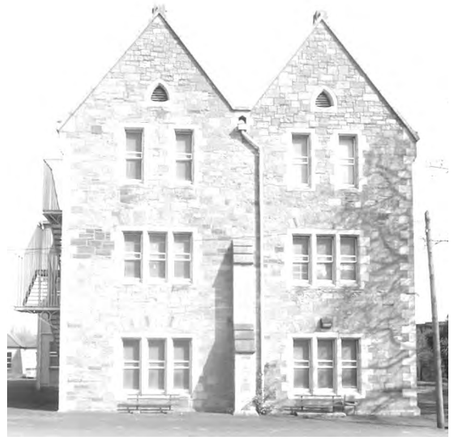
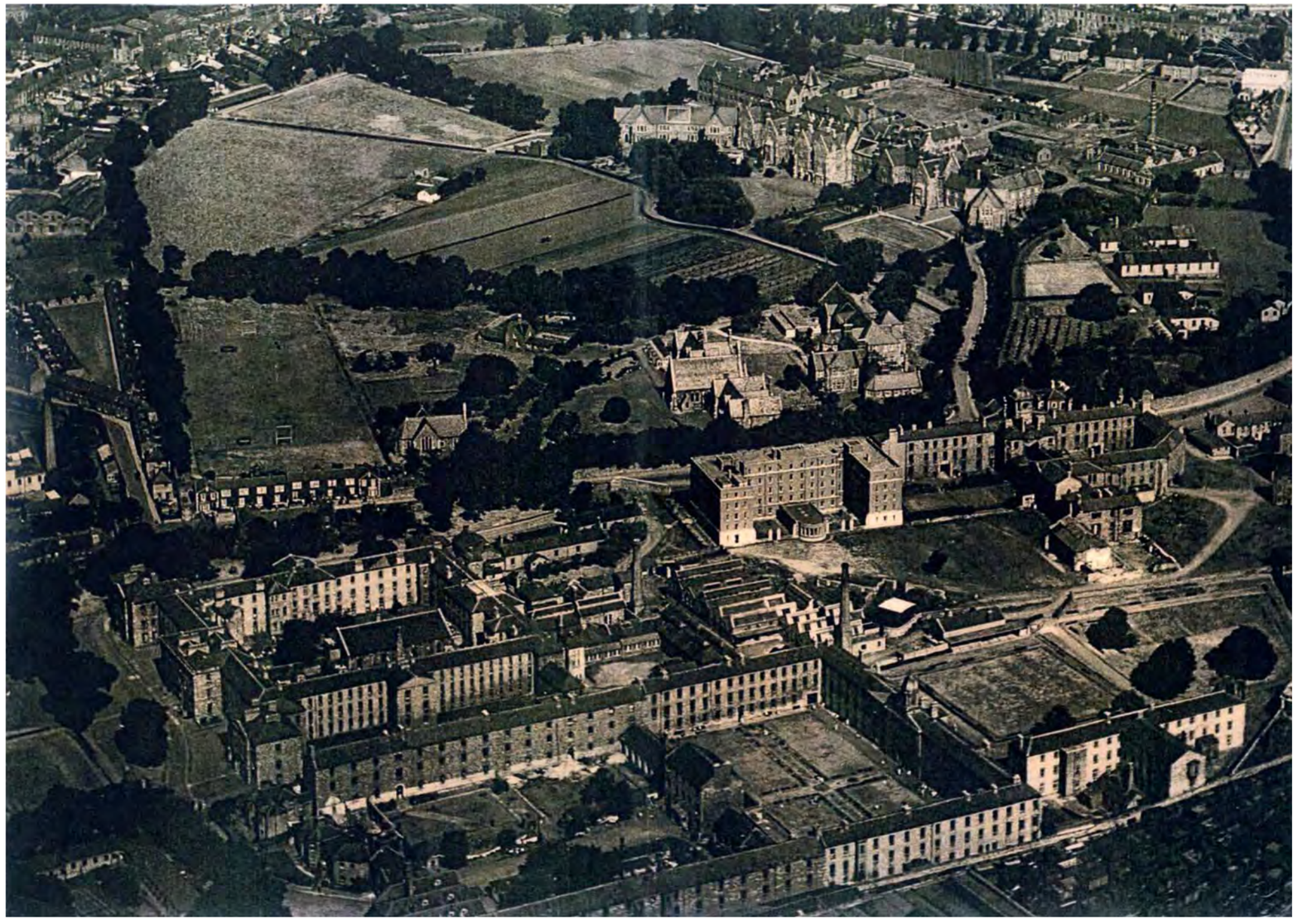
Laundry building



Male Ward

Richmond Penitentiary



Photograph of the site, mid 20th century.

conservation overview: new uses for protected structures

The Masterplan has been developed with ongoing architectural and conservation input to the overall vision, layout and use strategy in addition to more focused and specific input on the significant protected buildings and structures. Thus, for example, St. Brendan's Way can be read as a new extension to the important early 18th-century spine of the City which ran from Dublin Castle on the south of the River, through Grattan Bridge (the eastern most river crossing at this time) along Capel Street to Bolton Street/ Dorset Street and, leading off this into Henrietta Street—the street of mini-palaces home to the political and financial elite of the period—culminating at Gandon's King's Inns. This new extension will connect this historic spine with Broadstone and run east-west through the Grangegorman lands to a possible connection at Prussia Street, integrating many of the important protected buildings along its route.

At the outset of the Masterplan preparation and following site visits and review of previously prepared reports, a number of conservation objectives were developed to provide the following Conservation Strategy for the Masterplan:

• To establish and articulate the protected, social, urban and architectural values of Grangegorman and to ensure these are suitably incorporated within the overall Masterplan. As such, it is important to understand the historic significance of the site from the earliest development of the city and its environs, through to its more known and recent history of institution.

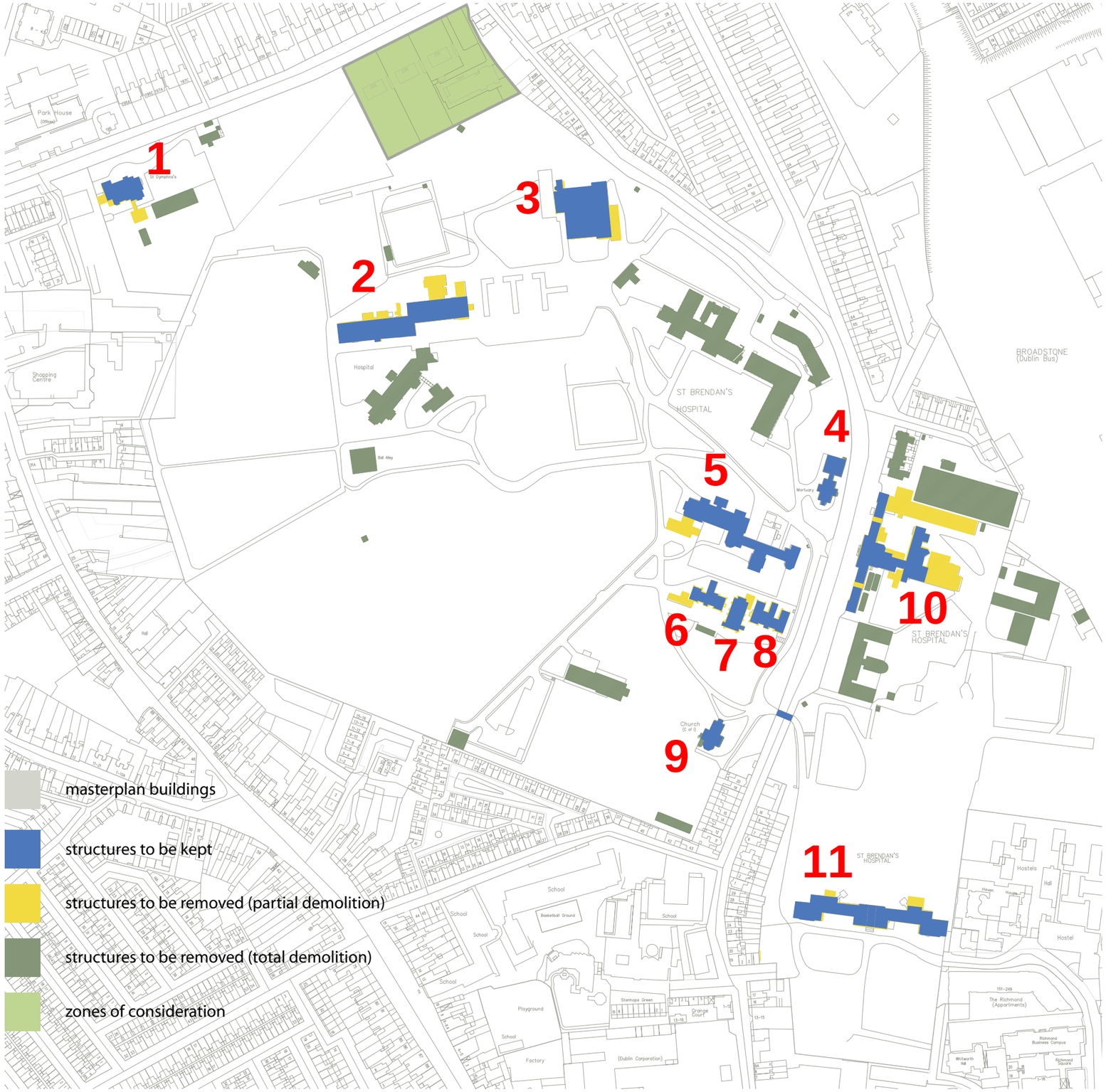
• To integrate the protected structures of significance within the Masterplan in a manner which ensures that they contribute to the generation of spaces and places—both in terms of physical layout and character.

• To identify uses for the protected buildings which are compatible with their spatial layout, which will ensure full and useful occupancy and which will allow this important heritage to make a dynamic contribution to the cultural and functional character of this evolving urban quarter.

• To identify opportunities where history—in built and memory form—can influence the Masterplan in a way which enhances sense of place and, in so doing, enables distinctiveness of place and identity.

• To establish strategies for repair, intervention, adaptation and extension to the protected structures. These will include general and specific strategies and will also include approaches and objectives for upgrading of historic structures for increased thermal efficiency and other initiatives to achieve the Masterplan Brief objectives for greater energy efficiency and sustainable development.

• To ensure that the integration of historic / protected and new built form and landscape achieves an overall coherence and integrity both at the level of the Masterplan and the individual buildings.



1. Connolly Norman House (St. Dympna's)

This two-story house was built in 1905 as the home of the Director of the hospital. Like all buildings to remain on the site it is listed on the Record of Protected Structures (RPS) of the Dublin City Council. The building will be converted to function as a small administrative space for the mental health program of the HSE.

2. The Male Ward (Top House)

This three-story structure was built in 1870 as the male wards of the Richmond Lunatic Asylum. It will be incorporated as a portion of the DIT Library.

3. The Laundry Building

Single story structure built in 1895. It will be converted into offices for the HSE and a Day Facility for the residents on the HSE site and elderly members of the surrounding community.

4. The Mortuary

Single-story building built in 1900. It will be converted into administrative offices for either the GDA or DIT and may function as a Visitor Orientation Centre.

5. The Female House

Built in 1870 to house the female population of the hospital. It is proposed that it will house portions of the Student Services for DIT and help form a hub of student services and activities.

6. The Male Infirmary

The Male Infirmary was built in 1850. The proposed use is a multi-faith place of worship.

7. Roman Catholic Church

The existing Roman Catholic Church will remain as a Catholic Church.

8. The Female Infirmary

Built in 1850. It is proposed that it will be converted into a DIT bookstore and cafe.

9. Church of Ireland Chapel

This building was constructed in 1860. It has been unused and was de-consecrated in the 1990's. This single volume space is planned to be used as a gallery or exhibition space.

10. The Richmond Penitentiary (Clock Tower building)

Built in 1814 and is one of the oldest buildings on the site. The building is scheduled to be used as faculty and teaching space for DIT, probably for the Faculty of the Built Environment.

11. The Richmond Lunatic Asylum (Lower House)

Three-story structure built in 1810. It will be restored and converted into a space that could serve a variety of research or office uses including perhaps a portion of the Science and Industry Centre.

conservation general guidelines

The following guidelines are general and will apply to both new build and existing building projects within the Grangegorman site.

Use

Within the Masterplan there is a general objective to encourage uses which promote public access to protected structures. Uses should also be considered in terms of their impact on the protected structure. Some uses will require significant alteration of plan form, or demanding services and infrastructure installation which involve considerable intervention and which may result in considerable loss of architectural significance.

A well accepted principle of conservation is that the original use is the most appropriate use. This may not always be possible and new uses, if appropriate, can add value to a protected structure. Thus, uses which are complimentary and can energise the historic structure, should be favoured over inappropriate uses which can destroy the particular qualities which make a building important.

Setting

The new development will significantly alter the existing setting of the protected structures. New buildings, additions and public realm/landscaping works should be planned and designed in such a way as to enhance the architectural and spatial quality of the setting of the protected structure. This should include views to and from the protected structures at ground and upper floor levels. In the siting of new buildings and the design of additions, the changes to natural light, sun, shade, wind and any other micro-climate conditions should be such as to avoid any negative impact on the qualities, character and fabric of the protected structures, both externally and internally.

