Cork Science & Innovation Park

framework masterplan

2011

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How To Use This Plan

This Masterplan is a framework document that sets out the quantitative and qualitative criteria for the development of a science and innovation park within the subject site at Curragheen. It calls for the preparation of Precinct Plans for the development areas identified, in accordance with the criteria set out herein. These Precinct Plans will, in turn, either form formal planning applications themselves or set the context for individual planning applications within the development areas.

Chapters 1, 2, 3, 4, 7 & 8 set out the land use and economic context for the Masterplan.

Chapters 5 and 6 set out the overall principles and objectives that inform the Masterplan concept.

Chapter 9 sets out the informing zoning, taken from the 2011 Carrigaline Electoral Area Local Area Plan. It also sets out the land uses applicable to the Cork Science and Innovation Park.

Chapters 10 & 11 outline the role of future governance of the CSIP, as well as the project's delivery, monitoring and phasing strategies.

Chapter 12 discusses the concept of the Hub associated with science park projects.

Chapter 13 sets out the transportation and mobility concepts, as well as the CSIP's targets in this regard.

Chapter's 14 & 15 discusses the characteristics, opportunities, constraints of the project site area.

Chapter 16 sets out the specific concept relating to the development areas within the CSIP, identified as Precincts.

Chapter 17 allocates quantum and nature of development to each Precinct identified, as well as requirements to inform future planning applications.

Chapters 18 & 19 set out the provision of infrastructure and the allocation of development contributions.

Chapter 20 discusses the environmental considerations associated with the Masterplan, with specific reference to the requirements of Strategic Environmental Assessment and Appropriate Assessment.

Appendix 1 sets out the key actions that need to be undertaken post-Masterplan approval.

Appendices 2, 3, 4, 5, 6 & 7 set out the Masterplan principles relating to Green Infrastructure, Waste, Energy, Mobility, Design and Construction. These principles form development principles /objectives that are required to inform future Precinct Plans and specific planning applications.

Appendix 8 outlines specific details required to be submitted at planning application stage, including a Design Statement. The purpose of the Design Statement is as a vehicle to articulate how the principles in Appendices 2 – 7 have informed the design of the Precinct areas.

Executive Summary

i. Background and Aims:

This project seeks to deliver a science and innovation park, as part of the national employment strategy.

A science park is a business support and technology transfer initiative that:

- encourages and supports the start up and incubation of innovation-led, high-growth, knowledge-based businesses.
- provides an environment where larger and international businesses can develop specific and close interactions with particular centres of knowledge creation for their mutual benefit.
- has formal and operational links with centres of knowledge creation such as universities, higher education institutes and research organisations.

Hence, science and innovation parks are targeted real estate projects that seek to create a dynamic environment – physical and operational – that encourage a cohesive approach between business and education toward the achievement of economic growth. As such, science parks are distinct from more traditional business park offerings.

The principles that underpin the Cork Science & Innovation Park (CSIP), its location and site characteristics are key elements in the delivery of this conceptual shift. Formerly part of the strategic green belt separating Cork City and the Metropolitan Ring Town of Ballincollig, its selection for the provision of a critical element of modern economic infrastructure represents a forward looking approach that is commensurate with the principles of smart growth.

Science & innovation parks must be used efficiently and intelligently as part of a co-ordinated strategy. Linkage to and co-ordination with national, regional and local policies and to their relevant representative bodies is critical. The proposed Cork Science & Innovation Park (CSIP), developed and managed to a high standard, has the potential to be an important element of the regional and national economic infrastructure.

It aims are to:

- To encourage and support the start up and incubation of innovation led, high growth, knowledge based businesses
- To provide an environment where larger and international businesses can develop specific and close interactions with a particular centre of knowledge creation for their mutual benefit
- To have formal and operational links with centres of knowledge creation such as universities, higher education institutes and research organisations

Innovation parks are a critical piece of modern economic infrastructure. They strive to create an attractive and dynamic environment that facilitates the interaction of academics, researchers, entrepreneurs and support personnel within the research and product development fields. This interaction, in turn, drives the innovation process. Successful science & innovation parks are an important delivery mechanism and growth engine for the evolving economy towards an innovation led economic base.

ii. Policy Context:

The concept that informs the Cork Science & Innovation Park spans a spectrum of land uses, economic policies and practices. The park will be, at the one time, a strategic employment location, an educational campus environment, a place of business, a public transportation node and an amenity area. In addition, it represents a modern development that must be set within current land use and design best practice.

Hence, this masterplan document seeks to build upon commonalities of varying usages, while balancing effectively competing design requirements. To this end, this document has regard to a range of primary policy documents and guidelines across the environmental and strategic development spectrum, including;

National Climate Change Strategy 2007 – 2012

National Development Plan 2007 – 2013

National Spatial Strategy 2002 and Update 2010

Transport 21: 2006 – 2015

Smarter Travel: A Sustainable Transport Future 2009 – 2020

South-West Regional Planning Guidelines 2010 – 2022

Cork Area Strategic Plan Update 2008

Cork Area Transit System Study 2009

Best Practice Urban Design Manual 2007

Spatial Planning and National Roads (Draft) 2011

Sustainable Development – A Strategy for Ireland 1997

Strategy for Science, Technology and Innovation 2006 – 2013

Innovation in Ireland 2008

Trading and Investing in a Smart Economy 2010

Science, Technology and Innovation: Delivering the Smart Economy 2009

Building Ireland's Smart Economy 2008 & 2010

iii. Vision

In order to be effective, a masterplan must be informed by a clear initial vision and clarity of purpose. Such a vision encourages both capital and personnel investment, as well as allowing for the original vision to be monitored and redefined in accordance with the changing economic and social context within which it exists.

It is the vision of the Cork Science & Innovation Park to;

To be Ireland's first science and innovation park, in collaboration with the third level institutions and enterprise agencies, which will be recognised internationally for its proactive role in stimulating research, innovation and technology led business activity, and supporting tenants / occupiers to maximise their business success

The means to achieving this vision are set out in this masterplan and seek to achieve the delivery of high quality and functional buildings, infrastructure, landscape and governance.

The vision of the CSIP, as set out, demands a dynamic and evolving approach that reflects the goal of supporting economic innovation. The nature of research and product development shall evolve across the lifetime of the park, however, the underling processes that enable and support these changes will remain fundamental.

The critical vehicles identified herein to deliver the CSIP vision are as follows:

- Appropriate Facilities
- Quality of Environment
- Governance / Delivery Mechanisms

Science and Innovation Park – Artist's Impression

iv. Masterplan Principles:

The viability of this project is ultimately determined by the appropriateness of the facilities it provides. Having regard to the specialised nature of the project, and specifically the wide range of attributes that prospective tenants require, the term 'facilities' incorporates a range of activities. These include appropriately designed and scaled buildings, supporting landscape, management structures & business supports – all contributing to and underpinned by the park brand.

This project requires a clear initial development focus, but has a long-term development horizon. Hence, the CSIP needs to be capable of meeting the evolving needs of its potential tenants – in accordance with its Local Area Plan zoning and its own stated vision.

This masterplan identifies certain key quantitative and qualitative development parameters applicable to the park. Within these parameters, particular development clusters (hereafter referred to as Precincts) can grow toward a shared final vision.

In order to achieve its stated vision and objectives, the masterplan is based upon a number of key principles, as follows:

- To be aligned with the hierarchy of national and regional statutory land use planning policies and guidance
- To reinforce the land use planning policies for the area west of Cork City and to positively integrate the CSIP with the surrounding land uses for mutual benefit
- To conform, whenever possible, in all aspects with the best practice requirements for science & innovation parks
- To create a strong visual presence for the park via high quality design and siting of buildings
- To ensure that individual development precincts align with an overall and clear park development strategy
- To safeguard institutional and capital investment in the project by ensuring a long term and phased strategic approach
- To build upon the existing public transport services and promote pedestrian and cycling accessibility to create sustainable integration with the wider metropolitan area
- To ensure that the type, scale, location and phasing of all development, and the guiding principles, are realistic
- To develop a self-sustaining governance regime to manage, monitor and review the principles of the CSIP

v. Masterplan Objectives:

The purpose of this masterplan is to develop a physical framework document to guide the future development of the Cork Science & Innovation Park. It is not an end in itself, rather it is a guidance document that sets the long term vision for the project and also identifies the initial actions required towards realising that vision.

This is a long term project, with a development horizon of approx. 25 years. Hence, this masterplan will be required to be revised and updated during the lifetime of the project. The initial Masterplan Objectives are as follows:

- To set the development framework toward the creation of a leading edge science & innovation park, by international standards
- To identify the initial development phases and key actions required to realise the CSIP vision
- To encourage and facilitate the use of leading edge design and layout principles in order to create a sustainable and future-proofed innovation park
- To encourage and facilitate sustainable building designs that produce competitive long term real estate offerings
- To utilise the development project as a learning experience to inform future related development
- To facilitate the physical integration of the park with its immediate surrounds and wider metropolitan area
- To ensure that the built forms within the CSIP meets the functional and personal requirements within its spectrum of users
- To create a high quality and sustainable natural environment within the park
- To enable the creation of a distinct innovation park brand that underpins its future success
- To promote modal choice that involves a move away from the private car and to embracing other, more sustainable, modes for movement of people to and from the area, through mobility management and transport demand management

vi. Consultation

As part of the Feasibility Study Report for this project, conducted by *Atkins*, consultation with a wide range of key stakeholders, including key economic and infrastructure investment bodies was undertaken. These included;

- University College Cork

- Cork Institute of Technology
- IDA Ireland
- Enterprise Ireland
- Science Foundation Ireland
- Higher Education Authority
- Cork City Council
- National Roads Authority
- Bus Eireann

The masterplan design team has built upon and expanded this consultation process and has also met on a number of occasions with landowners, as well as the Advisory Board established to guide the project.

In addition, a number of site visits were undertaken to European science parks to investigate best practice models. These visits were underpinned by a significant review of related literature.

The inputs arising from the Feasibility Study Report and those from landowners were combined with best practice model findings to inform this draft masterplan document.

vii. Development Context:

The Cork Science & Innovation Park concept is set within the context of the strategic development of the Cork Region.

The proposed CSIP represents the physical manifestation of the hierarchy of national economic policies and national, regional and local land use plans, directed at ensuring sustainable social and economic regional development.

Relevant national/regional reports and policies for economic and land use planning in Ireland include:

- *Science, Technology and Innovation, Delivering the Smart Economy 2009*
- *Jobs and growth 2010*
- *Trading and Investing in a Smart Economy 2010: A Strategy and Action Plan for Irish Trade, Tourism and Investment to 2015*
- *Building Ireland's Smart Economy 2008 & 2010*
- *National Competitiveness Council / Forfas Report on 'Our Cities: Drivers of National Competitiveness 2009*
- *Smarter Travel: A Sustainable Transport Future 2009 - 2020*
- *Spatial Planning and National Roads (Draft) 2011*
- *Cork Area Strategic Plan 2001 – 2020 & Update 2008*
- *Cork Area Transit System Study - Preferred Strategy*

Having regard to its scale, location and economic context, the CSIP must be considered as a future strategic employment location. Future strategic employment locations can be described as containing the following key characteristics:

• Contain high quality sites which are attractive to national and international investors
• Have good road and public transport accessibility
• A clear identity / brand and future vision
• Accommodate development which could not equally be accommodated elsewhere
• Economic sustainability, targeted to support specific sectoral needs, such as knowledge based services located close to universities, major hospitals / other research establishments.

As set out in CASP, employment locations must be linked to population centres and served by effective public transport. The CSIP site is currently served by relatively high quality existing bus public transport and this will be enhanced with the future provision of the Bus Rapid Transit system.

CASP has clearly identified the future challenges to the Cork region in terms of creating population critical mass in sustainable locations that will underpin future strategic investment. CSIP reinforces this strategy, in that, within the future spatial patterns advocated by CASP it is a sustainable location that can benefit from - and create critical mass toward – an urban based sustainable region.

Furthermore, CASP identifies future growth as directly linked to the provision of additional 3rd and 4th level graduates to assist in the drive to diversify our future economic base in the region. The CSIP will play a significant role in facilitating this diversification.

Hence, in association with parallel national and regional initiatives, the CSIP can provide all the required characteristics of a high quality strategic employment location targeted at the innovation sector.

viii. Land Use Zoning & Uses:

The *Draft Carrigaline Local Area Plan 2011*, as the statutory land use plan that calls for the development of this masterplan, sets out the specific zoning objectives for the lands that comprise the Science & Innovation Park, as follows:

Specific Zoning Objective
X-01: Science, Innovation and Technology Park A. To develop a science, innovation and technology park that accord with the highest European standards.

