
St James's Campus - Draft Site Capacity Study

August 2015

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1. Executive Summary

The National Paediatric Hospital Project includes the development of a major new children’s hospital on the campus of St. James’s Hospital. This Draft Site Capacity Study was carried out to test how this development could be successfully completed without compromising the future development needs of the remainder of the campus, notably the re-development of the Adult Hospital over time and the provision of a new Maternity Hospital. This Draft Capacity Study does not purport to be a development plan for the campus, but rather an indication of its potential capacity. It is not a plan or programme prepared by or adopted by the local authority and was not required by legislative, regulatory or administrative provisions. The Study is therefore not subject to the SEA Directives. Further, this Draft Site Capacity Study does not “set the framework for development consent of projects listed in Annexes I and II to Directive 85/337/EEC” under article 3(2) and, therefore, an environmental assessment is not required in respect of same.

This report summarises the work carried out by a mul-ti-disciplinary design team, led by BDP and O’Connell Mahon Architects, between February and June 2015 and is presented in the manner and sequence in which the work to complete the Study was undertaken as follows:

This report begins by setting out at Section 2 the overarching aims for the combined campus both from a clinical perspective (the functional needs) and a spatial one. These objectives include capitalising on St James’s inherent strengths as a hospital and facilitating the modernisation and expansion of its clinical and research activities within the tri-location of adult, maternity and children’s services at St. James’s. This ‘tri-location’ model will bring together all three services alongside cutting-edge medical research with

consequent benefits in terms of clinical outcomes, the patient experience and the quality of innovation.

Section 2 also describes the previous feasibility work carried out by St James’s Hospital, most notably the Outline Development Control Plan (ODCP) from 2008. The ODCP established certain principles which have underpinned developments over recent years and which represent current development objectives and policy at St James’s that clinical facilities should be carried out within a strong holistic vision that sets a high benchmark in terms of the quality of new buildings and the external spaces between them. The latter includes a strategy for the enhancement of the campus’ public realm (its sequence of routes, external spaces and landscape) together with an integrated mobility plan.

Section 3 describes the existing site at St James’s including the scale of existing development; access provisions; protected structures on the site, and a short history of the development of hospital services on the site in recent years. It also includes an analysis of each of the existing buildings and identifies those which have a long-term value to the hospital and which should be integrated and incorporated into the longer term plan for the site.

Section 3 also sets out a detailed assessment of the future area requirements for anticipated clinical developments, including the co-location of the new children’s hospital and maternity facility, the development of the adult hospital, and the longer term expansion of all three facilities at St James’s.

This area brief for development at the campus followed detailed examination of the projected needs of all three hospitals. It includes a review and update of the requirements set out in St James’s 2008



ODCP and consultation with relevant stakeholders. The outcome of this examination of needs was an identification of the long term floor area of 428,022m² as the total development area required on the site. This floor area forms the basis of the needs for the purposes of this Site Capacity Study.

Section 4 identifies the site opportunities and constraints of the campus and how these have been synthesised to shape proposals for development. Opportunity zones or sites are identified and the potential for future development of each of these zones is described. It is important to note that each of these zones has been considered having regard to the analysis of the existing buildings and services on the campus described at Section 3 and to the level of anticipated development that can be accommodated within the planning parameters for the site established by the current Dublin City Council (DCC) Development Plan.

Section 5 of the Report sets out six core principles which underpin the vision for future development on the campus. These include:

- functional adjacencies
- tri-location links
- provision of shard services
- flexibility and expansion
- development of public realm
- an integrated mobility plan

The study describes how each of these principles might be realised in ways that produce a higher quality and more sustainable environment with better integration of services, an improved public realm and stronger links to the surrounding community.

Section 6 describes the Assessment of the capacity of the site at St James's, structured around the brief development requirements, the opportunity zones, and the core principles and public realm strategy described above. Potential activities and massing is identified for each of the opportunity or development zones, and, while indicative, it does describe what is possible within the physical constraints of the particular plots and the town planning parameters set by DCC.

The assessment concludes that the area targets for development at St James's, set out at Section 3, can be accommodated within the overall capacity for development at the site, and remain well with the development parameters for the site set out in the current City Development Plan.

Section 7 of the Report concludes with a number of alternative phasing scenarios which have been tested by the design team. These scenarios offer contrasting start and end points to demonstrate some of the potential permutations for development and test the flexibility and robustness of the design vision. Each of the scenarios outlined are planned to ensure that core clinical activities on the site can remain live at all times. They also demonstrate that the design vision for site set out in the report can be implemented progressively in a number of ways, without compromising its clinical or spatial integrity.

2. Overarching Aims of the Combined Campus

2.1 2008 Outline Development Control Plan

St James’s Hospital is recognised as Ireland’s fore-most research and teaching hospital, combining the role of a district hospital for south Dublin with that of a leading tertiary and quaternary facility. The over-arching aim for the campus is to capitalise on St James’s inherent strengths as a hospital and facilitate the modernisation and expansion of its clinical and research activities within the tri-location model. This clinical model aims to bring together adult, maternity and children’s services, building on the momentum and investment associated with the proposed new children’s hospital.

The tri-location model represents international best practice with proven benefits in terms of health outcomes, clinical synergies and the fostering of innovative translational research. There is thus an expectation that the proposed clinical developments will act as a catalyst for further growth in research and education activities, affiliated to the existing Trinity medical school. The National Paediatric Hospital Project, for example, includes a Children’s Research and Innovation Centre proposed for a vacant site next to the existing Haughton Institute. Future aspirations for the campus also include a potential national genetics institute and pathology laboratory that will be a campus-wide as well as a national research centre, provision for which is included in the current capacity study.

In tandem with these clinical drivers there is also a strong intent to improve the quality of the campus’ physical environment. It is recognised that many buildings on the campus are out-of-date and need replacing with modern facilities that meet today’s expectations in terms of, for example, clinical space standards or the separation of public, clinical and



2008 ODCP Preferred Option

facilities management flows. St James's goal of upgrading from a large proportion of multi-bed areas within wards to a largely single room provision (as per the model proposed for the new children's hospital) is estimated to require as much as 50,000m² of new space alone.

The 2008 ODCP also acknowledged that the re-provision of clinical facilities should be carried out within a strong holistic vision that sets a high benchmark in terms of the quality of new buildings and the external spaces between them. The ODCP identified a number of elements to this 'public realm' strategy. These included: creating new entrances into the campus from the two existing LUAS stops at Rialto and Fatima; extending 'fingers of landscape' into the campus from the linear LUAS park (St James's Walk) to enhance the hospital's visual permeability; and improving the east to west connectivity across the campus through a combination of new internal routes linking future buildings and a new park promenade along the site's northern boundary in an area currently occupied by car parking.

To set a sustainable vision for the future, therefore, means understanding the clinical needs of the campus (the potential area brief) on the one hand whilst assessing the physical capacity of the site on the other. The following sections give an overview of the campus' development history, the current health policy context and the space needs as articulated by St James's and other stakeholders consulted in the course of the study. The report goes on to assess the campus' capacity to meet these needs, identifying the site's inherent opportunities and constraints, so that the campus' growth can be implemented organically over time with a number of potential permutations in terms of adjacencies, phasing and detailed design.

2.2 St James's Hospital Campus

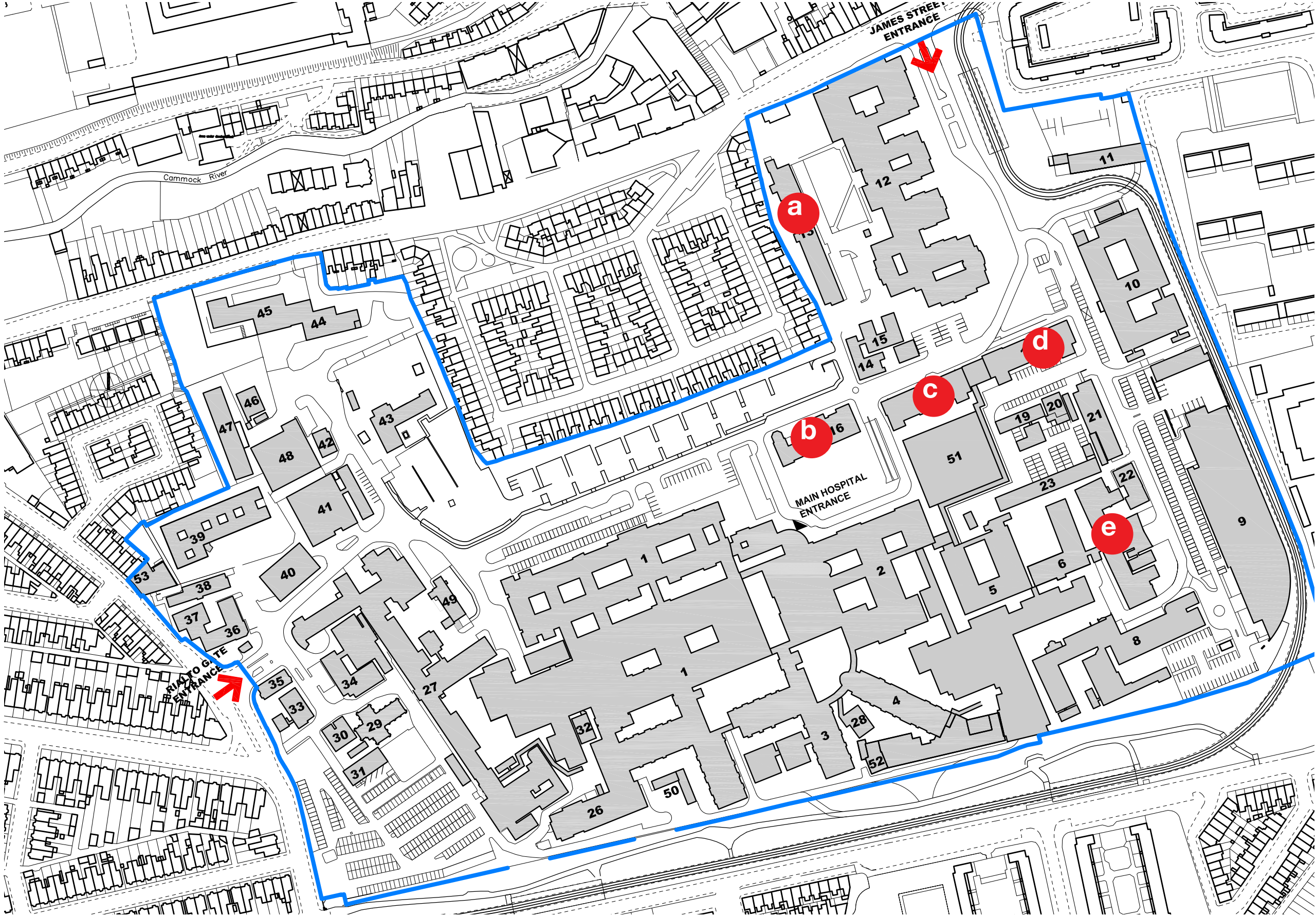
The existing hospital campus at St James's Hospital (SJH) set out within the blue line opposite [reproduce map on page 6 of the BDP Study] comprises a total area of almost 19.4 hectares. The campus is bounded to the north by James's Street and Mount Brown; to the south by the Luas Red Line which runs along a public linear park; to the west by the South Circular Road and to the east is landlocked by adjoining residential and other properties.

The hospital is situated on the site of the former Foundling Hospital, founded by the Duke of Ormond in 1730. The building is no longer extant; however, Hospitals 1 and 2, which were developed in the 19th Century, and which sit directly to the south of the original hospital, still remain.

The Hospital is typical of many such inner-city facilities which, although founded in the eighteenth century has largely been built in the nineteenth and twentieth centuries. Given its location and growth over the years, in overall terms the hospital is 'urban' in character; there are no significant areas of open space within the site; such space as there is, is ancillary to the buildings and functional open areas such as car parks and storage areas.

Buildings are distributed on either side of the central internal road through the campus with different architectural styles representing the different periods of construction. The remnants of the former workhouses, Hospitals 1, 2 and 4, are predominantly three storey blocks, with stonework to the entrance facades and these are concentrated on the Eastern section of the campus. During the 1940's and 1950's the campus expanded with further two storey buildings at both ends of the Campus.

The Main Hospital Complex incorporating the Concourse was constructed in the 1980's and 1990's and is located in the centre of the campus. The complex comprises of three parallel lines of accommodation, running east-west along the central site road: a single storey Outpatients Department, two storey Operating Theatres and Diagnostic facility, and three storey Wards on the Southern side.



Site Area = 194,871 m²
Total building footprint
area - 72,529m²
Site Coverage - 37.2% ● Protected Structures

3

3. Future Growth Potential / Requirements

3.1 The Site at St James's Hospital

The site has undergone considerable change and development in the intervening years and little remains of the original workhouse plans other than hospitals 1, 2 and hospital 4 to the south of the campus.

There are five protected structures (within the meaning of the Planning and Development Acts) on the campus as follows:

- A three storey building annexe (the Haughton Institute) on the western boundary to the rear of McDowell Avenue.
- The two storey Chief Executive Office: stone and brick institutional building
- The three storey Hospital 1: 19th century stone and brick hospital building
- The three storey Hospital 2: a stone hospital building
- The three storey Hospital 4: stone hospital building and mid 20th century service blocks and entrance feature.

Scale of Development

The existing campus is notable for the large number of low rise hospital buildings ranging from one to four storeys, and consequently the core hospital buildings run over 600m along the full length of the site. We have calculated the total floor area of the buildings currently on the campus (including the MISA building under construction) amounts to 145,228m², at a plot ratio of 0.75; this is at the lower end of the plot ratio allowable under the current Z15 Development Plan zoning of the site.

The total site coverage of the existing buildings on the campus amounts to approx. 37%, also below the 50% threshold set out in the current Z15 zoning

standards. However, it is also worth noting that the 2008 ODCP makes provision for a total of 189,362m² of development on the hospital campus over the coming years. This included provision for a Maternity Hospital (25,000m²) and a Private Co-Located Hospital (25,000m²); the latter will not now be built.

Access

There are currently only two primary access points to the St James's Hospital campus, the public entrance from James's Street to the north and a staff / hospital access point and public egress road at the Rialto gate to the South Circular Road to the west.

The 2008 ODCP identified a future third FM / Services access road from Mount Brown to the north. It is considered that this third access point will have significant benefits for the development of the new children's hospital and this has been factored into the site capacity studies below.