Interventions and Additions

There is considerable guidance policy available on this aspect, in particular the DoEHLG Architectural Heritage Protection Guidelines for Planning Authorities which is now a statutory guidance document. However, the following points are particularly relevant to the likely projects to be carried out within the Grangegorman Masterplan area

Informed intervention: Successful interventions and additions arise from a good understanding of a structure and the aspects which make it significant. This requires up front research, analysis and the ability to interpret. It is recommended that a well informed research-led approach be taken in preparing design proposals for alterations, interventions and additions. It is also recommended that either the lead architect is experienced and skilled in conservation and adaptation of historic buildings or that such expertise is embedded in the design process from the outset to completion. A considerable amount of research has already been carried out on this site and Design Teams should be given copies of the available documentation, existing buildings surveys and historic drawings, illustrations and photographs as part of the project briefing documentation.

Scale: In developing proposals for additions to the protected structures, these should address the particular scale of the existing building. This does not necessarily mean that the additions/extension should be similar in scale to the existing buildings, but that there should be a coherent relationship between the form, massing and proportion of the existing building and any additions.

Plan Form: The original plan form and physical envelope of the existing protected structure should be legible following any intervention.
Retention of original/historic fabric: Interventions should, so far as is practicable retain as much original/historic fabric as possible and where fabric is to be removed it should be re-used on site or, where this is not feasible, an appropriate reuse elsewhere should be identified. Designs and planning applications should demonstrate how impact on the historic fabric will be minimised

Junctions between new and old: New extensions and additions should engage with the historic buildings. Junctions between new and old should relate to primary architectural features of the historic buildings.

New basements adjacent to existing buildings: A number of basements are proposed under the new development. Where these may be close to, or abutting, existing buildings and structures, these require to be set back/detailed in a manner which does not comprise the structural integrity and weathering of the protected structures and any design proposals/planning application should include sufficient details to show how this will be achieved.

Sustainability objectives

It has been stated that the most sustainable building is the already existing building, due primarily to its embodied energy. This value needs to be taken into account in any sustainability audits for new development which includes existing buildings. The cultural heritage value – collective memory, associations, etc – also contribute to the social sustainability of place and needs to be included in any sustainability assessments.

Appropriate initiatives to improve the energy efficiency of existing buildings should be implemented. The approaches to upgrading will depend on the condition and significance of the internal and external fabric, however there are many ways in which energy efficiency can be achieved without compromising the architectural heritage value. It is important that compatible materials and techniques are used, for example hygroscopic insulants where upgrading breathable external walls. As the historic buildings will form part of a larger development, centralised energy centres, e.g., district heating systems using renewable energy sources, could also serve existing buildings and thus minimise impact within the historic building. There are a number of emerging guidance documents addressing the appropriate adaptation and treatment of historic buildings to reduce carbon emissions and dependence on non-renewable energy sources. Designers and specifiers should seek advice from the DoEHLG Architectural Heritage Advisory Unit on the appropriateness of such guidance and have due regard accordingly.

Monitoring and Maintenance

Maintenance plans should be provided for all protected structures as part of planning applications. This should include provision for monitoring condition both in advance of any refurbishment/redevelopment works and during the ongoing lifetime of the building. Where current building condition is causing deterioration of structure and fabric, appropriate protection measures, temporary or permanent, should be put in place subject to necessary approval by/agreement with the planning authority (for example by way of Section 5 Declaration of Exemption)..

Principles for removal, or partial removal of existing buildings and structures

All structures should be fully recorded in photographic and drawing format prior to demolition/partial demolition. Copies of these records should be lodged with GDA, Dublin City Archives and with the Irish Architectural Archive. Proposals and methodologies for dismantling and reuse of sound elements should be submitted as part of planning applications.

Planning submission requirements for existing buildings

Where significant intervention, alteration and/or addition is proposed, there should be a sufficient level of detail submitted with any planning application to allow a full assessment of the proposals. In addition to the proposal drawings, the information to be submitted should clearly show the existing situation and details and describe – in drawing and text format – the rationale behind the proposal and how any new works relate to and are informed by the existing architecture. This rationale should also include outline material specification and outline scope of works.

Building Repairs

While the adaptation of the buildings to be retained will require intervention and alteration to meet specific use requirements, a considerable portion of the works involved will require repairs to historic structure and fabric. This work should be carried out in line with he following principles for the repair of historic structures.

The works shall have due regard to the Department of Environment, Heritage and Local Government Conservation Guidelines and current conservation principles and techniques.

The extent and scale of works to the buildings will be carried out in a manner sympathetic to the intrinsic quality and architectural significance of the structure.

Retain and repair authentic architectural structure and fabric. Respect for the existing integrity of the building should be a priority, and works should always be carried out with full reference to historical authenticity.

All existing fabric which is sound is to be protected. Generally a minimum interventionist approach should be taken with an emphasis on repair, with replacement only of decayed or missing parts, rather than outright replacement.

Repairs and alterations shall be carried out without attempt to disguise or artificially age, but shall also be carried out so that they are sympathetic with the architectural and aesthetic integrity of the building, or building element.

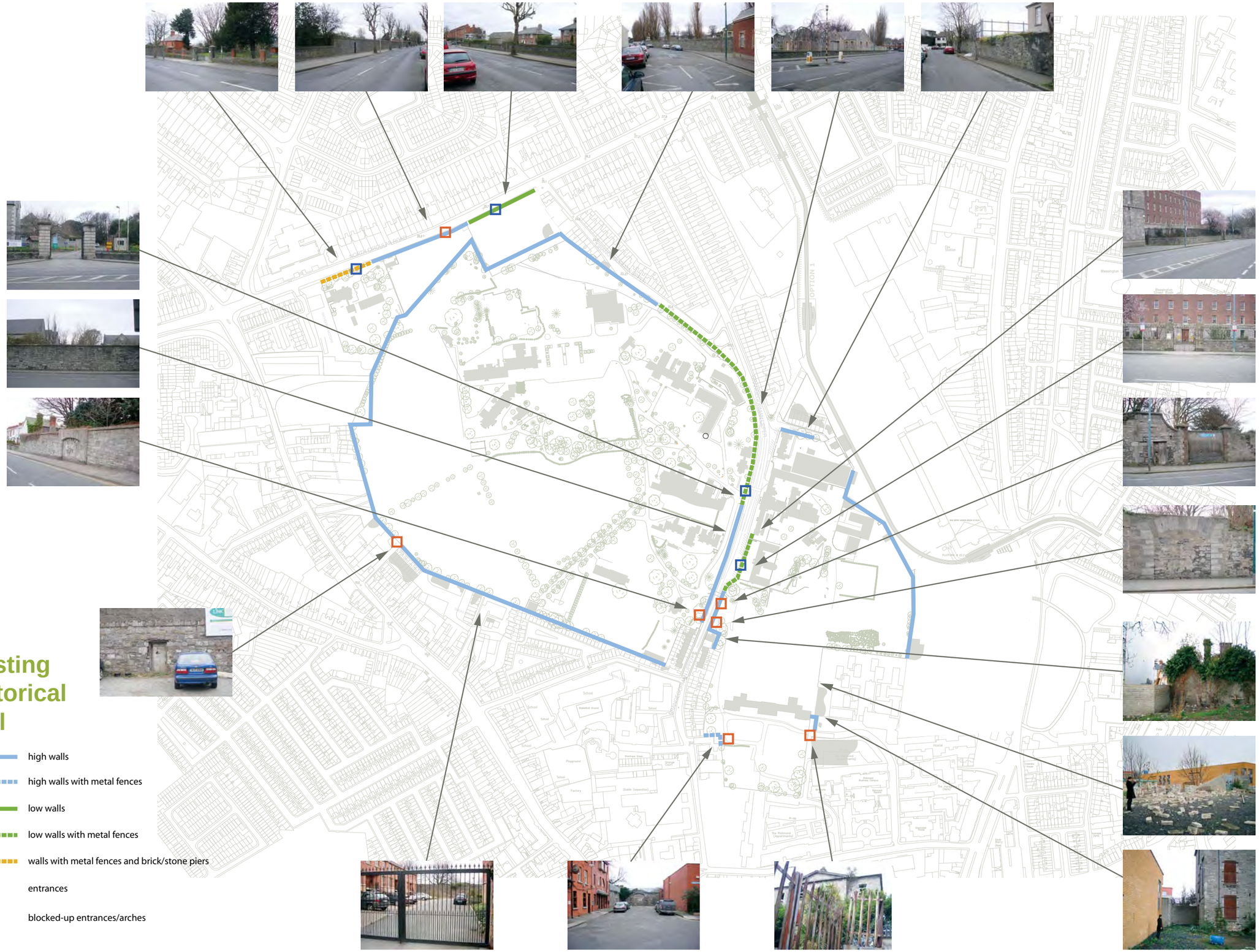
All existing features and decorative work to be retained will be protected during the works. Any addition, whether reconstruction or repair, is to be implemented in a manner which will not damage existing fabric or features, and will not obliterate existing authentic work. In as far as possible, repairs should take place in situ.

Materials used for repairs should be compatible with and, in as far as is possible, match the historic materials. Work to be carried out using traditional or appropriate methods and natural materials. The aim is to use natural and traditional materials in preference to synthetic materials which will, in general, be avoided.

Salvage materials shall only be used where of proven provenance and will only be used in a manner that will not confuse the understanding or appreciation of the historic structure. As a general principle it will be the intention to salvage and re-use all sound material arising from modifications or removal, where feasible and appropriate.

Loose debris/rubbish resultant from the works will be removed from the building and disposed of in accordance with waste management disposal requirements of the Local Authority. This operation should be supervised to ensure no important building fabric is removed

Reversibility or substantial reversibility shall be a guiding principle to repair, alterations and additions to protected structures. As genuine reversibility cannot always be appropriately applied it should not be used to justify inappropriate interventions in these instances.

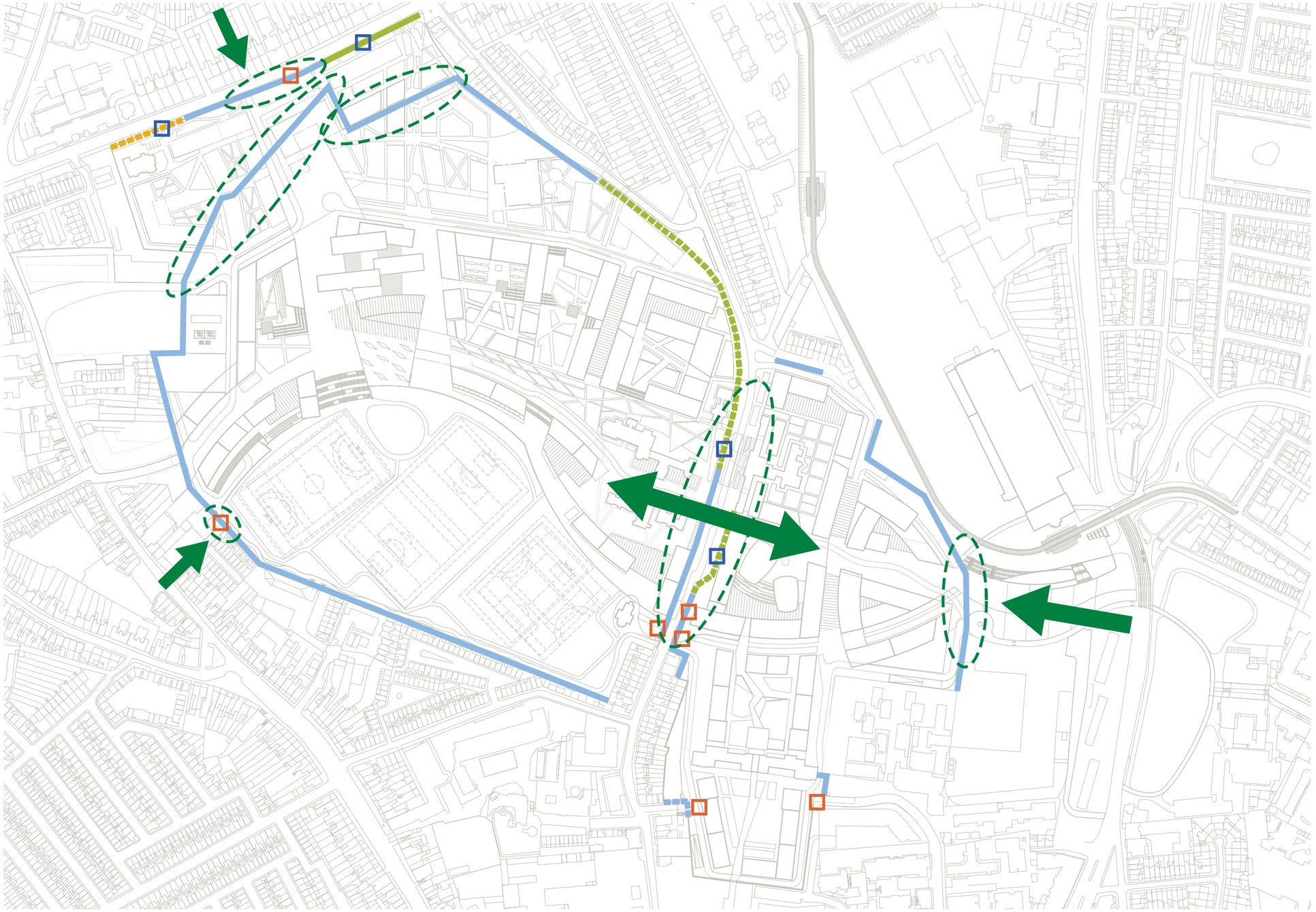


existing historical wall

- high walls
- high walls with metal fences
- low walls
- low walls with metal fences
- walls with metal fences and brick/stone piers
- entrances
- blocked-up entrances/arches