B. The development of this site will accord with a Masterplan to be approved by Cork County Council.

The Masterplan shall include provision for:

- High quality park environment, focussed on retention of the natural environment and priority for pedestrians and cyclists
- Provision for incubator units, grow-on units and stand-alone units that meet the users evolving needs
- Appropriately phased development that reflects the potential for early phasing of the previously zoned X-01 lands under the 2005 Carrigaline Electoral Area Local Area Plan
- Admissions policy to the park to ensure its future occupiers are appropriately engaged in science, technology and innovation activities
- Proposals to facilitate vehicular, public transport, cyclist and pedestrian access to the site
- Proposals for enhanced accessibility to Cork Institute of Technology via Science Park
- Access by public bus and future Bus Rapid Transit
- Mobility plan for movements to/from the Science Park and within the Science Park
- Appropriate provision for public access to Science Park amenities
- Appropriate road access
- Sustainable infrastructure provision that reflects the distinct infrastructural circumstances of each development area within the park
- Detailed flood risk assessment
- Develop linear park / water feature adjoining Curraheen River
- Provision of high quality telecommunications
- On-site energy generation appropriate to the Science Park's needs
- On-site enterprise, business and leisure support services in accordance with the Science Park's needs

C. Buildings constructed on the site will be primarily used for the following purposes:

a. Manufacturing, production and service delivery activities that use high-added value technologies or are related to research or higher education institutions

b. Research activities that are technologically innovative or involve experimentation
c. Postgraduate or other specialised training activities linked to third level institutions

d. Where it can be demonstrated that the proposed activity directly supports existing on-site or planned uses under 1.a to 1.d as set out, within the following use categories:

- Business Support
- Conference facilities
- Leisure
- Restaurants and appropriate shops
- Accommodation for park users

D. The CSIP will provide for appropriate governance structures for tenant selection in accordance with C as set out above.

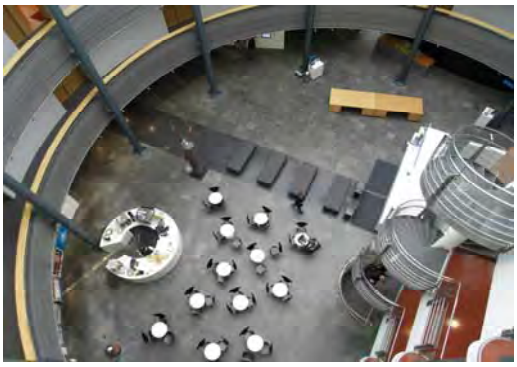
E. Parts of this site are at risk of flooding. Any development proposals on this site will normally be accompanied by a flood risk assessment that complies with Chapter 5 of the Ministerial Guidelines 'The Planning System and Flood Risk Management.'

While the project needs to be appropriately flexible in recognition of the dynamic nature of the innovation sector, there is also a requirement to ensure that the innovative processes that underpin the park's function are not undermined by inappropriate uses. To compromise the park's functionality in this regard, and hence its brand, would undermine the institutional and capital investment in the project.

ix. Facilities:

The facilities provided for within the park arise from the *Draft Carrigaline Local Area Plan 2011* zoning and are categorised as follows:

- Incubator spaces/suites
- Grow-on facilities
- Stand alone premises
- Research facilities
- University linked training facilities
- Support facilities, including,
- Business support
- Conference Facilities
- Leisure facilities



- Restaurants and appropriate shops
- Accommodation for park users

Initially, demand will be low for ancillary support facilities such as retail, leisure, restaurants, etc., and existing nearby facilities offering such services will have a role to play. However, where and when demand by park users or higher education institution personnel occurs, commensurate facilities will need to be provided.

International experience has shown that the provision of an incubator/innovation centre and training space is an important initial requirement. Hence, these facilities must form part of the initial phase of the project. If demand exists for additional facilities they too can be provided at an early stage.

In addition to the built form facilities, as listed, the creation of a high quality and mobile campus, linked physically and operationally to CIT and UCC, is critical in the creation of a successful innovation park. While building design should be in accordance with the highest design standards, the landscape between the precincts must be of a form and layout that is attractive, encourages mobility, assists the innovation process and contributes positively to the park brand.

x. Masterplan Approach:

This masterplan document sets out the long term vision for the project, but is cognisant also of early constraints. Specifically, the final vision for the project relies on a significant modal shift in accordance with *Smarter Travel* targets and seeks to facilitate this shift as well as protecting the national road infrastructure.

For this to occur, there has to be a real change in modal choice involving a move away from the private car towards embracing other, more sustainable, modes of access. This requires a built environment that encourages other access modes and a 'buy-in' by park employers and employees – not just as planning application stage, but in the culture and work place policies of the organisations located within the CSIP.

The dynamics of the Masterplan is based on actively planning for change and creating an environment / networks that can support a change in modal choice, providing for the efficient movement of people to and from the area.

The growth potential for the area should not be based on traditional 'predict and provide' models, rather it must be based on constraining private vehicular access and promoting alternative access modes. The Council is taking a leading role by developing an area wide Mobility Management Plan for the CSIP.

However, the masterplan recognises the initial early phases (in particular phase 1) will be more

private vehicle dependant than the latter and, therefore, must have immediate regard to existing access constraints. Hence, this masterplan plans for the initial 42,240m² of floor area – which equates to the existing access capacity serving the park site. Further development in excess of this quantum shall require access upgrading and modal shift away from private car use, with possible alternative access also being an option. Therefore, it is envisaged that the project shall need to be monitored and the masterplan updated toward the end of Phase 1.

This Masterplan is based upon a strategy of developing a science and innovation park in accordance with best practice, by harnessing and developing the existing national and regional competitive advantages in co-operation with higher education authorities, government agencies and private enterprise, to create business led innovation. It is envisaged that this masterplan, subject to monitoring, will guide the park to achieve capacity within approx. 25 years.

This masterplan document sets out the physical vision and delivery mechanisms to achieve the delivery of a science and innovation park at this location. The delivery of the project can be described in three distinct phases that reflect the key issue of access. Access and mobility is a key initial constraint, but is also a key opportunity in the development of a modern and efficient land use project at this location.

This masterplan gives clear guidance as to the long term vision and delivery mechanism for the project. It sets out in both quantitative and qualitative terms the nature of future development at this location.

However, and having regard to the long term nature of the project, the masterplan document is constructed to allow future flexibility within these clear guidelines. This is advantageous in allowing the development to maximise its attractiveness and efficiency, while also allowing for certainty in its appraisal. Specifically, the masterplan uses the concept of Precincts, which are distinct development areas linked and managed by common principles towards a common set of goals.

Each Precinct represents a single piece of the larger park and it is envisaged that each Precinct shall be developed in a co-ordinated fashion towards the creation of a logical science and innovation park layout. The mechanism for achieving this is set out in the following section - entitled *Delivery Mechansim.*

A critical feature of this approach is its concurrent delivery methodology, rather a sequential one. This approach recognises the varying infrastructural challenges that each Precinct area has to overcome and maximises the opportunity for development to proceed. Hence, the required infrastructure to 'unlock' the development potential of each Precinct is identified and it is envisaged that as each Precinct addresses the required infrastructure provision development can then proceed. This allows each precinct to develop as an independent entity toward a shared vision. Having regard to the long term nature of the project, this approach is advantageous in that it allows for each Precinct to grow at its own pace and avoids unnecessary project delays.

xi. Delivery Mechanism:

It is recognised that this project has particular characteristics that set it apart from many other land use developments. In particular, the long term nature of the project, its particular target users and the critical role that branding and HEIs (UCC & CIT) play, is reflected in the need to create a particular delivery mechanism to allow the project to succeed.

Hence, this masterplan sets out both quantitative and qualitative criteria that all development must adhere to toward a shared final vision.

The quantitative criteria are allocated on a Precinct basis, with each Precinct area having been assessed for it carrying capacity and opportunities, within the context of the final vision for the park. Hence, each Precinct has a defined quantum of development, allocated in three phases (reflective of the three distinct mobility phases as set out below – section entitled Mobility).

Qualitative criteria specific to each Precinct are set out in the Precinct Guidelines that guide development within that Precinct. In addition, guidelines common to all Precincts and that reflect the physical vision of the project, are set out in the Appendicies that shall underpin future formal applications for development within the park.

It is envisaged that, within this quantitative and qualitative structure, detailed 'Precinct Plans' shall be submitted to the planning authority for approval and shall form the vehicle for delivery of the built forms called for in this masterplan. 'Precinct Plans' shall articulate the physical and operational solutions for each development area, within the parameters as set out herein.

While these 'Precinct Plans' shall be based upon the criteria as set out in the masterplan, it is anticipated that the future Precinct design teams shall build upon this foundation to create high quality science and innovation park facilities.

Recognising the particular nature of this project, the planning authority shall form a specialised development management team to guide in the preparation and assessment of 'Precinct Plans.' This team will facilitate the provision of high quality development within a swift development management process.

In addition, the nature of the users within the park is critical to its success and the *Draft Carrigaline Electoral Local Area Plan 2011* sets out the future users that the project seeks to attract. Again having regard to the long term nature of the development project and the often specialised nature of the uses, it is advocated that the statutory development management role is supported by a future park governance structure that has an advisory role in this capacity, as well as managing, monitoring and reviewing the operations / principles of the CSIP.

This park governance structure would also play a key role in the co-ordination of development across the park, in order to maintain momentum within the project and also to ensure operational co-operation between Precincts. This, for example, will be critical in the management of mobility where co-ordination will achieve increased efficiencies and effectiveness. It is also critical in creating the operational environment that shall encourage interactions within the park, as well as between the park and the wider business world.

xii. Mobility & Phasing:

Mobility management is a critical feature of all modern land use planning. It is concerned with the movement of people to/from places and also of persons within places.

The park site is located on the edge of Cork City, with ready access to the Cork South Ring Road and existing public transport. It is also located close to large centres of population to the east and west. The masterplan seeks to build upon these advantages toward the creation of a high quality place with significant advantages of connectivity.

Within the park, it is a goal of this masterplan to ensure that the CSIP is a place dominated largely by people, not vehicles. It is intended to create a series of formal and informal walks and civil spaces for interaction, while still allowing for circulation by public transport buses, shuttle vehicles, access for persons with disabilities, construction and emergency vehicles, as well as facilitating practical private vehicle access. In creating a high quality person centred

Appropriate road design

development, the CSIP would achieve some of its core aims;

• To build upon the existing public transport services and promote pedestrian and cycling accessibility to create sustainable integration with the wider metropolitan area

• To encourage and facilitate the use of leading edge design and layout principles in order to create a sustainable and future-proofed science and innovation park

• To create a high quality and sustainable natural environment within the park

• To enable the creation of a distinct innovation park brand that underpins its future success

Currently these lands are served by a single road access from the south, via the Cork South Ring Road, that has a defined vehicle carrying capacity. The immediate use of this capacity allows for an early project start. Hence, Phase 1 of this project is identified as commensurate with this carrying capacity and minor upgrade works are required to allow initial development to proceed – in tandem with the relevant identified elements of the CSIP Mobility Management Plan dor the project.

Potential Bus Rapid Transit Link

Phase 2 of the CSIP will require increased vehicle access capacity, which can be delivered by a number of means. The timing of this further development within the park, in excess of Phase 1, is linked to the provision of this increased vehicle access in conjunction with increased levels of non-private car access.

The final phase, Phase 3, will unlock the full development potential of the park. It is envisaged that this further development will be based on a significant modal shift from private car use achieved via the effective management of mobility to / from the park in conjunction with significantly enhanced public transport provision – including implementation of the integrated public transport system identified under the *Cork Area Transit Study.*

Table I: Target Development Floor Areas:

CSIP Phase	Vehicle Access Capacity	Works Required	Total Development Floor Area
Phase 1	600	Minor improvements to N25 junction, provision of additional walking. cycling access	42,240m²
Phase 2	1,350	Increased vehicle access capacity to CSIP & increased modal shift to public transport	144,000m²

Phase 3	2,850	Increased vehicle access capacity to CSIP & modal shift to public transport in line with Smarter Travel targets	363,350m²

Note 1: The above figures include assumptions on modal shift (non private vehicle use) at 20% for Phase 1, at 40% for Phase 2 & at 50%for Phase 3, supported by the CSIP Mobility Management Plan.

Note 2: Phase 1 has certainty in its calculation, however, Phases 2 & 3 are targets that need to be reviewed at the appropriate time. These targets may also be amended depending on modal shift, level of access to CIT, future volumes of non-peak traffic and future occupancy densities.

In potential employment terms, the above capacities correlate to the following employment targets. It should be noted that a proportion of the parks users shall be third level personnel fulfilling varying functions within the park.

