per type of scope procedure differs between 10 and 45 minutes
	— Scope rooms are in use 50 weeks a year, 40 hours a week

### 4.3.3 Outpatient facilities

The number of OPDs in 2017 reached 277,401 (inclusive of nurse and consultant led clinics). Estimates forecast a requirement for 71 outpatient rooms. A distinction has been made between 'normal' consultation rooms and rooms with specialised purposes such as ECG, plaster procedure rooms and diabetes rooms. Activities performed in the rooms with specific purposes are currently often not registered as an outpatient visit, which makes it difficult to calculate the exact number of outpatient rooms necessary. The total number of rooms required is therefore based on the number of visits, with a surplus based upon the current ratio of 'normal' consultation rooms, to rooms with a specific purpose. Currently at GUH, one in every five outpatient rooms has a specific purpose. This ratio has not been tested against benchmarks and will need to be further assessed to determine how efficiently they are currently used as part of the Detailed Business Case. In addition, it is important to include provision for additional health and social care professionals including Clinical Practitioners and Advanced Nurse Practitioners who will be even more crucial to service delivery in the future in line with Sláintecare.

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Resource	Underlying assumptions
<b>Outpatient rooms</b>  	— 58 'normal consultation' outpatient rooms follow from around 280,000 outpatient visits
	— The total rooms is surplus by 23% (13 rooms), based on the current ratio between 'normal consultation' rooms and outpatient rooms with a specific purpose
	— Outpatient rooms are in use 50 weeks a year, 40 hours a week
	— 'Normal consultation' rooms are shared between specialisms
	— On average a consultation takes 25 minutes per patient, including clean-up and changing time

In addition to the outpatient rooms mentioned above forecasts estimate six pre-assessment rooms will be needed.

Resource	Underlying assumptions
<b>Pre-assessment rooms</b>  	— The 6 pre-assessment rooms follow from around 12,000 surgical procedures
	— Pre-assessment rooms are in use 50 weeks a year, 40 hours a week
	— On average a pre-assessment takes 60 minutes per patient

#### 4.3.4 Diagnostic facilities

It is anticipated that all diagnostics, including outpatients, will be provided in the elective hospital (except for the trauma, high-complex, inpatient and cancer diagnostic services which will remain at UHG).

Diagnostic facilities will also be provided on the UHG site for trauma and high-complex patients.

Other considerations for analysis at the Detailed Business Case stage include intervention radiology, outpatient imaging and community services (which are likely to be most efficiently provided at scale with shared facilities and staff).

#### 4.3.5 Demand from outside the current catchment area

As the elective hospital is one of the three new proposed facilities in Ireland as per Project 2040 (others are Dublin and Cork), it is likely that the elective hospital will have a broader catchment area in the future. Quantifying the impact on demand at this very early stage is best presented through sensitivity analysis. The outputs of which are presented below:

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Resources needed	Increase in # of patients				
	0%	2.5%	5%	7.5%	10%
Inpatient long stay beds	60	61	63	64	65
Inpatient daycase beds	125	128	131	134	137
Operating theatres	11	11	12	12	12
Scope rooms	8	8	8	8	8
Outpatient rooms	71	74	75	78	79
Pre-assessment rooms	6	6	6	6	6
Radiology diagnostics	12	12	13	13	13

The number of required inpatient beds within the design is not anticipated to increase based on the sensitivity analysis. 60 beds is the required baseline cater for future capacity. 25 beds per ward is optimal based on best-practice ward design, leading to the proposed 75 beds making up the proposed layout. As such, 75 beds are sufficient to cater for any potential increased requirements within the sensitivity parameters.

The largest impact is evident on the projected number of day-case beds and outpatient rooms required. The growth in activity required for the other resources are anticipated to be serviced through more efficient use of these resources (e.g. longer opening hours).

#### 4.4 Potential location analysis

*Please note: the figures and diagrams within this section are high level estimates and for illustrative purposes only as significant work is still to be undertaken as part of the Detailed Business Case to establish integrated care and clustering of services to improve patient care. This will ultimately be the main factor in translating the operating model into a more detailed design for the Elective Hospital.*

Based on the requirements specified within Section 4.3 of this report, the estimated gross internal area (GIA) for the proposed elective hospital is 78,200m<sup>2</sup>. This is based on a mix of clinical, support and services space with an additional 37% provided for circulation space.

Given the early stage of the programme and the potential for the scope of the Elective Hospital to change as discussions with National Stakeholders progress, it was deemed more appropriate to consider a range for the gross internal area (GIA). A high-level summary is presented in the table below (for a more detailed breakdown of the indicative schedule of accommodation, please see Appendix D).

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Function	Net Internal Area	Gross Internal Area
Clinical Core	24,500m <sup>2</sup>	33,600m <sup>2</sup>
Support	6,100m <sup>2</sup>	8,400m <sup>2</sup>
Services	7,300m <sup>2</sup>	10,000m <sup>2</sup>
<b>Total</b>	<b>38,000m<sup>2</sup></b>	<b>52,000m<sup>2</sup></b>
<i>Plant Space &amp; Contingencies</i>		26,200m <sup>2</sup>
<b>Gross Total<sup>6</sup></b>		<b>78,200m<sup>2</sup></b>
<b>Indicative GIA Range</b>	<b>60,000m<sup>2</sup> to 80,000m<sup>2</sup></b>	

Providing such a broad range was considered the most appropriate direction at this stage as a lot of areas are still to be defined. For example, the requirement for Elective Medical care has not yet been determined and will need to be looked at in more detail as part of the Detailed Business Case – this includes many non-surgical areas such as infusion, rheumatology, neurology and respiratory.