adaptive re-use of historical wall

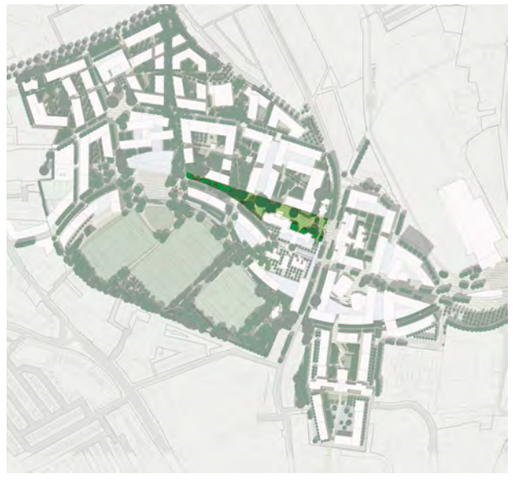
- new opening locations
- modified walls
- high walls
- high walls with metal fences
- low walls
- low walls with metal fences
- walls with metal fences and brick/stone piers
- entrances
- blocked-up entrances/arches



overview


the fields


green finger parks and the serpentine walk


the cultural garden


st. brendan´s way

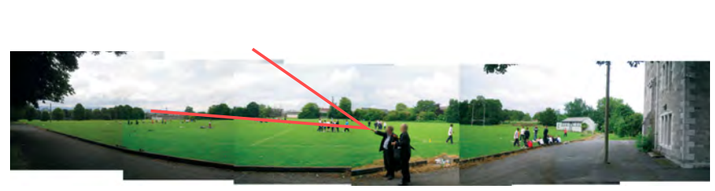

quadrangles

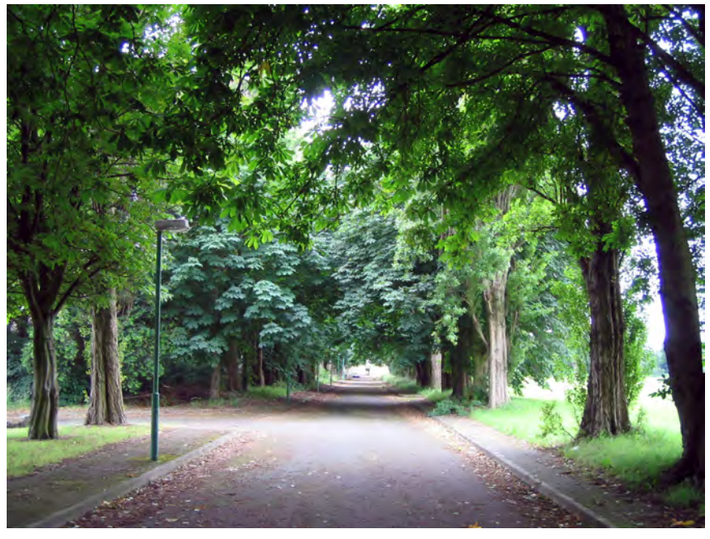
landscape design overview: open space typologies

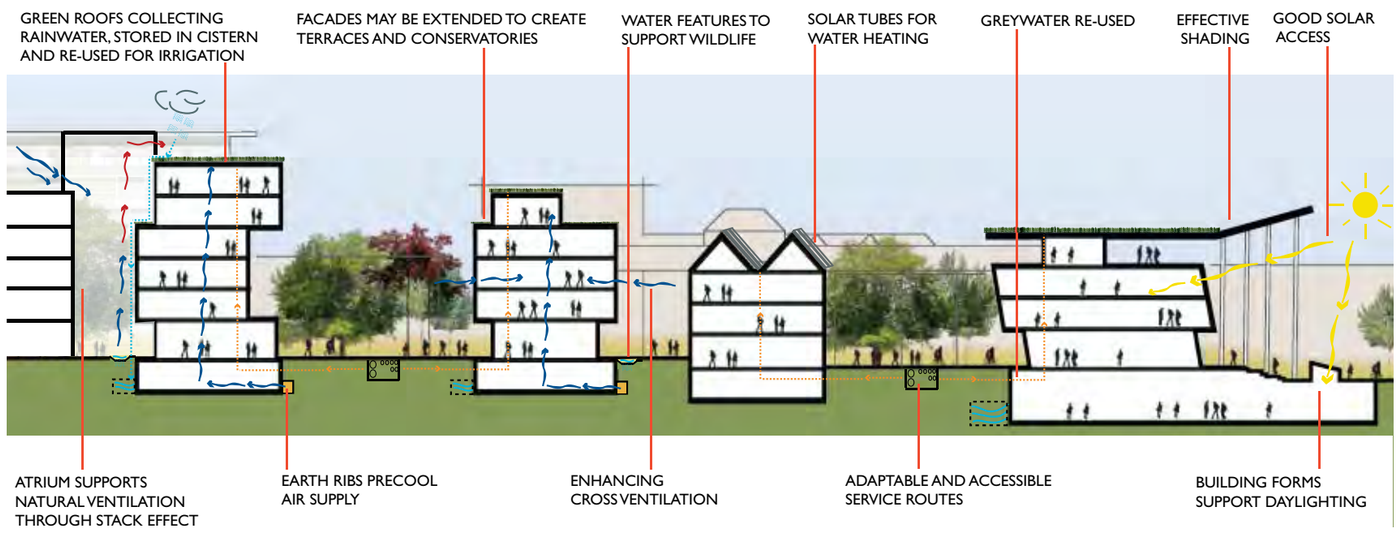
Because of the private and singular use as a hospital over a long period of time, the Grangegorman site stands out with its extensive and mature landscape and green spaces. The site remains one of the last large-scale landscaped areas within the urban fabric of Dublin.

The Masterplan maintains as much of the existing landscape characteristics as possible by leaving the existing fields to the south relatively untouched and by altering the building footprints where possible to save existing healthy and mature trees and landscaping. As with the existing protected structures that will remain on the site, the existing landscaping makes the site unique and creates a bridge to the past.

The new landscape concepts for the site can be organised into the broad categories noted in the diagrams to the left. (These concepts are explained in greater detail within the Masterplan Details section of this document.) In addition to creating new and unique spaces within the Masterplan, the landscape concepts help connect the historic site into the urban fabric of the city as well as connect the landscape path from the Royal Canal and Mountjoy area in the north with Phoenix park to the west—creating a linked park-like pathway through the urban density of the city.




Existing landscaping on the Grangegorman site.



environmental sustainability overview: flexible fabric and visible systems

The development of the Grangegorman Quarter is based on the international best practices of environmental sustainability. Early, sustainable masterplanning decisions will be augmented by the requisite governmental requirements and best practices and decisions of the designers of the individual buildings.

At the masterplanning level, buildings have been located and oriented to take advantage of natural daylight, reducing the need for artificial light. Building widths vary but narrow widths have been chosen wherever possible to further insure the penetration of natural light into the interior spaces. Courtyards generally open to the south to prevent the overshadowing of exterior landscaped space by buildings. The buildings have been located densely on the northern portion of the site, allowing the existing open space to the south to remain a naturally landscaped space. The open playfields have been linked to a more regional chain of open spaces allowing people and wildlife to find a natural system of pathways through the urban density of the city.

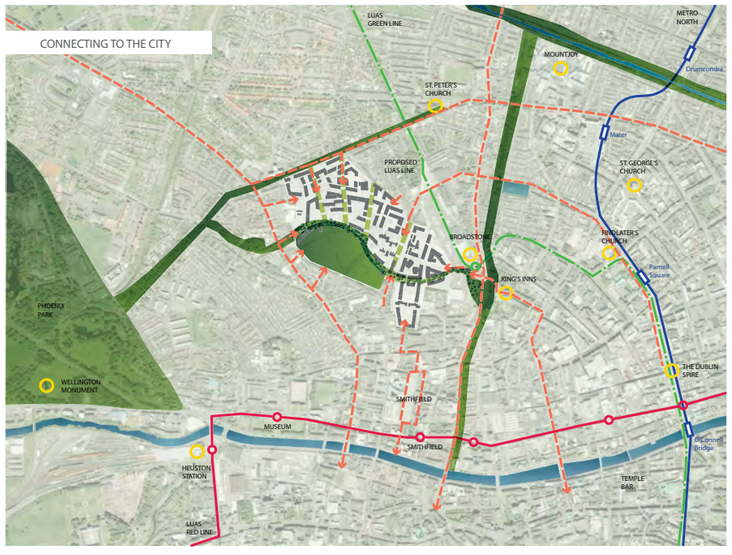
One of the major goals of the environmental sustainability strategy is to minimise energy demand and carbon emissions by creating an energy plan that allows the Grangegorman development to become a zero carbon development by 2050. Therefore the energy plan for the Grangegorman development prepares for an eventual 100% renewable energy supply.

The basis of the initial energy plan is subdivided into two components: a site wide energy plant as well as an individual renewable energy plant for each building block. All heating, and a portion of the electricity, will be generated from a centralised combined heat and power (CHP) plant using biofuels and distributed to individual buildings. In addition, each of the individual buildings will provide hot water from hot water solar collectors located on the roofs of each building.

Additional energy producing and energy saving principles, standards and requirements have been introduced through this narrative. But while technology dependent concepts such as power generation from biofuel use and high visibility strategies such as wind turbines and photovoltaics have been considered for the plan, there are also other important energy and water saving principles that are based in sensible and sensitive early planning in the Masterplan.

There are also environmental sustainability principles that relate to the quality of life the building inhabitants and neighbors should enjoy, such as indoor air quality, view corridors, noise reduction, pollution reduction, traffic reduction, and conservation of natural and cultural heritage resources. Some of these issues have been addressed in detail throughout the Grangegorman Masterplan and Masterplan Design Guidelines and the remainder have been detailed within this section. In addition to the energy supply goal, several key environmental sustainability principles have been developed for the project at the masterplanning stage:

Area plan prior to the new development.



The Grangegorman Masterplan links currently unconnected landscape pathways for pedestrians and wildlife.

- **sensible urban density and linking natural pathways**

The 73 acres site has been walled off from the city since the nineteenth century and is one of the largest undisturbed pieces of land in Dublin. It was important to maintain the existing healthy landscape elements, especially the large open fields to the south of the site by planning most of the new construction to the north of the site and creating an urban but sensibly dense design.

The River Liffey, Phoenix Park and the Canal are all important natural resources for the city. Linking these currently unconnected landscape pathways with the new Grangegorman Quarter strengthens the entire infrastructure, providing landscaped pathways for pedestrians and wildlife through the dense urban fabric of Dublin.

- **natural daylight, ventilation and wind protection**

The design of the building footprints, heights and layouts have been developed to allow maximum daylight to enter buildings, minimise overshadowing of each other and of landscaped areas and to minimise excessive wind.

- **preservation of existing natural and cultural heritage**

There are currently twelve buildings on the site that have been listed on the Dublin Record of Protected Structures. The re-use and re-purposing of all but one of these existing buildings not only conserves the embodied energy used in their initial construction and saves the energy that would be used to replace them, but helps create a connection to the past history of the site. Wildlife habitats and existing mature healthy landscaping have been studied and steps undertaken for conservation.

- **transportation strategies**

The Masterplan design encourages pedestrian movement over vehicular use. The concept prevents the general public from traversing the site in automobiles and allowing other vehicles to enter the quarter only via “shared surface” pavement where vehicles are subservient to pedestrians. The design has been oriented to promote strong connections to public transportation such as existing bus routes and the proposed LUAS line at the Broadstone Gate.

- **water management**

Water retention strategies such as swales and holding ponds have been designed to reduce runoff into the city system. This runoff has been incorporated into landscape features such as the water rill located in front of the Sports Centre. In addition, permeable surfaces have been incorporated in the outdoor public areas to allow water to return naturally to the aquifer below.

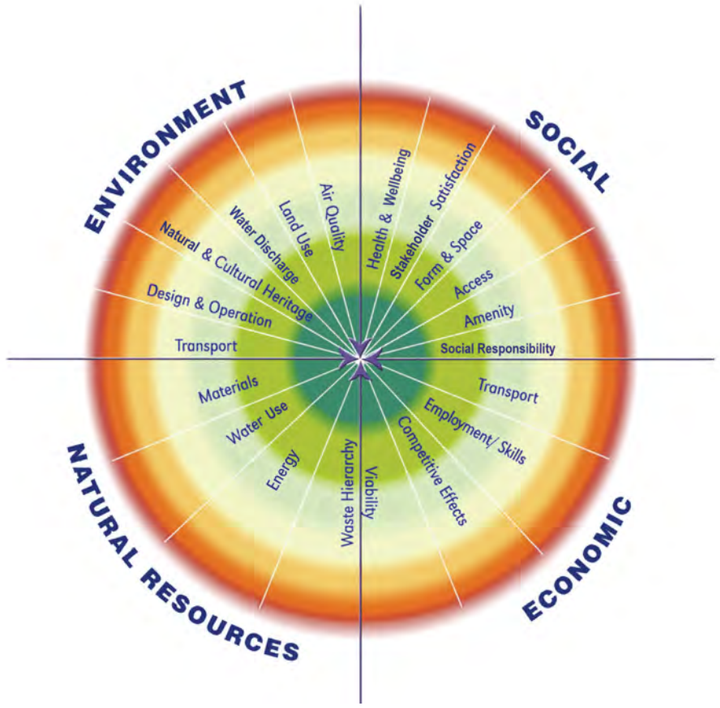
- **Renewable, long-lasting and environmentally safe building materials**

The Masterplan encourages the use of recycled and renewable building materials through the various energy efficiency and environmental sustainability standards that it is under the authority of. Using renewable construction materials prevents pollution and waste generation, creates new recycling industries and reduces landfill disposal and expansion. Using low VOC paints, formaldehyde free adhesives, and other safe building materials creates high indoor air quality and promotes greater health and efficiency for the occupants.