Table II: Employment Phasing

CSIP Phase	Park Users
Phase 1	1,320 employees/students
Phase 2	4,500 employees/students
Phase 3	11,354 employees/students

Note 1: The above figures are based on current assumptions and will be impacted upon by modal shift, level of access to CIT, future volumes of non-peak traffic and future occupancy densities.

Movement within the park seeks to minimise the impacts of vehicles on the design and operation of the facilities. Hence, it is proposed that grouped parking shall be provided at the south and north of the park, with limited parking available within each Precinct. This shall allow for the Precincts designs to be practical but also people centred and not defined by access and parking.

xiii. Precinct Plan Guidelines:

As stated, this masterplan sets the strategic framework within which 'Precinct Plans' shall be developed toward a shared vision.

The varying landscape throughout the site lends this project an opportunity to create a highly distinctive plan in terms of design and layout, while also providing a high quality campus environment.

Hence, a dual layered development strategy is envisaged. The first layer identifies design parameters specific to each precinct, while the second layer identifies development parameters that apply to all precincts within the CSIP. This methodology ensures consistency of

implementation throughout the CSIP, allied with appropriate location specific priorities.

Section 17 of the masterplan identifies and outlines the characteristics and specific development guidelines for each Precinct. It contains both qualitative and quantitative criteria within which future 'Precinct Plans' shall be framed.

In addition, design and layout principles that shall apply to all precincts are established, as follows:

- Use innovative design appropriate to their location
- Ensure visual and operational co-ordination with adjoining building / precincts
- Create human scaled precincts and inter – connections
- Ensure sustainable and efficient management of resources such as water, infrastructure, energy and waste – during both construction and operational phases – towards a carbon neutral campus
- Future proofing for projected climate events
- High quality connectivity for pedestrians and cyclist, while minimising the use of the private car
- Co-ordination with CSIP mobility management principles
- Detailed analysis and treatment of precinct boundaries to achieve seamless integration
- Integration and enhancement of biodiversity
- Incorporation of cultural features
- Minimal hard standing
- Avoid exposure of building plant and other external services facilities

These principles inform the appendices to this masterplan. as well as the specific Precinct Guidelines. The appendices contain the principles that are common to all precincts and address the issues of green infrastructure, waste management, energy, mobility and design. The above principles also underpin the CSIP Design Statement and planning consent process as outlined in Appendix 8.

xiv. Masterplan Appendices:

The masterplan appendices cover eight important elements toward the creation of a successful science and innovation park at this location. It is envisaged that the actions and principles identified in these appendices

shall guide the future operation of the park and the design of the 'Precinct Plans'.

The appendices included are as follows:

Appendix 1 – Key Actions

Appendix 2 – Green Infrastructure Management

Appendix 3 – Waste Management

Appendix 4 – Energy Management

Appendix 5 – Mobility Management

Appendix 6 – Sustainable Design Principles

Appendix 7 – Construction Management

Appendix 8 – CIP Design Statement and Planning Consent Procedures

The Key Actions identified in Appendix 1 seek to set out the critical elements in the delivery of a successful science and innovation park, in the post-masterplan phase. As stated previously, science and innovation parks are both traditional and non-traditional development forms in many regards and require to be developed, managed and operated with this in mind.

Appendices 2 to 7 seeks to establish guiding principles that shall inform, in particular, the development of 'Precinct Plans'. However, these appendices also recognise that a significant opportunity exists to develop the park as a best practice template in itself, related to on-site research and commercial activities. To exploit such opportunities, the park's management will need to have an active role in this regard.

Appendix 8 sets out how the use of a Design Statement can create a focus for the Precinct design teams and the planning authority, in order to achieve the overall objectives of the CSIP, as well as the design principles of the masterplan as set out in Appendices 2 – 7.

xv. Development Contributions:

Contributions payable in respect of developments within the Cork Science and Innovation Park will include the following:

- Cork County Council's General Contribution Scheme, provided for under Section 48 of the Planning and Development Act, 2000.

- Special Development Contributions, provided for under Section 48 of the Planning and Development Act, 2000.

Special Contributions are required in respect of specific exceptional costs incurred by Cork

County Council in the provision of infrastructure and facilities which benefit the proposed overall development and are not covered by the General Contribution Scheme. All developments within the masterplan site shall be subject to both the General and Special Development Contribution Schemes.

Special Contributions shall be allocated on a pro-rata basis, linked to the benefit accruing to the development from the works undertaken to facilitate that proposed development.

Section 47 Agreements shall be used as an implementation tool for the provision of strategic infrastructure to serve the project and its transfer to Cork County Council. In the absence of agreement, Cork County council will use Compulsory Purchase Orders where necessary.

xvi. Appropriate Assessment & Strategic Environmental Assessment:

Strategic Environmental Assessment:
The masterplan site has been included as a Special Policy Area (X-01) in the *Carrigaline Electoral Area Local Area Plan 2011*. The development principles for the site are included in the Local Area Plan and the objective of X-01 identifies the key components of the site following the preparation of the master plan.

The principles behind the selection of the site and the composition of the land uses, has been subjected to a Strategic Environmental Assessment (SEA) in the *Carrigaline Electoral Area Local Area Plan 2011*. This Masterplan has also been subjected to SEA.

Habitats Directive Assessment:
Habitats Directive Assessment (HDA), also known as Appropriate Assessment, is provided for under EU Habitats Directive 92/43/EEC as transposed into Irish Law through the European Communities (Natural Habitats) Regulations, 1997, SI no. 94 of 1997. The directive indicates the need for plans and projects to be subject to Habitats Directive Assessment if the plan or project is not directly connected with or necessary to the management of a Natura 2000 site, but is likely to have a significant effect either individually or in combination with other plans or projects on the site.

xvii. Masterplan Review:

Having regard to the long term nature of the project, it is appropriate that this masterplan and its targets be reviewed at an appropriate time along the critical path of the park development.

Phase 1 of this masterplan is based on certainties regarding existing access provision, and existing / planned supporting infrastructure. With regard to the latter, the water and sanitary infrastructure

currently planned for will be sufficient to cater for the full quantum of future development envisaged for the park.

In Phases 2 & 3, it has been necessary to derive some assumptions regarding access capacity and modal shift in particular. Hence, it is appropriate that before the floor area quantum identified in Phase 2 is activated, that some review in undertaken in this regard – and again prior to Phase 3 being activated.

xviii. Summary Tables:

Below and overleaf are tables setting out the quantum of development ultimately envisaged for this project and the infrastructural works required to facilitate development within each Precinct. Again, while Phase 1 can be activated immediately, the final quantums will only be realised on the provision of increased vehicular access and significant modal shift.

Table III: Quantitative Allocations:

Quantitative Allocations*		
Phase	**CSIP Total**	**By Precinct**
Phase 1	42,240m²	Precinct 1- 10,189m²** Precinct 2- 12,460m² Precinct 3- 5,914m² Precinct 4- 4,806m² Precinct 5- 8,870m²
Phase 2	144,000m²	Precinct 1- 17,000m² Precinct 2- 42,500m² Precinct 3- 20,200m² Precinct 4- 34,200m² Precinct 5- 30,100m²
Phase 3	363,320 m²	Precinct 1- 43,000m² Precinct 2- 107,350m² Precinct 3- 51,150m² Precinct 4- 86,100m² Precinct 5- 75,750m²

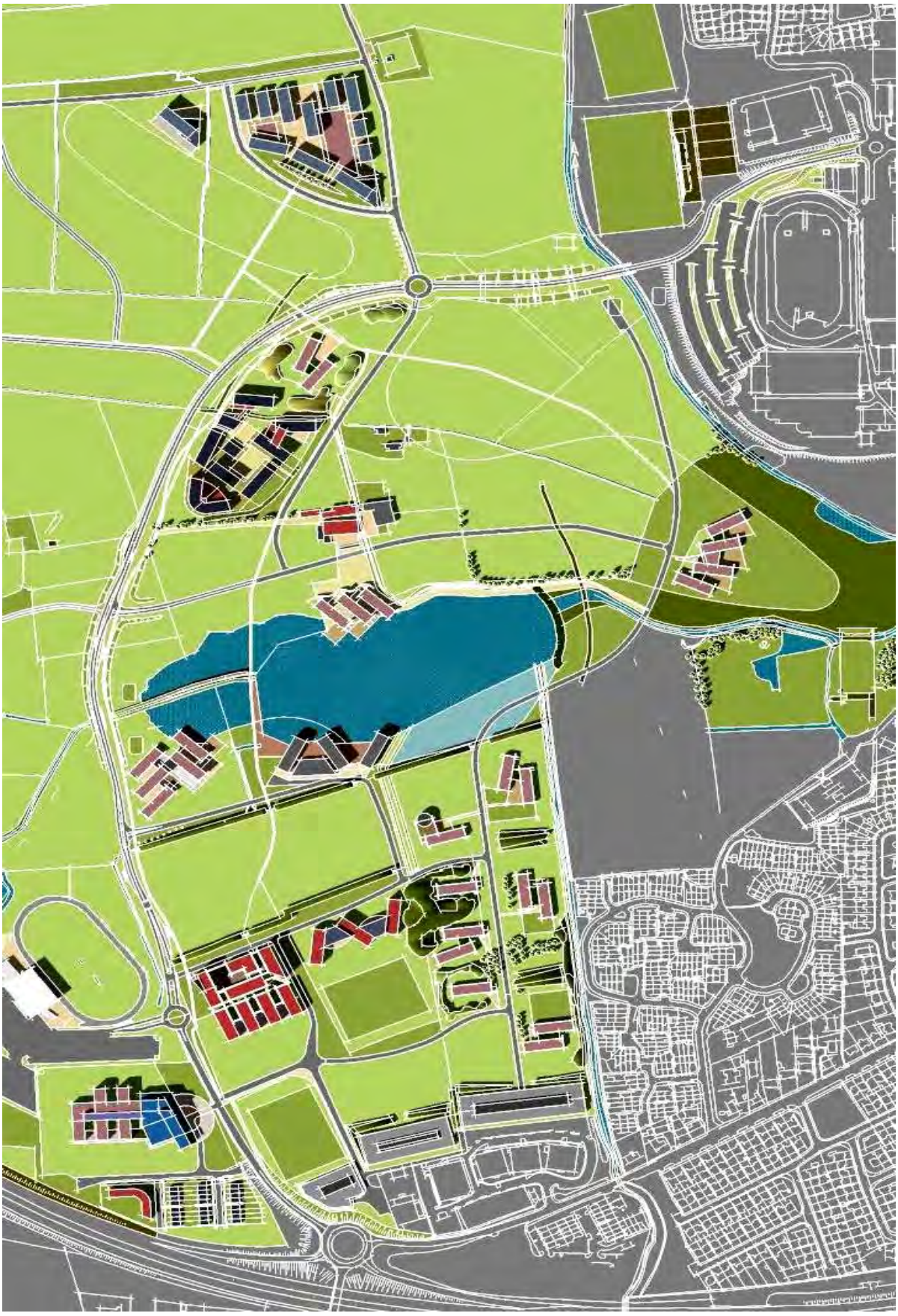
*Note: The floor areas referred to above are running totals. The above figures should not be added.
** Note: The allocation to Precinct 1 in Phase 1 has been weighed in favour in recognition of its likely early commenced of development and its previous zoning designation.

Table IV: Individual Precinct Infrastructure Requirements:

Precinct	Phase 1,2 & 3 Vehicle Capacity Upgrade Works	**Connection to Inchigaggin Sewer	Watermain Connection from Bandon Road R/A	Significant Flood Attenuation Measures	Main Internal Access Road Construction	Bridge Construction over the Curragheen River	Collector Sewer or Additional Wayleave To Gain Access to Primary Sewer
Precinct 1	√	√					
Precinct 2	√	√					
Precinct 3	√	√	√	√	√		
Precinct 4	√	√	√		√	√	
Precinct 5	√	√	√		√	√	√
Precinct 6	√	√	√		√	√	

*Note: Electrical and communications infrastructure to a level suitable for a high calibre Science and Innovation Park must be provided to all precincts.

** Note: An access road will be required to the Pump Station for maintenance requirements



Maturing Science And Innovation Park – Artist's Impression

Foreword

We are at the beginning of a dramatic physical transformation of our cities and their hinterlands. Less sustainable isolated and suburban development patterns need to be replaced by more modern and intelligent built forms, underpinned by clear social and economic goals. These adjustments promise a more sustainable future, both environmentally and economically.

From this, a new landscape form is emerging. It is one that represents a hybrid of the best of urban, suburban and rural development patterns, based on a solid foundation of sustainable economic and environmental principles. It also recognises the need to create robust settlement patterns that are less vulnerable to future economic and resource-related adjustments.