The LUAS red line runs through the SJH campus, from James's street to Rialto, along the eastern and southern edge of the campus. There is provision for access to the hospital from three stops along the route. Only one of the three stops, at the eastern end, is currently in use as a public access point to the hospital and it is assumed, as set out in the ODCP, that further access points to the hospital will be developed along the southern boundaries at the Fatima and Rialto stops, the latter of which is adjacent to the proposed new children's hospital site.

Site Analysis

As noted in the 2008 ODCP, the site comprises over 50 buildings in various states of repair and functionality. As noted above the existing buildings comprise a total area of 145,228m².

We have identified those buildings which we consider have a long-term value to the hospital and which should be integrated and incorporated into the longer term plan for the site. The buildings to be retained comprise a total area of 65,513 m² and the rest of the buildings to be potentially demolished are highlighted in red on the drawing to the bottom right.

Clinical Design Issues

As noted in the 2008 ODCP document many of these buildings are physically detached from the main hospital, namely Hospitals 1, 2, 4 and 5 necessitating ambulance transfer for patients being admitted to these areas from the emergency department in the main hospital, or for patients from these areas requiring access to the diagnostic and treatment facilities in the main hospital.

Even the more recent buildings constructed in the 1980s' and 1990s' do not reflect the many of the key objectives of current hospital planning, which includes:

- Separation of emergency and elective patient pathways to improve operational efficiency and patient care
- Segregation of public and patient (particularly in-patient) circulation routes throughout the hospital to improve privacy and dignity
- Segregation of service traffic, both internally and externally, to better the hospital environment, health and safety, infection control and to enable a more efficient delivery of facilities management services.

Key Planning and Design Issues

We have also identified a number of key planning and design issues which have to be addressed in any study for future development at SJH. These are as follows:



Potentially Retained Buildings - in dark grey

1. St James's Hospital is the largest hospital in the country and at 19.4 hectares is one of the larger landholdings in the city. With the additional of the new Children's and Maternity Hospitals it will be become a public campus of national scale and import: consequently it has a civic significance which extends beyond its strict clinical function
2. The existing building stock at SJH is low rise in character and this has resulted in a large degree of horizontal spread and suboptimal use of valuable ground area within a highly serviced urban site. There is an opportunity to achieve a greater density of development on the site, and as more coherent functional plan within the current footprint of buildings on the campus.
3. The current areas of landscape and quality public realm and spaces at SJH are less developed than one might expect and there is a need to address how these areas might be improved and enhanced in any future plan for the campus.
4. The campus has limited visual engagement and connection with the neighbouring communities on all sides. Stronger connections are required to establish more permeable boundaries, particularly to the South while careful consideration must be given to the relationship of development to the scale of neighbouring housing.
5. There are currently only two primary access points to the St James's Hospital campus, the public entrance from James's Street to the north and a staff / hospital access point and public egress road at the Rialto gate to the South Circular Road to the west. Entrances to the site are concealed and wayfinding through the campus is problematic. An improved public access and

3.2 Previous Hospital Development Plan Policies

The current main hospital complex at SJH was constructed in the 1980's and followed, in large part, a development plan prepared by Moloney O'Beirne Architects in 1978 for a hospital of 50,000m².

- a single storey Outpatients Department;
- a two storey Operating Theatres and Diagnostic facility; and
- a three storey Ward on the Southern side.

In 2008 the hospital developed a new Outline Development Control Plan for future development at SJH. This programme made provision for two new major centres of clinical excellence, a private hospital and a maternity hospital together with a comprehensive redevelopment of the hospital's estate. The objective of the 2008 plan was to reinforce St. James's clinical status as a national centre for tertiary and quaternary care on a well-planned campus in the heart of the city.

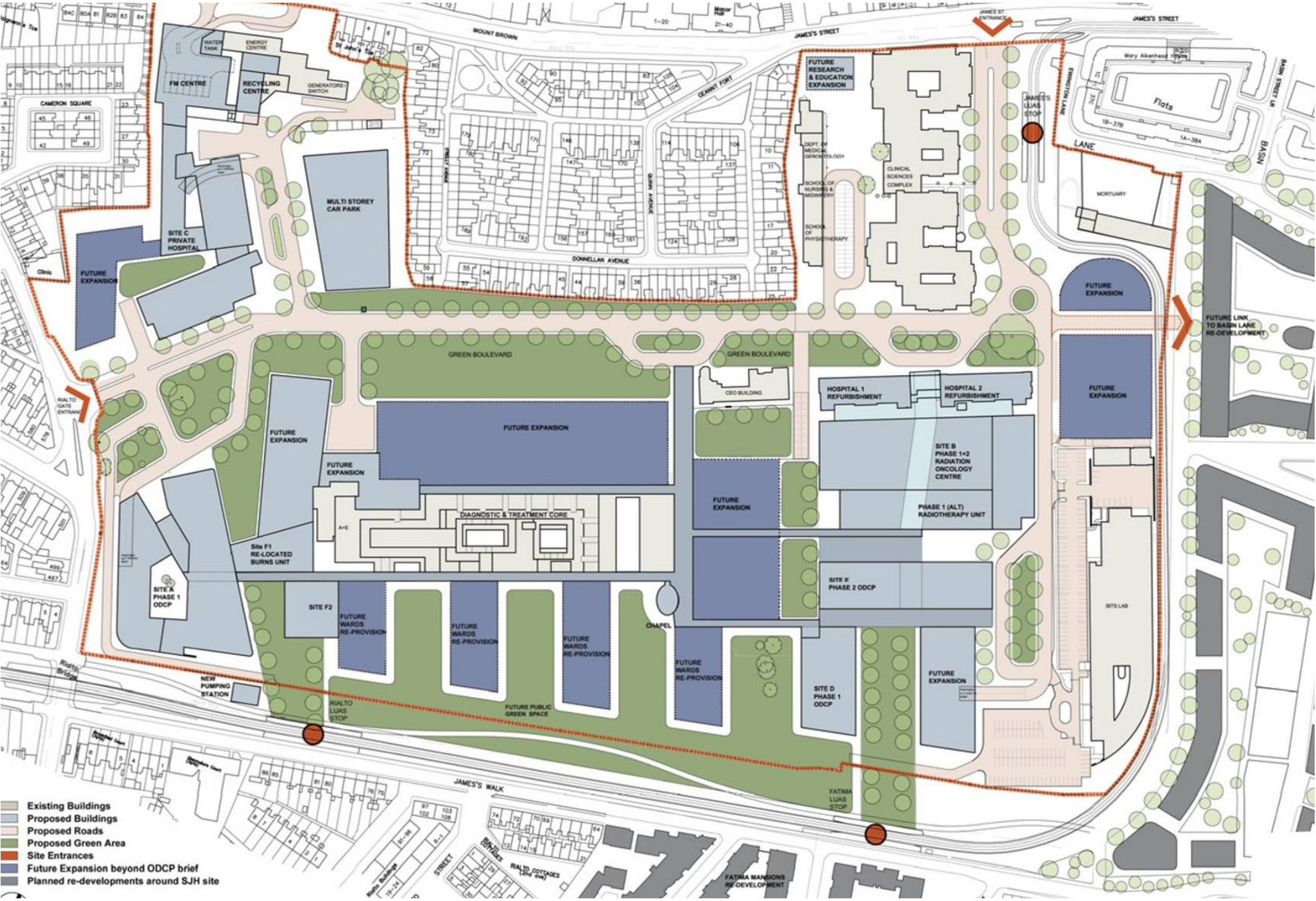
The site plan illustrates the layout of the proposed new hospital building, which is outlined in red. The building is situated on a plot bounded by James Street to the north and Rialto Gate to the west. The plan includes the following features:

- Entrances:** The main entrance is located on James Street, indicated by a red arrow. A secondary entrance is marked on the western side near Rialto Gate.
- Departments and Facilities:** The building is divided into several functional areas, including:
 - Accident & Emergency:** Located near the western entrance.
 - Outpatients:** Situated in the central part of the building.
 - Medical Illustration:** Adjacent to the outpatients department.
 - Admissions - Medical Records:** Located near the central entrance.
 - Concourse:** A central area connecting different parts of the building.
 - Rehabilitation:** Situated on the eastern side.
 - Chaplaincy:** Located near the rehabilitation department.
 - Central Staff Changing:** Situated near the central entrance.
 - Central Supplies:** Located near the central staff changing area.
 - Food Stores:** Situated near the central supplies area.
 - Disposal:** Located near the food stores.
 - Pharmacy:** Situated near the disposal area.
 - Psychiatric Unit:** Located on the eastern side, adjacent to the pharmacy.
 - Wards:** Multiple ward blocks are located in the southern part of the building.
 - Gardens:** Several garden areas are interspersed throughout the site.
 - Chapel:** Located in the southern part of the site.
 - Hospital 4 and Hospital 5:** Existing hospital buildings are shown to the east of the new building.
 - Other Facilities:** The plan also shows a mortuary, pathology department, dental school, clinical science complex, and a site for future laundry.
- Car Parks:** Multiple car park areas are distributed around the building, including a large one on the northern side and several smaller ones throughout the site.
- Other Features:** The plan includes a boiler house, service yard, offices, workshops, ambulance park, ambulance and transport section, ambulance control centre, horticultural centre, staff residences, multi purpose hall, tennis court, and a helicopter pad.

A text box in the upper central part of the plan provides the following specifications:

- Floor area - 50,000 sq.m
- 1200 Car spaces
- Maximum 3 floors

1978 Masterplan



2008 ODCP - Preferred Development Option

provided for major development across the entire range of clinical facilities at the campus and included the following provisions:

- Radiation Oncology Facilities
- Institute for Elderly Care / Successful Ageing.
- A Private Co-located Hospital
- A Maternity Hospital
- An Ambulatory Care Centre
- Emergency Department
- Additional Bed Capacity
- Expansion of Theatres and Clinical Services
- New FM Facilities
- A wide range of ancillary Support Accommodation.

A significant volume of new clinical accommodation of almost 190,000m² and together with retained buildings amounted to a new planned campus in the order of 265 - 270,000m² in area.

The ODCP proposed a restructuring and reorganisation of the site in which St James's was presented as a well-planned and ordered hospital campus in which clinical activities were zoned, circulation was more clearly segregated and sites were identified for future development.

The 2008 ODCP remains the live and current planning strategy for development on the site; however three major or government policy decisions since this ODCP was prepared have had a major impact on the brief for development strategy on the St James's campus. These were as follows:

The government policy decision that all new patient rooms in new developments at acute hospitals would

be planned as 100% single rooms.

The government policy decision not to proceed with the Private Co-located Hospital projects, including the project at St. James's which had been a major element of the 2008 ODCP.

The decision, following the recommendation in the Dolphin Report, to locate the proposed National Children's Hospital on the St James's Campus.

As a result of the above policy developments the 2008 ODCP does not accurately reflect the new clinical area requirements at St James's and consequently the current 2015 Draft Site Capacity Study has been prepared to test the capacity of the site to deliver all of the above developments in a planned and orderly manner within the constraints of the Local Authority Development Plan standards for the site.

The basis for this calculation of the new 2015 area requirements for development at SJH is set out in the following section.

3.3 2015 Area Schedule For Development at St James's Campus

Following the above policy developments and having regard to the 2008 ODCP, the Design Team in consultation with SJH and the HSE has carried out detailed and rigorous examination of the total current site area requirements and projected service needs of St James's Hospital campus in the medium to long term.

The following Stakeholders were consulted in respect of current and future policy needs:

- St. James's Hospital
- Trinity College
- IBTSB
- HSE Estates
- Dublin East Hospital Group
- Children's Hospital Group.

The potential future developments at St James can be broken into three distinct developments:

- National Paediatric Hospital Project (including the Children's Research and Innovation Centre and the Family Accommodation Unit)
- The Maternity Hospital
- The Adult Hospital development.

The Children's Hospital

The full Brief Area Schedule for the Children's Hospital was prepared by the National Paediatric Hospital Development Board in 2014, in consultation with the Children's Hospital Group and the Health Services Executive. The area required for the project amounted to a total of 120,600 m² of new floor area. In order to cater for expansion and for the purposes of the Site Capacity assessment a further 20% expansion has been added to this sum, an additional area of 24,120 m².

This results in a total floor area requirement of **144,720m²** for the Children's Hospital and its future expansion.

Maternity Hospital

Whilst the full Brief Area Schedule is not yet developed for the Maternity Hospital at SJH, we

understand it is likely to be similar in terms of its services requirements to that envisaged for the National Maternity Hospital at St Vincent's Hospital, which comprise an area in the order of 26,000 m² for Maternity Hospital services. As above and in order to cater for expansion and for the purposes of the Site Capacity assessment a further 20% expansion has been added to this sum, an additional area of 5,200 m².

This results in a total floor area requirement of **31,200m²** for the Maternity Hospital and its future expansion.

Adult Hospital

Following discussions with the NPHDB Executive, St James's Hospital Executive and HSE Estates, it was agreed to review the 2008 ODCP brief areas for development at St James's Hospital in order to comprehensively address all current policy clinical priorities and standards since the 2008 ODCP.

Several detailed meetings with stakeholders were held in order to carry out this review. This included meetings with representatives from St. James's Hospital, Trinity College; Irish Blood Transfusion Services Board (IBTSB); HSE Estates and the Dublin East Hospital Group.

The outcome of these reviews is that the anticipated area of new build accommodation required on the current SJH Adult campus is **155,491m²**. As above and in order to cater for expansion and for the purposes of the Site Capacity assessment a further 20% expansion has been added to this sum, equating to an additional area of 31,283 m².

It is also anticipated that there would be 65,513m² of existing buildings, which taken together with the new

build requirements and expansion results in a total floor area requirement of **252,102m²** for the St James's Hospital adult services and its future expansion.

Total Area Schedule for SJH Campus

The total area envisaged for long-term development of the Adult Hospital; Children's Hospital and Maternity Hospital services at St. James's campus and the future expansion of all three services is **428,022m²** and this is the long term floor area which has been assumed to be required for the purposes of the Site Capacity Study of the campus at SJH.

Please refer to **Appendix 1** of this document for further detail on the area schedule.

3.4 City Development Plan Policy and Standards

Dublin City Development Plan 2011-2017

Dublin City Development Plan 2011-2017 is the relevant Statutory planning document which sets out the policy and framework for planning and development at the site.