- **energy efficiency and sustainability standards**

Each individual building shall achieve a Building Energy Rating (BER) of at least A3 based on 2008 asset rating system, which corresponds to an Energy Performance Coefficient (EPC) of not greater than 0.50 compared to 2008 Building Regulations. This BER shall be calculated using a permitted Irish National calculation methodology for Commercial buildings, being NEAP/iSBEM, or approved Building Simulation software.

The design has been developed using several daylighting studies to allow daylight into buildings and minimise overshadowing.



what is SPeAR?

Arup Consulting Engineers (Arup) were commissioned by the Grangegorman Development Agency to undertake a sustainability appraisal for the development at Grangegorman.

The sustainability of the development proposals was appraised using the Sustainable Project Appraisal Routine (SPeAR®) framework developed by Arup. SPeAR® allows the sustainability of a plan, project or product to be appraised and illustrated graphically. The assessment allows optimisation of the key elements of sustainability; environmental, social, economic and natural resource use.

The objectives of applying SPeAR® to the development proposals are to:

- Provide an evaluation of the sustainability of the development proposals to demonstrate their sustainability credentials;
- Assist in the decision-making process by assessing the strengths and weaknesses of the proposals, and highlighting opportunities to improve performance during design, construction and operation.

The results of the appraisal are outlined in the diagram on the next page. The SPeAR diagram is 'read' like a dartboard; the closer an indicator segment is to the centre the better. Red suggests weaknesses in terms of sustainable performance, orange outlines compliance with standards, while the greens reflect strengths in performance.

Behind the diagram is a series of detailed worksheets, with over 120 sub-indicators of social, economic, natural resource and environmental performance. Information shown on the SPeAR diagram is a direct reflection of the quality of information available at the time of data collection, which is used to complete worksheets.

To ensure that the appraisal is robust the status of all indicators is achieved through consensus with the professional team. This approach means that the findings of the appraisal are the result of consideration of all factors in deciding the ranking allocated to each indicator. The four sectors of SPeAR are not weighted.

Appraisal Results

The following section sets out the key strengths which emerged from the appraisal and some of the future opportunities to continue to improve the sustainability performance of the proposals.

The sustainability appraisal of the development proposals was based on the information available for the current masterplanning stage, August 2008. It should be recognised that the SPeAR assessment is a live document that can be updated at future stages of Masterplan development, and facilitates tracking of improvements in sustainability performance as the scheme progresses.

Environment

Environmental: Key Strengths

- Reuse of a brownfield city centre site which is designated for redevelopment.
- Development of a new urban quarter that will include a diverse mix of uses.
- Intention that the development minimises energy demand and carbon emissions and can become a zero carbon development by 2050.
- Mobility Management Plan anticipated for implementation.
- Implementation of SUDS (Sustainable Drainage System) e.g. rainwater harvesting, green roofs.
- The implementation of SUDS will enhance and augment existing habitats.
- There is potential to create new feeding routes for wildlife and enhance local microclimate along green fingers of open space.
- Masterplan proposals include comprehensive landscape plan.
- Conservation strategy describes principles and guidelines for repairing, reuse, intervention and adaptation of buildings.
- Flexibility built into design and Masterplan so as to ensure long-term viability of buildings and the site.
- Sustainability technology options outlined in energy strategy.
- Aspiration that buildings will have a reasonable building lifetime.
- Aspirational plan to develop Environmental Management System (EMS) to ISO14001 standard.
- Limited number of car parking spaces to be provided.

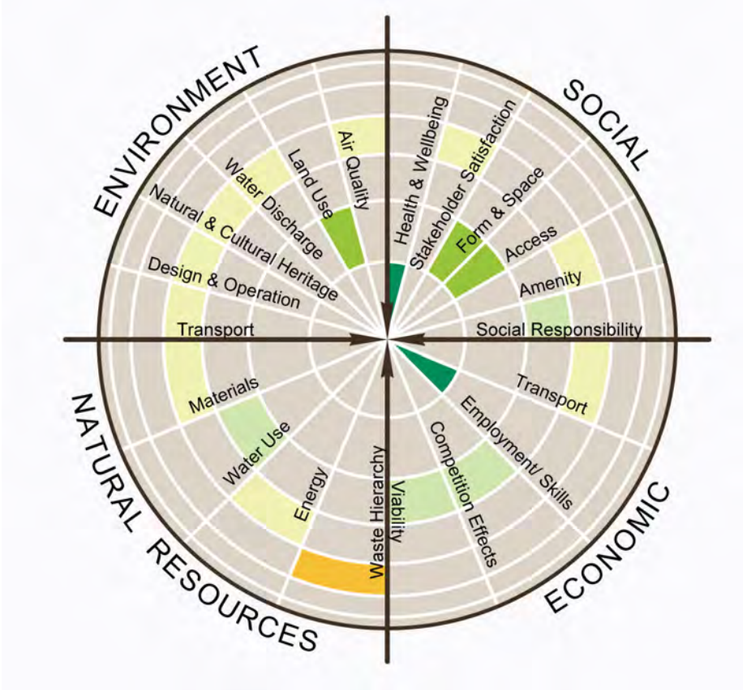
Future Opportunities

- A Code of Construction Practice should be specified to manage potential air quality impacts during the construction phase.
- Ensure transport associated with the development continues to be addressed to minimise potential impacts on local air quality.
- Commitment should be given to initiatives outlined in the Mobility Management Plan.
- Continue to ensure designs reflect the historical context and townscape of the surrounding area.
- Commitment that detailed design phase retains the varied mix of amenity spaces throughout the site.
- The GDA should explore incorporating green roofs/living roofs at the detailed design stage. Their design should be such as to ensure they have a high amenity and ecological value.
- Investigate opportunities for the cultural heritage of the area to be further incorporated and reflected in the detailed design at the planning application stage.
- Ensure mitigation measures proposed in Strategic Environmental Assessment (SEA) are undertaken regarding the management of the cultural and archaeological heritage.
- Continue to develop detailed design in the context of evolving Award Based Schemes such as BREEAM and LEED.
- Commit to and develop a strategy working towards an environmental management system (such as ISO14001) for the operational phase of the development.
- DIT and HSE to adopt a strategy for sustainable disposal of existing assets including furniture/equipment in existing buildings.
- DIT and HSE to adopt a sustainable strategy for purchasing of new equipment and furniture.
- Opportunities for sustainable internal distribution transport should be further investigated.
- The GDA will continue active liaison with CIE, Dublin Bus, RPA, Bus Eireann on the planned public transport improvements.

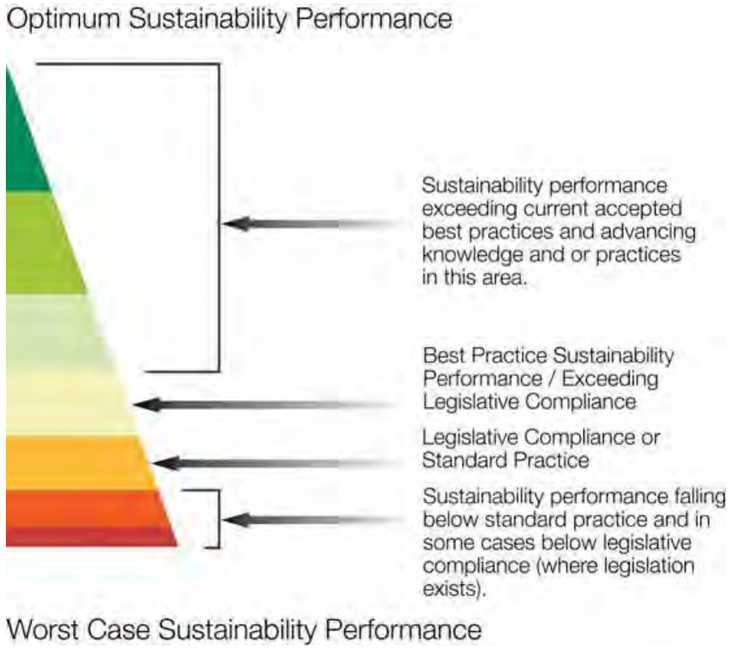
Social

Social: Key Strengths

- A consultation strategy has been established by GDA for the development of the site and prior to the GDA being set up, DIT had carried out consultation since 2002.
- Intention to manifest the history of the current site and DIT's history.
- Continued work of DIT's Community Links Programme with an increased focus on the Dublin 7 area.
- HSE will cater for current and future health and social care needs of the local population and for the clients of the mental health facility currently on site.
- Community will have managed access to sporting facilities provided by DIT.
- The development will provide a leisure facility which will be open to the wider community.
- DIT's faculties and facilities will be consolidated in one location.
- Improved connectivity and integration of the site with the surrounding area.
- Strong emphasis on pedestrian and cycle networks.



Grangegorman Analysis Appraisal Results



Future Opportunities

- Continue to actively consult with key stakeholders during the detailed planning stages and construction phase.
- Develop Purchasing Policy for the development dealing with the use of locally and sustainably sourced materials. Consider inclusion of targets for ethical and fair trading.
- Ensure that an access strategy is implemented to manage community access to sporting facilities.
- The detailed design phase should commit to designing play areas in line with the National Play Policy, Ready Steady Play.
- DIT and HSE should continue their close liaison to ensure that their individual communities integrate as planned on site.
- Ensure that the objectives of the Mobility Management Plan are implemented.
- Ensure appropriate access for physically impaired people is incorporated into the detailed design phase and exceeds beyond legal compliance.
- The consultation strategy for the construction and operational phase should be reviewed and adapted annually to reflect any changing needs of stakeholders.
- Daylight studies should be undertaken at detailed design phase to ensure that all units and living spaces proposed have an acceptable standard of daylight.
- Continue to consult internally with DIT and HSE regarding the detailed design phase as future occupiers of the site.
- The main contractor will be required to demonstrate strong Health and Safety management credentials.
- Healthy living should be promoted by DIT & HSE in various forms from healthy meal options to raising awareness of health problems.

Natural Resources

Natural Resources: Key Strengths
• Series of initiatives proposed for responsible use of materials.
• Design will employ Sustainable Drainage Systems (SUDS) in the design and operation of the new quarter.
• Overall aim of the development is minimise energy demand and carbon emissions and can become zero carbon by 2050.
• Energy strategy is aspirational but explores some effective techniques for ensuring energy efficiency of the new development.
• Centralised CHP Plant together with solar heating which is proposed for heating and hot water.
• A feasibility study is underway on the potential of geothermal heat sources.

Future Opportunities

- Detailed design phase should commit to all initiatives relating to use of materials as outlined in the Masterplan.
- Material specification for the development could incorporate the requirements of BREEAM or LEED.
- There should be a focus on the use of locally sourced and/or renewable materials with low environmental impact where possible.
- Commitment to an Environmental Management System will ensure that water monitoring of the operation phase is undertaken.
- The following measures could be implemented which will help reduce water consumption:
  - Spray Water Taps:
  - Dual Flush WCs
  - Water Metering
  - Watermiser system for urinals
  - Water Mains Leak Detection
- A Waste Management Plan should be produced for the construction phase of the development. This should meet the requirements of the DoEHLG Best Practice Guidelines on the Preparation of Waste Management Plans for Construction & Demolition Projects.
- A study should be undertaken to quantify an appropriate size for the composter proposed on site to ensure it adequately meets the requirements for the quantity of compostable waste produced by both DIT and HSE.
- The detailed design phase should ensure ongoing design development which considers designing out waste.
- A strategy should be undertaken to develop waste management policies and procedures for the operation of the development.
- A disposal strategy for DIT and HSE's existing equipment should be considered.
- Opportunities for electricity generation using solar photovoltaic cells and wind turbines are to be explored.

Economic

Economic: Key Strengths
• Regeneration of an underutilised site with minimal displacement associated with the development.
• Dedicated research centre, incubation centre, science and technology park and commercial laboratories.
• Potential to create additional local jobs during construction and operation phases.
• Diverse range of employment opportunities will be provided on site.

Future Opportunities

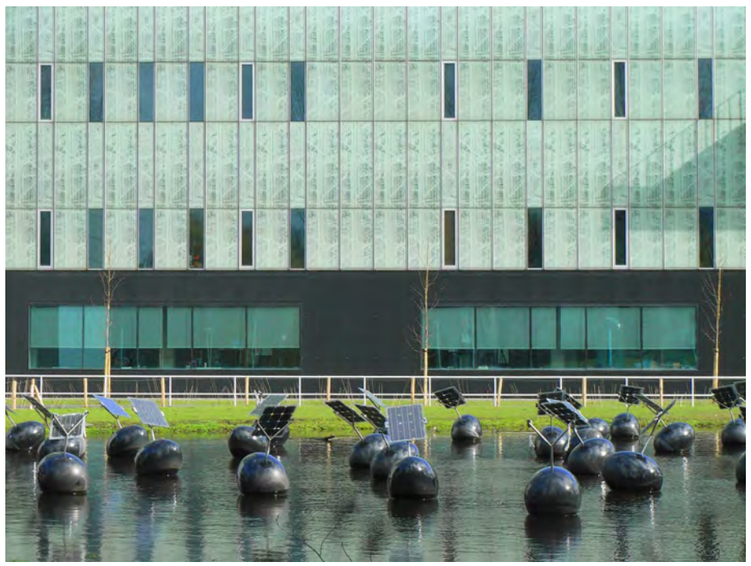
- All efforts should be made to ensure the viability of incubation centre and Science Park.
- Commitment should be given to the development of an Environmental Management System.
- The GDA should aim to ensure that a percentage of new employment opportunities are provided for the local community.
- The GDA should aim to implement appropriate measures outlined in the Employment Study currently being undertaken.
- Both DIT and HSE should continue and develop their existing training programmes for staff.
- Examine logistics movements during construction and operational phases to minimise HGV movements.