Science & innovation parks, also referred to as innovation parks, science and technology parks, technopoles, etc., are identified as a critical element of our future economic infrastructure and underpin the model of the smart economy. They are based on the concept of clustering and seek to achieve a number of key goals. These are;

Figure i: Cork Science & Innovation Park – Aerial View

- To encourage and support the start up and incubation of innovation led, high growth, knowledge based businesses
- To provide an environment where larger and international businesses can develop specific and close interactions with a particular centre of knowledge creation for their mutual benefit
- To have formal and operational links with centres of knowledge creation such as universities, higher education institutes and research organisations

In best practice models, the above is achieved in a high quality employment setting that is designed to attract highly skilled personnel and encourage interaction thereafter.

The principles that underpin the Cork Science & Innovation Park (CSIP), its location and site characteristics are key elements in the delivery of this conceptual shift. Formerly part of the strategic green belt separating Cork City and the Metropolitan Ring Town of Ballincollig, its selection for the provision of a critical element of modern economic infrastructure represents a forward looking approach that is commensurate with the principles of smart growth.

Specifically, the site is located within a comfortable walking and/or cycling distance from Bishopstown and Ballincollig settlement areas, as well as from Cork City where it is already serviced by two public bus routes. Furthermore, it is located along the planned future Rapid Transit Route westwards from the city.

Figure ii: Potential Bus Rapid Transit Link

Figure iii: Curragheen River

Figure iv: University College Cork

Figure v: Cork Institute of Technology

Connectivity is a fundamental requirement in provision of effective and efficient land use planning. The CSIP site location is appropriate as a future strategic employment location in this regard. It is already well served by bus public transport, with potential for enhanced future connectivity via the planned Rapid Transit System.

The CSIP site is an attractive and varying landscape that lends itself to the creation of an aesthetically and environmentally attractive employment/innovation centre. The inefficiencies of stand alone and isolated development patterns are now clearly understood and the CSIP has the potential to add, in a sustainable manner, to the existing land use matrix that exists to the west of Cork City. This will allow for the next tranche of knowledge based inward investment in this region to be fully integrated with the main centres of population and their cultural and educational institutions.

However, in addition to the above critical physical linkages, it also provides a number of key elements required to facilitate a successful science & innovation park. Connections to Higher Education Authorities, both physical and operational, are of paramount importance to the long-term success of the knowledge based economy at both national and regional levels. Studies show that survival rates of new technological based firms with HEI links are significantly higher than similar firms without linkages. Uniquely, the CSIP is located adjoining the Cork Institute of Technology, is readily accessible from the primary campus of University College Cork and approx. 20% of the site area is owned by UCC.

Hence, the design/layout of this park and its physical/operational linkages to its key stakeholders are based upon the latest expression of physical and economic development principles. These core principles are based not just upon the needs of future sustainable economic development in the region, but also the future sustainable requirements of Cork City and its hinterland.

1. Introduction

Innovation parks are a critical piece of modern economic infrastructure. They strive to create an attractive and dynamic environment that facilitates the interaction of academics, researchers, entrepreneurs and support personnel within the research and product development fields. This interaction, in turn, drives the innovation process. Successful science & innovation parks are an important delivery mechanism and growth engine for the evolving economy towards an innovation led economic base.

However, science & innovation parks must be used efficiently and intelligently as part of a co-ordinated strategy. Linkage to and co-ordination with national, regional and local policies and to their relevant representative bodies is critical. The proposed Cork Science & Innovation Park (CSIP), if developed and managed to a high standard, has the potential to be an important element of the regional and national economic infrastructure.

This Masterplan is based upon a strategy of developing an innovation park in accordance with best practice, by harnessing and developing the existing national and regional competitive advantages in co-operation with higher education authorities, government agencies and private enterprise, to create business led innovation. It is envisaged that this masterplan will guide the park to achieve capacity within approx. 25 years.

Science & innovation parks compete internationally and are a key component in our national and regional capacity to compete at this level. Hence, the CSIP's layout and facilities must be commensurate with the park's strategy, with a view to international competition between regions. However, the facilities provided must also be defined according to the needs of local companies and of foreign companies that the park wishes to attract. The success of this park on a local level is essential to its international appeal.

Based on international best practice models, attributes valued in part or wholly by prospective tenants include;

- High quality & sustainable environment and infrastructure
- Clear vision underpinning park development
- Visibility
- High quality linkages within and outside the park
- Clear and appropriate admissions policy
- Prestigious occupier profile

Science Park – Granta Park, Cambridge, U.K

- High quality public transport service to/from park
- Interaction with higher education authorities – physical and operational
- Linkages to hierarchy of state services
- Linkages to related businesses
- Range of buildings that allow for evolving and differing users needs
- Sufficient scale of development land
- Flexible letting arrangements
- Access to quality-of-life services
- On-site business support services
- On-site formal and informal meeting places
- Conference and 'reality of life' facilities to serve park users

For every innovation park there must be a definite strategy for development and growth of business, one which includes a real estate strategy to match this growth. It is not economically practicable to frontload the provision of all park user services, having regard to the long term nature of the project and the absence of supporting critical mass in the initial stages. Hence, the provision of services to support on-site activities must be phased in accordance with the evolving needs of the park.

It is critical that an effective delivery mechanism and governance structure is employed to facilitate the needs of prospective tenants while simultaneously ensuring that the principles that underpin the park's strategy are supported. To this end, a specific land use category for the park has been incorporated into the *Draft Carrigaline Local Area Plan* published in 2010.

This masterplan incorporates analysis of the existing site features and systems, its locational context, the park's strategy and objectives, international best practice models and sustainable planning principles including biodiversity, energy, transportation, design and infrastructure. It is not the intention of this masterplan to repeat analysis already undertaken, specifically with regard to the Feasibility Study commissioned by Cork County Council and undertaken by *Atkins* (2008). Rather this masterplan seeks to build upon the data and analysis presented therein.

While it is the goal of this masterplan to give clear direction in the development of the Cork Science & Innovation Park, it is also desirable to allow sufficient flexibility to accommodate the evolving future needs of the park users. However, this plan and its proposed supplementary appendices give clear guidance in terms of building locations,

building types, initial floor areas and appropriate categories of use, in accordance with the *Draft Carrigaline Local Area Plan* land use zoning objectives.

This masterplan is intended to act as the principle land use guidance document that will underpin the future planning and development of the site. However, it is not an end in itself, and requires monitoring and appropriate future modifications as may required.

Cambridge Science Park, U.K

1. Introduction

- Critical piece of modern economic infrastructure
- Innovation process at its core
- Used efficiently and intelligently
- Competes internationally
- High quality environment
- Use of international best practice
- Delivery strategy
- Governance model

Figure 1.1: Cork Science & Innovation Park – site extent map

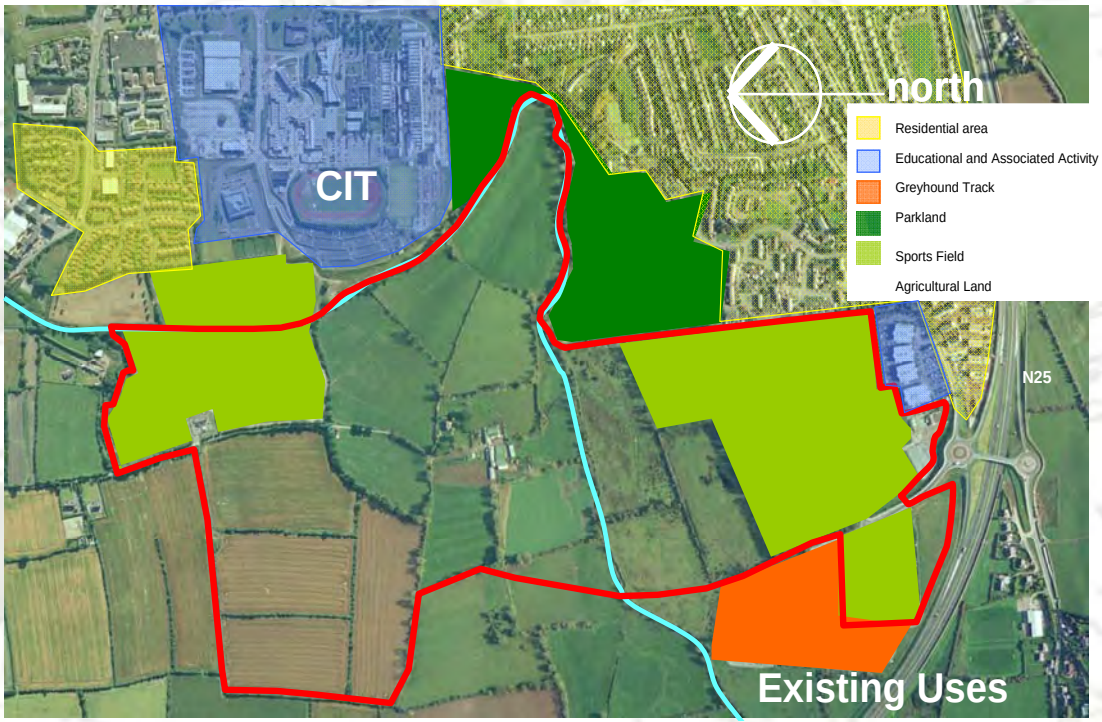


Figure 1.2: Cork Science & Innovation Park – land use context

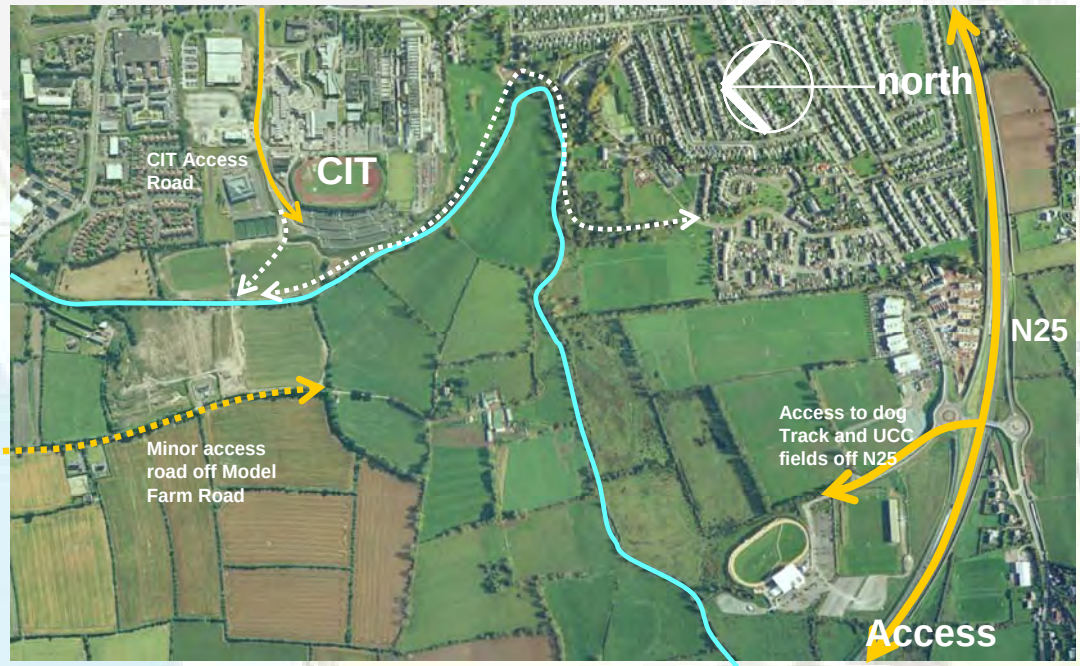


Figure 1.3: Cork Science & Innovation Park – access routes

2. Masterplanning

Masterplanning is an effective tool when adopting a strategic approach to a long term project. Depending on particular circumstances, science, innovation and technology parks take many years to reach a sustainable critical mass. Within that timeframe, and particularly in the early years of development, it is important that all stakeholders have a shared vision and clarity of purpose that informs subsequent decisions.

Historically, science, innovation and technology parks have largely been developed on an ad hoc basis. As a result the physical layout of many such parks is disjointed and does not contribute effectively to the innovative process that underpins the park's function.

Furthermore, absence of a long term vision for the physical development of parks has contributed to inefficiencies in terms of building design, overall layout, sustainability, accessibility, quality of architecture and quality of environment. These factors are critically important in the underpinning of the long-term innovative process, in the attraction of personnel/investment and in the creation of a high quality 'park brand'.

Hence, in reaching its conclusions, an innovation park masterplan must be cognisant of the vision for the future economic role of the park, its locational context and nearby land uses, existing site constraints and opportunities, environmental and economic sustainability considerations and the creation of a high quality international science & innovation park brand.