On the basis of the amended 2012 Z15 zoning policy the following key planning parameters apply to any Z15 development and consequently to any proposed development at the St James's site.

Plot Ratio

The recommended Plot Ratio is to be between 0.5 - 2.5 Site Coverage

Site Coverage

The maximum site coverage allowable is 50%

Open Space requirements

The open space requirements is 25% public open space on Z15 lands as provided for in paragraphs 17.2.3 and 17.9.1 of the Development Plan (save for where a Masterplan is being prepared for lands no longer in institutional use) . We understand that Dublin City Council has indicated that the open / green space along the Luas line directly adjacent to St James's Hospital, which comprises an area of just over 1.0 hectares, may be taken into account in the proposed open public space calculations for the SJH. In addition, Section 17.2.3 refers to open space and / or the provision of community facilities. Previously, hospital developments have been held to constitute "community facilities" in practice (ABP Ref. PA00024 refers) and, as such, the overall SJH campus complies with this policy provision. Notwithstanding, we have assumed that the site capacity study should place a priority on the provision of quality public open space.

Height Restrictions

As the site is not located in one of the areas specified for tall buildings within the City Development Plan, the maximum height allowable development on the site is 7 storeys / 28m. However, the decision of An Bord Pleanála to grant permission for the Private Co-located hospital on Site A above in 2010 to a height of just over 32m provides a useful insight into the carrying capacity of the site in terms of height. It indicates that higher buildings may be acceptable from a physical planning perspective and that the visual impacts of buildings in excess of 28m have been assessed in a positive manner previously.

Transportation Policy

National and local transport policy, including the Department of Transport, Tourism and Sport's 'Smarter Travel', the current Dublin City Council Development Plan and the National Transport Authority's Transport and Implementation Strategies for the Greater Dublin Area all seek to encourage a modal shift from private car usage to more sustainable modes (public transport, walking and cycling).

The Dublin City Council Development Plan 2016-22 Issues Paper reinforces and continues the existing policy with respect to modal shift, while also placing greater emphasis on cooperation between various agencies responsible for public transport "in order to accommodate as much movement as possible by high quality public transport, by walking and by cycling" (Chapter 5 – Movement and Transport, page 13).

The ongoing change to more sustainable modes of transport places significant emphasis on the importance of 'mobility management' implementation at large employment centres, targeted at reducing car use at workplaces, schools and in residential areas. The management and supply of car parking within the city has a central role in the delivery of sustainable transport solutions for the City.

4. Site Opportunities and Constraints

4

4.1 Opportunities and Constraints

The draft capacity study has been shaped by the characteristics of the campus, which we have considered in terms both of opportunities and constraints. Opportunities include the potential to:

- Re-develop the campus at greater density – as mentioned above, the development parameters set by Dublin City Council prescribe a maximum Plot Ratio of 2.5, whilst the equivalent figure for today's campus is less than 1. It is an objective of National, Regional and Local planning policy to consolidate and intensify development in metropolitan areas, particularly proximate to high quality public transport infrastructure where higher densities can be adequately catered for;
- Improve clinical adjacencies – ensuring that departments are clustered in the most effective way to improve connectivity and reduce transfer times for patients;
- Increase permeability and connectivity – the campus is currently separated by a perimeter wall from the LUAS linear park (St James's Walk) and from two key public transport nodes: Rialto and Fatima LUAS stops. There is also the potential to create new pedestrian routes into the campus from Mount Browne (revitalising the existing steps by the side of the Energy Centre), James's Street (by the Trinity buildings) and at the campus' eastern end, connecting through to the proposed Grand Canal Harbour development and beyond;
- Take better advantage of the LUAS linear park – as an amenity for the benefit both of the hospital and the surrounding community;
- Develop an integrated campus energy strategy –

the national paediatric hospital project offers the chance to start this process through the creation of a shared energy centre below the new building. Once this has been realised, the site of the existing James's energy centre can be redeveloped;

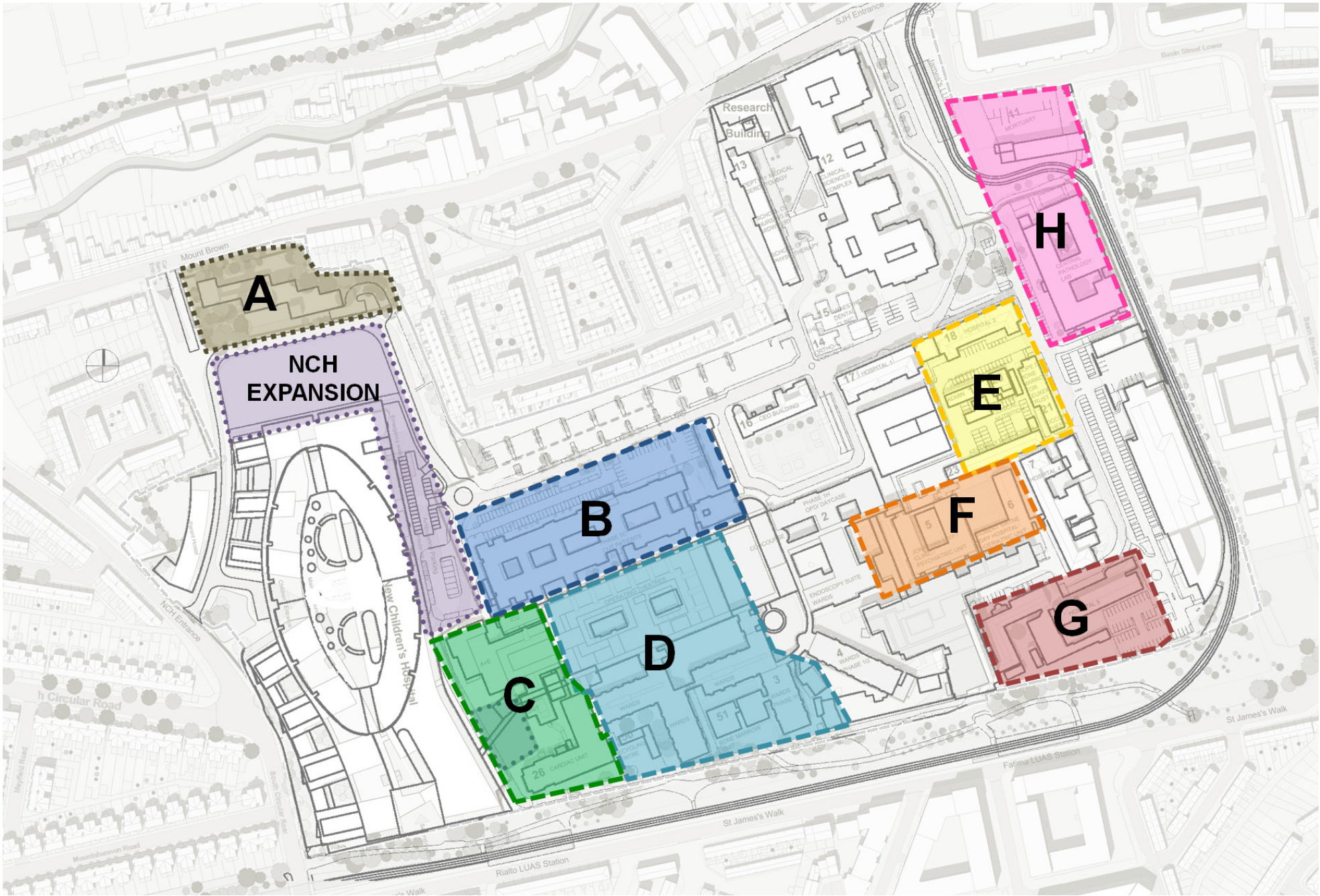
- Create a shared service yard and facilities management hub – that collocates all receipt and distribution activities below the children's hospital (with a dedicated entrance off Mount Brown) and uses a network of tunnels to move goods between buildings. This has the benefit of removing service traffic from within the campus (less noise and greater safety) and keeping FM flows segregated from public and clinical flows (improved control of infection and less congested corridors);
- Locate car parking underground – taking its cue from the underground parking below St James's main entrance and the plans to locate all of the children's hospital parking below the building, the future campus could regain valuable space for a better quality, pedestrian and cyclist orientated public realm;
- Improve wayfinding – St James's covers a large site area and includes many different buildings with multiple entrances, making wayfinding difficult for first-time visitors. Some key desire lines, like the east-west route along the hospital's northern edge, are thwarted by an under-developed public realm; for example, a lack of continuity of footpaths, making it difficult to progress along the spine road without walking on the road itself or through car parks.

Constraints include:

- Dublin City Council maximum height parameter – which sets a guideline height for new

developments of 7 storeys (or circa 28m) from ground level. The capacity study adheres to this parameter but anticipates that future buildings will have one or more basements to cater for compatible clinical uses, engineering services or car parking;

- Residential scale of neighbouring properties – particularly on the campus' northern (O'Reilly Avenue) and western edges (Cameron Square and South Circular Road). Some of these streets are designated as conservation areas, reinforcing the need to be sensitive to their scale and character as well as issues of privacy, daylight and overshadowing;
- Protected structures on campus – there are five of these, four within the main hospital precinct and one within the university quadrant. Some, like the CEO building and the Haughton Institute, are well preserved; others like Hospitals 1 and 2 have been compromised by poor quality extensions, but could be restored as part of an integrated approach to future developments; (a study of the protected structures on campus had been prepared by Rob Goodbody, Historic Buildings Consultant and is included in Chapter 16 of the EIS)
- The need to safeguard the hospital's operations at all times – this is an overriding imperative, which requires a very considered approach to phasing, maintaining existing buildings in safe operation whilst new buildings are constructed.



4.2 Opportunity Zones

Apart from the children’s hospital site, a number of key opportunity zones have been identified:

- *The site of the existing single-storey Outpatients Clinic (Site B)* – this includes a significant area of surface parking between the building and the hospital spine road giving it overall area of 11,500 m². This location has been identified as the most appropriate for the currently proposed maternity hospital because of its proximity to the children’s and to St James’s core diagnostic and treatment areas (Emergency Department, Imaging, Theatres and Critical Care Unit). The site is currently occupied by the Outpatient building and this will have to be relocated before the site can be redeveloped. Consistent with national strategy St James’s Hospital is already committed to enhancing community links and will continue to take all opportunities to develop and enable adult services off campus. This will include working with key community partners to deliver outpatient services that do not require patients attending the adult hospital. These initiatives while reducing the footfall to the main campus will allow St James’s Hospital to facilitate more complex outpatient activity as part of its overarching strategy’
- *The western end of St James’s Hospital (Sites C & D)* – an area totalling 22,800 m². These are buildings that fulfil important clinical functions but are generally in need of modernisation. The prevailing height is three storeys, which represents a very poor utilisation of the available space and increases distances between clinical departments. A denser redevelopment would reduce transfer times, improve adjacencies and

create a better balance between inside and outside space with more area for gardens. New buildings on the southern edge could be designed to take advantage of their south-facing aspect and proximity to St James's Walk linear park; a particularly suitable location for inpatient wards whose bedrooms would benefit from the sunlight and landscape views;

- *Hospital 2 and the neighbouring Oncology site (Site E)* – a second phase development has been anticipated for some time as the sequel to the recently completed oncology building. These sites are directly behind the protected structures of Hospitals 1 and 2, which are the buildings that face visitors arriving through St James's Gate, the campus' busiest entrance. This is a promising location for a new entrance into the hospital that could be achieved through a sympathetic restoration of the protected structures as part of the next oncology development;
- *Pathology and Mortuary Buildings (Site H)* – a site totalling 7,710m². These buildings line the eastern side of St James's Gate, arguably the campus' most prominent site. They are low-rise and, in the case of the mortuary, include a surface car park. The capacity study highlights this as an ideal location for research and bio-medical buildings, which could be significantly taller and designed to open up east-west routes, linking the campus to the proposed Grand Canal Harbour commercial quarter;
- *Energy Centre (Site A)* – a prominent site with a long frontage onto Mount Brown, it could accommodate a significant future building with its own street entrance. The proposed children's hospital includes a north-south concourse which

could be extended northwards at a later date to connect with future children's phases and a redeveloped energy centre;

- *Jonathan Swift and Robert Mayne Units (Site F)* – a fairly small site of about 3,970m², located centrally along the east-west hospital axis. It can be redeveloped as soon as the two units occupying it are decanted within or off the site. It may prove a difficult site to build on as it is land locked by existing buildings. If the protected structure of hospital 4 were to be demolished and its site included for redevelopment in this area, the potential for new build would increase by approximately 10,00m².
- *Hospital 5 Buildings (Site G)* - a sizable site, with 6,450m². located at the south-east corner of the site. If the clinical areas currently occupying them could be relocated relatively easy within the existing hospital buildings, this site could provide a very good starting point for the redevelopment. It has good aspect and a prominent position along James Walk giving the potential for tall new building marking the east corner of the site. This development would open up the site to the Fatima LUAS station, improving its permeability and creating the southern end of a north-south hospital street connecting the potential new main entrance in Hospital 2, on site E described above.

In addition there are also two main landscape opportunity zones:

- Northern car park and hospital spine road – an area highlighted in the ODCP as a potential campus garden that could enhance east-west pedestrian movement and provide a landscape buffer between new, taller buildings and the

O'Reilly conservation area to the north. This could be tied into an enhanced garden (freed from car parking) within the Trinity quadrant;

- St James's Walk linear park – although the park sits outside the site boundary, there is real potential to integrate campus and park as part of a coordinated public realm strategy, including new facilities of mutual benefit to the hospital and neighbouring community, like children's play spaces, a running track, cycle ways, kiosks and so on.

Off-Campus Opportunities

Some off-campus opportunities have also been identified. Properties owned by St James's at Brandon Terrace and by the HSE at Davitt Road might be suitable for a number of activities, including outpatient clinics, administrative space or nurses' homes. A number of nearby sites are highlighted in the "Local Area Regeneration Opportunities" report by Urban Initiatives Studio as being potentially suitable for developments connected to the hospital campus, like hotels, key worker housing, offices, bio-pharmaceutical institutes and laboratories.