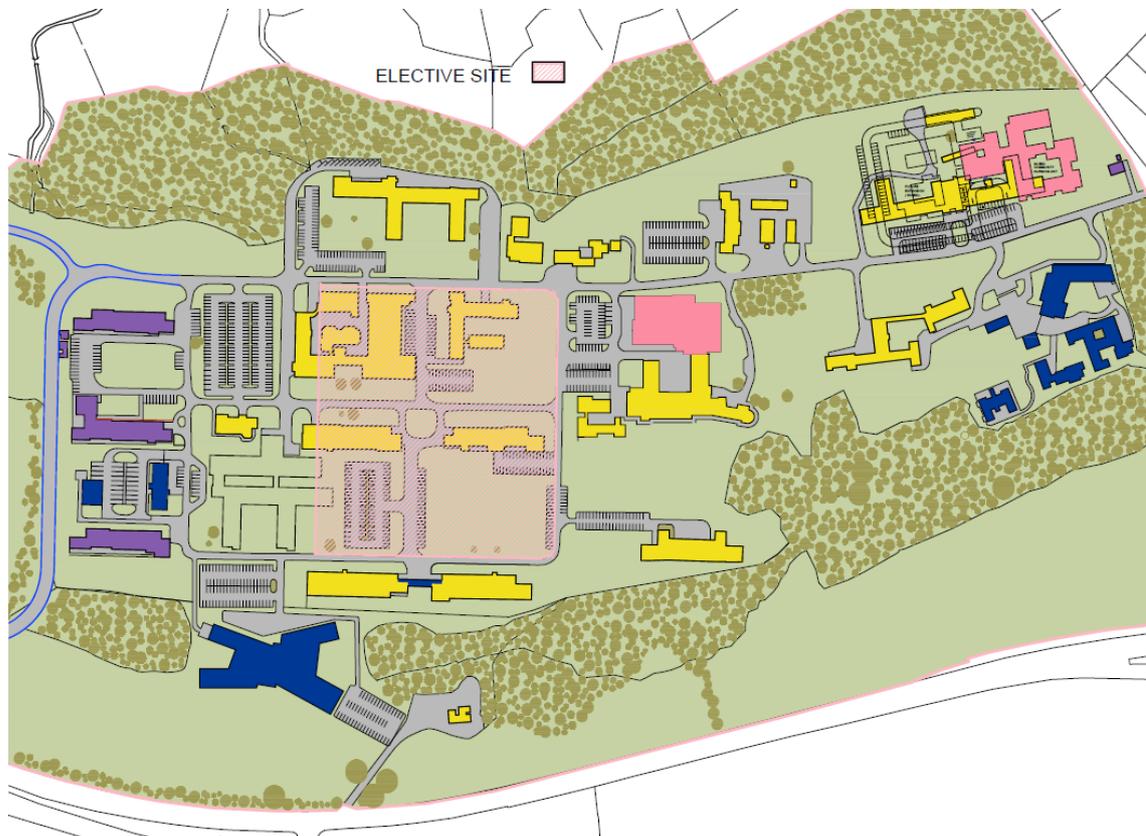
Based on availability for development, the MPUH site was determined to be the best location for the new elective hospital. As such, potential locations for the hospital within the MPUH campus were considered. The current site, including existing buildings, is presented in Figure 8 below with the proposed location for the new elective hospital indicated in the centre of the graphic, as the shaded area.

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<sup>6</sup> The estimate of 78,200m<sup>2</sup> is based on HBN guidance (where available) and benchmarked against international elective hospitals. The lower range estimate of 50,000m<sup>2</sup> is indicative only of what the minimum space required could be to operate safely, while the upper range estimate of 90,000m<sup>2</sup> reflects the need for further detailed work to fully ascertain the capacity requirements.

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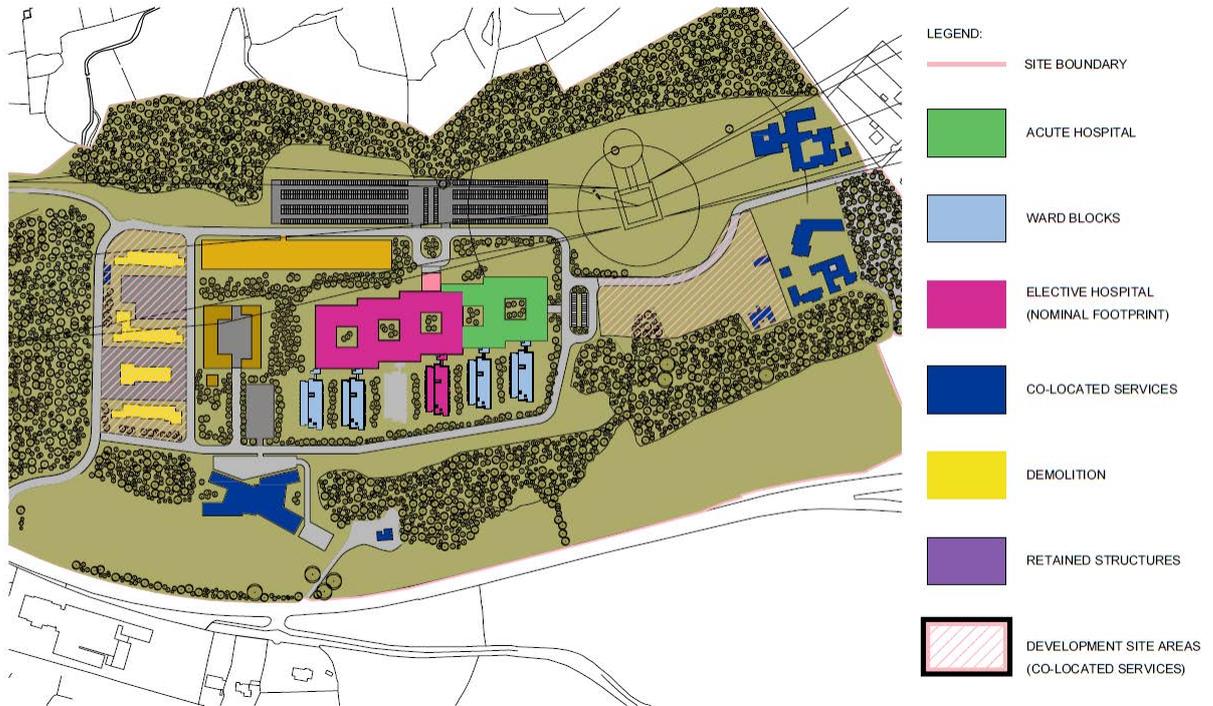
**Figure 8 Existing MPUH site**



In the above drawing, the existing buildings coloured yellow are those which were categorised as functionally unsuitable as part of the infrastructure assessment (see Section 3.1). An indicative floor plate for how the new elective hospital might be delivered is presented in Figure 9, below.

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**Figure 9 MPUH site with proposed elective hospital floor plate**



In this drawing:

- The elective and acute hospital facilities are assumed to be 6 storeys high with central columns to allow dispersion of natural light throughout the building.
- The ward blocks protruding to the south are assume to be three-storeys high with space for 25 beds on each floor. Each bed is assumed to be a single ensuite room.
- The elective facilities and wards will be built first, with the acute facilities to follow, as outlined in the next steps section of this report.