In order to inform this masterplan, Cork County Council has commissioned a number of informing reports. These include:

- Traffic and Access Study leading to a Transportation Masterplan and Mobility Management Plan for the CSIP
- Flood Study to identify the extent of flooding within the CSIP site and potential solutions within the most affected areas
- An ecological study, to inform the Flood Study
- A desktop Cultural Heritage Assessment for the CSIP site

These plans are in their final stages of preparation. The necessary information required to inform the Masterplan has been extracted and set out in the plan. On completion, all informing studies will be made available.

3. Policy Context

The concepts that inform the Cork Science & Innovation Park span a spectrum of land uses, economic policies and practices. The park will be, at the one time, a strategic employment location, an educational campus environment, a place of business, a public transportation node and an amenity area. In additional, it represents a modern development that must be set within current land use and design best practices.

Hence, this masterplan document seeks to build upon commonalities of varying usages, while balancing effectively competing design requirements. To this end, the document has regard to the following primary policy documents and guidelines;

National Climate Change Strategy 2007 – 2012

National Development Plan 2007 – 2013

National Spatial Strategy 2002 and Update 2010

Atlantic Gateways Initiative 2006

Transport 21: 2006 – 2015

Smarter Travel: A Sustainable Transport Future 2009 – 2020

South-West Regional Planning Guidelines 2010 – 2022

Cork Area Strategic Plan Update 2008

Cork City Development Plan 2009 – 2015

Cork County Development Plan 2009 – 2015

Carrigaline Electoral Area Local Area Plan 2011

Cork County Heritage Plan 2005 - 2010

Cork County Biodiversity Action Plan 2009 - 2014

Cork Area Transit System Study 2009

Best Practice Urban Design Manual 2007

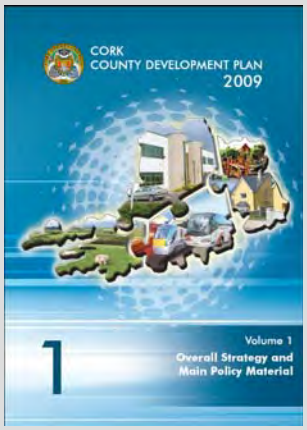
Sustainable Development – A Strategy for Ireland 1997

Spatial Planning and National Roads (Draft) 2011

Strategy for Science, Technology and Innovation 2006 – 2013

Innovation in Ireland 2008

Trading and Investing in a Smart Economy 2010



Science, Technology and Innovation: Delivering the Smart Economy 2009

Building Ireland's Smart Economy 2008 & 2010

Strategic Environmental Assessment and Habitats Directive Assessment

County Cork Heritage Plan 2005 – 2010

County Cork Biodiversity Action Plan 2009 – 2014

In addition, the CSIP project must comply with all national and EU legislation as appropriate to the project.

3. Policy Context

- Multi-functional project
- Land use & economic policy context
- Set within wider development context

4. Vision

In order to be effective, a masterplan must be informed by a clear initial vision and clarity of purpose. Such a vision encourages both capital and personnel investment, as well as allowing for the original vision to be monitored and redefined in accordance with the changing economic and social context within which it exists.

It is the vision of the Cork Science & Innovation Park to;

To be Ireland's first science and innovation park, in collaboration with the third level institutions and enterprise agencies, which will be recognised internationally for its proactive role in stimulating research, innovation and technology led business activity, and supporting tenants / occupiers to maximise their business success

The means to achieving this vision are set out in the following sections, and seek to achieve the delivery of high quality and functional buildings, infrastructure, landscape and governance.

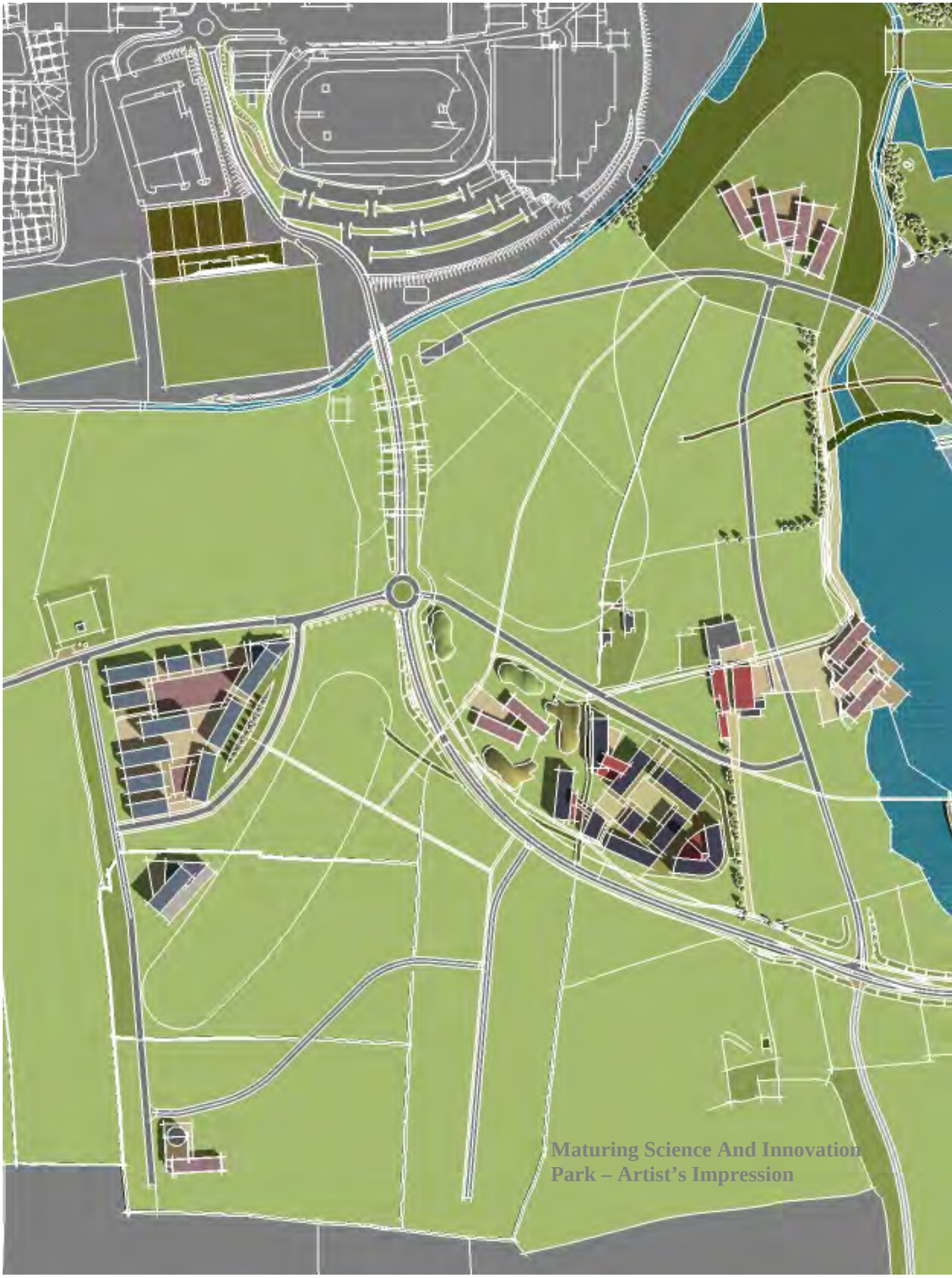
The vision of the CSIP, as set out, demands a dynamic and evolving approach that reflects the goal of supporting economic innovation. The categories and nature of research and product development shall evolve across the lifetime of the park, however, the underling processes that enable and support these changes will remain fundamental.

The critical vehicles identified herein to deliver the CSIP vision are as follows:

- Governance / Delivery Structure & Management Procedures
- Appropriate Facilities
- Quality of Environment

4. Vision

- Clarity of purpose
- Shared guiding vision
- Underpinning of future decisions
- Dynamic and evolving
- Innovation theme



Maturing Science And Innovation Park – Artist's Impression

Maturing Science And Innovation Park – Artist's Impression

5. Masterplan Principles:

The viability of this project is ultimately determined by the appropriateness of the facilities it provides. Having regard to the specialised nature of the project, and specifically the wide range of attributes that prospective tenants require, the term 'facilities' incorporates a range of activities. These include appropriately designed and scaled buildings, supporting landscape, management structures & business supports – all contributing to and underpinned by the park brand.

This project requires a clear initial development focus, but has a long-term development horizon. Hence, the CSIP needs to be capable of meeting the evolving needs of its potential tenants – in accordance with its Local Area Plan zoning and its own stated vision.

This masterplan identifies certain key quantitative and qualitative development parameters applicable to the park. Within these parameters, particular development clusters (hereafter referred to as Precincts) can grow toward a shared final vision.

In order to achieve its stated vision and objectives, the masterplan is based upon a number of key principles, as follows:

- To be aligned with the hierarchy of national and regional statutory land use planning policies and guidance, as well as with third level educational institutions
- To reinforce the land use planning policies for the area west of Cork City and to positively integrate the CSIP with the surrounding land uses for mutual benefit
- To conform, whenever possible, in all aspects with the best practice requirements for science & innovation parks
- To create a strong visual presence for the park via high quality design and siting of buildings
- To ensure that individual development precincts align with an overall and clear park development strategy
- To safeguard institutional and capital investment in the project by ensuring a long term and phased strategic approach
- To build upon the existing public transport services and promote pedestrian and cycling accessibility to create sustainable integration with the wider metropolitan area
- To ensure that the type, scale, location and phasing of all development, and the guiding principles, are realistic
- To develop a self-sustaining governance regime to manage, monitor and review the principles of the CSIP

6. Masterplan Objectives:

The purpose of this masterplan is to develop a physical framework document to guide the future development of the Cork Science & Innovation Park. It is not an end in itself, rather it is a guidance document that sets the long term vision for the project and also identifies the initial actions required towards realising that vision.

This is a long term project, with a development horizon of approx. 25 years. Hence, this masterplan will be required to be revised and updated during its lifetime. The initial Masterplan Objectives are as follows:

- To set the development framework toward the creation of a leading edge science & innovation park, by international standards
- To identify the initial development phases and key actions required to realise the CSIP vision
- To encourage and facilitate the use of leading edge design and layout principles in order to create a sustainable and future-proofed innovation park
- To encourage and facilitate sustainable building designs that produce competitive long term real estate offerings
- To utilise the development project as a learning experience to inform future related development
- To facilitate the physical integration of the park with its immediate surrounds and wider metropolitan area
- To ensure that the built forms within the CSIP meets the functional and personal requirements within its spectrum of users
- To create a high quality and sustainable natural environment within the park
- To enable the creation of a distinct innovation park brand that underpins its future success
- To promote modal choice that involves a move away from the private car and to embracing other, more sustainable, modes for movement of people to and from the area, through mobility management and transport demand management

7. Consultation

As part of its Feasibility Study Report, *Atkins* consulted with a wide range of key stakeholders, including key economic and infrastructure investment bodies. These included;

- University College Cork
- Cork Institute of Technology
- IDA Ireland
- Enterprise Ireland
- Science Foundation Ireland
- Higher Education Authority
- Cork City Council
- National Roads Authority
- Bus Eireann

Building on this established consultation process, the masterplan design team also met on a number of occasions with landowners, as well as the Advisory Board established to guide the project.

A number of site visits were undertaken to European science parks to investigate best practice models. These visits were underpinned by a significant review of related literature.

The inputs arising from the Feasibility Study Report and those from landowners were combined with best practice model findings to inform this draft masterplan document.

In addition, statutory consultations were undertaken with the public and stakeholders as part of the Local Area Plan process undertaken by Cork County Council, ultimately informing the zoning of these lands.

7. Consultation

- *Atkins'* consultees
- Landowners
- Existing science parks
- Best practice models
- Local Area Plan process

8. Development Context:

The following section expands upon the policy context as set out and highlights the future role of the Cork Science & Innovation Park in the strategic development of the Cork Region.

The proposed CSIP represents the physical manifestation of the hierarchy of national economic policies and national, regional and local land use plans, directed at ensuring sustainable social and economic regional development.

Relevant national/regional reports and policies for economic and land use planning in Ireland include:

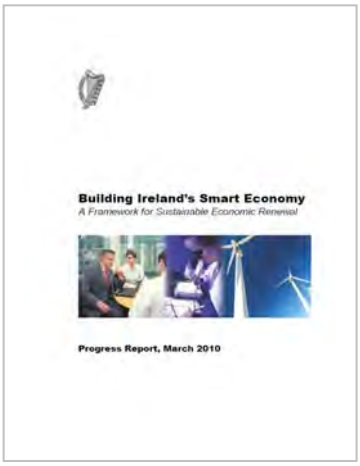
• *Science, Technology and Innovation, Delivering the Smart Economy 2009*
Government Policy seeks to rediscover and embed the fundamental principle that a small, open economy must compete globally and be competitive at this global level. This principle needs to shape our responses in sustaining efficiencies and drive higher value added output across the economy.