5. Core Strategy / Structuring Principles

Six core principles underpin the vision for the future campus:

- 1. Functional Adjacencies** – recognising the primacy of the imperative to organise functions in ways that are consistent with the campus’ medical mission, enhancing staff performance, clinical and research synergies and the patient experience. This principle also underscores the importance of the ‘tri-location model’ and the need to ensure that the proposed children’s and maternity facilities integrate effectively with adult services. Achieving this in a phased way without excessive disruption to ongoing operations is a crucial consideration that was very central to the thinking behind the development scenarios described later in this report. The centre of gravity of the three collocated services will be towards the western end of the campus – a logical location given the current configuration of St James’s with its acute services concentrated at this end. This in turn suggests that other services are best located further east, consolidating future developments around the hospital’s most recent buildings: the oncology centre and Mercer Institute for Successful Ageing. Research and education facilities (other than patient-proximate ones embedded within the children’s, maternity or adult hospitals) will gravitate to the area around Trinity. This process is set to start with the Children’s Research and Innovation Centre (CRIC) proposed for a site next door to the Haughton Institute as part of the new paediatric hospital project.
- 2. Internal Links** - One of the key requirements in planning a hospital campus based on a tri-located model is the provision of clinical and services links between the three different hospitals. The manner

in which the Design Strategy and Site Capacity study has been developed for each is addressed separately below

- 3. Shared Services** – there is significant potential to capitalise on synergies and economies of scale by sharing common infrastructure in terms of facilities management (FM) and energy.
- 4. Flexibility and Expansion** – any plans for the future have to be flexible to accommodate clinical change and allow for expansion of core services. This study shows how this can be achieved in an incremental way within an overall vision.
- 5. Public Realm** – the campus represents a significant piece of the city and a major public destination. Its public spaces should reflect this importance and set a framework for future development of buildings, routes and external spaces.
- 6. Integrated Mobility Plan** – with a large workforce and equally large numbers of patients and public visiting the campus everyday a sustainable development plan requires careful consideration of mobility. An integrated mobility plan will encourage a more balanced approach to travel to and from the site with less reliance on cars and a more effective uptake of other modes, including public transport, walking and cycling.

5.1 Clinical and FM Links

While the three hospitals are foreseen as distinct entities, providing separate clinical services, patient and staff clinical links will be provided between:

- The Children’s and Adult Hospitals

- The Children’s and Maternity Hospitals
- The Adult and Maternity Hospitals.

Regarding Facilities Management (FM) links, a single FM centre will serve the entire campus and a new FM Delivery and Waste Centre has been incorporated into the lower levels of the new children’s hospital with provision for future connections to the developed Adult and Maternity Hospitals as described below.

5.1.1 Children’s and Adult Hospital Links

a. Clinical Links

Following discussions with representatives of both St James’s Hospital and the Children’s Hospital Group it was agreed that the principal clinical links between the two hospitals will be:

- a. for clinical staff working between both hospitals
- b. for access from the Helipad on the roof of the Children’s Hospital to the clinical core in SJH.

These links are required immediately on completion of the new Children’s Hospital. The design team has reviewed the optimum location for such a link with SJH and has proposed (as part of the planning application) an external link at ground level between the children’s hospital and the Emergency department in St James’s hospital.

The design for the new children’s hospital has also made provision for connections at Level 3 and Level 4 to a future link bridge between the two hospitals at Level 3 . The future bridge will lead to a new core in a future SJH development directly to the south of the existing Burns Unit and Critical Care department.

This proposal will facilitate short term and long

term access for clinicians to and from the Adult and Children's Hospital. It will also facilitate access for adult patients from the new Helipad to the SJH Emergency department at Level 0, and from here to; the Critical Care Unit and the Operating Theatres in SJH.

b. FM Links

There are two categories of FM links required to be developed between the Adult and Children's Hospital:

i. Short term FM Links

Following discussions with representatives of St James's Hospital, the design team has proposed (as part of the planning application) to develop a link from the FM Spine at level +10.2m (via a new FM tunnel running eastwards from the Children's Hospital and a group of dedicated FM lifts) adjacent to the existing Out Patients Department area in SJH and into the Adult hospital at the end of the existing hospital street as set out on the planning application drawings.

ii. Long term FM links

It is proposed that a new FM Support Centre will be constructed below ground under the Maternity Hospital and that this FM Support Centre will provide additional support for FM Stores and Services for the Maternity and Adult hospitals. The FM Link described above at basement level is being provided as part of the new children's hospital development which will 'plug-in' to the enhanced FM Support Centre and this will ensure that the developed Adult and Maternity hospitals have additional FM Support with direct access to the shared FM Waste and Delivery Yards off Mount Brown. An interim Support Centre at ground level will be required until the maternity hospital is built. This will be located at the western end of the

existing SJH Outpatient department as set out on the planning application drawings.

5.1.2 Children's and Maternity Hospital Links

a. Clinical Links

The principal clinical link required between the Children's and Maternity hospitals is that between the Neonatal Intensive Care Units in both hospitals. The proposed Maternity hospital is likely to be located directly to the east of the new Children's Hospital and linked by a two-level bridge, which could be constructed as part of the Maternity hospital development. The design for the new children's hospital has made provision for such a future bridge link between the maternity hospital and the children's hospital at Levels 2 and 3.

b. FM Links

The FM centre on the lower levels of the Children's Hospital is designed to serve the Maternity Hospital and SJH Adult hospital. It is proposed that a new FM support Centre will be constructed below ground under the Maternity Hospital and that this FM Support Centre will provide additional support for FM Stores and Services for the Maternity and Adult hospitals as described above.

5.1.3 Adult and Maternity Hospital Links

a. Clinical Links

The principal clinical link required between the Adult and Maternity hospitals is between the Delivery Area in the Maternity Hospital and the Critical Care area in the Adult Hospital. Further clinical links are likely to be required. The proposed Maternity hospital is likely to

be located directly to the north of exist-ing and new Adult Hospital space and the location of the Maternity hospital will support and facilitate direct links to the existing and future SJH Critical Care department.

b. FM Links

It is proposed that a new FM support Centre will be constructed below ground under the Maternity Hospital and that this FM Support Centre will provide additional support for FM Stores and Services for the Maternity and Adult hospitals and provide all necessary FM links between the Maternity and Adult hospitals.

Please refer to the diagram on the following page for the proposed location of these links.

5.2 Mobility and Parking Strategy

5.2.1 Transport Strategy

The Transport Strategy to support the future development of the St James's Campus will focus on the key transportation strengths the current campus has including;

- its excellent public transport links served directly by the Luas Red Line with onward connections to regional and inter-city / regional bus and rail networks via Heuston and Connolly Station and Busáras, as well as connectivity to the Dublin Bus network in the City and the Luas Green Line on completion of the Luas Cross City Project; and
- it's central location within Dublin within easy walking and cycling access.

The Transport Strategy developed for the St James's

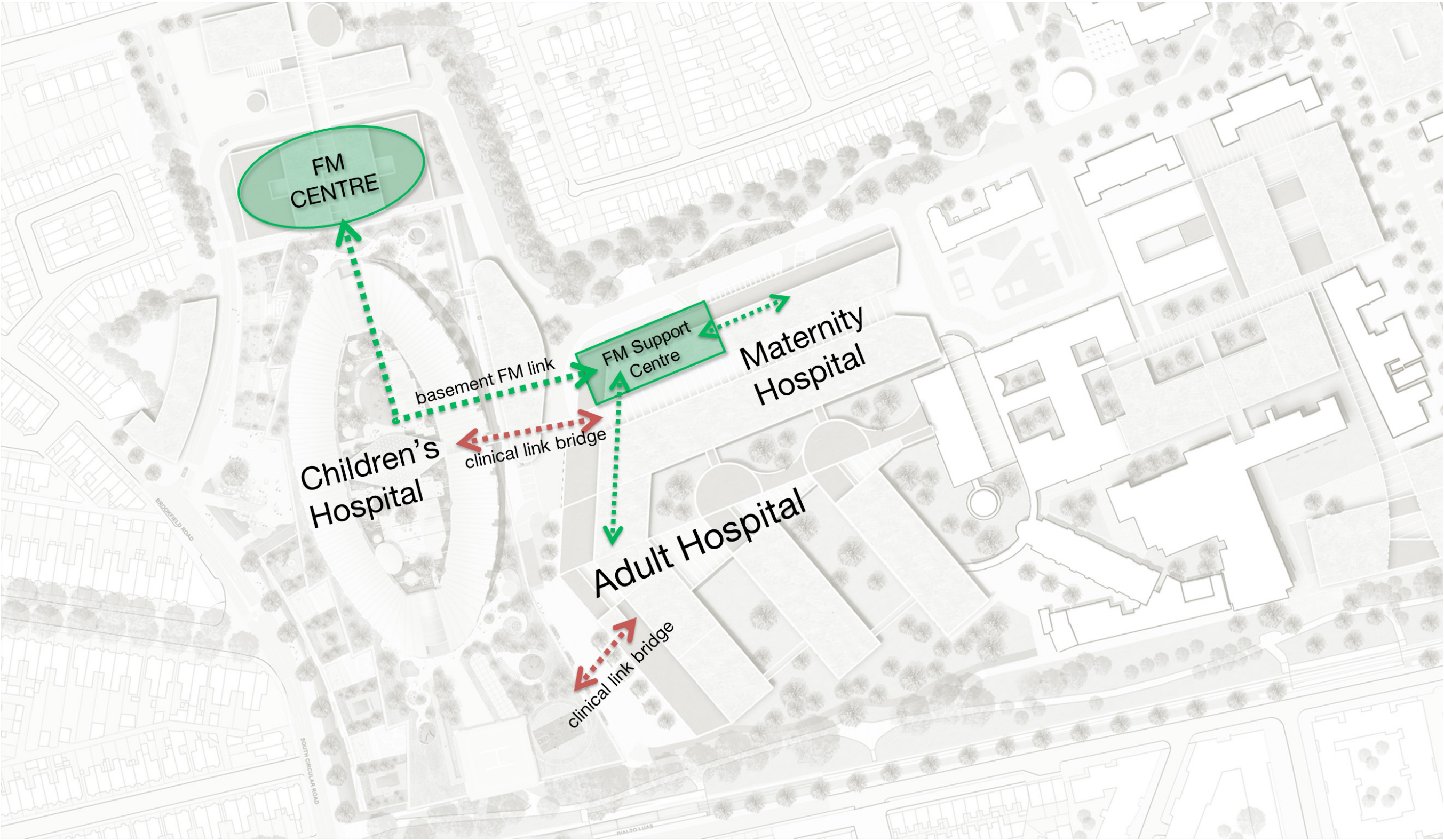
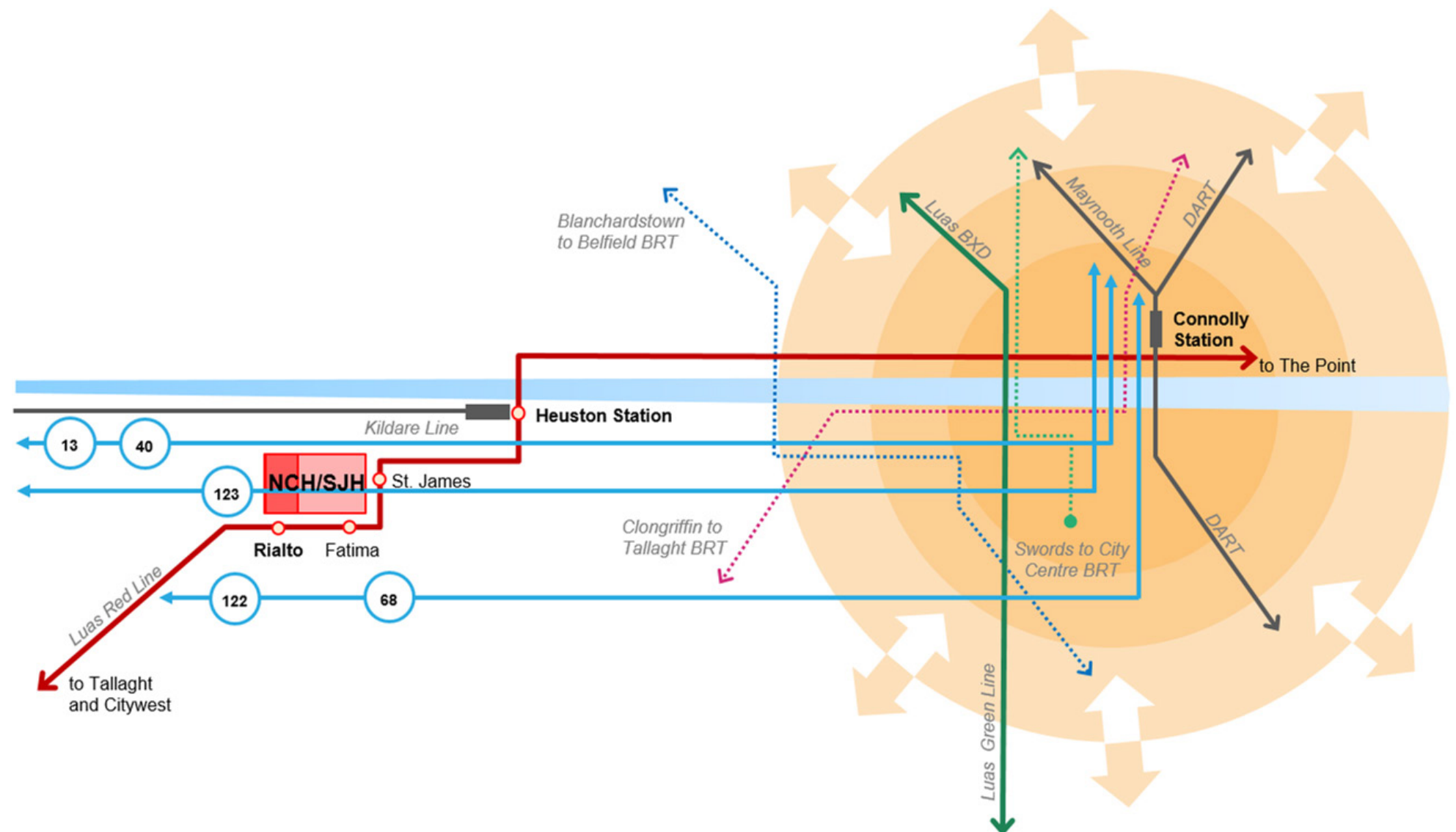


Diagram showing the proposed locations for the links

- The management of future traffic growth within the hospital campus to ensure that the surrounding street network operates effectively; and
- To ensure patients, visitors and staff are provided with a choice of travel modes to the hospital campus ensuring their healthcare experience is as comfortable and convenient as possible.