In order to facilitate the long-term plans for GUH, it is important that the design for the Elective Hospital is scalable to accommodate further expansion – which this outline design aims to allow. Additionally, it will need to be thought through strategically to allow for decant of departments without disrupted services to the public. This will all be looked at in more detail as part of the Detailed Business Case.

Based on the schedule of accommodation, initial, high-level costing by AECOM estimates the potential project cost to be between €720m to €1,120m (nominal, incl. VAT). The underlying assumptions of this range is shown in the table below:

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Indicative Scale & Cost	Costs including inflation
Indicative GIA	60,000m <sup>2</sup> to 80,000m <sup>2</sup>
Indicative Cost per m <sup>2</sup>	€12,000 to €15,000
Indicative Cost Range	€720 million to €1,200 million

The significant range on the current cost estimates are a result of a number of uncertainties at this stage. These include:

- Construction inflation: The proposed construction period is subject to change significantly at this early stage of the process and it was considered inappropriate to define the impact of inflation. Particularly given that this can be in the region of 7% per annum.
- The scope of the Elective Hospital is still to be finalised: current estimates are based on existing elective services provided at GUH, but should the scope of services be expanded to serve the regional population, this would require a significant increase in floor area and cost.
- The integrated model of care is yet to be fully designed: this will have a significant impact on the required floor plate, given efficiencies and clustering could result in shared space. This could also impact the equipment costs required for fit-out which are a significant portion of the cost for clinical developments.

Despite the above limitations, these costs allow for future expansion at the MPUH site as the utility infrastructure (roads, sewers, water, etc) will be upgraded to accommodate the elective hospital and are considered within these figures. This infrastructure will be utilised by any future development on the MPUH site. For the avoidance of doubt, the costs do not include any specific items in relation to any future phases of development on the MPUH site. For more detail on the analysis of these cost estimates, please see Appendix D.

Please note that these costs are for indicative purposes only and subject to change materially as the assumptions and underlying designs are developed as part of the next stages of the programme. They reflect very preliminary estimates and have not been adjusted for uncertainty and risk related to the low level of design development at this stage.

## 5 Next steps

### 5.1 Programme Timeline

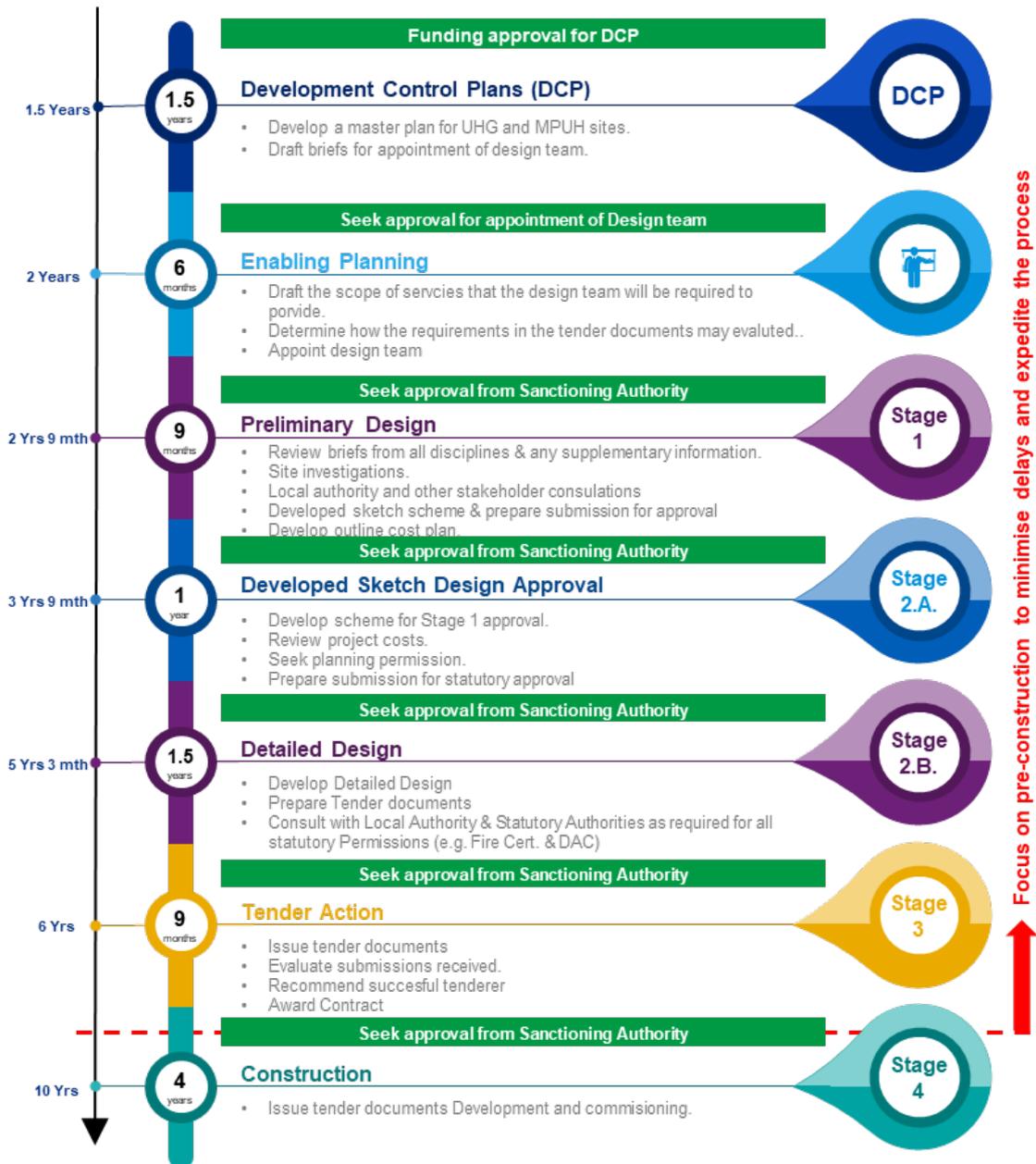
The estimated timeline for the project is presented below. This estimate assumes that the process to obtain internal approvals, develop detailed design, gain planning permission and deliver other enabling works will take up to 6 years, with procurement of developers, construction and commissioning taking a further 4 years. This results in an estimated total timeframe of 10 years before the proposed Elective Hospital would be operational.

The current facilities in Galway are already operating at capacity, with patients experiencing lengthy waiting lists. This demonstrates the immediacy of the need for intervention. Even with efficiency and substitution measures, any delays in the programme will directly impact the ability of Saolta to provide the high standard of care expected in the Region. Prolonging delivery will cause the waiting lists to grow as opposed to shrinking, put additional pressure on resources and staff, negatively impact patient experience due to overcrowding and hinder the ability of staff to provide a high quality of service.