Maya Lin

Dr. Ferdinand Ullrich, Recklinghausen

Maya Lin

Richard Serra



public art

It is important for the future Grangegorman Urban Quarter to include high-quality public art elements that can help to reinforce a connection with the soul, spirit and culture of the place.

Public art can also help to provide wayfinding and landmarks for users, as well as create an identity for courtyards, gateways and other significant spaces and buildings within the overall District. The range of public art can include the following:

- Individual art pieces and sculptures
- Sculpture garden
- Art walk
- Temporary installations
- Art work involving lighting
- Digital arts and film
- Live art

Guidelines:

- Promote contemporary and experimental art.
- Be international.
- Be culturally diverse.
- Reflect the history of the site, DIT and the surrounding community.
- Promote inclusiveness and participation.
- Reflect a balance of disciplines and art forms.

Implementation Strategy:

- The review, funding, selection and commissioning process of public art work or artist will follow the provisions given in the most current “Per Cent for Art Scheme” program or any other relevant public art program being implemented at that time.
- DIT Students, Graduates and local community artists will be considered and given an opportunity to propose works for the site.
- The Masterplan Design Team will be available for the review and selection process of any artwork and artist connected to the Grangegorman Urban Quarter.
- The existing tunnel under Lower Grangegorman is proposed to be a future “gallery passage” hosting permanent and/or temporary exhibitions on various topics including the history of the Grangegorman site, DIT or HSE.

Hess Lighting

Hess Lighting

Hess Lighting

Sony Center, Berlin, Peter Walker PWP Landscape Architecture

Masterplan site lighting concept.

site lighting

The quality and intensity of light, as well as the rhythm and pattern created by the placement of fixtures, will contribute to the overall aesthetic character and sense of unity and identity for the Grangegorman Urban Quarter. In daylight, the appearance of the fixtures themselves will have an aesthetic impact as part of the overall public realm. Therefore, lighting levels and fixtures must be carefully designed and selected. The overall lighting strategy will be defined by the following hierarchy of four lighting types:

- Major Pedestrian Path
  As the major pedestrian route, St. Brendan's Way will have strong, glowing lighting as a continuous feature. Elements of featured lighting and flood lighting can be used along its entire length.

- Plaza
  The two "hearts" of the project—Upper Terrace and Arts Centre / Student Hub—will be distinguished by the brightest and most intense lighting, as appropriate for these large open public plazas. These major spaces can also be enhanced by featured lighting and flood lighting.

- Courtyard
  Each of the various courtyards and other open spaces will require focused lighting. This can be achieved in a more flexible, specific and articulated manner, in order to create a special ambience for each space.

- Secondary Pedestrian Path
  Secondary pedestrian routes such as the "Green Fingers" and other connecting paths will require adequate lighting for safety, but no strong pattern of lights is desired.

- Sports
  Focused lighting to support sports facilities.

In addition, the lighting of the new development will strive to deliver the following key objectives:

- To the greatest extent possible, the power for all lighting fixtures will be supplied by sustainable means such as photovoltaic panels.

- Create a District that is lively and well used both day and night.

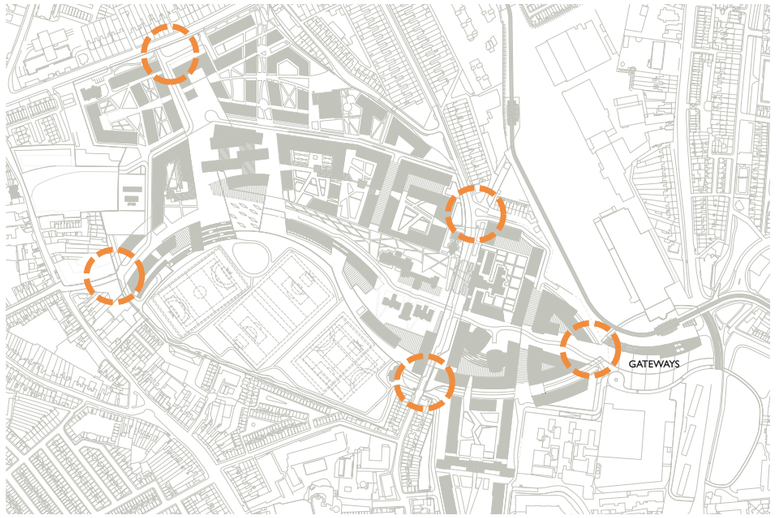
- Provide a safe, secure and accessible environment for pedestrians and other users.

- Avoid disruptive glare and spill-over lighting to sensitive residential areas.

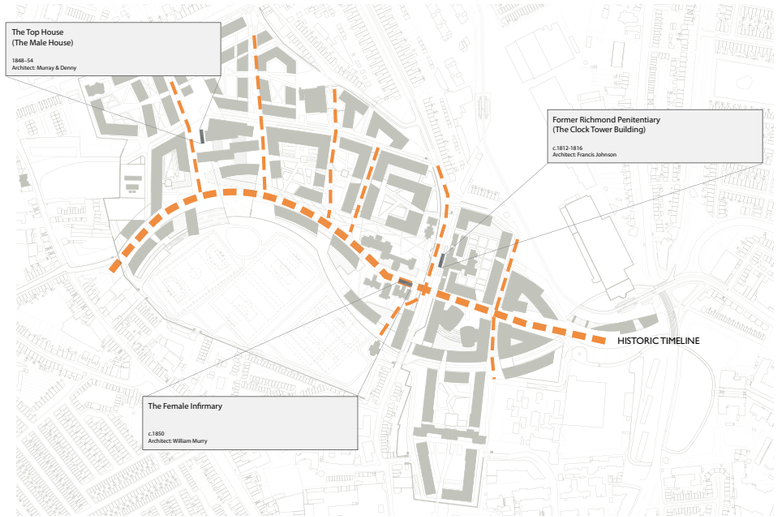
- In appropriate locations, LED lighting will be used to offer distinctive effects as part of an energy efficient lighting strategy.

- The lighting design will be closely integrated with the design of the landscape and urban spaces to create a clear and legible hierarchy of light levels and effects.

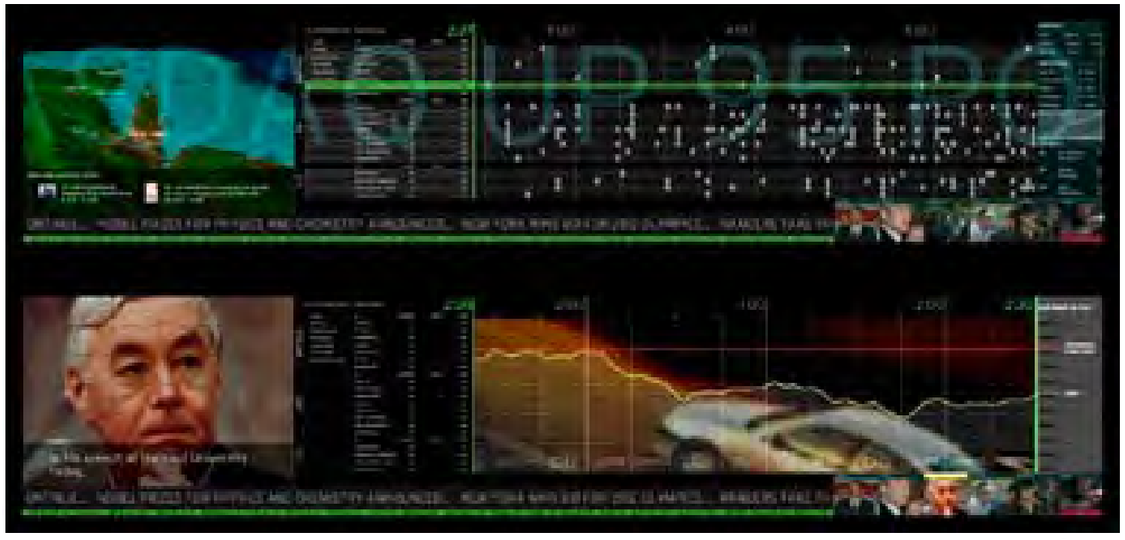
- The covered canopies and rain protection elements will form an important element of the lighting strategy. They will be well-lit to create a strong definition to the edges of the spaces as well as a means of orientation for users.



Gateways and entrance markers for graphics.



Masterplan graphics concept.



Pentagram

SMapping, Roto Vision

Signage Systems & Information Graphics Book

Signage Systems & Information Graphics Book

Sheila Levrant de Bretteville

identity, graphics, and wayfinding

Grangegorman Identity

The joining of DIT and HSE, two distinct identities with complementary yet diverse functions, in one location should be seen as a unique opportunity for making Grangegorman a memorable place. The identity for Grangegorman needs to be defined and communicated in a visually coherent way. This includes gateways and entrances; environmental and wayfinding graphics such as street signs, maps, directories, and information kiosks; exterior and interior building signage; as well as print and online/interactive media. The approach for Grangegorman's visual identity is to celebrate the importance of this historic site while embracing new technologies and media. Traditional and permanent signage along the major public pathways contrasts with signage and wayfinding that embraces new technologies and electronic media throughout the quadrangles to reflect the innovative spirit of the place.

Historical Timeline and Memory

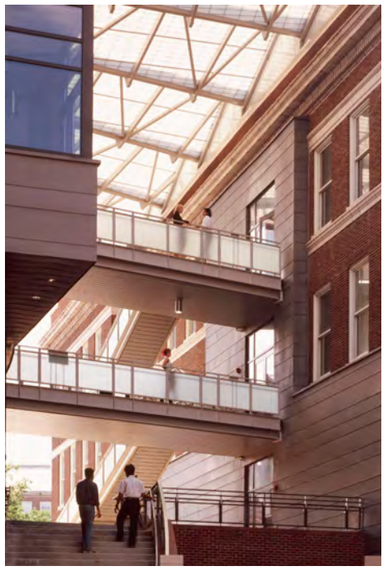
Along St. Brendan's Way, a historical timeline gives visitors and students a sense of the importance of the history of the site and the place. The timeline acts as an interactive journey where old and new are celebrated. Irish language, culture, and public artwork could also be incorporated along the path. The timeline also acts as Identification of important buildings on the Record of Protected Structures and shows the location of important buildings that were removed or renovated, with their original uses.

Information Nodes

Creating the Masterplan for the new Grangegorman Urban Quarter provides the opportunity to plan and design for the multitude of inevitable streetscape receptacles, devices and clutter used by people in their everyday lives, and organise and locate these items in a clear, coherent and rational way. Litter and recycle receptacles, campus maps, post boxes, information kiosks, shuttle or bus stops, public notice display areas, and newspaper boxes are all some of the items pedestrians come in contact with, usually in a haphazard way, everyday. Pre-planning the organization and location of these and other items throughout the Quarter provides the opportunity not only to create a clean and clear streetscape but also provide small landmark structures or nodes at key points within the Quarter creating helpful way-finding devices. The shelters would provide some of the daily services required by the pedestrian traversing the Quarter. Creating a type of "one-stop" shop for these types of services at rational and intuitive locations throughout the Quarter would create efficiencies in litter and mail pick-up, newspaper and public notice posting, etc... as well as visually enhance the pedestrian experience and add to the cohesive design of the Quarter as a whole.

Digital Technology

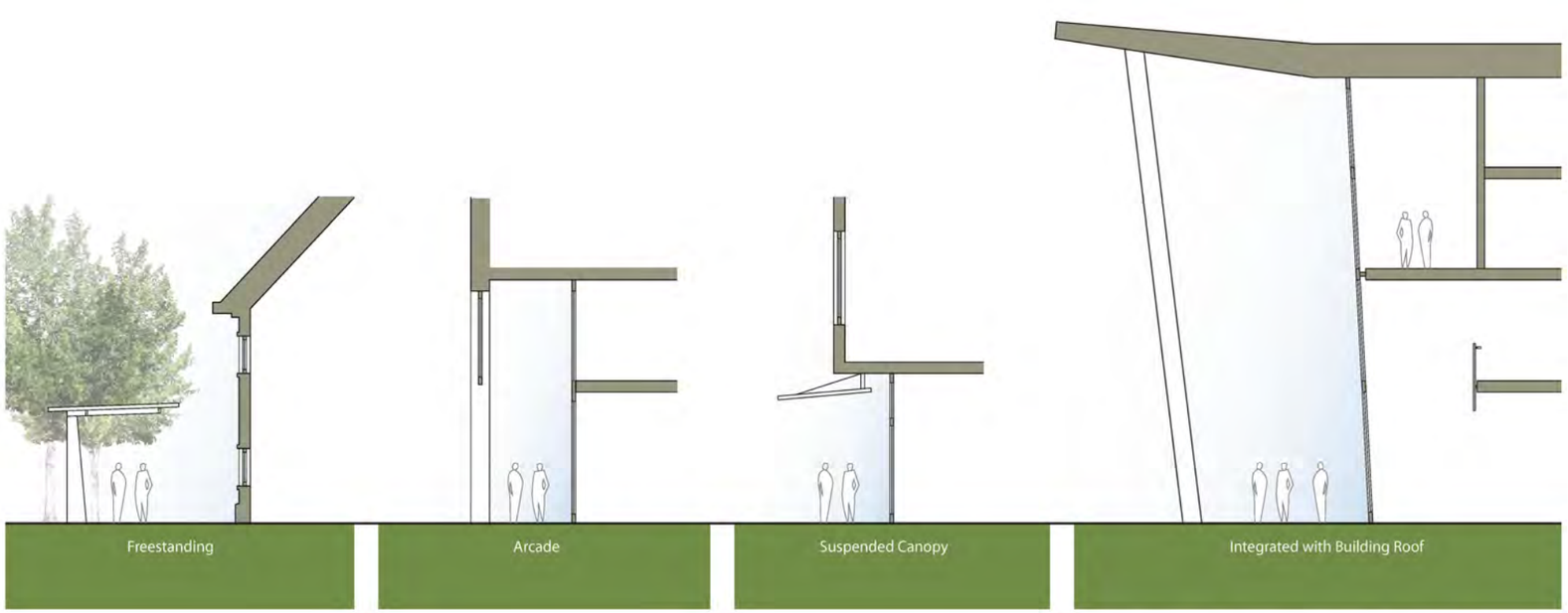
Grangegorman could showcase new advances and techniques in digital technology. Digital signage has the advantage of being adaptable, to change and update information quickly. Digital signage can improve safety and be more sustainable in terms of resources such as having to reprint signage. It can have an interactive quality that traditional signage cannot and it can express that Grangegorman is a new vibrant quarter. The deftly combined use of the permanence that traditional signage can express (carved in stone / cast in metal) and the quickly changing and ephemeral qualities of digital technology can help express the quality of Grangegorman as a place linked to the past and looking toward the future.