- **An Accessible Hospital Campus:** to provide efficient access to campus for all users, with particular focus on the accessibility experience of patients and their families. The Strategy will avail of the opportunities provided by the Campus' location within Dublin City Centre, which provides excellent pedestrian, cycling and public transport accessibility. The Strategy will focus on limiting peak hour trips through the introduction of progressive mobility management measures for the entire campus.
- **A Balanced Car Parking Strategy:** The management of car parking is critical to the success of the Strategy. Parking within the campus will be prioritised on the needs of patients and their families first, while staff parking will be restricted over time as the Hospital campus expands. Managing the overall supply of parking on campus is an important demand management



tool within the Mobility Management Plan, particularly for staff and will contribute to the successful delivery of the Strategy’s objectives.

- **Mobility Management Planning:** The St James’s Hospital Campus Smarter Travel Programme has been established on campus with deliverable targets set to reduce car use in line with national and local planning policy. The Smarter Travel programme is supported by key stakeholders including the National Transport Authority, Dublin City Council and will be actively monitored as the campus expands. All future development within St James’s Hospital campus will be included within Smarter Travel Programme for the campus.
- **A Safe Campus Environment:** The Transport Strategy for the future campus will ensure that all access and circulation functions are suitably accommodated and are developed in a manner that adequately mitigates conflicts between the various users, in particular the segregation between pedestrians and vehicles. The future hospital campus will be an attractive and safe environment for pedestrians and cyclists, and vehicular access will be sympathetically designed to minimise its impact on the environment and landscape quality of the campus proposals.

5.2.2 St James’s Hospital Campus Smarter Travel Programme

St James’s Hospital and the Children’s Hospital Group are fully committed to the implementation of the mobility management measures set out in the St James’s Hospital Campus Smarter Travel Programme. The Smarter Travel Programme creates an environment to encourage staff to use alternative travel means to access the campus. The Smarter

Travel Programme is a dynamic process and will be regularly updated to reflect modifications in the public transport offer, changes in technology and communication means and amendments to the modal split targets to reflect more progressive targets into the future. The current St James’s Hospital Campus Smarter Travel Programme includes the following key measures:

- Appointment of a full time Mobility Management Coordinator;
- Reduction in the number of staff parking spaces within the campus;
- Introduction of parking charges for staff on the campus and the retention of parking charges for visitors;
- Incentivised staff parking at the Luas Red Line park and ride sites and the park and ride sites along the Luas Green Line on completion of the Luas Cross City Project
- An increase in cycle parking on campus including 400 cycle parking spaces with the new children’s hospital and the provision of new lockers, changing rooms and showers for staff at the existing St James’s Adult Hospital; and
- Continued provision of staff access to the Government’s ‘Taxsaver’ and ‘Cycle to work’ programmes.

5.2.3 Car Parking Provision

The Site Capacity Study has identified a quantum of development to facilitate the further expansion of services within the St James’s Hospital campus, including the planned Maternity Hospital. The provision of additional services will attract increased

trips (staff and patients) to the hospital campus and the following describes the car parking strategy for the campus to align with the overall Transport Strategy for the St James’s Hospital campus.

Total Car Parking Provision

The quantum of parking provided on campus will be capped at circa 2,020 spaces, serving both staff and visitor/patient parking needs. The majority of the parking spaces will be provided for visitors/patients to the hospital campus, with staff access to the campus provided mainly via alternative modes (public transport, cycling, walking), which will be actively promoted through the Smarter Travel Programme. The car parking strategy involves the transfer of parking from staff to visitors/ patients as the Hospital continues to expand. The additional travel needs of staff will be catered for through the Smarter Travel Programme.

Maternity Hospital

A new maternity hospital is envisioned for the site currently occupied by part of the St James’s Hospital outpatients department immediately to the east of the proposed children’s hospital. This will result in the outpatients department being relocated. In terms of staff parking no additional parking will be provided by staff and their travel demands will be provided for through the expansion of the Smarter Travel Programme. Maternity Hospital staff will have access to the wider staff parking provided on campus. It is envisaged that public transport accessibility within the Greater Dublin Area will improve over time as central government continue their investment in public transport projects within the city (i.e. ‘Swiftway’ BRT Network, DART Underground, Metro North, Lucan LUAS, etc.).

It is envisaged that the new maternity hospital will be delivered within the next 10 years. In terms of visitors/ patient access, it is envisaged that car usage will reduce slightly during this time period reflecting the proposed improvements in public transport facilitates in the Greater Dublin Area. This will also reduce the future visitor/patient car parking requirements for the campus as a whole.

With respect to future visitor/ patient parking requirements, if the Adult hospital outpatients department is moved off-site the visitor/ patient parking currently serving these uses would be utilised by the new Maternity Hospital. If the outpatient department remains on campus, the new Maternity Hospital would require in the region of the 120 parking spaces, depending on the number of in-patient beds provided and daily outpatient clinics.

It is proposed that these spaces are provided by reducing the number of spaces assigned to staff within the campus, thereby not increasing the overall number of parking spaces provided on campus, ensuring there is no material change to traffic conditions on the surrounding street network. This will ensure that the delivery of additional development on campus can be accommodated without impacting on prevailing traffic conditions on the surrounding road network.

It is envisaged that the staff modal split would reduce from 27% by car to the campus following the completion of the new children's hospital to 23% by car following the construction of the Maternity Hospital including the retention of the outpatient department on campus.

It is worth noting that St James's Hospital is committed to enhancing community links and will

continue to take all opportunities to enable the move of some outpatients for adult, children and maternity services off campus in the future. This will include working with key community partners to deliver outpatient services that do not require patients attending the adult hospital. These St James's Hospital initiatives will result in a lower number of patients arriving at the main campus and may result in less staff parking spaces needed to be transferred to patient/visitors, increasing the allowable modal split for staff without impact on prevailing traffic conditions on the surrounding street network.

Future Expansion of the St James's Hospital Adult Hospital

The Draft Site Capacity Study has identified the potential to expand Adult, Maternity and Children's services on the campus by 20% in the future. It is envisaged that over the next 20 years this could result in an increase of 10% in both staff and patient/visitor journeys to the campus. Long term the staff numbers within the campus could potentially grow by 20% to total 10,000.

As noted earlier continued investment in public transport infrastructure in the Greater Dublin Area will encourage greater access by public transport to the Hospital campus by staff and visitors reducing future car parking requirements at the campus. It is envisaged that the increase in patient throughput and taking into account the likely reduction in visitor/ patient modal split an additional 50-70 parking spaces will be required into the future. It is proposed that these spaces are provided by reducing the number of spaces assigned to staff provided on campus and not increasing the overall number of parking spaces on campus, which would continue capped at circa 2020 spaces.

Should the expansion of the campus development

as set out in the Draft Site Capacity Study be fully realised then that staff modal split would reduce to 18%. As noted early, an expansion of the Smarter Travel programme will be required to achieve this modal split target.

5.2.4 Transport Assessments

As St James's Hospital campus develops over time, there will be a requirement to carry out a detailed transport assessment of the different phases of development proposed. The transport assessments will be prepared taking into account the overall Transport Strategy for the campus which includes maximising access to the campus by sustainable modes of travel and managing the traffic impact of the proposals on the local street network. The detailed transport assessment will take into account the prevailing transport conditions including public transport provision locally and traffic conditions on the surrounding street network.

5.3 Public Realm

The importance of the public realm to the quality of life of citizens is well recognized. The proposals have been developed in the light of current DCC planning policies and strategies, and are set out in more detail in the accompanying public realm strategy. Appropriate elements of the strategy are incorporated in this draft site capacity study. In summary, the adjacent image illustrates a potential strategy for open spaces. These are divided into five categories and characterised as follows:

- *Urban Gateways:* These two spaces represent the principal vehicle and pedestrian entrances from



the major access routes to the hospital campus - St James's Street and South Circular/ Brookfield Road.

- *Arrival Areas:* These spaces form a setting to the main pedestrian entrances to the hospital. They are located on the southern side of the campus with a direct link to the Rialto and Fatima LUAS tram stops.
- *Central Urban Spaces:* The principal open spaces at the centre of the campus are a linear park bordering the northern boundary (a new proposal that has evolved from the 2008 ODCP) and the central square that is already an important and attractive public space in front of St James's main entrance.
- *Green Fingers:* These areas illustrate the opportunity for connecting the linear park beside the southern boundary with new richly planted areas between future buildings on the south side of the campus, making the hospital feel more open and welcoming.
- *Hospital Gardens:* This category captures two areas that are oriented towards the needs of all visitors and staff of the hospital as a space to pass through and to enjoy as landscaped amenity.

For further detail on this please refer to the **St James Campus - Public Realm Strategy** document included as **Appendix 2** to the Draft Site Capacity Study.

Public Ream Strategy - Open Spaces

5.4 Site infrastructure

5.4.1. Surface water drainage

There is an existing watershed in the campus, with approximately one third at the eastern end of the campus draining to sewers in James's Street and the remaining two thirds draining west and north to sewers in Mount Brown Road. Only small areas of the campus are currently provided with surface water attenuation facilities.

It is expected that future redevelopments will take place within the campus on a phased basis to provide a new Maternity Hospital and approx. 20% expansion of accommodation of both the existing St James's Hospital and the currently proposed children's hospital. These redevelopments will be subject to planning applications and will need to be assessed in detail at that stage. It is expected that all future redevelopment within the campus will be required to provide surface water attenuation in compliance with the requirements of Dublin City Council, as set out in the Greater Dublin Strategic Drainage Study (GDSDS) and the Greater Dublin Region Code of Practice for Drainage Works (GDR COP).

A survey of the existing utility services on the campus indicates that the main surface water drain in the eastern area comprises a 450mm-diameter drain in the campus access road increasing to 600mm-diameter before discharging to the public sewer in James's Street.

The main surface water drain in the western area comprises a 750mm-diameter drain discharging to the existing Drimnagh Sewer (storm pipeline). To facilitate the new children's hospital, this drain will be diverted to the existing surface water sewer in Mount Brown

Road. The diversion pipeline has been designed to accommodate runoff from the western SJH campus catchment, however, as future redevelopment progresses and attenuation storage is provided, it is expected that the flow load on the 750mm-diameter drain will reduce.

Surface water runoff from the new children's hospital will be collected by a new drainage network and attenuated to equivalent greenfield runoff rates. Discharge will be made to the surface water sewer in Mount Brown Road. It is expected that, subject to a future planning application, the adult, children's and maternity hospitals will be expanded by 20%. The new drainage network has been designed to accommodate runoff from the development currently proposed and from the future expansion development.

In accordance with the requirements of the GDSDS, of the GDR COP and of Dublin City Council, the calculations for surface water drainage design include a 10% allowance for climate change.

5.4.2 Foul drainage

There is an existing watershed in the campus, with approximately one third at the eastern end of the site draining to sewers in James's Street and the remaining two thirds draining west and north to sewers in Mount Brown Road.

A survey of the existing utility services on the campus indicates that the main foul drain in the eastern area comprises a 300mm-diameter drain discharging to the public sewer in Basin Street. There is also a 225mm-diameter drain in the campus access road discharging to the public sewer in James's Street. In addition, two 150mm-diameter foul drains to west of the Haughton Institute (the rear of McDowell Avenue) discharge via a

600mm-diameter combined drain to the public sewer in James's Street.

The main foul drain in the western area comprises a 300mm-diameter drain decreasing to 225mm-diameter before discharging to the Drimnagh Sewer (foul/combined pipeline) close to the existing Materials Management building. To facilitate the new children's hospital, this drain will be diverted and discharged to the Drimnagh Sewer within the campus. The diversion drain comprises a 300mm-diameter pipeline and has been designed to accommodate existing and currently envisaged (see below) future development within the SJH campus. A further three 225mm-diameter drains, drain the westernmost part of the campus to the public sewer in Brookfield Road; these drains will be broken out and removed, which will alleviate hydraulic loading on the Brookfield Road sewer.

It is expected that future redevelopments will take place within the campus on a phased basis to provide a new Maternity Hospital and approx. 20% expansion of accommodation of both the existing St James's Hospital and the currently proposed Maternity Hospital. The location of the 300mm diverted drain (as referred above) being downstream of this future redevelopment on the western side of the campus catchment can facilitate this future phased arrangement. Future drainage arrangements on the eastern side will be largely dictated by phasing and building layout arrangements. These redevelopments will be subject to planning applications and will need to be assessed in detail at that stage.

Foul sewage from the new children's hospital will be collected by a new foul drainage network and discharged to the Drimnagh Sewer at Mount Brown Road, downstream of the connection point of the 300mm-diameter diverted campus drain. It is

expected that, subject to a future planning application, the new children's hospital will be expanded by approx. 20%. The new foul drainage network has been designed to accommodate flow from the development currently proposed and from the future expansion development.

5.4.3 Potable Water Supply

The St James's Campus and surrounding area are well served by potable water supply. The existing water supply to the campus is provided by a single connection to a 16inch-diameter (406mm-diameter) cast iron public water main in South Circular Road. From South Circular Road, the supply pipe traverses the site to the existing Energy Centre on Mount Brown Road. From the Energy Centre, pumped distribution mains supply the campus.

A new connection will be made to an existing public watermain in Mount Brown Road. This connection will supply water directly to the existing Energy Centre, replacing the existing connection at South Circular Road. Part of the main pumped distribution pipes will be diverted to facilitate construction of the new children's hospital. The new connection and the diversions have been designed to accommodate future envisaged development within the campus.

It is expected that future redevelopments will take place within the campus on a phased basis to provide a new Maternity Hospital and approx. 20% expansion of accommodation of the existing St James's Hospital, the new children's hospital and the Maternity Hospital. These redevelopments will be subject to planning applications and will need to be assessed in detail at that stage.

Upon completion of the new children's hospital, the

existing water supply connection at South Circular Road will be reinstated. This connection will be linked to both the existing Energy Centre and to the new water storage tank rooms within the new children's hospital. Together with the connection at Mount Brown Road, this will provide two potential sources of water supply for the campus, providing a level of redundancy in supply that exceeds the existing single connection.

5.4.4 Gas supply

Gas Networks Ireland (GNI) has a good level of coverage around the overall St. James's Hospital site including 4 bar and 19 bar transmission lines to the South of the LUAS tracks and a 4 bar line on St. James's Street. As buildings are developed on the site individual applications to GNI would need to be made. A network capacity analysis would then be carried by GNI for each project to determine the best supply options. However, given the area coverage, we would not anticipate a difficulty with these supplies.