Given the limited ability to reduce the time required for procurement and construction, it is important to focus on reducing the time required to obtain the appropriate approvals and design to make it as streamlined and efficient as possible. As such, it is recommended that this programme is made a priority, including early progression of site infrastructure works and preparation for decanting. This will help to reduce the risk of delays and also potentially expedite delivery through fast-tracking the programme through governance and gateway approvals.

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**Figure 10 Indicative timeline for delivery of the Elective Hospital**



## 5.2 Key activities

*This report recommends that the project should progress to Detailed Business Case Stage, as soon as possible, in order to fulfil the Government's commitment to delivery of an elective hospital in Galway – and thereby eliminate long term patient waiting lists.*

Subject to approvals, the next stage of the programme will include:

- Progressing to the next stage of project development process, which will require a Detailed Business Case;
- A series of sessions with key stakeholders to provide updates and gain support for the scheme;
- Ongoing engagement with local and national stakeholders to reinforce the long-term purpose of Merlin Park as a health campus;
- More detailed consideration of the service delivery model for Saolta and the impact the elective hospital will have on operations across the wider region;
- Development Control Plans for both GUH sites;
- Detailed economic and financial appraisal, including cost benefit analysis, for the preferred option in line with Public Spending Code;
- Assessment of potential commercial opportunities to reduce the funding pressures for the programme;
- Financial forecasts for the preferred development option, including potential accounting treatments for commercial options identified; and,
- An in-depth delivery and governance structure including a breakdown of cost estimates and skillsets required for management and delivery of the programme.

In addition to the above core elements of the Detailed Business Case which are required as part of Public Spending Code guidelines, the next stage will also look to consider more detailed aspects of the operational model for the new elective hospital including patient pathways and how operational efficiencies are to be realised. This may include areas such as workforce models, adoption of ICT, revenue savings, patient safety and staff retention, among others. Additionally, this will look to consider the impact of a new Elective Hospital on the existing UHG site.

## A Resource Requirement Calculations

Number of bed days into number of inpatient beds (long stay) 	
Assumptions	<ul style="list-style-type: none"> <li>— In use 52 weeks a year, 5 days a week (365 days minus 52*2)</li> <li>— Occupancy rate = 85%</li> <li>— Beds are shared between specialisms</li> <li>— Inclusion based on % of DRG's fit for hospital (see 3.3.1) per specialism</li> <li>— Wards built in 25-bed blocks</li> </ul>
Number of bed days included	18,278
Number of beds calculated	$(18,278 \text{ bed-day} / 261 \text{ days}) * 0.85 = 59.5 \text{ beds}$ This was subsequently rounded up to 75 based on 25-bed blocks

Number of day cases into number of day case beds 	
Assumptions	<ul style="list-style-type: none"> <li>— In use 50 weeks a year, 5 days a week</li> <li>— 3 day cases a bed a day (12 opening hours)</li> <li>— Beds are shared between specialisms</li> <li>— Oncology day cases not included</li> <li>— Wards built in 25-bed blocks</li> </ul>
Number of day cases included	93,470
Number of beds calculated	$93,470 \text{ day cases} / 50 / 5 / 3 = 125 \text{ beds}$

Note: An average number of three day cases per day has been assumed based on evidence of international best practice for facilities with 12 hour opening hours per day and efficiencies in recovery periods post procedures. The Steering Group advised that 2.5 day cases per day is a more reasonable assumption. This would increase the number of day case beds by 25. This assumption will need to be verified in the Detailed Business Case stage.

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Number of operations into number of OT's 	
Assumptions	<ul style="list-style-type: none"> <li>— In use 50 weeks a year, 5 days a week, 8 hours a day</li> <li>— Average operation hour per specialism</li> <li>— Occupancy rate = 80%</li> <li>— Ophthalmology has own OT</li> <li>— Plastic surgery and orthopedics share OT's</li> <li>— Other specialisms share OT's</li> </ul>
Number of operating hours included	15,216
Number of OT's calculated	Ophthalmology: $1,124 \text{ hours} / (50 * 5 * 8 * 0.8) = 0.7$ . Gives 1 OT room Plastic and orthopaedics: $5,527 \text{ hours} / (50 * 5 * 8 * 0.8) = 3.45$ . Gives 4 OT rooms Other: $8,560 \text{ hours} / (50 * 5 * 8 * 0.8) = 5.34$ . Gives 6 OT rooms

Number of scopes into number of scope rooms 	
Assumptions	<ul style="list-style-type: none"> <li>— In use 50 weeks a year, 5 days a week, 8 hours a day</li> <li>— Every scope type uses own room</li> <li>— Average time of procedures between 10 and 45 minutes</li> <li>— Occupancy rate = 80%</li> </ul>
Number of scoping hours included	6,150
Number of scope rooms calculated	Bronchoscopy: $1,763 / (50 * 5 * 8 * 0.8) = 1.1$ Gives 2 scope rooms Gastroscopy: $559 / (50 * 5 * 8 * 0.8) = 0.35$ Gives 1 scope room Colonoscopy: $2,277 / (50 * 5 * 8 * 0.8) = 1.42$ Gives 2 scope rooms Sigmoidoscopy: $125 / (50 * 5 * 8 * 0.8) = 0.08$ Gives 1 scope room ERCP: $186 / (50 * 5 * 8 * 0.8) = 0.12$ Gives 1 scope room Cystoscopy: $1,245 / (50 * 5 * 8 * 0.8) = 0.78$ . Gives 1 scope room

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Number of outpatient visits into number outpatient rooms	
Assumptions	<ul style="list-style-type: none"> <li>— In use 50 weeks a year, 5 days a week, 8 hours a day</li> <li>— 'Normal' consultation rooms are shared between specialisms</li> <li>— On average a consultation takes 25 minutes per patient, including clean-up and changing time (0.42 hours)</li> <li>— increase on 'normal' consultation rooms of 23%, based on the current ratio between 'normal' consultation rooms and outpatient rooms with a specific purpose</li> <li>— Oncology outpatient visits not included</li> </ul>
Number of outpatient visits included	278,135
Number of outpatient rooms calculated	$(278,135 \text{ visits} * 0.42) / (50 * 5 * 8) = 58 \text{ normal consultation rooms}$ $58 * 23\% = 13 \text{ specific consultation rooms}$ Total = 71 outpatient rooms