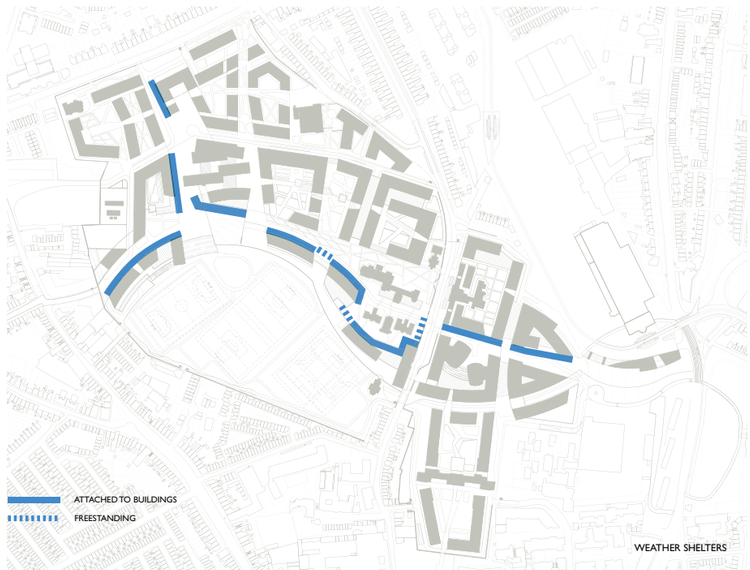
rain protection

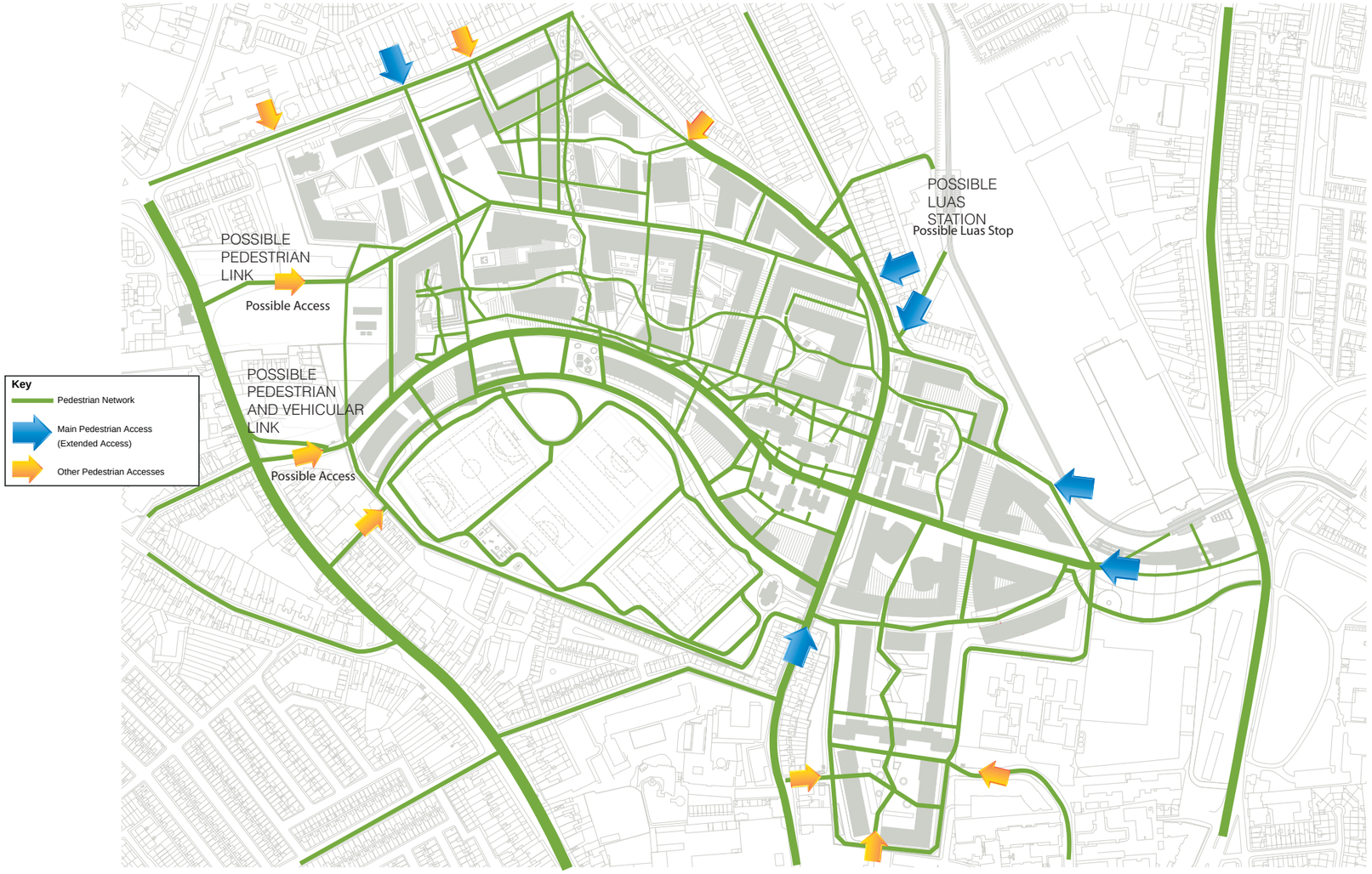
The major pedestrian paths—particularly the east-west connection (St. Brendan's Way) and the north-south link from North Circular Road to the Fields—are enhanced by a variety of climate-protection elements. These elements are closely integrated into either the fabric/design of the buildings themselves, or the proposed landscape spaces, as follows:

- The sheltering elements are placed at strategic locations along these routes to define an "implied path" for pedestrians, while also providing climate protection as arcades or covered passageways.
- At certain key locations, including the Main Library and the Art Centre / Student Hub, these elements would create semi-acclimatised outdoor spaces that are attached to prominent buildings. These "outdoor rooms" would serve as active, animated social spaces that encourage and invite interaction by pedestrians.
- Prominent arcades around these designated spaces will help to integrate adjacent buildings, visually connecting one building to another. Moreover, the consistent expression of arcades and canopies throughout the development fosters cohesiveness and strengthens the Quarter's image.
- The arcades and canopies along the edges of the Serpentine Walk, the Arts Centre / Student Hub and Broadstone Gate also enliven the row of retail shops at the ground floor.
- At other locations, climate-protection elements would form arcades and canopies in a contemporary interpretation.
- Tree canopies are also used as sheltering features, to reduce the amount of rainwater in various places along the pedestrian paths.
- In terms of materials, glazed canopies and light structures are proposed to achieve a cohesive architectural language and to allow sunlight to filter through to the pedestrian spaces below.



typologies of climate protection elements





transportation elements

Pedestrian and bicycling networks

The Masterplan is designed with a dense and attractive pedestrian and cycle network. This is considered to be one of the most important principles, as it will enable the necessary conditions to encourage high levels of pedestrian and cycle journeys to and from the site and the desired quality of the public realm that will ensure its attractiveness and therefore, will contribute towards longer dwell times, hence minimising the impact of peak travel.

Permeability

In order to achieve the maximum integration with the existing urban grid surrounding the site, as well as the best possible access to the public transport networks, the site will be designed to provide the best possible permeability across its boundaries. The pedestrian network plan to the left depicts the proposed internal pedestrian network and its linkages with the wider urban grid. The walk distances are significantly optimised, resulting in a walking catchment diagram which is closer to an “as-the-crow-flies” catchment.

Bicycle parking

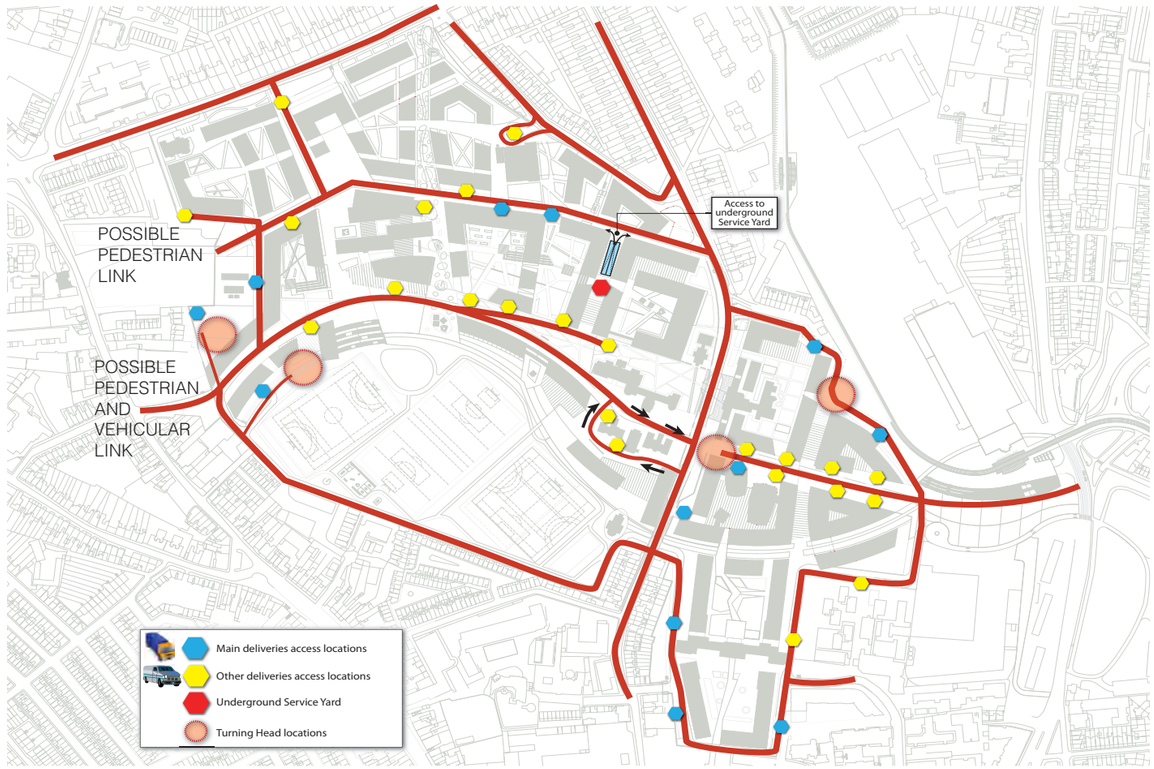
Generous provision of cycle parking will be provided in the Masterplan. Secure parking associated with underground car parking to be used by users that require longer periods of parking is provided. This element of cycle parking will be associated with facilities such as showers and lockers, as appropriate. On-street “banks” of cycle parking, possibly covered, located in visible locations near the highest attractors of trips (Library, Faculties, and Sports), and dispersed clusters (4 to 20 spaces) of on-street cycle parking, to maximise access to all buildings and facilities is planned for. These are located in the vicinity of the main building entrances and visible from the main pedestrian thoroughfares.