5.4.5 Electricity

There are advantages to the site in having a 110kV ESB substation in relation to security of supply, having a single source of supply feeding the entire site (including future expansion) and running costs. This substation if provided will, in the future, feed the existing 10kV networks for St. James's and the proposed NPHP via step down transformers and can deliver further 10kV supplies to future projects on the site.

A maximum foot print of 40m x 40m (x 8m high) will be required for this substation with ground level access. There are a number of potential positions for the substation to the North of the site at Mount Brown,

in the SE corner or in the NE corner close to the St. James's Street entrance. The final location would be subject to discussions with ESB and will depend on how the site is built out.

5.4.6 District Heating

There is a potential source of waste heat available to the site from the surrounding area. This could provide a source of low carbon and low cost heat to the campus. This is currently the subject of a separate viability study. Should the supply be viable a district heating mains will be brought to the site to tap in to the heating systems in the NCH and / or SJH boiler rooms.

6. St James's Hospital Capacity Assessment

6

The capacity assessment is structured around the opportunity zones, core principles and public realm strategy described above. It is also informed by the schedule of clinical requirements and the functional demands of the tri-location model, including the very specific inter-hospital links that are needed. Within each opportunity zone we have identified potential activities and architectural massing. This is indicative only but has been done to show what is possible within the physical constraints of the particular plots and the town-planning parameters set by Dublin City Council. It is expected that building heights will rise from today's prevailing 3 storeys to a prevailing 6-7 storeys. This is consistent with developments like MISA, currently under construction.

Other factors influencing the grain of development include:

- Phasing – this is described in some detail in the next section, where we set out a number of different scenarios
- Clinical functions – wards have different functional characteristics from diagnostic and treatment areas. Wards require shallower plan depths and lots of perimeter cartilage for bedrooms; operating theatres and imaging departments function more efficiently in deeper plan areas
- Micro-climate – the orientation of new buildings to maximize penetration of daylight and sunlight and shelter external spaces from prevailing winds
- Overshadowing – ensuring that the massing and plan layout of new buildings minimizes overshadowing both of adjacent buildings and key external routes and spaces
- Emergency access – the existing adult emergency

drop-off zone is very congested with inadequate parking for ambulances. Proposals for the children's hospital include expanding this area and integrating it with the children's Emergency Department (ED) entrance. The future maternity building's ED will also be accessible from this reconfigured ambulance zone, so that all emergency arrivals are contained here where they can be handled efficiently and discreetly

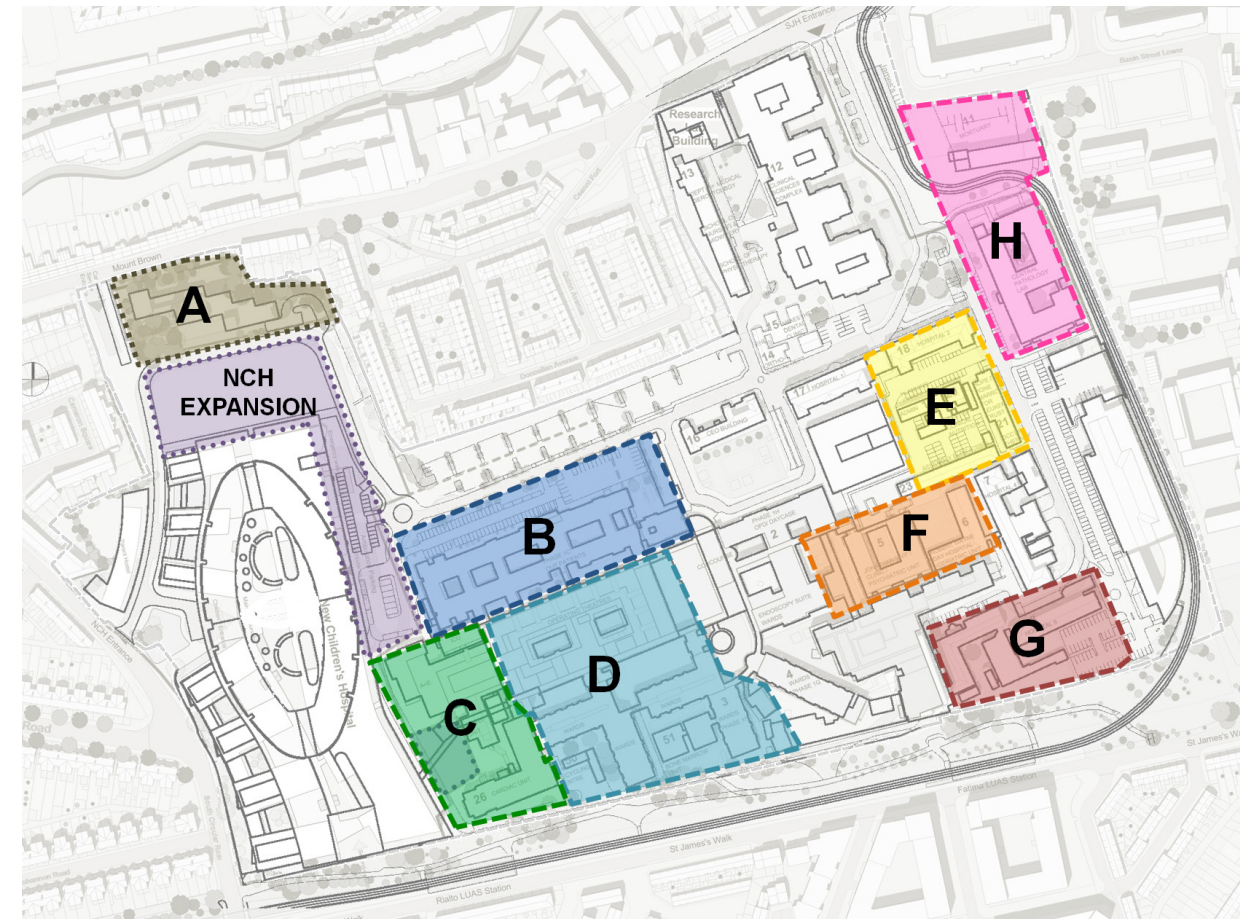
- Vehicular access – to the new children's hospital will be from the South Circular or from a new entrance off Mount Brown. Access to the rest of the campus will continue to be from St James's Street. The existing adult underground car park below the central square will be progressively expanded to the west and east underneath the future maternity and oncology buildings respectively.

6.1 Capacity of opportunity sites

The characteristics, constraints and capacity of each opportunity site identified earlier (see section 4.2) are as follows:

6.1.1 NCH Expansion

The new children's hospital site covering an area of 4.85 ha has a potential capacity of 121,250m² of accommodation above ground. The proposed new children's hospital and the Family Accommodation Unit located on this site total 95,200m² of area above ground, leaving a potential for a further 26,000m² of accommodation to be built on this site. This is more than sufficient to provide for a required 20%



expansion of the new children’s hospital.

In the context of this Draft Site Capacity Study where the main opportunities for expansion totalling an area of **23,500 m²** are:

- *North of the children’s hospital* - This site sits above the car park and service yard and has been designed initially as a garden space (the ‘meadow’) accessible from the hospital’s northern entrance. The structure below the garden has been detailed to support potential future buildings. The capacity of this site has been estimated at **15,000m²** with buildings ranging from 4 to 6 floor in above ground height.
- *East of the children’s hospital above the ED drop-off* – this area can accommodate a 3-storey building from Level 02 upwards, providing useful expansion space for the Critical Care Unit and Theatres without loss of car parking and drop-off to ED on the ground floor. The capacity of this site has been estimated at **5,000m²**;
- *East of the children’s hospital adjacent to Imaging* – this pocket of area could accommodate a 4 storey building, linked to the children’s hospital by bridges at Levels 02 and 03. The capacity of this site has been estimated at **3,500m²**. However this area sits within the opportunity site C identified in this study as a key area for the redevelopment of the adult hospital and so these 3,500m² could be provided for the children’s hospital within a larger future adult hospital building developed on that site.

6.1.2 Site A

This site can be redeveloped as soon as the existing energy centre is decommissioned

It could house:

- Further extension of the children’s hospital
- Integrated Laboratory
- Ambulatory Care for the adult hospital

It is estimated that this site has a capacity of about **13,100m²** provided within a building with one basement and 6 floor above ground, where ground level is considered to be Mount Brown.

6.1.3 Site B

Site can be redeveloped once the Outpatient areas have been relocated.

This site can take the most amount of accommodation of all the sites providing the **biggest net area gain**.

The northern side of the new build will have to be sympathetic to the residential neighbours to north of the site both in terms of height and overlooking.

This location should be maximised in terms of the amount and importance of clinical areas it will receive. Its position within the clinical map of the site as well as its spatial capacity makes it the most important redevelopment location on the St James’ Site.

If maternity is to be built on this site first it has to be collocated with at least a new Emergency Department, (ICU) and FM hub for the adult hospital.

It is estimated that this site has a capacity of **67,770m²** built over 2 basements and 7 floors above ground where the top two floors are only partial and set back from the north edge of the site.

6.1.4 Site C

This site can only be redeveloped once the emergency department, ICU, cardiac day and inpatient wards and

oncology wards have been reprovided on site.

It is a small but strategically placed site which carries the potential to be the adult hospital’s new hot block replacing accommodation currently located on site D, thus unlocking the latter for redevelopment.

Its close proximity to the children’s hospital also makes it a very good site for the Maternity hospital albeit deliverable at a later date due to its stringent decant requirements

As mentioned earlier, there is a pocket of area within this site which is under the children’s hospital ownership and so any building on this site should accommodate around 3,500m² of area for the children’s hospital.

The site has been estimated to have a capacity of about **29,570m²**, built over one basement and 7 above ground floors with the top three only partial and set back from the site’s west and south edges.

6.1.5 Site D

Site can be redeveloped once the operating theatres, imaging and inpatient wards have been reprovided on site. This site has great links to the rest of the hospital, long views and good orientation making it ideal for Inpatient Wards and Clinical offices where both patients and staff can benefit from these characteristics.

it could accommodate Ambulatory Care area on the lower 2 levels, with Inpatient wards on the levels above, topped off with clinical offices and staff facilities on level 5.

It is estimated that this site has a capacity of **32,870m²** built over 5 to 6 above ground levels.

6.1.6 Site E

This site can be redeveloped as soon as the low rising fragmented buildings currently occupying it are decanted into MISA and elsewhere.

When maximised, this site has a capacity of **27,155m²** built over one basement and 6 to 7 above ground levels.

This site has been earmarked for the phase 2 of the National Plan for Radiation and Oncology and it enables the expansion of the cancer services currently provided from the NPRO phase 2 building immediately adjacent to it on the west side.

Its estimated capacity means that it could also accommodate a Clinical Research Unit for Oncology ensuring a well integrated and collaborative service.

6.1.7 Site F

This site can be redeveloped as soon as Hospital 4 and the Robert Mayne day unit decant into MISA and the Jonathan Swift Clinic is reprovided on or off site.

It can accommodate:

- Ambulatory Care Centre
- Inpatient Wards
- Clinical Offices

Its capacity has been estimated to be about **16,200m²** built over 4 to 6 above ground levels.

If funding and needs require allow it, this site could be developed together with Site E providing the second largest potential new built area and net gain, totalling 43,355m².

6.1.8 Site G

This site can be redeveloped when Hospital 5 Inpatient and Outpatient areas will have been decanted elsewhere on site.

Its location within the campus make it suitable to accommodate less clinically intensive functions like:

- Ambulatory Care unit
- Elderly Care
- Integrated laboratories
- Offices

The redevelopment of this site provides the opportunity to enhance the pedestrian access from Fatima LUAS station and create a welcoming piazza.

The capacity of this site has been estimated to the around **23,150m²** built over one basement and 7 above ground levels.

6.1.9 Site H

Once the Pathology Labs and Mortuary have been relocated on site, this site can be redeveloped into two linked buildings with bridges over the LUAS line.

its capacity has been estimated to be about **31,100m²** built over one basement and 7 above ground floors.

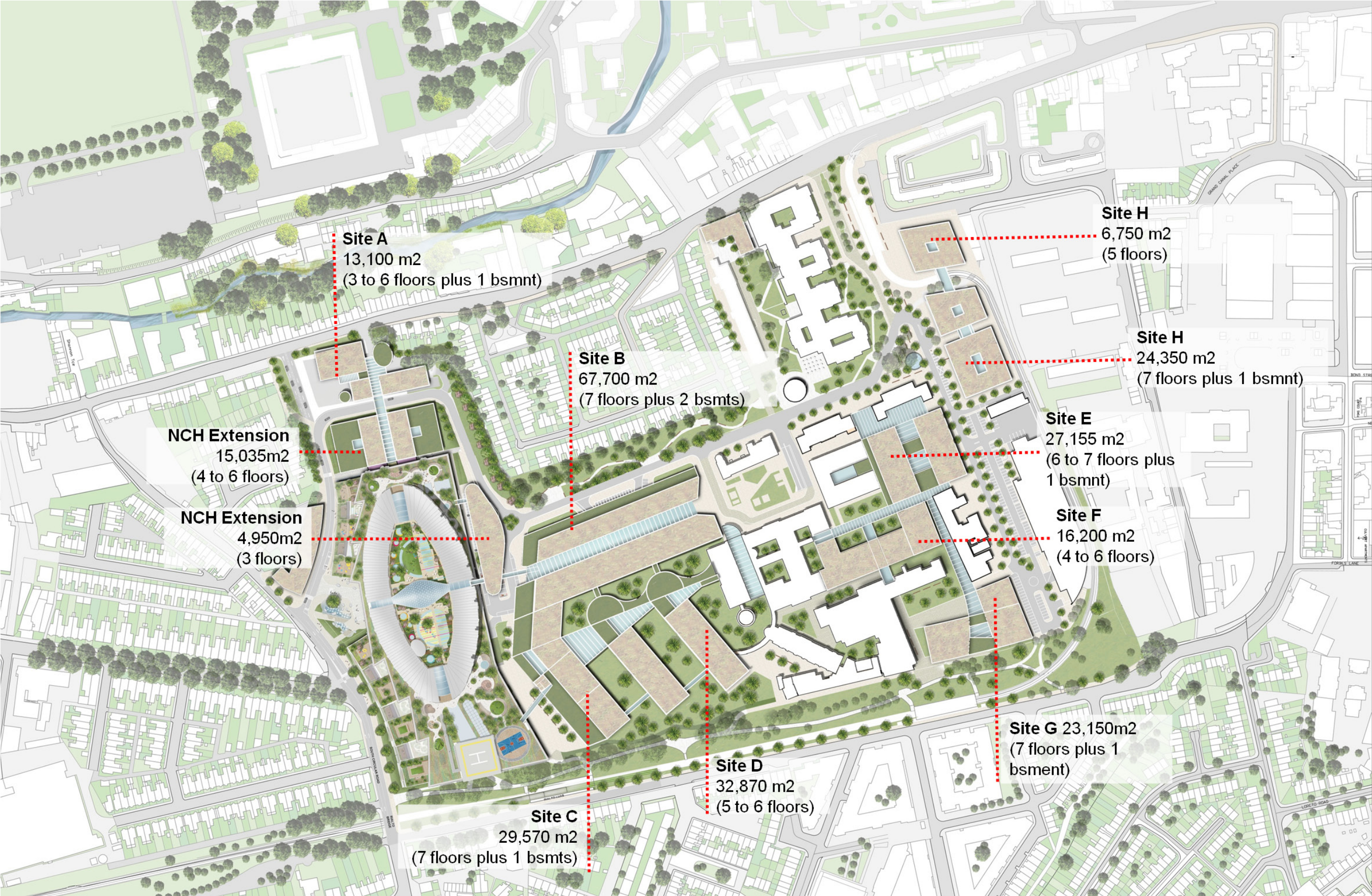
Ideally it should accommodate auxiliary uses like research and biomedical engineering, but it could also accommodate ambulatory care and clinical and admin offices.