Number of pre-assessment visits to pre-assessment rooms	
Assumptions	<ul style="list-style-type: none"> <li>— In use 50 weeks a year, 5 days a week, 8 hours a day</li> <li>— One pre-assessment consult per operation</li> <li>— Average pre-assessment takes 60 minutes (1 hour)</li> </ul>
Number of pre-assessment visits	12,000
Number of pre-assessment rooms calculated	$(12,000 * 1) / (50 * 5 * 8) = 6 \text{ pre-assessment rooms}$



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## **B Steering Group Committee**

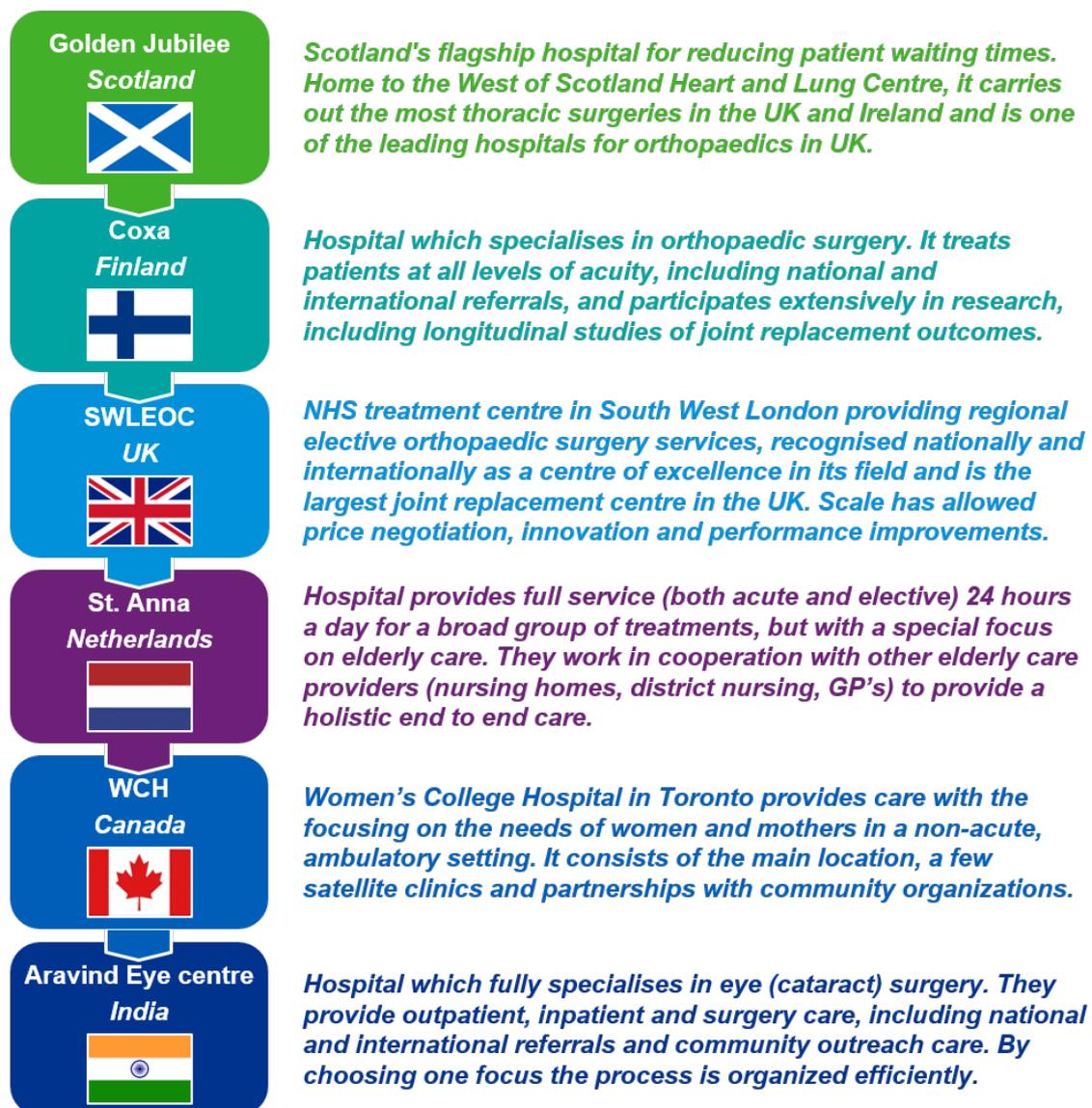
<b>Name</b>	<b>Department/Organisation</b>
<b>Ann Cosgrove</b>	Saolta University Health Care Group
<b>Chris Kane</b>	Galway University Hospitals
<b>Caitriona Meehan</b>	Saolta University Health Care Group
<b>Elaine Dobell</b>	Saolta University Health Care Group
<b>Grainne Cahill</b>	HSE Estates – West
<b>Goda Faherty</b>	Saolta University Health Care Group
<b>Jennifer Greene</b>	Galway University Hospitals
<b>Joe Hoare</b>	HSE Estates- West
<b>Jo Shortt</b>	Saolta University Health Care Group
<b>Michael Kerin</b>	Saolta University Health Care Group
<b>Margaret Murray</b>	Saolta University Health Care Group
<b>Maurice Power</b>	Saolta University Health Care Group
<b>Pat Nash</b>	Saolta University Health Care Group
<b>Tony Baynes</b>	Saolta University Health Care Group
<b>Tara Cahill</b>	Galway University Hospitals
<b>Paul de Freine</b>	HSE Estates
<b>Declan Sheppard</b>	Galway University Hospitals
<b>Kevin Clarkson</b>	Galway University Hospitals
<b>Ramona McLoughlin</b>	Galway University Hospitals
<b>Jean Kelly</b>	Galway University Hospitals
<b>Geraldine Murray</b>	Galway University Hospitals
<b>Anton O'Regan</b>	Galway University Hospitals

## C Options Appraisal to Determine the Preferred Option

### Consideration of International Examples

Several international examples were discussed in detail to assess the appropriateness of the different options available to Saolta. A brief summary of some of the international examples are presented below:

Figure D1 International Elective Examples



The examples discussed showed a range of potential clinical models, depending on the degree of specialisation and function (from full-service hospitals to community care centres). Three archetypes were developed based on the range of clinical models.

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Figure D2 below illustrates the range of archetype – For example, Coxa would be in the first Archetype, St. Anna in the second and WCH in the third.