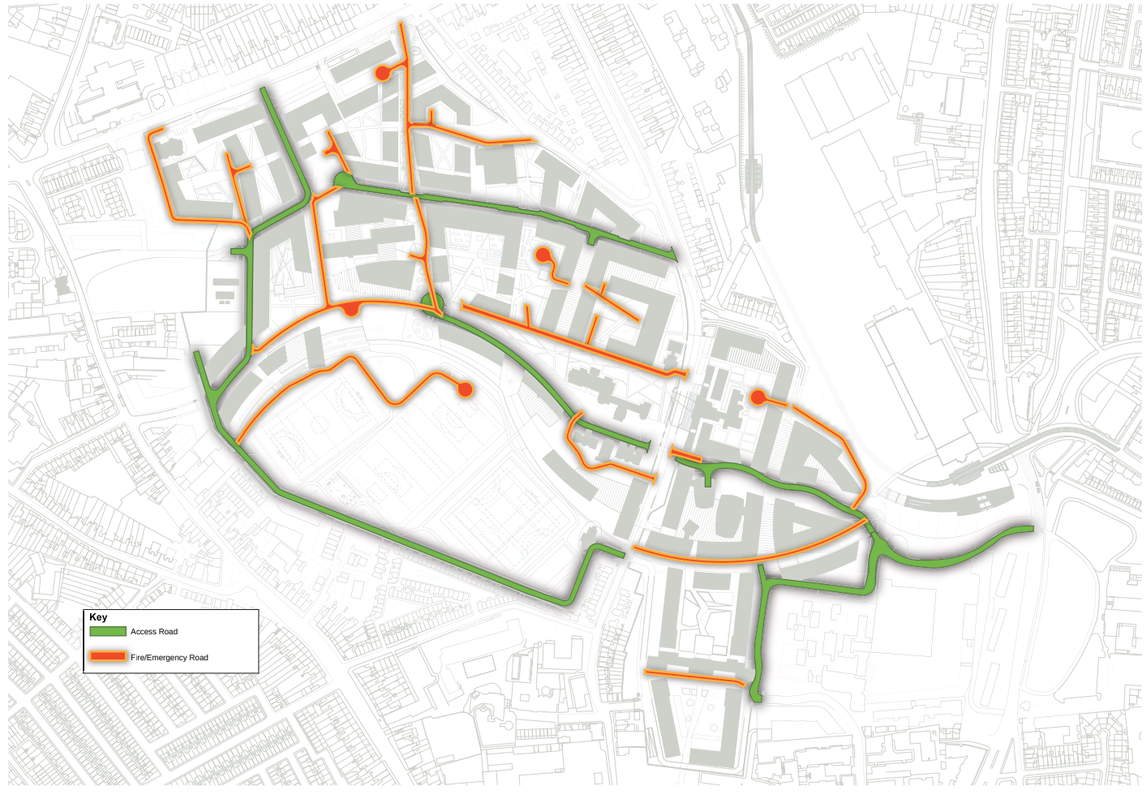
Road hierarchy

The development will have an internal network of links serving different functions, with different character and typology. Certain sections of the network will have limited access for vehicles but there will not be links within the internal network that will be primarily vehicular.

The Primary Road Link is the existing Grangegorman Road, which bisects the site. Grangegorman Road will be the only available through-route for external traffic and it will be traffic-calmed by means of a shared surface section opposite the clock tower building and the intersection with St. Brendan’s Way.

Secondary Links through the site include Ivy Avenue, the access to the car park and set-down areas from Constitution Hill at Broadstone Gate, as well as servicing and maintenance roads along the periphery of the site and along the Ha-Ha. These Secondary Links are for limited traffic mainly related to servicing, maintenance, disabled access, and possibly taxi and ‘out-of-hours’ access. Limited on-street car parking can be accommodated on Ivy Avenue. The character of the Secondary Links is predominantly pedestrian space shared with occasional vehicular traffic. Generally the shared surfaces would be flush, but with clear delineation of carriageway space. Occasional variations to the horizontal alignment will be included to add to traffic calming effect.





Tertiary Links through the site (in terms of vehicles) include St. Brendan's Way and adjacent 'driveable' surfaces. These links are for limited traffic mainly related to servicing, maintenance, disabled access, and possibly taxi. Vehicular access to these links are to be limited to 'out-of-hours'. Their character is predominantly pedestrian space shared with very limited vehicular traffic and flush shared surfaces, with minimal delineation of carriageway space.

Emergency access is provided in accordance with the appropriate regulations. The majority of the linear spaces, both streets and landscaped areas, are designed to accommodate occasional emergency movements, enabling the highest level of vehicular penetration.

Vehicular traffic calming

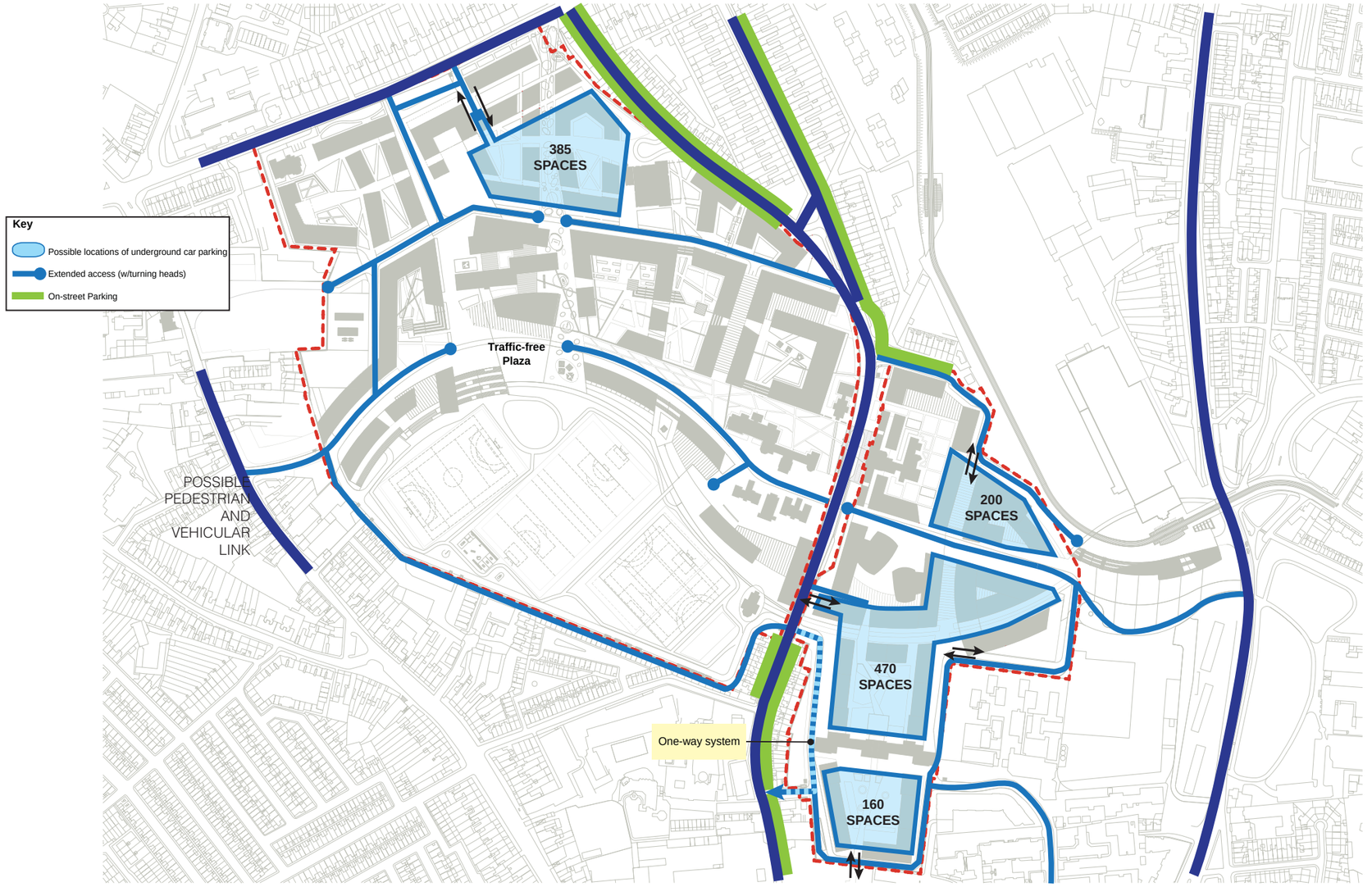
The movement network for the site is designed in a manner which prioritises pedestrians over motorised traffic. However, accessibility for cars, service vehicles, etc, will mean that, at a number of points within the site and times of the day, these will be in conflict with pedestrians. The inevitable conflict between pedestrians and vehicular traffic will be mitigated at key locations by traffic calming measures that may range from junction treatment to the overall design of the link. Traffic calming forms part of the masterplanning design, rather than being retro-fitted after construction.

Links throughout the development are designed in a way that will not preclude usage by all types of vehicles. However, a system of traffic cells has been designed to avoid the site being used by general city traffic. Traffic Cells prevent vehicles from travelling through and across an area to "shortcut" another route. The only exception will be Grangegorman Road, which is presently a through route for general traffic. This is the most effective measure to discourage unnecessary vehicular traffic through the site, whilst enabling suitable access to all locations.

Shared surfaces are effective elements of traffic calming, as they enable the re-balance of priority towards pedestrians along roads or across sections of roads. There are different levels of integration between pedestrian and vehicular movement within shared surfaces. These range from areas with no distinction between car and pedestrian spaces, to streets where car are kept separate from pedestrian-only spaces by means of physical barriers (generally bollards). A solution in between both of the above is the visual delimitation of car-only space by means of different materials and/or colours, often using the drainage channels as a subtle physical delineation. The concept of a shared surface is that drivers will recognise that they are circulating through a pedestrian area with clear indication of the limits of their circulation space, and therefore will adopt lower speeds. The whole of St. Brendan's Way is considered a shared surface, including the section where it crosses Grangegorman Road. The level of integration applied varies along its length, with the development's two "hearts" being the most suitable to have the least segregation between the modes, perhaps with no clear demarcations at all. The remaining sections should include some type of visual delineation of the vehicular space, but built-to-purpose physical obstacles such as bollards should be avoided, so as to reinforce the "non-road" character of the space.

Vehicular parking

The amount of car parking spaces takes into consideration the impact of car trips on the adjacent road network. Also, specific issues to be taken into account with regards to the quantum of parking are related to the variety of uses and times when the car parking may be required. For example,



provision needs to be made for usage of the site outside the normal working days, such as evenings and weekends, when the availability of public transport is lower. In addition, there is a need to avoid car parking overspill onto neighbouring residential areas, by not keeping car parking numbers within the site to an unsustainable minimum. Approximately 1,000 car parking spaces can be provided within the site. This quantum is purely indicative at this stage and will be heavily influenced by the physical capacity to be accommodated within the present Masterplan proposals.

The vast majority of car parking is accommodated underground, with direct access from the external road network and not via the campus itself. In addition, a number of on-street car parking spaces are provided at locations throughout the site. These will be additional to the residential car parking already provided along Grangegorman Road and Rathdown Road, and is intended to provide a convenience dimension to the car access strategy, and will be able to include part of the disabled car parking requirements.

Sustainable travel enabled by location and design

The site occupies one of the largest undeveloped sites within Dublin City Centre. Its location close to the city centre provides the passive conditions for the maximisation of sustainable travel patterns. The benefits are twofold: It provides density of uses, especially residential, within walking and cycling distance from Grangegorman. And it provides proximity to the most of the public transport network, which are concentrated in the city centre. This will enable the maximisation of the bus, LUAS and rail mode shares.

The Masterplan has been designed with a strong focus on pedestrian movements, which guarantees the conditions for walking trips to be encouraged. The design entails a number of restrictions to traffic movements, such as a system of traffic cells, which will contribute to the creation of excellent quality pedestrian and cycling environments throughout the Campus.

A limited quantum of car parking is to be provided within the Campus, as a further measure to guarantee the minimum impact of traffic on the internal public realm, as well as on the adjacent road network. A provision of 1,000 car parking spaces is seen as appropriate for a variety of uses ranging from primary health care to higher education, and including offices, retail and a primary school.

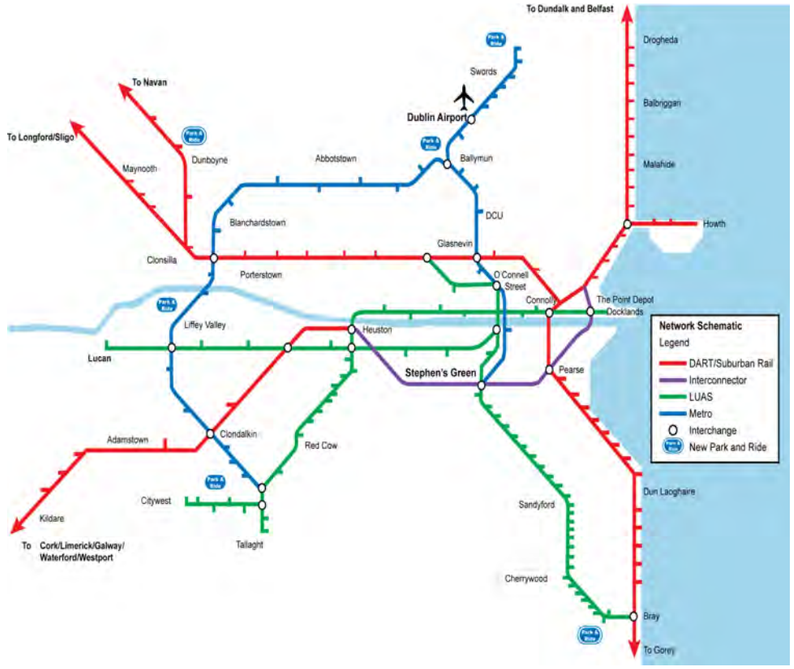
The internal roads where traffic is allowed for convenience purposes are designed to a standard that will discourage speeding and through-movements. Limited traffic and on-street car parking are considered as elements that, if correctly managed, will enhance the quality of some of the spaces throughout the Campus by adding to the activity mix at street level.

Provided with a dense network of pedestrian links, the district can be easily traversed in a 10 to 15 minute walk. Green boulevards dominate the internal circulation and are designed to allow articulated paths for both pedestrians and cyclists, which will provide quality circulation environments in all seasons.