Secondly, Ireland needs to invest in its research base as an important cornerstone to underpin future competitiveness and capacity to innovate. A strong science base matched by an evolution in the capacity of our enterprise sector to create knowledge, to innovate, and to exploit new knowledge across global markets is critical to Ireland's future.

• *Jobs and growth 2010*
It is recognised by Government that significant investment in R&D, universities, colleges and industry is required to provide the skills and technologies that will give Irish companies a global advantage.

• *Trading and Investing in a Smart Economy 2010: A Strategy and Action Plan for Irish Trade, Tourism and Investment to 2015*
Key actions to support the implementation of this strategy include:
- Developing a strong international reputation for Ireland in high-growth markets and repositioning our reputation in existing markets through a joined-up approach
- Developing cohesive marketing messages for distinct markets combining economic, tourism and cultural identities
- Developing and internationalising our enterprise base
- Developing Ireland as a hub for global high technology enterprises and clusters

• *Building Ireland's Smart Economy 2008 & 2010*
Five action areas identified are as follows:



- Securing the enterprise economy and restoring competitiveness
- Building the ideas economy – creating 'The Innovation Island'
- Enhancing the environment and securing energy supplies
- Investing in critical infrastructure
- Providing efficient and effective public services and smart regulation

This document places a strong emphasis on innovation, the need to take a comprehensive view of innovation and recognises that innovation does not only occur within science and technology.

• *National Competitiveness Council / Forfas Report on 'Our Cities: Drivers of National Competitiveness 2009*

This report highlights that successful countries and regions must have successful city based urban areas at their core. Hence, it is crucial that both national and regional policies support the development of our main city areas, and that regional / local implementation reflects this focus. NCC supports the promotion of Dublin as a key driver of national competitiveness while also recognising the need to develop other cities to ensure they achieve the critical mass required to compete internationally.

• *Smarter Travel: A Sustainable Transport Future 2009 - 2020*

This policy document sets its key targets as:
- Future population and employment growth will predominantly take place in sustainable compact forms, which reduce the need to travel for employment and services
- 500,000 more people will take alternative means to commute to work to the extent that the total share of car commuting will drop from 65% to 45%
- Alternatives such as walking, cycling and public transport will be supported and provided to the extent that these will rise to 55% of total commuter journeys to work
- The total kilometres travelled by the car fleet in 2020 will not increase significantly from current levels
- A reduction will be achieved on the 2005 figure for greenhouse gas emissions from the transport sector.

• *Spatial Planning and National Roads (Draft) 2011*

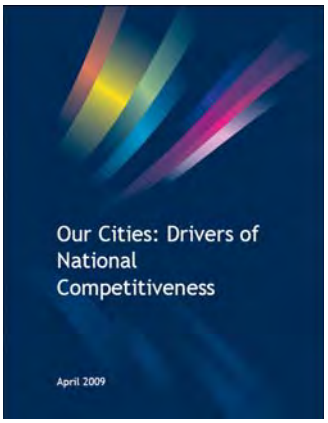
These guidelines set out planning policy considerations relating to development affecting national roads outside the 50-kph speed limit zones for cities, towns and villages, including motorways, national primary and national secondary roads.
The key principles are that:

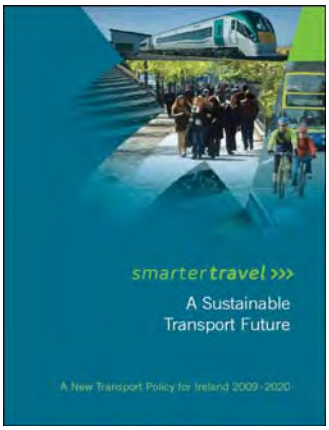
- Land-use and transportation policies are highly interdependent
- Plans must enable development and development should be plan-led
- Planning Authorities and the National Roads Authority must work closely together in integrating land-use and transport planning
- Effective development management is the key to implementing plans
- Planning plays a major role in ensuring high standards of road safety

Integration between land use and transport planning has a key role to play in delivering better social, economic, and environmental sustainability. Planning decisions can deliver patterns of development that are more sustainable in economic, social and environmental terms. This can be achieved via:

- Development plans must include measurable objectives for securing more compact development that reduces overall demand for transport and encourages modal shift towards sustainable travel modes
- Planning authorities should consult at a very early stage with transport infrastructure providers
- Development plans must include clear policies and objectives with regard to planning and reservation of new routes and/or upgrades
- Development plans must include policies which will ensure that investment in national roads will be safeguarded by preventing the premature obsolescence of those roads as a result of inadequate control on frontage development
– Planning authorities and the NRA will work together to identify where a more flexible approach will apply
– NRA will consult with Planning Authorities regarding proposals for the future development of the National Road network

The Key Steps required to achieving the above are:
Step 1: Identifying and approaching the key stakeholders in developing an integrated approach
Step 2: Confirmation of the national and or higher level policy context for the plan proposals
Step 3: Developing evidence based approaches such as traffic models, including agreement between stakeholders in relation to acceptable data and assumptions
Step 4: Identification of demand management and mitigation measures to
minimise the transport impact of the plan
Step 5: Identification of any infrastructural enhancements required and phasing
Step 6: Agreement between stakeholders on an agreed funding and delivery strategy.





• *Cork Area Strategic Plan 2001 – 2020 & Update 2008*

The Cork Area Strategic Plan is the principle region-based strategic land use framework within which the Cork County Development Plan and, by extension, this masterplan operates. In 2008 CASP published its Update Report.

It is the stated aims of CASP to set out a framework that will assist the Cork City region to:

- Attain critical mass
- Integrate land use and transport
- Make efficient use of investment in infrastructure
- Provide a high quality environment
- Improve the competitiveness and attractiveness of the region

In considering potential alternative approaches, CASP identified a number of key features in the formulation of potential approaches, as follows:

- The need to ensure a diversified economic base which encompasses high value-added economic activities in foreign-owned industry and domestically owned internationally traded services, and which minimises the risks attending over-emphasis on any one sector, or a limited number of potentially vulnerable sectors.
- The need to address specific issues within the CASP region in terms of localised social exclusion and economic deprivation/high unemployment;
- At a spatial level, the need to bring into closer alignment the location of jobs with that of population so as to minimise unsustainable commuting patterns and maximise the usage of existing and proposed infrastructure
- The need to ensure a labour and skills strategy which provides an education and skills base which is aligned with the requirements of inward and domestic investment and industry locating in the CASP region
- The projections also take account of the fact that some employment will need to be located in major population centres

Population and employment targets in excess of 110,000 additional population and 45,000 additional jobs are set out by CASP Update 2008 for the CASP study area up to 2020. It is anticipated the in excess of 30,000 additional population shall be provided for in Cork City, with over 63,000 in the Metropolitan Area within this period. It should be noted that the employment targets are net increases after potential job losses are accounted for.

In terms of delivery, the CASP Update focuses employment generation on those employment sectors in which there are existing or emerging strengths in the CASP region. These include, ICT, pharma, life sciences, medical technologies and bio-pharma sectors.

CASP identifies the importance of employment and population being located in the same place or in close proximity, in order to reduce commuting and enhance sustainability. This principle guides the proposed realignment of the CASP spatial strategy, with increased population being targeted for the Cork City and Metropolitan Cork, where there are significant existing employment opportunities. CASP also highlights that, in cases where co-location of population and employment is not feasible, locations that can be linked via rail or potential rapid transit corridors should be prioritized.

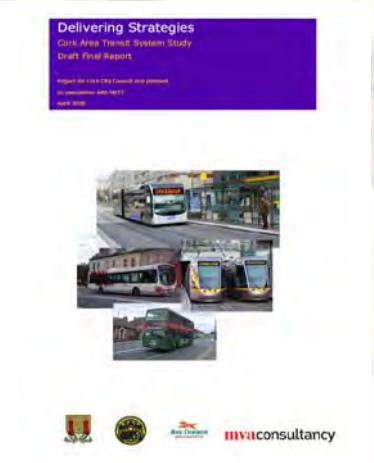
CASP Update identifies the following key elements in the delivery of its economic strategy:
• Front loading of infrastructure
• Implementation of an effective skills strategy
• Sustainable land use planning
• Marketing of the CASP region

CASP recognizes that, if it is to realise its economic development goals, there will be a need to enhance the overall supply of specialist skills to reflect the evolving structure of economic activity and employment into the future. Hence, an alignment of third and fourth level education to support the targeted expansion in business, financial and other services is required.

CASP identifies the need for a science park as a suitable location to encourage the intensification of linkages between the research community and industry. It identifies Curragheen as one location option in this regard.

• *Cork Area Transit System Study - Preferred Strategy*
The preferred CATS Strategy includes the following key component:
- The development of a single Rapid Transit Corridor, running from Ballincollig to Mahon, via the City Centre and Docklands.

It is recommended by CATS that the Rapid Transit Corridor be implemented in a phased manner as follows:
- Phase 1a, from Docklands to Bishopstown, with services commencing operation in 2014
- Phase 1b, from Bishopstown to Ballincollig, with services commencing operation in 2017
- Phase 2, from Docklands to Mahon, which is assumed to commence operation in 2020, but is dependent on the adoption of a LAP for the Mahon area to increase development in this area beyond levels envisaged by CASP Update



- The phased implementation of an enhanced and reconfigured bus network.
- The implementation of a City Centre Traffic Management Plan

In addition to the above core measures, CATS recognises the need to implement supportive land use policies to intensify development along the Rapid Transit Corridor in a manner that supports the delivery and success of the system. This is particularly important in the context of a growth scenario less than that which was envisaged at the time of preparing CASP Update.

Discussion:
Having regard to the scale of the CSIP site, and having regard to its scale, location and economic context, the CSIP must be considered as a future strategic employment location. Future strategic employment locations can be described as containing the following key characteristics:

- Contain high quality sites which are attractive to national and international investors
- Have good road and multi modal choice; cycling, walking and public transport accessibility
- A clear identity/ brand and future vision
- Accommodate development which could not equally be accommodated elsewhere
- Economic sustainability, targeted to support specific sectoral needs, such as knowledge based services located close to universities,
major hospitals / other research establishments

As set out in CASP, employment locations must be linked to population centres and served by effective public transport. The CSIP site is currently served by relatively high quality existing bus public transport and this will be enhanced with the future provision of the Bus Rapid Transit system.

CASP has clearly identified the future challenges to the Cork region in terms of creating population critical mass in sustainable locations that will underpin future strategic investment. CSIP reinforces this strategy, in that, within the future spatial patterns advocated by CASP it is a sustainable location that can benefit from - and create critical mass toward – an urban based sustainable region.

Furthermore, future growth is directly linked to the provision of additional 3rd and 4th level graduates to assist in the drive to diversify our future economic base in the

region. The CSIP will play a significant role in facilitating this diversification.

Hence, in association with parallel national and regional initiatives, the CSIP can provide all the required characteristics of a high quality strategic employment location targeted at the innovation sector.

8. Development Context

- National & regional economic policy
- National & regional land use policy
- Strategic employment location
- Diversification of regional economic base

9. Land Use Zoning & Uses

The *Draft Carrigaline Local Area Plan 2011* sets out the specific zoning objective for the lands that comprise the Science & Innovation Park, as follows:

Specific Zoning Objective
X-01: Science, Innovation and Technology Park A. To develop a science, innovation and technology park that accord with the highest European standards. B. The development of this site will accord with a Masterplan to be approved by Cork County Council. The Masterplan shall include provision for: • High quality park environment, focussed on retention of the natural environment and priority for pedestrians and cyclists • Provision for incubator units, grow-on units and stand-alone units that meet the users evolving needs • Appropriately phased development that reflects the potential for early phasing of the previously zoned X-01 lands under the 2005 Carrigaline Electoral Area Local Area Plan. • Admissions policy to the park to ensure its future occupiers are appropriately engaged in science, technology and innovation activities • Proposals to facilitate vehicular, public transport, cyclist and pedestrian access to the site • Proposals for enhanced accessibility to Cork Institute of Technology via Science Park • Access by public bus and future Bus Rapid Transit • Mobility plan for movements to/from the Science Park and within the Science Park • Appropriate provision for public access to Science Park amenities • Appropriate road access • Sustainable infrastructure provision that reflects the distinct infrastructural circumstances of each development area within the park • Detailed flood risk assessment • Develop linear park / water feature adjoining Curraheen River • Provision of high quality telecommunications • On-site energy generation appropriate to the Science Park's needs • On-site enterprise, business and leisure support services in accordance

with the Science Park's needs

C. Buildings constructed on the site will be primarily used for the following purposes:

a. Manufacturing, production and service delivery activities that use high-added value technologies or are related to research or higher education institutions

b. Research activities that are technologically innovative or involve experimentation

c. Postgraduate or other specialised training activities linked to third level institutions

d. Where it can be demonstrated that the proposed activity directly supports existing on-site or planned uses under 1.a to 1.d as set out, within the following use categories:

- Business Support
- Conference facilities
- Leisure
- Restaurants and appropriate shops
- Accommodation for park users

D. The CSIP will provide for appropriate governance structures for tenant selection in accordance with C as set out above.