**Figure D2 Archetype criteria and international examples**



## Considered Archetypes

The Steering Group made it clear that acute care should not be included in any of the three archetypes. A description of the three archetypes thus considered for the elective hospital in Galway is outlined below (and shown graphically in Figure D2):

### 1 The high complex elective care centre

*A centre with all non-acute functions (including Intensive Care), focussing on both low- and high-complex specialties/diseases/treatments. The centre is used both during the week and the weekends.*

### 2 The elective care centre (providing low complex surgical care)

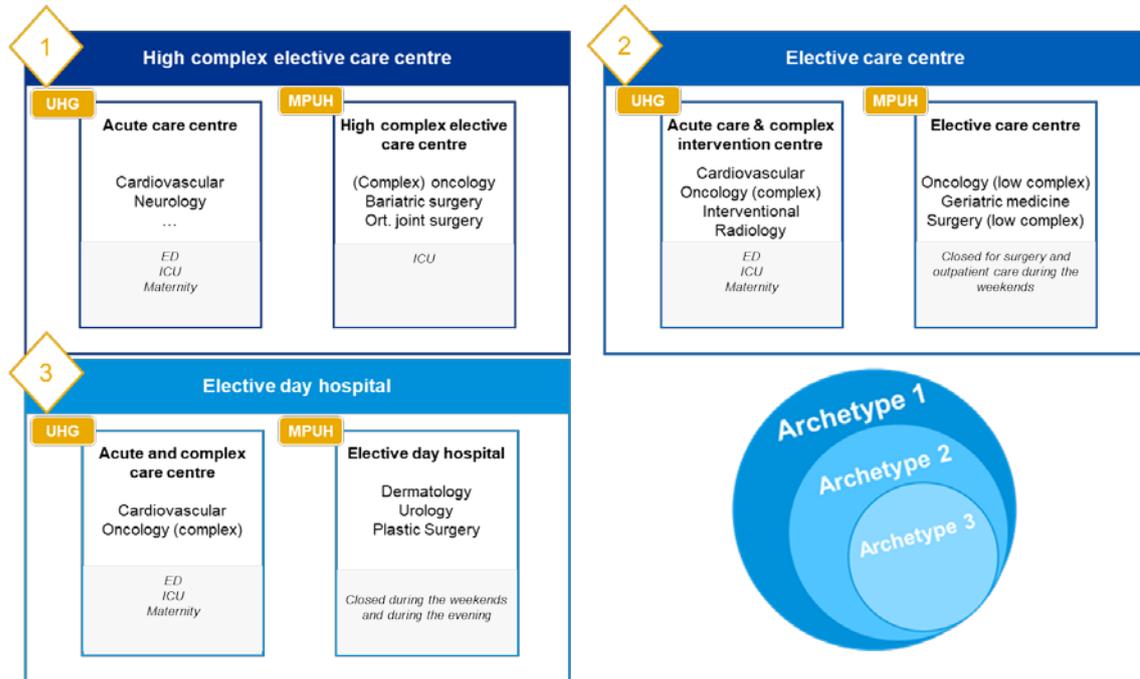
*A centre with non-acute functions needed to provide low-complex surgical care. The scope of specialties/diseases/treatments is broad, given this is planned low-complex care. Care is only provided during the week (Monday to Friday).*

### 3 The elective day hospital

*A centre with only non-acute functions for care during daytime. This means no inpatient beds, as this implies overnight stays. Hospital is closed during weekends and evenings. As an inpatient stay is not possible only certain low-complex care can be provided.*

It should be noted that Archetype 1 is assumed to incorporate Archetypes 2 and 3, and similarly Archetype 2 incorporates Archetype 3 (as portrayed in the circular diagram below).

**Figure D3 Three proposed archetypes for consideration by the Steering Group**



## Archetypes in the context of GUH

### Single- vs. multidisciplinary elective centres

The international examples demonstrate hospitals can often tend to choose a specialised single-disciplinary services to ensure the provision of efficient and high quality care. However if an Irish hospital is specialised, patients will need to travel significant distances to receive treatment or else the hospital will not generate sufficient activity to justify the investment. Therefore multidisciplinary models are more appropriate in an Irish context. The Steering Group, decided to focus on a broad spectrum of elective care (i.e. multidisciplinary elective care). This will enable Saolta to organise care more efficiently and with a certain degree of specialization while generating sufficient activity to justify the investment.

### Advantages and disadvantages of the archetypes

The advantages and disadvantages of each archetype are presented in the relative tables below.

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*Archetype 1 – High complex elective care centre*

Advantages	Disadvantages
With high volumes (both low and high complex care) being relocated, significant space is being made available at the UHG site.	To provide the complex care, the new development will need an ICU, resulting in both sites having an ICU. This split of high complex care (acute and elective) across two sites will lead to high costs and low efficiency.
	To provide complex care a 24/7 service across OT, diagnostics and wards is required. Again this split of complex care across two sites leads to high cost and low efficiency.

*Archetype 2 – Elective care centre*

Advantages	Disadvantages
The Elective hospital will not be negatively impacted by acute or emergency cases as the services will be separated.	High complex elective care will be provided at the UHG site and this may be adversely affected by acute and emergency care.
The high volumes and focus on planned and predictable care provides the opportunity to organise processes efficiently and reduce waiting lists.	Limited space will become available on the UHG site as the majority of services currently provided are acute, emergency or higher complex. This is evidenced by the growing waiting list numbers and number of patients travelling to Dublin
Expensive services (e.g. ICU and 24/7 OT and diagnostics staff) are not necessary, as only low-complex care is provided.	

*Archetype 3 – Elective day hospital*

Advantages	Disadvantages
As care is planned and only provided during the day, more efficient use of staff is possible.	As hospital is closed during evenings and weekends certain types of care cannot be provided such as surgical procedures with inpatient stay. This narrow scope makes the volume of care that can be shifted to the elective hospital low in comparison to Archetypes 1 and 2.
	Given the narrow scope, a substantial part of elective care provided at the UHG site will still interfere with the acute care services.

Each of the archetypes were discussed at length with the Steering Group where the advantages and disadvantages were considered. An indicative score was then assigned to each archetype based on a simple Red/Amber/Green (RAG) rating, where the assigned colours received a numerical value of 0/1/2 respectively. The selection criteria and average scorings are presented below, accompanied by a short description for the justification of each score.

It is important to understand that, at this stage, scoring was based solely on a high level discussions of each option. Financial analysis has not been undertaken but will be carried out as part of the Detailed Business Case.