This site’s redevelopment would greatly contribute to the enhancement and definition of the St James Street access piazza.

6.2 Site Capacity

The drawings and table in this section illustrate the potential area capacity of each of the opportunity zones. These are seen as reasonable targets based on the available site footprints, the likely use of the proposed buildings and an approach to massing and external spaces that follows the principles outlined above. In all cases it is assumed that, unlike the majority of existing buildings, all future buildings will have one or more basement levels, catering for car parking, FM distribution and in some instances for clinical functions that do not require daylight.

The total potential area indicated tallies with the area targets described in Section 3 and remains well within the DCC plot ratio parameter for the campus of 2.5.



St James's Campus - Potential Masterplan

	Site A	Site B	Site C	Site D	Site E	Site F	Site G	Site H	Totals
Site Area (m2)	4,150	11,500	8,500	14,300	6,220	3,970	6,450	7,710	62,800
Area to be Demolished (m2)		3,820	27,700		2,045	3,335	4,315	7,800	49,015
New Build Area (m2)	13,100	67,700	29,570	32,870	27,155	16,200	23,150	31,100	240,845
Net Gain of Area (m2)	13,100	63,880	34,740		25,110	12,865	18,835	23,300	191,830
Current use	Energy Centre	Outpatients	A&E, ICU, Burns, Cardiac and Oncology Wards, FM areas	Theatres, Imaging and Inpatient Wards	Admin, Clinical Offices	Psychiatric Unit, Geriatric Daycare unit.	Ambulatory areas, clinical offices, inpatient unit	pathology and mortuary	
Decant requirements	to children's hospital	relocated	it is dependant on preceding phase as its accommodation needs to be reprovided new	it is dependant on preceding phase as its accommodation needs to be reprovided new	easy to decant to other existing areas on site.	it can decant on site to temporary locations until reprovided new	easy to decant to other existing areas on site.	to decant into the new Integrated Laboratories building	
Site Character	sloping, north facing, edge on to Mount Brown, limited drop off area	generally flat, north and south facing, potential impact onto residential neighbours to the north	facing east and west, constrained between the new children's hospital and the adult hospital, adjacent to Rialto LUAS station.	located centrally within the adult hospital, with good aspect and views	located at the east end of the east-west axis and the north end of the north south axis, constrained by the protected structures around it. Could provide a new main entrance from St James's LUAS station	constrained and land locked. Proximity to MISA needs to be considered	located at the south east end of the site, adjacent to Fatima LUAS station. Could provide an improved pedestrian access from it	located on the east edge of the site it can provide a good link to the regeneration areas beyond	
Clinical adjacencies and links	detached from the adult and maternity hospitals. Could connect with the children's through a central bridge	immediately adjacent to the adult hospital and the new children's hospital giving it very good links to both	immediately adjacent to the new children's hospital and the adult hospital giving it very good links to both	located at the heart of the adult hospital with potential good links to the maternity hospital. Links to children's are not immediate but are good.	quite detached from the hot end of the adult hospital as well as from the future maternity and children's hospital. Immediately adjacent to the phase 1 oncology building	located centrally along the hospital street within the adult hospital, bridging between the its 'hot' and 'cold' ends.	somewhat detached from the rest of the hospital. Could form the southern end of new north-south hospital concourse		
Potential massing	3 to 6 floors + 1 basement	5 to 7 floors plus 2 basements	4 to 7 floors plus 1 basement	5 to 6 floors	6 to 7 floors	4 to 6 floors	7 floors plus 1 basement	5 to 7 floors plus 1 basement	
Potential uses (in order of suitability)	Integrated laboratories, extension to children's hospital, ambulatory care unit, offices	'hot' areas of adult hospital, maternity hospital, inpatient wards	maternity hospital, 'hot areas' of adult hospital	inpatient wards, ambulatory care areas, clinical offices	oncology, clinical research, ambulatory care, integrated laboratories, mortuary	ambulatory care, oncology, clinical research	ambulatory care areas, integrated laboratories, inpatient wards, clinical offices	research and bio-medicine, ambulatory care areas, offices	

7. Phasing

A clear phasing strategy is a paramount consideration. No existing clinical areas can be moved until they have been allocated new space elsewhere. Many functions, like ED, theatres and critical care cannot have their activities disrupted in any way and must remain connected to each other and to other parts of the hospital, for example imaging suites or inpatient wards. These imperatives impose certain constraints on the order and manner in which future developments can be implemented. Phasing will also be influenced by clinical priorities and the availability of funding, which cannot necessarily be predicted.

A number of alternative phasing scenarios have been tested by the design team. These offer contrasting start and end points to demonstrate some of the potential permutations and test the flexibility of the design vision. We believe that this shows that the vision is inherently robust and can be implemented progressively in a number of ways without compromising its integrity both clinically and spatially.

The four options tested were:

1. Maternity gets funding first
2. Oncology gets funding first
3. Integrated Laboratories get funding first
4. Adult hospital gets funding first.

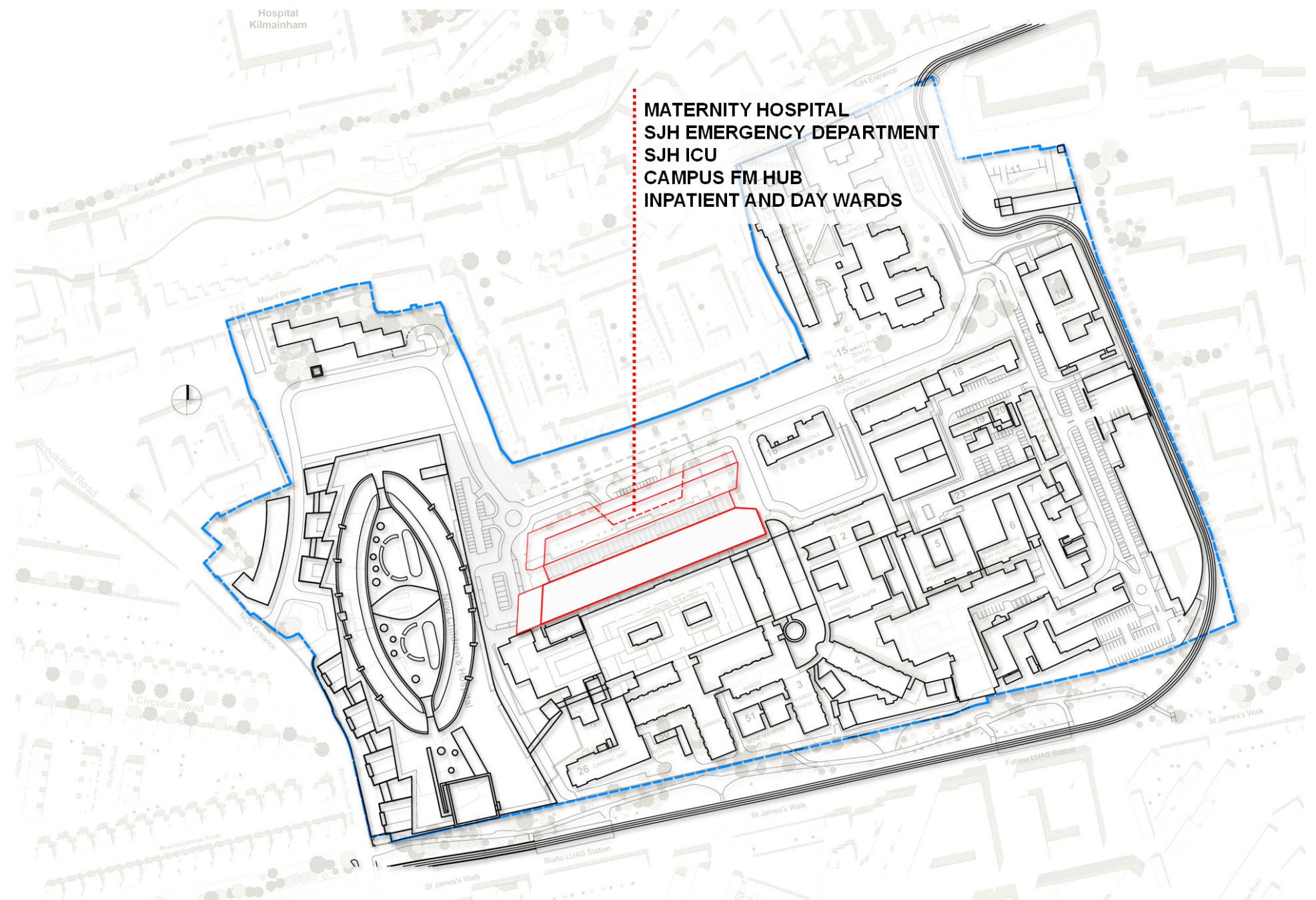
As an example, Option 1 (Maternity Hospital funded first) could be phased as shown on the following pages.



Option 1 - Maternity gets funding first

Phase 1

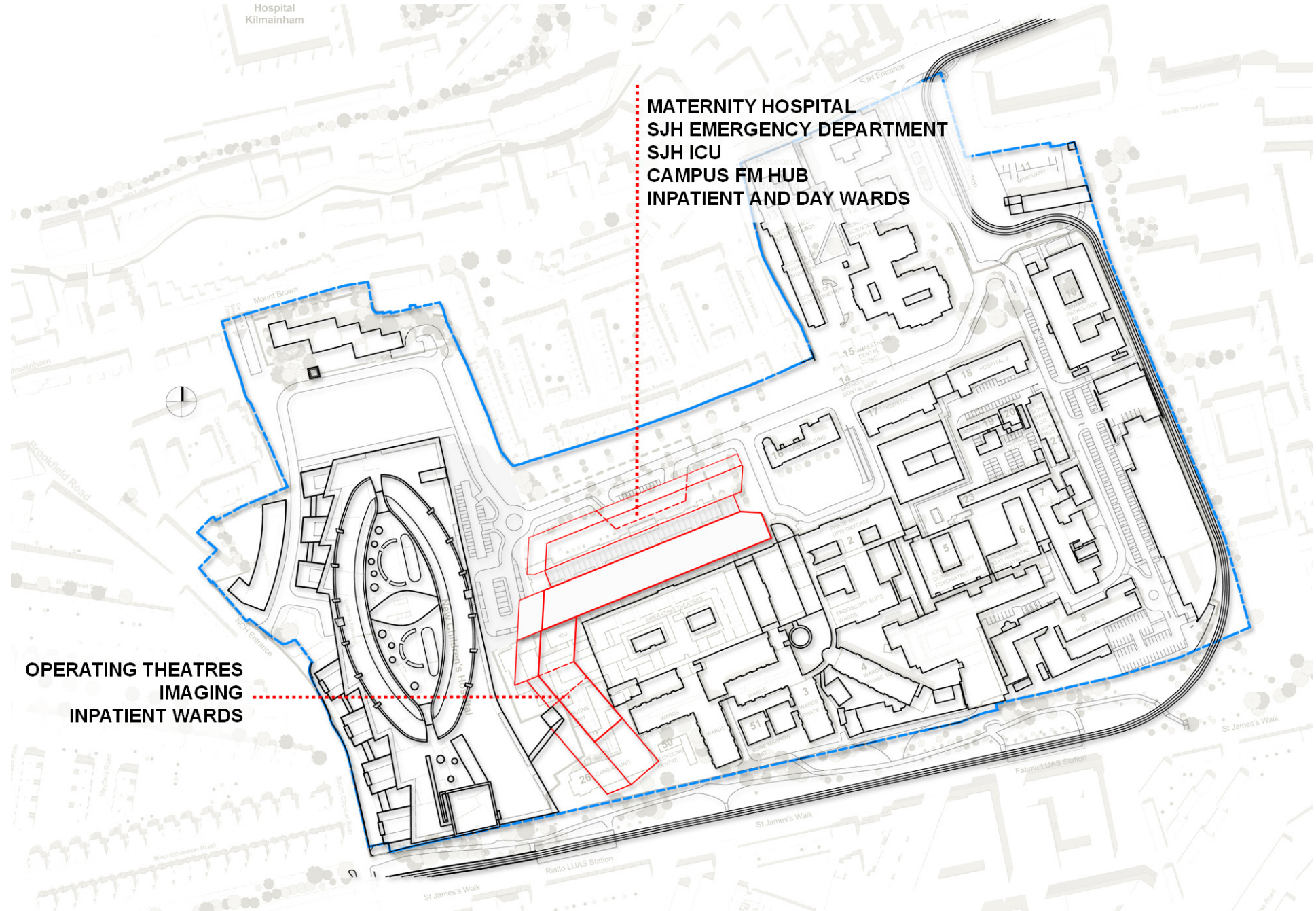
- Outpatients will have to be relocated elsewhere on site, temporarily, in areas freed up by other developments on site and relocations of services, for example in areas freed up by the MISA development
- As a minimum, a new Emergency Department and 100 bed Critical Care Unit as well as an FM hub for the Adult hospital should be included in phase 1 new build
- The building could expand up with additional Inpatient floors when funding becomes available.