E. Parts of this site are at risk of flooding. Any development proposals on this site will normally be accompanied by a flood risk assessment that complies with Chapter 5 of the Ministerial Guidelines 'The Planning System and Flood Risk Management' .

The above zoning objective both informs and reflects the development strategy for the Cork Science & Innovation Park. At its core is the concept of research and innovation, as well as the recognition that product and service innovation occurs across many sectors.

Innovation, by definition, is a dynamic process that has change and renewal as its central themes. Hence, it is not the intention of the above zoning objective to limit unduly the potential future activities within the Cork Science & Innovation Park.

However, in tandem with this flexibility, is the requirement to ensure that the innovative processes that underpin the park's function are not undermined by inappropriate uses. To compromise the

park's functionality in this regard, and hence its brand, would undermine the institutional and capital investment in the project. Furthermore, and critically, it would alter the real estate offering from being a conduit for modern economic infrastructure to a traditional mixed use development. If such a scenario was allowed to occur, it would represent an inefficient use of a strategically important land bank within the region.

Hence, the future delivery strategy and governance of the Cork Science & Innovation Park is a vital component of its future success.

Potential Future Park Layout – Artist's Impression

9. Land Use Zonings & Uses

- Draft Carrigaline Local Area Plan 2011
- Dynamic innovation process
- Efficient use of strategic investment
- Governance

10. Governance, Monitoring & Masterplan Delivery Strategy

Having regard to the very specific nature of this real estate project, it is important that the vision, zoning objective and targeted end users for this project are safeguarded – particularly during the park's infancy. As previously set out, innovation is the binding activity within the park and can occur across a wide spectrum of land uses.

Hence, the identification of the research and/or innovation basis of the proposed activity, or its beneficial linkage to same, will be required to be identified prior to acceptance into the Cork Science & Innovation Park. This vetting of future users requires a range of expertise that is unlikely to be found in a particular individual. Therefore, an intake committee (or similar) comprised of key stakeholders and particular expertise is envisaged as part of the management structure, to ensure the integrity of the park.

This intake assessment process will play a vital role in the successful development of the park, as well as guiding the planning authority in its formal planning application assessments of potential users.

One of the initial Key Actions (see Appendix 1) proposed under this masterplan is the establishment of a governance body that identifies the park champion(s) and establishes appropriate management structures. The function of the park champion(s) is to articulate and advance the project vision, while appropriate management and monitoring structures are needed to ensure the integrity and viability of the project as it develops.

Having regard to the multiplicity of land ownership and key stakeholders, the configuration of the above structures should reflect the range of stakeholders involved.

The masterplan uses the concept of Precincts, which are distinct development areas linked and managed by common principles towards a common set of goals. Each Precinct represents a single piece of the larger park and it is envisaged that each Precinct shall be developed independently, but in a co-ordinated fashion, towards the creation of a logical science and innovation park layout. It is envisaged that each Precinct shall develop a 'Precinct Plan' that shall set out how the development shall be structured toward achieving the park's final vision. The use categories identified in the *Carrigaline Electoral Area Local Area Plan 2011*, the quantums identified for each Precinct by phases – see Section 17, and the design guidelines outlined in the Appendices shall guide these 'Precinct Plans'.

A critical feature of this approach is its concurrent delivery and monitoring methodology, rather a sequential one. This approach recognises the varying infrastructural challenges that each Precinct area has to overcome and maximises the opportunity for development to proceed. Hence, the required infrastructure to 'unlock' the development potential of each Precinct is identified and it is envisaged that as each Precinct addresses the required infrastructure provision development can then proceed. This allows each precinct to develop as an independent entity toward a shared vision. Having regard to the long term nature of the project, this approach is advantageous in that it allows for each Precinct to grow at its own pace and avoids unnecessary project delays.

It is recognised that this project has particular characteristics that set it apart from many other land use developments. In particular, the long term nature of the project, its particular target users and the critical role that branding plays, is reflected in the need to create a particular delivery mechanism to allow the project to succeed.

Hence, this masterplan sets out both quantitative and qualitative criteria that all development must adhere to toward a shared final vision.

The quantitative criteria are allocated on a Precinct basis, with each Precinct area having been assessed for it carrying capacity and opportunities, within the context of the final vision for the park. Hence, each Precinct has a defined quantum of development, allocated in three phases.

Qualitative criteria specific to each Precinct are set out in the Precinct Guidelines that guide development within that Precinct – see Section 17. In addition, principles common to all Precincts and that reflect the physical vision of the project, are set out in the Appendices that shall underpin future formal applications for development within the park.

It is envisaged that, within this quantitative and qualitative structure, detailed 'Precinct Plans' shall be submitted to the planning authority for approval and shall form the vehicle for delivery of the built forms called for in this masterplan. 'Precinct Plans' shall articulate the physical and operational solutions for each development area, within the parameters as set out herein.

While these 'Precinct Plans' shall be based upon the criteria as set out in the

masterplan, it is anticipated that the future Precinct design teams shall build upon this foundation to create high quality science and innovation park facilities.

As set out in Appendix 8, all formal land use planning application proposals submitted to the planning authority for assessment should be accompanied by a brief outlining the research and/or innovative nature of the activity proposed.

It is envisaged that post-adoption of the masterplan and the necessary environmental assessment(s), planning consents for development within Precincts can be sought as soon as development rights and planning consents for the supporting infrastructure are established.

The masterplan is structured in order to facilitate development at the earliest opportunity and to avoid any unnecessary delays. Having regard to the scale of the project, it is possible that specific Precincts may encounter localised difficulties in advancing development proposals. Hence, the infrastructural requirements of each Precinct are set out independently and, once addressed, development can proceed.

Post-masterplanning, monitoring of key characteristics that inform the CSIP brand is critical. As stated above, future park governance and management must protect the integrity of the project while also advancing the key goals. These goals include the identification of appropriate tenants/users, appropriate facilities provision and appropriate operation of the park.

Operations include the achievement of a significant shift to non-private car use associated with the park and the park management, in conjunction with the CSIP Mobility Management Plan and modal shift targets as sets out in the Masterplan, shall have a key role in advancing and monitoring this process.

10. Governance & Masterplan Delivery Strategy

- Safeguard vision
- Targeted users
- Role of management / governance
- Development Precincts
- Concurrent delivery methodology
- Monitoring

11. Facilities & Phasing Overview

The shared final vision, as represented in this masterplan and guided by future governance structures, will be built upon an on-going needs and demand analysis for the park. Such on-going analysis and monitoring will be one of the core functions of the future park management team.

Hence, another Key Action proposed under Appendix 1 of this masterplan is the commissioning and on-going review of a needs and demand analysis for the park.

The facilities provided for within the park stem from the *Draft Carrigaline Local Area Plan 2011* zoning and are categorised as follows:

- Incubator spaces/suites
- Grow-on facilities
- Stand alone premises
- Research facilities
- University linked training facilities
- Support facilities, including,
- Business support
- Conference Facilities
- Leisure facilities
- Restaurants and appropriate shops
- Accommodation for park users

Initially, demand may well be low for ancillary support facilities such as retail, leisure, restaurants, etc., and existing nearby facilities offering such services will have a role to play. However, where and when demand by park users or higher education institution personnel occurs, commensurate facilities will need to be provided – see section 12 also. It is envisaged that meeting occupants' ancillary needs (for eating and socialising) can be provided as part of the initial buildings within each Precinct.

International experience shows that the provision of an incubator/innovation centre and training space is an important initial requirement for a successful science and innovation park. Hence, these facilities must form part of the initial phase of the project.

In addition to the built form facilities, as listed, the creation of a high quality, mobile and accessible campus is critical in the creation of a successful innovation park. While each precinct design should be in accordance with the highest design standards, the landscape between the precincts must be of a form and layout that is attractive, encourages mobility, assists the innovation process and contributes positively to the park brand. Hence, a specific parking and mobility strategy is advocated herein as outlined in Section 13 and Appendix 5.

As critical as when the project begins, is the identification of a shared final vision for the Cork Science & Innovation Park. Given that the optimum road access route provides access of services to all precincts within the park, there is no obvious preferred sequencing of development, subject to supporting infrastructure being in place to serve each Precinct. Precincts 1 and 2 have existing road access in place and, hence, subject to water services being in place, the Masterplan facilitates these Precincts commencing development as soon as is practicable.

However, the construction of the entire road as planned is critical to the success of the project. Interaction between the CSIP and the HEIs (UCC & CIT) is of paramount importance in the creation of a successful science and innovation park. The interactions between HEIs and enterprise is at the core of the CSIP concept.

The following table identifies the infrastructure required to allow development to proceed on a Precinct basis:

Table 11.1: Individual Precinct Infrastructure Requirements:

Precinct	Phase 1,2 & 3 Vehicle Capacity Upgrade Works	**Connection to Inchigaggin Sewer	Watermain Connection from Bandon Road R/A	Significant Flood Attenuation Measures	Main Internal Access Road Construction	Bridge Construction over the Curragheen River	Collector Sewer or Additional Wayleave To Gain Access to Primary Sewer
Precinct 1	√	√					
Precinct 2	√	√					
Precinct 3	√	√	√	√	√		
Precinct 4	√	√	√		√	√	
Precinct 5	√	√	√		√	√	√
Precinct 6	√	√	√		√	√	

*Note: Electrical and communications infrastructure to a level suitable for a high calibre Science and Innovation Park must be provided to all precincts.

** Note: An access road will be required to the Pump Station for maintenance requirements

Clearly sufficient infrastructure in the form of road/pedestrian/cyclist access, water supply, foul sewer, surface/storm water disposal, flood attenuation and landscaping will be required to be provided to unlock the development potential of the Precincts, but to varying degrees. Once the infrastructure is in place to serve any Precinct or sufficiently advanced, individual precincts

can begin their design and development in accordance with the relevant precinct guidelines.

The following paragraphs set out the phasing quantums for the park:

Initial Carrying Capacity – Phase 1:
A capacity study undertaken by Cork County Council of the existing site access indicates that, subject to relatively minor modifications and appropriate mobility management implementation, 42,420m² of floor space can be developed initially. Hence, the first phase of the project as proposed herein shall provide for facilities to support approx. 1,320 park users.

This floor space is allocated on a Precinct basis, relative to the ultimate carrying capacity of each Precinct, the nature of the uses therein and to reflect the level of infrastructural requirements necessary to be provided to 'unlock' the development potential of each Precinct.

(In the event of the final findings of the transportation study identifying additional access capacity to serve the CSIP in Phase 1, this additional capacity will be allocated on the same pro-rata basis as undertaken for Phase 1 in the Masterplan, without the requirement to formally amend the Masterplan).

Interim Carrying Capacity – Phase 2:
Additional development in excess of the volumes identified for Phase 1 but below that of Phase 3 (the park's ultimate carrying capacity) can be achieved with further improvements to the park's access arrangements and further mobility management measures, once Phase 1 provides sufficient critical mass for implementation of the more ambitious measures set out in the Mobility Management Plan. This improvement can be achieved via increased capacity at the existing junction serving the site or via alternative access arrangements.

The options in this regard are set out overleaf:

Table 11.2: Potential Access Capacity Upgrade Options:

Option No.	Potential Access Capacity Upgrade*
1	Upgrade Works to N25 Curraheen Junction
2	Upgrade of existing access from north
3	New road access onto Curraheen Road east of N25 Junction
4	Possible auxiliary lanes on N25 between Bandon Road and Curraheen Junctions.

*In association with CSIP Mobility Management Plan and demand management

It is proposed herein that a future detailed access capacity study be commissioned and undertaken during Phase 1 of this project to reflect the success of Phase 1 and to review and update the Transportation Masterplan and Mobility Management Plan in advance of the development of subsequent phases. See Key Actions – Appendix 1. Having regard to the context of the park's location, a number of alternative actions are possible or a combination of these alternatives.