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**Figure D4 Scoring of options against Assessment Criteria**

Assessment criteria	1	2	3	Comments
<b>Content</b>				
Consistent with the principles	1	2	1	Option 2 believed to provide the greatest opportunity for efficiencies based on complete split.
Guarantees quality sufficient	1	2	2	Quality of care may not be guaranteed for 1 given relocation of complex care.
Complies with all applicable guidelines/quality requirements	1	2	1	Option 2 aligns directly to the models of care suggested by Government.
Aligns with care needs in the region	1	2	2	Retaining complex oncology at UHG better caters to the immediate need of patients.
Cost effective	1	1	0	3 was perceived to have lower value for money given narrower scope.
Capacity available	1	1	1	All options are assumed to deliver to specified capacity at this stage.
Financially feasible	0	1	1	Option 1 is the hardest to justify given the small group of patients it caters for.
<b>Process</b>				
Sufficient support within the organisation	1	2	1	Option 2 believed to have the strongest alignment with Saolta strategy.
Feasible transition within reasonable time period	0	2	2	Relocating only high-complex care (as in 1) would not lead to enough increased capacity at UHG.
Sufficient political support	1	2	1	Option 2 aligns directly with political initiatives.
<b>Total Score</b>	<b>8</b>	<b>17</b>	<b>12</b>	

When assessed against these criteria, Archetype 1 was excluded. The Steering Group advised that Ireland will not have specialist centres (e.g. eyes / Orthopaedics) as volumes are not large enough to justify the investment in more than 1 or 2 counties. Furthermore two ICU's are not required as risk can be managed through patient assessment (pre admission) and monitoring to reduce the risk of patients requiring ICU. In extreme cases patients may be transferred to UHG. Furthermore the expectation was that the transition would take a significant period of time that would not be suitable to deliver against the short-term needs of GUH.

The Steering Group viewed the scope of Archetype 3 as relatively narrow, leading to concerns regarding the impact on waiting lists, freeing up capacity on the UHG site and value for money.

Archetype 2 was selected as the preferred option. The Steering Group advised that the clear split between emergency and elective care will allow for significant opportunities to increase efficiency, productivity and quality of care.



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## **D Order of Magnitude Project Costs and Indicative Schedule of Accommodation**

**DRAFT**

# Galway University Hospital Options Elective Hospital

Order of Magnitude Costings  
for  
Saolta Group

Project number: 60578738

4 July 2019

## Document Control

### Quality Information

Prepared by	Checked by	Verified by	Approved by
Tomás Kelly Director	Donal Monahan Senior Quantity Surveyor	Pat Grogan Senior Quantity Surveyor	Tomás Kelly Director

### Revision History

Revision	Date	Details	Authorised	Name	Position

### Distribution List

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## Section 1

### Executive Summary

## 1.0 Executive Summary

**introduction** AECOM, as part of the KPMG team, have prepared Order of Magnitude Costings in respect of the proposed Elective Hospital identified as part of the GUH Hospital Options Appraisal. This study has been commissioned by the HSE / Saolta University Health Care Group.

The Elective Hospital comprises of a new build 78,282 sq m elective hospital on MPUH campus.

**elective hospital** STW Architects have prepared a Preliminary Schedule of Accommodation for the proposed Elective Hospital, based on the functional requirements identified by KPMG through a series of workshops with stakeholders.

Based on this Schedule we have prepared Order of Magnitude Costings summarised as follows:

Elective Hospital	Total €
Construction Costs	378,053,000
Client Direct Costs & Fees	73,600,000
Equipment Costs	158,712,000
Ancillary Project Costs	281,344,000
<b>Total €</b>	<b>891,709,000</b>

**programme** The elective hospital is based on a 12 year programme.

**floor areas** The gross floor areas are based on the preliminary schedule of areas advised by Scott Tallon Walker Architects following the stakeholder engagement on service and space requirements.

**design team fees** For the purposes of the Order of Magnitude Costings, design team fees have been set at 12% for the elective hospital.

**client direct costs** A 6% allowance has been included for client direct cost items such as site investigations, statutory and utility contributions, miscellaneous fees and charges, internal costs.

**equipment** The Equipment provisions are based on Q Costs as published in 2004 and adjusted for inflation.

**contingency** A 5% project contingency has been included in the order of magnitude costings.

**inflation** Inflation has been included based on 5% per annum pre-contract and 4% per annum post contract based on the programme periods broadly outlined above. Client Direct costs inflation has been included based on 3% per annum.

**exclusions** Please refer to page 5 of the report for Exclusions.

**order of magnitude costs** The Order of Magnitude Costs for the works have been based on HSE Q Costs and AECOM cost benchmarking analysis. No design information is available at this time and the brief will require further development prior to establishing project budgets either individually or collectively.

## Section 2

### Elective Hospital

Order of Magnitude Costings

## 2.0 Elective Hospital

<b>2.01 Construction Costs</b>	<b>GFA</b>	<b>€/m2</b>	<b>Sub-Total</b>	<b>Total €</b>
2.02 Ward Accommodation	14,926	3,000	44,778,000	
2.03 Intensive Therapy Unit	1,071	4,000	4,284,000	
2.04 Operating Theatres	5,376	5,000	26,880,000	
2.05 Diagnostics (Radiology)	3,152	3,400	10,717,000	
2.06 Endoscopic Suites	2,485	4,000	9,940,000	
2.07 OPD	2,531	3,000	7,593,000	
2.08 CSSD	1,500	4,300	6,450,000	
2.09 Therapy (Physical Medicine)	1,128	2,600	2,933,000	
2.10 Academic Unit	2,257	3,200	7,223,000	
2.11 Hot Labs (Pathology)	1,585	4,100	6,499,000	
2.12 Administration	5,336	2,500	13,340,000	
2.13 Logistics (Central Supplies)	2,818	2,200	6,200,000	
2.14 Medical Physics (Radiology)	211	3,400	718,000	
2.15 Pharmacy	816	3,500	2,856,000	
2.16 Catering	1,526	3,500	5,341,000	
2.17 Commercial Space (Concourse)	2,642	2,800	7,398,000	
2.18 Urgent Care Centre	2,843	3,300	9,382,000	
2.19 Dialysis unit & infusion suite (Day services)	1,632	4,300	7,018,000	
2.20 Mortuary	434	2,500	1,085,000	
2.21 Central Change Facilities	998	2,500	2,495,000	
2.22 On Call	470	2,200	1,034,000	
2.23 Inter-departmental Circulation	12,931	2,500	32,328,000	
2.24 Plant Space	9,614	1,250	12,017,000	
<b>2.25 Sub-Total</b>	<b>78,282</b>		<b>228,509,000</b>	
2.26 Abnormals - 10% (Allowance)			22,851,000	
2.27 Enabling / Phasing - 5% (Allowance)			11,426,000	
2.28 External Works - 15% (Allowance)			39,418,000	
2.29 Major Project Premium - 10% (Allowance)			30,221,000	
<b>2.30 Total Construction Cost (excl VAT)</b>	<b>78,282</b>	<b>4,247</b>	<b>332,425,000</b>	<b>332,425,000</b>
<b>2.31 Value Added Tax</b>				
2.32 Value Added Tax at 13.5%			44,878,000	
2.33 Value Added Tax at 23% (Allowance)			750,000	
<b>2.34 Sub-Total Value Added Tax</b>			<b>45,628,000</b>	<b>45,628,000</b>
<b>2.35 Total Construction Cost (including VAT)</b>	<b>78,282</b>			<b>378,053,000</b>