Option 1 - Phase 1

Phase 2

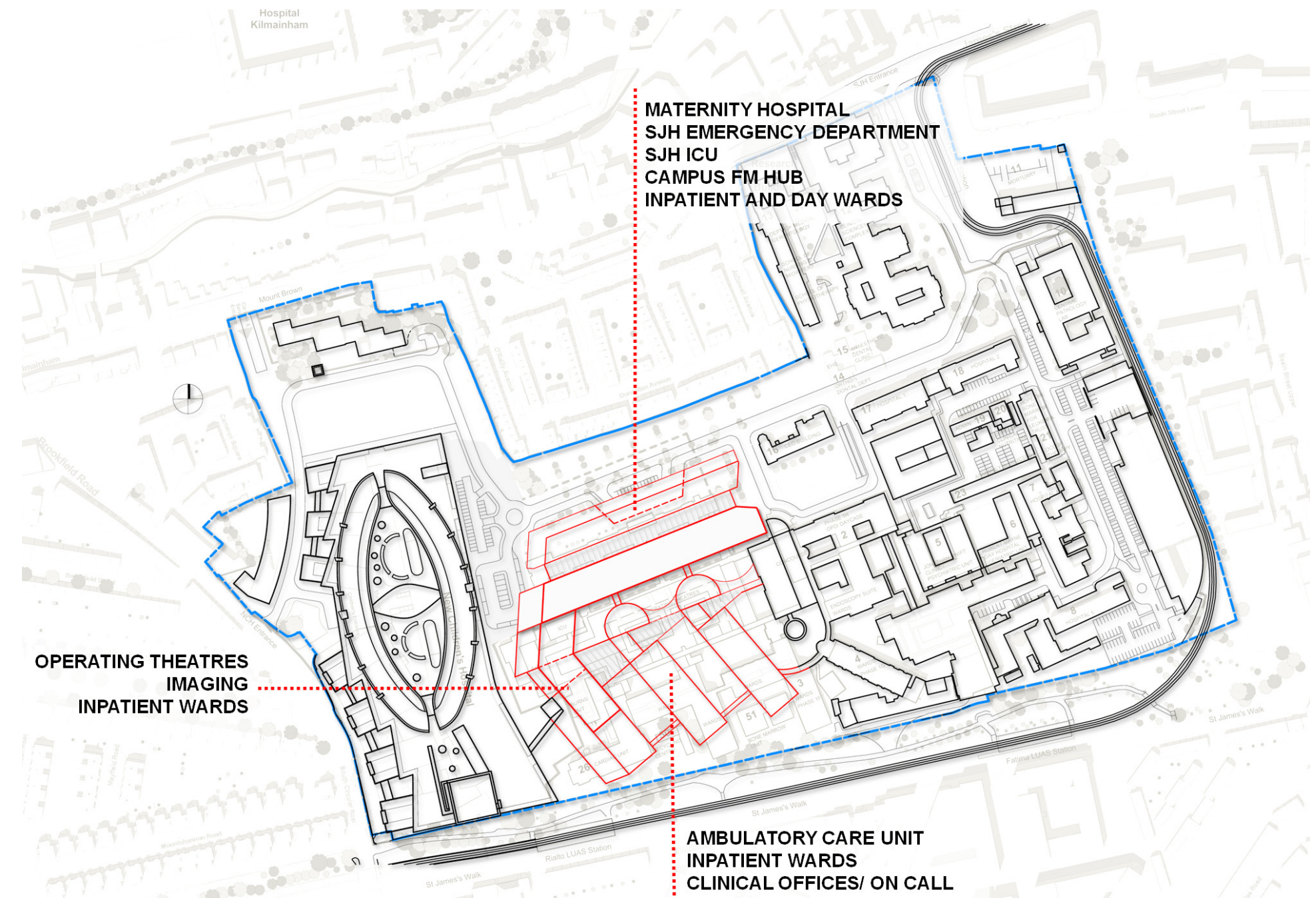
- Phase 1 would allow the decant of the ICU and ED as well as the Cardiac and oncology wards in the western most ward building
- Phase 2 would relocate the Operating Theatres and Imaging department as well as further Inpatient wards forming the ‘HOT’ end of the adult hospital cloasely adjacent to the Maternity and Children’s hospital



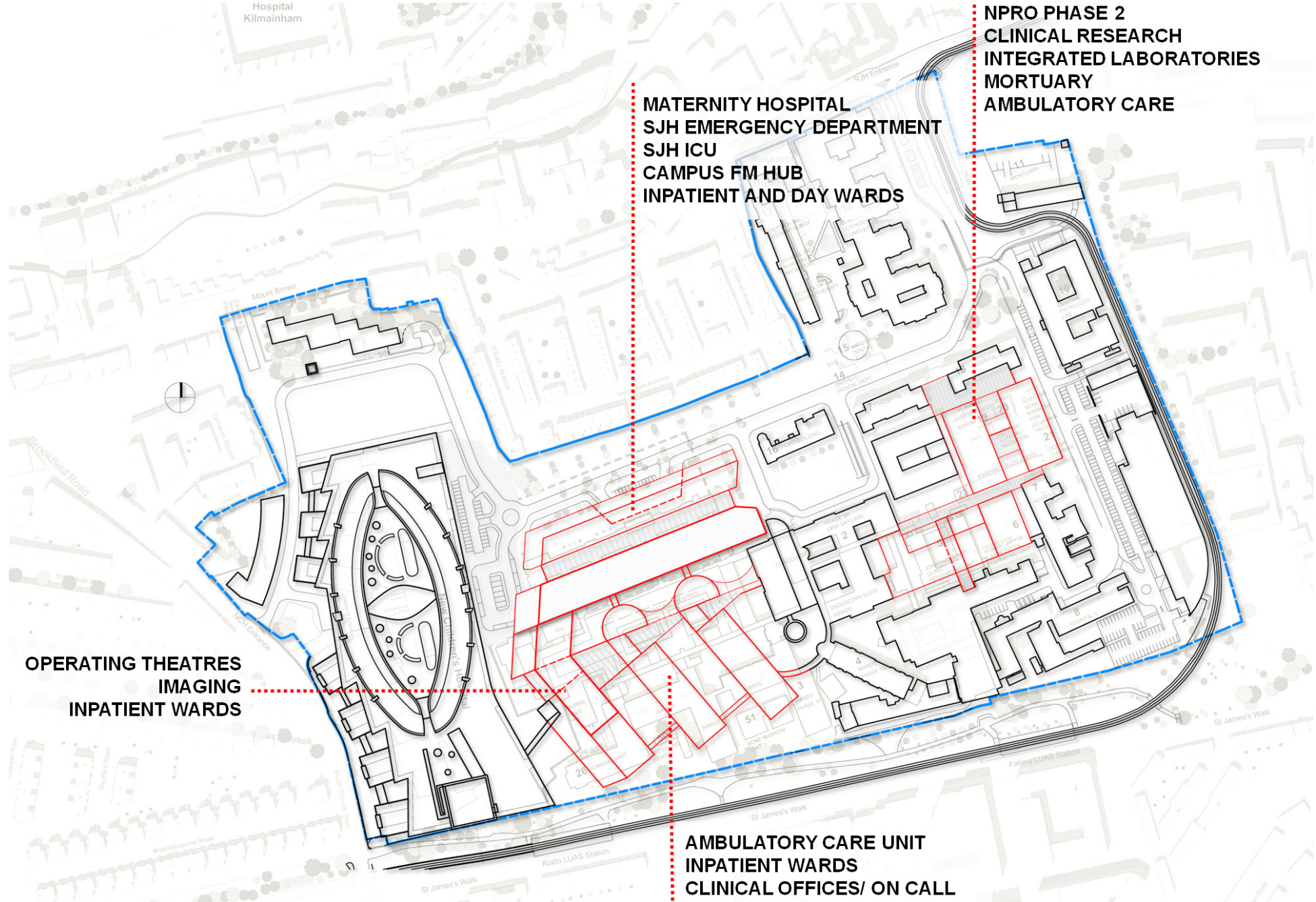
Option 1 - Phase 2

Phase 3

- Phase 2 would allow the decant of the inpatient wards and the central hot block unlocking a large piece of land for redevelopment
- Phase 3 could relocate the Outpatient areas within a brand new Ambulatory Care Unit on the ground and first levels, with Inpatient wards above, topped off with a floor of clinical offices



Option 1 - Phase 3



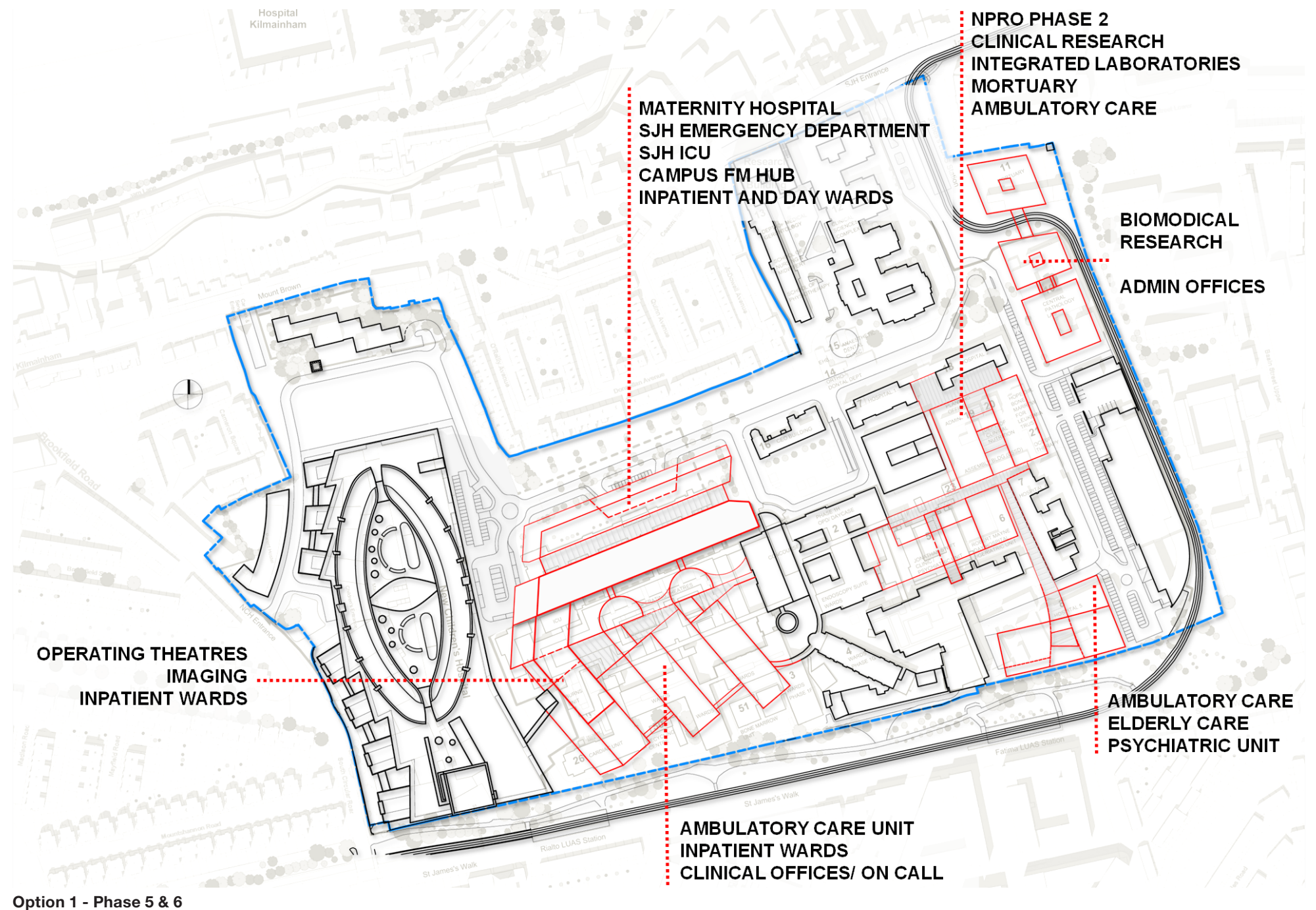
Phase 4

- Phase 4 could see the best part of the eastern end of the hospital site being redeveloped to house the second phase of the oncology unit, the integrated labs, further ambulatory and elderly care areas.

Option 1 - Phase 4

Phase 5 & 6

- Phases 5 and 6 would follow on in due course providing for further expansion of the services and auxiliary functions like biomedical research.



Appendix 1

Brief Area Schedule



SUMMARY AREAS

	Floor Area to be Contracted	Floor Area to be Demolished	Total Sq. M. of Development	Site Area	Plot Ratio
EXISTING SJH FLOOR AREA					
A. Existing Floor Area on Campus ⁽¹⁾			145,228	194,871	0.75
PROPOSED NCH DEVELOPMENT					
B. National Children's Hospital - Buildings to be Demolished		19,867			
C. National Children's Hospital - NEW FLOOR AREA	117,000 ^(3,4)	19,867	97,133		
D. Parent / Guardian Hostel	3,600 ⁻⁴		3,600		
E. National Children's Hospital - EXPANSION @ 20%	24,120		24,120		
F. Existing Floor Area + NEW CHILDRENS HOSPITAL + EXPANSION			270,081	194,871	1.39
PROPOSED MATERNITY DEVELOPMENT					
G. Maternity Hospital - Buildings to be Demolished		3,820			
H. Maternity Hospital - NEW FLOOR AREA	26,000 ^(3,4)	3,820	22,180		
J. Maternity Hospital - EXPANSION @ 20%	5,200		5,200		
K. Existing Floor Area + NEW CHILDRENS HOSPITAL + MATERNITY HOSPITAL + EXPANSION			297,461	194,871	1.53
PROPOSED ST. JAMES'S HOSPITAL DEVELOPMENT					
L. St James's Hospital - Buildings to be Demolished		56,028			
Q. St James's Hospital - NEW FLOOR AREA	155,491	56,028	99,463		
R. St James's Hospital - EXPANSION @ 20%	31,098		31,098		
S. Existing Floor Area + NEW CHILDRENS HOSPITAL + MATERNITY HOSPITAL + ST.JAMES'S HOSPITAL + EXPANSION			428,022	194,871	2.20