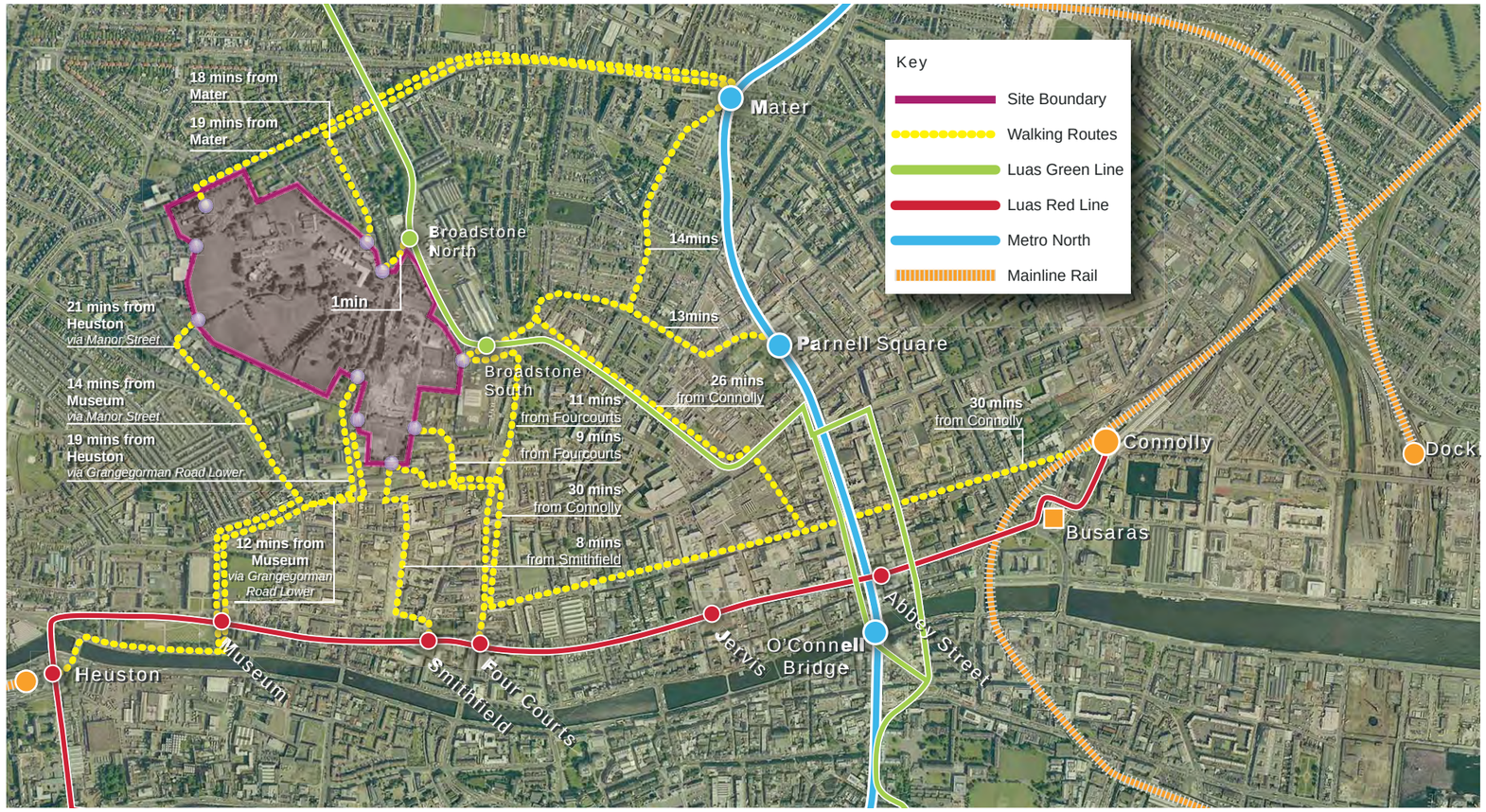
The location of attractors and generators of walking journeys, as well as landmarks within the Campus has been considered so as to provide a coherent, legible and permeable movement pattern that will enable the desired maximum activity and quality of the public realm.

The Masterplan's emphasis is therefore on the design of quality linkages from the site to the established city grid, in addition to the high quality public realm within the site.

Existing bus network.



Existing rail network.



Walking distances to the site

Proposed public transport infrastructure

Transport 21

There are various different transport proposals planned in Transport 21 that will improve access to the site as shown in the accompanying diagramme to the left. Within the local vicinity of the site, Metro North and the Luas Line D will directly improve rail services providing high capacity public links to the site. Following is a brief outline of the Transport 21 Strategy infrastructure proposals:

Metro

Metro North will connect the town of Swords to Dublin City Centre (St. Stephen's Green) via Dublin Airport as shown in the map on page E-4. This major piece of transport infrastructure is due to be complete in 2013. Metro North will operate underground, surface and elevated tracks with 15 stops available between City Centre and the Airport, including two (Parnell Square and Mater) that are located within reasonable walking distance (approximately 1.4km and 2km, respectively) from the site. Assuming pedestrian connectivity from Constitution Hill and an access on North Circular Road, it is predicted that the site can be reached on foot in 14 minutes from Parnell Square station and 19 minutes from the Mater station.

Luas

Line BX

This line extension provides connection between the two existing Luas lines, thereby enhancing the connectivity to the City Centre for citywide commuters. A Railway Order submission for line BX is planned in 2009, according to the RPA.

Line D

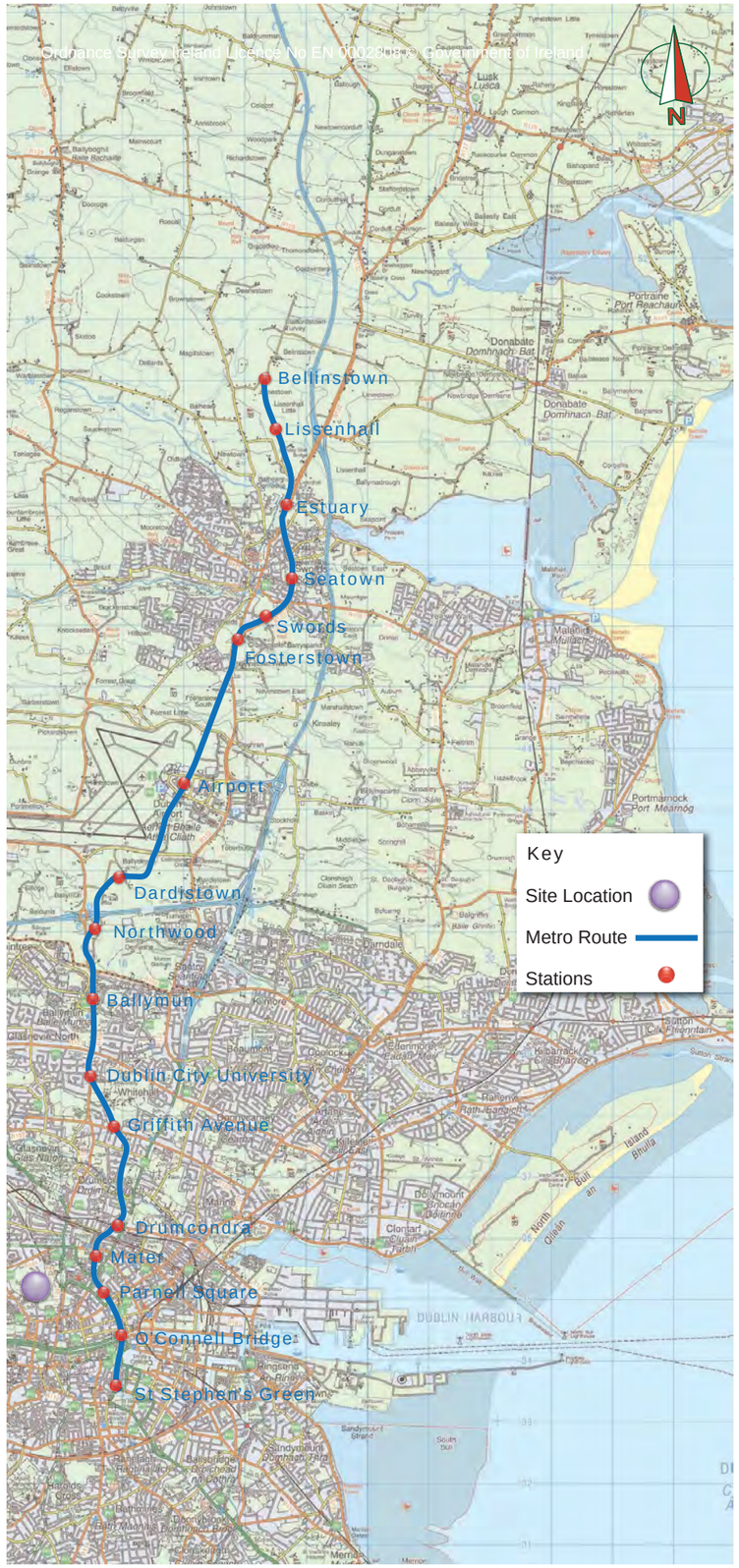
This extension of line BX towards Liffey Junction via Broadstone is still in design stage. This Line will directly serve Grangegorman and is considered to be the single most important public transport infrastructure to serve the site in the future. The improved connectivity of the site brought about by a Luas stations in its immediate vicinity will enable a substantial share of trips to be accommodated by the Luas. This line is expected to have two stations within the immediate catchment of the Grangegorman Campus: one adjacent to the Broadstone building; and another further north, either at the northern side of the present Bus Eireann depot, or in the vicinity of North Circular Road. Both, but especially the former, will provide the development with an excellent level of accessibility by Luas.

Luas Green Line and Red Line extensions

The extensions of the Green and Red lines to Bray (the line to Cherrywood is currently under construction) and Saggart will significantly increase that catchments that will avail of a direct connection to the city centre, and with line D, to Grangegorman itself.

Line F

Luas line F connects the City Centre and Lucan providing an alternative rail access into the City Centre from the western suburbs. It has to be noted that this line will provide a connection to line BX and D, as well as to Metro West. This project is scheduled for completion in 2013.



Other Rail Improvements

Rail Interconnector

The Interconnector is due for completion in 2015 is a planned link connecting the existing Northern Line to the lines running out from Heuston Station. It is envisaged that this public transport system would eliminate the existing city centre capacity constraints owing to its higher capacity and more frequent services.

Kildare Line upgrade

This project involves quadrupling of critical section of track between Cherry Orchard and Hazelhatch on the Heuston-Kildare line, along with ancillary works such as signalling and station developments. A key objective is to accommodate a peak hour service pattern of four commuter, four regional and four intercity services. Heuston Station lies approximately 20 minutes walking from Grangegorman.

Navan Rail Line

The project is carried out in two phases. Phase 1 involves reopening 7.5km of railway line running off the Maynooth line, at Clonsilla, to the M3 interchange at Pace, near Dunboyne scheduled for completion in 2010. Phase 2 provides connection to Navan and projected to complete by 2015. With Luas Line D in place and the proposed interchange between these two rail lines at Broombridge, Grangegorman would benefit from the increased catchment provided by the Navan line.

Bus Improvements

Quality Bus Network

The QBN Office carries out a permanent assessment of the needs for improvement to the QBC network and the existing QBCs are being upgraded on a regular basis throughout the city. With regards to sections of the QBN that are relevant to Grangegorman, the QBN Office has revealed that work on QBC along Old Cabra Road is to start before the Summer of 2008 and that further bus priority improvements along Manor Street and Stoneybatter are also planned.

Traffic Management in Greater Dublin Area (GDA)

This provision includes the construction of QBCs, cycle paths, improved pedestrian facilities and traffic management support systems under Transport 21 program. Capital funding for traffic management measures in the GDA is provided through the DTO Traffic Management Grants, in support of its overall transportation strategy. Projected completion is 2015.

Other Bus Improvements

Development of Bus Services in GDA (Dublin Bus): This program is part of Transport 21 and is aimed at expanding the bus network in the Dublin area. Also a target of 60% is set to achieve as an increase in passenger carrying capacity through new and replacement bus acquisition by the year 2015.

New services are introduced under Transport 21 program to enhance Bus Eireann services to customers on city and commuter services. A total of 235 vehicles are to be procured in 2007 and 2008 as part of this program. Bus Eireann intends to improve its present interurban services to Dublin, including substantial frequency and quality enhancements of services along the N2 and N3 corridors.

Walking and bicycling environment

Pedestrian network

The majority of the road network in the vicinity of the site is provided with adequate pedestrian facilities, including signalised pedestrian crossings across the main roads, such as Constitution Hill, North Circular Road and Prussia Street.
However, the present site's accessibility on foot is limited by its impermeable layout, with only access to the external walking network via Grangegorman Road.

Grangegorman is, at present, cut off from Dublin City Centre by the Broadstone site and a number of adjacent properties such as the Haven House Hostel, off North Brunswick Street. To the west, the site's wall forms an effective barrier to connections toward the Stoneybatter and Hanlon's Corner areas.

Site Accessibility on Foot

The diagramme to the left shows how accessible the Grangegorman site will be by showing walking distances to existing and future transport stations and stops as well as other important facilities within the vicinity. Various walking routes are shown from Grangegorman. The Luas stops on the Red line to the south of Grangegorman are all within 15 minutes walking distance from Grangegorman via a number of walking routes. Heuston Station, one of Dublin's most important stations where may rail services terminates is approximately 20 minutes walk from Grangegorman, while Connolly Station (another important station of Dublin) is within 30 minutes walking distance.

New stations planned on the Metro North Line including the Mater and Parnell Square Stations will be located within 15 minutes walking distance from the site. Also, the Broadstone North and South Stations on the proposed Luas Line D will be located adjacent, on the door step of the Campus.

Cycle facilities

Cycle infrastructure within the vicinity of Grangegorman is as good as any other within Dublin. Cycle lanes are provided on strategic routes such as on North Kings Street and there are also a shared bus/cycle lane on Constitution Hill and portions of North Circular Rd.

Cycle infrastructure is constantly being improved within Dublin. Dublin City Council are implementing the Dublin City Strategic Cycle Network programme aimed at providing an extensive and integrated cycle route network for the City.