Order of Magnitude Costings

**2.36 Client Direct Costs & Design Team Fees**

2.37	Design Team Fees - 12% (Allowance)			39,891,000
2.38	Client Direct Costs - 6% (Allowance)			19,946,000
2.39	VAT @ 23%			13,763,000

**2.40 Total Fees (including VAT)** **73,600,000** **73,600,000**

**2.41 Equipment Costs**

2.42	Ward Accommodation	10,171	800	8,137,000
2.43	Intensive Therapy Unit	730	4,700	3,431,000
2.44	Operating Theatres	3,663	13,000	47,619,000
2.45	Diagnostics (Radiology)	2,148	14,700	31,576,000
2.46	Endoscopic Suites	1,693	9,800	16,592,000
2.47	OPD	1,725	500	863,000
2.48	CSSD	1,022	2,800	2,862,000
2.49	Therapy (Physical Medicine)	769	400	308,000
2.50	Academic Unit	1,538	500	769,000
2.51	Hot Labs (Pathology)	1,080	3,000	3,240,000
2.52	Administration	3,636	400	1,455,000
2.53	Logistics (Central Supplies)	1,920	400	768,000
2.54	Medical Physics (Radiology)	144	14,700	2,117,000
2.55	Pharmacy	556	600	334,000
2.56	Catering	1,040	1,300	1,352,000
2.57	Commercial Space (Concourse)	1,800	500	900,000
2.58	Urgent Care Centre	1,937	2,200	4,262,000
2.59	Dialysis unit & infusion suite (Day services)	1,112	1,700	1,891,000
2.60	Mortuary	296	1,100	326,000
2.61	Central Change Facilities	680	200	136,000
2.62	On Call	320	300	96,000

129,034,000

VAT @ 23% 29,678,000

**2.64 Total Equipment Costs (including VAT)** **158,712,000** **158,712,000**

**2.65 Ancillary Project Costs**

2.66	Project Contingency:	5%		30,519,000
2.67	Construction Inflation			181,012,000
2.68	Client Direct, Design Team & Equipment Inflation			69,813,000

**2.69 Ancillary Project Costs: Sub-Total** **281,344,000** **281,344,000**

**2.70 Total Project Cost (including VAT)** **891,709,000**

## Section 3

### Narrative

## 3.1 Basis of Cost Review

**introduction** AECOM, as part of the KPMG team, have prepared Order of Magnitude Costings in respect of the proposed Elective Hospital identified as part of the GUH Hospital Options Appraisal. This study has been commissioned by the HSE / Saolta University Health Care Group.

**HSE reports / information** The following information was used to assist in the preparation of this report;

Schedule of Floor Areas received / confirmed by STW Architects and KPMG

Information discussed at workshop series

MPUH Day Services Unit - Capital Submission

Meetings with HSE Estates

**areas** The gross floor areas are based on the Schedule of Areas provided by Scott Tallon Walker Architects.

## 3.2 Assumptions

**start date** A programme start date of Q3 2019.

**planning and design** Conventional planning application route and design proceeding at risk without planning permission.

**programme** The elective hospital is based on a 12 year programme.

**tendering** The construction works will be competitively tendered to pre-selected contractors.

### 3.3 Exclusions

<b>scope of works</b>	<p>A detailed scope of works for the project has not been developed and would require detailed planning before an accurate detailed cost plan could be prepared for same.</p> <p>The costs included in this report are Order of Magnitude and should not be used for establishing project budgets.</p>
<b>inflation</b>	<p>Inflation on construction works has been included based on 5% per annum pre-contract and 4% per annum post contract based on the programme periods broadly outlined above. Inflation provisions beyond these rates and dates are not included. Inflation on non-construction costs has been included at 3% per annum.</p>
<b>site disposal costs</b>	<p>Sites / locations in MPUH have not been identified for the precise location of the project, accordingly abnormal costs cannot be specifically identified and have not been included for beyond the provisions / allowances indicated.</p>
<b>restrictions on working hour</b>	<p>Compression of schedule, premium or shift work, restrictions on the contractor's working hours.</p>
<b>rental accommodation</b>	<p>Temporary rental accommodation</p>
<b>scope changes</b>	<p>Scope change and post contract contingencies</p>
<b>haz mat removal</b>	<p>Hazardous material handling, disposal and abatement</p>
<b>eis</b>	<p>Environmental impact statement or similar</p>
<b>fees &amp; charges</b>	<p>Statutory fees, charges and utility contributions above those provisions included in the general client direct costs.</p>
<b>infrastructure</b>	<p>Significant infrastructure upgrades will be required at MPUH to service the long term vision for a single site solution. In the short to medium term a level of investment will be required for the proposed Elective Hospital. We have included provisional allowances in respect of siteworks and abnormals however detailed assessments will be required prior to establishing the full scope required at this stage and an appropriate budget allocation for same.</p>
<b>archaeology</b>	<p>Provision of Archaeology services</p>
<b>decanting and related costs</b>	<p>The order of magnitude costs include for the stated space requirements. No designs or specific site locations have been determined at this time. No costs have been included for any decanting or other related costs such as temporary accommodation for phasing or relocating other services to facilitate the proposed works.</p>

### 3.4 Items That Require Further Consideration

<b>exclusions &amp; assumptions</b>	<p>The list of exclusions and assumptions should be reviewed to confirm their status.</p>
<b>development control plan</b>	<p>A development control plan will need to be progressed for MPUH to clearly identify the next steps involved in delivering the elective hospital.</p>



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Any findings or recommendations contained within this report are based upon our reasonable professional judgement based on the information that is available from the sources indicated. Should the project elements, external factors and assumptions change then the findings and recommendations contained in this report may no longer be appropriate. Accordingly, we do not confirm, underwrite or guarantee that the outcomes referred to in this report will be achieved.

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