Long Term Vision – Phase 3:
Factoring in the long-term and evolving nature of the project, the prediction of an exact total quantum of floorspace or a specific breakdown of floorspace to each use category requires the making of a number of assumptions. However, examination of existing science & innovation park best practices and users requirements/preferences, coupled with an analysis of on-site constraints/opportunities, gives guidance as to an appropriate density of development applicable herein.

The site is approx. 100 hectares in total site area, however, 10 hectares are currently used as important sporting facilities for CIT. Hence, the reckonable gross land mass is taken initially as 90 hectares. The detailed analysis of the site has identified 61.2 hectares of gross developable lands.

It is envisaged that the ultimate carrying capacity can only be achieved after significant progress on modal shift is achieved in the earlier phases and only after the provision of the planned rapid transit system for the Metropolitan Area and the completion of the Cork Northern Ring Road Northern and Western Sections. The proposed rapid transit system will facilitate the achievement of significant modal shift to public transport, as well as extensions to the existing public bus routes currently

terminating at the park's boundaries (no.s 5 & 8 bus services). When these improvements are in place, and also on the basis that the rapid transit system directly serves the CSIP, it is envisaged that the carrying capacity of the park is 363,320m² of floorspace with continued and enhanced Mobility Management. This latter quantum results in a plot development ratio of 0.4 for the overall site, with site coverage within the developable areas at 20%. Ultimately, the Masterplan envisages the CSIP to reach this carrying capacity when fully mature.

However, this quantum of floorspace will be developed over approx. 25 yrs and, hence, demand on resources will occur only in tandem with floorspace allocation. Furthermore, the development will not be evenly distributed throughout the site but is allocated appropriately in accordance with site specific considerations and the park vision.

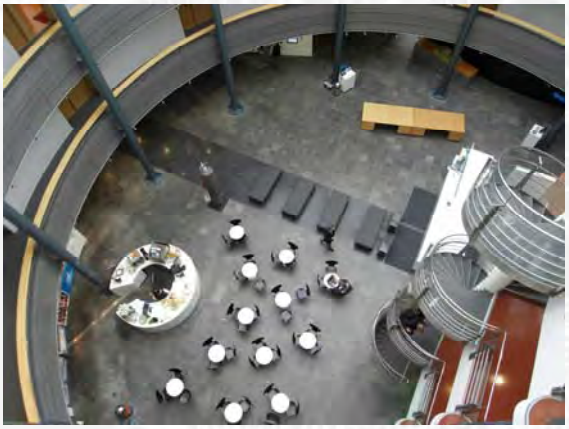
Based on a floor space allocation of 32m²/per employee (in line with comparable project ratios), the above floorspace provision has the potential to accommodate in excess of 10,000 employees / students linked directly to CSIP activities. (The exact employment quantum will be impacted upon having regard to the proportion of floor area used directly for third level education purposes).

Supporting transport infrastructure – vehicle access and multi-mode (walking, cycling, public transport) connectivity - is not currently in place to facilitate a strategic employment location of this scale from the outset. Hence, the initial phase of development shall reflect the existing site carrying capacity, in association with actions to achieve real modal shift.

Phase 2 development is envisaged as 144,000m² in total (figure includes the 42,420m² of Phase 1). An interim review of this masterplan is advocated prior to Phase 2 floor areas being activated.

Refer to Section 13 (Mobility) for further access and phasing details.

12. Science & Innovation Park Hub



Best practice examples highlight the central role of the park 'Hub' in its contribution to the long term success of science & innovation parks. In a well functioning and dynamic park the Hub is the heartbeat of the facility.

It is, logically, where the park's central management services are located and where the support services to business enterprise operate from. In addition, a range of ancillary support services such as retail and other reality of life spaces can be accommodated – supported in turn by easy access from all areas of the park, as well as by public transport.

In essence, the Hub fulfils the role of the town centre. It contributes positively to the vitality and organisation of its operational hinterland and allows for the critical massing of services. Having regard to the park's potential scale, this town centre type role is of paramount importance in the context of the CSIP potential to become a strategic employment location with employee numbers in excess of 10,000.

The Hub does not have to be a single building, as it can be an amalgam of structures that provide a range of supporting services. As for all development precincts within the park, these Hub structures should be designed to incorporate elements of public realm also. Such spaces are demonstrated to contribute positively to the user experience, the park brand and are also critical to the innovation process via the creation of informal / casual meeting spaces.

However, town centres can only function effectively if sufficient supporting population is present. It is envisaged that, in the case of the CSIP, the level of supporting population that can realistically be achieved in the early development phase of the park will be less than that necessary to support the level of facilities considered desirable in the medium to long term. Hence, and having regard to its function as outlined above, a central location within the park is reserved to accommodate the future Hub to serve a well advanced innovation park.

It is important to highlight that within the spatial hierarchy of the CSIP, additional support services in the form of appropriately scaled café/restaurants or similar facilities, as well initial business enterprise supports, can - and should - be located within each Precinct. These facilities can be integrated within individual buildings or can be designed as grouped facilities – in essence a Precinct hub. However, the scale of such facilities should be commensurate only with the scale of the demand that can be demonstrated within the particular precinct.

However, it is also recognised that an initial building on-site is an important first step in the development and promotion of the CSIP. International practice indicates that often an 'advance' building is constructed to accommodate a mix of early users including park management, incubation units, enterprise agencies, university facilities, first tenants, etc. This building forms the springboard from which the park can steadily develop.

Such initial buildings can range in scale, depending on the identified users' needs. It is envisaged that for the CSIP an initial anchor building of approx. 5,000m² - 7,500m² could have the capacity to adequately accommodate a range of users that would provide momentum to the project and would also provide the appropriate on-site presence of key stakeholders.

Having regard to the key role that such a building would play in the promotion of the CSIP, it is possible that this building will be needed in advance of Precinct Plans being granted planning consent. Hence, and having regard also to the relatively small scale of the building, when taken in the context of the overall carrying capacity of the CSIP, the impacts arising from this building would be minimal. Such a building, due to its relatively small scale, would not compromise the future development of the Precincts or the park in general.

The Masterplan recognises the critical role an initial building would play, as outlined, and also the minimal impacts such a development would have on the future development of the park – in organisational or environmental terms. Therefore, if consent is sought for such a building it is not considered necessary for it to be informed by a specific Precinct Plan. Similarly, if not deemed to require a sub-threshold EIS it could proceed on this basis.

Such a building should be viewed as a specific, stand-alone and important initial element of the CSIP. Furthermore, such a building could be located within any of the Precincts, however, having regard to its early timing it is likely to be located in either Precinct 1 or 2, where road access already exists.

With regard to on-site accommodation, it is not envisaged that owner occupation housing units will be provided within the CSIP. However, rental accommodation for UCC / CIT students, as well as visiting

research and short-term contracted personnel, is appropriate to the park. Where such accommodation is provided, some additional small scale retail/services would be appropriate.

The most appropriate location – although not exclusively so, for accommodation is close to resident's parking. Hence, it is logical that such accommodation be located in the vicinity of the locations identified for the northern and southern future grouped parking areas.

12. Cork Innovation Park Hub

- Important, long-term, role of Hub
- Akin to town centre
- Centrally located
- Cluster of facilities
- Requires supporting critical mass
- Small scale precinct services appropriate
- Initial 'anchor' building important

13. Mobility

This section is sub-divided into two sections, addressing external and internal accessibility. Modal shift away from private car use is a key feature of the CSIP project, ultimately contributing to the creation of a high quality, sustainable and effective employment location. Cork County Council has commissioned a Mobility Management Plan to inform this shift.

External Accessibility:
It is a goal of this masterplan to ensure that the CSIP is a place dominated by people, not vehicles. In discussing urban locations, suburban locations are also relevant. Aligned with the principles of smart growth, suburban locations offer significant opportunity for sustainable development. However, critical to sustainability is the provision of public transport and the enhancement of walking and cycling routes. The CSIP site location is such a place, offering many of the transport advantages of an urban location together with the landscape advantages of a greenfield, peri-urban site.

For the CSIP to successfully develop there has to be a real change in modal choice involving a move away from the private car towards embracing other, more sustainable, modes of access. This requires a built environment that encourages other access modes and a 'buy-in' by park employers and employees – not just as planning application stage, but in the culture and work place policies of the organisations.

The masterplan is based on actively planning for change and creating an environment / networks that can support a change in modal choice, providing for the efficient movement of people to and from the area.

The growth potential for the area should not be based on traditional 'predict and provide' models, rather it must be based on constraining private vehicular access and promoting alternative access modes. The Council is taking a leading role by developing an area wide Mobility Management Plan for the CSIP. All planning applications within the masterplan area will have to demonstrate how they accord with this wider Mobility Management Plan. It considered that this holistic approach to driving modal shift can be of significantly greater benefit than a series of often disparate individual mobility management plans.

It is critical that the CSIP Mobility Management Plan and traffic growth is reviewed regularly so that compliance with mobility targets and

growth in private car trips can be kept under review and, if necessary, policies reviewed accordingly and/or development phasing amended. The potential to develop the CSIP is directly related to the commitment of businesses to accord with stated Smarter Travel targets.

Internal Accessibility:
Internal to the site, it is also intended to create a series of formal and informal walks and civil spaces for interaction, while still allowing for circulation by public transport buses, shuttle vehicles, access for persons with disabilities, construction and emergency vehicles, and controlled private vehicle volumes. In creating this person centred campus, the CSIP would achieve some of its core aims;

• To build upon the existing public transport services and promote pedestrian and cycling accessibility to create sustainable integration with the wider metropolitan area

• To encourage and facilitate the use of leading edge design and layout principles in order to create a sustainable and future-proofed innovation par

• To create a high quality and sustainable natural environment within the park

• To enable the creation of a distinct innovation park brand that underpins its future success

Places where we work for long periods ought to be places where high quality buildings and vibrant outdoor spaces are found. This was, in fact, often the case until relatively modern times when private vehicle ownership became prevalent. Many European capitals still provide excellent examples of good urban spaces that are peaceful and yet vibrant – achieved in large part by the prevention of car dominance. These cities and places are sought after as places to work and live, tending as a result to attract high level of inward investment.

Public realm is the host for community interaction and such interaction is central to the maintenance of the CSIP concept. It depends on a high level of shared experiences, expectations and goals, that can best be achieved by creating a high quality shared working environment. Such an environment, by its definition, should be people centred and not dominated by ancillary activities – such as vehicles used for access only.

It is noted that circumstances will arise where vehicles will need to access all areas of the CIP campus. These include public transport vehicles and vehicles for maintenance, deliveries, emergencies, construction and disabled-person access. It is also recognised that certain volumes of private vehicle access to Precincts shall be required. Hence, Precincts will be required to be vehicle accessible, but not vehicle centred.

As outlined in Section 14, access to the site is both an opportunity and constraint. Having regard to the existing bus public transport services adjoining the site and extendable, routes no.'s 5 & 8, as well as the potential for access via a future Bus Rapid Transit System, the park is potentially very well serviced by public transport.

Vehicle access to the site is from the existing junction on the N25 to the south. A study of this junction undertaken by Cork County Council has identified that this junction currently has an existing capacity. With relatively minor modifications, it will be possible to increase this junction capacity to facilitate 42,420m² of development in Phase 1 in association with active mobility management planning. To accommodate Phase 2 and Phase 3 development quantums additional modifications / alternative access arrangements, as well as significant modal shift to public transport, shall be required - as outlined in section 11.

Table 13.1 below sets out the linkage between access and development quantums within the CSIP (subject to the realisation of the modal share targets to be set out in the Mobility Management Plan):

Table 13.1: Target Development Floor Areas:

CSIP Phase	Vehicle Access Capacity	Works Required	Total Development Floor Area
Phase 1	600	Minor improvements to N25 junction, provision of additional walking. cycling access	42,240m²
Phase 2	1,350	Increased vehicle access capacity to CSIP & increased modal shift to public transport	144,000m²
Phase 3	2,850	Increased vehicle access capacity to CSIP & modal shift to public transport in line with Smarter Travel targets	363,350m²

cntd. overleaf

Note 1: The above figures include assumptions on modal shift (non private vehicle use) at 20% for Phase 1, at 40% for Phase 2 & at 50%for Phase 3, supported by the CSIP Mobility Management Plan.

Note 2: The above figures also include allocations of access capacity to CIT (200 vehicles in Phase 1). No impact on the existing N25 junction arising from Phase 1 allocation to CIT is assumed due to existing use of this junction by CIT generated traffic.
Note 3: Phase 1 has certainty in its calculation, however, Phases 2 & 3 are targets that need to be reviewed at the appropriate time. These targets may also be amended depending on modal shift, level of access to CIT, future volumes of non-peak traffic and future occupancy densities.

In terms of park users numbers, the above access and floor area volumes result in the following projections:

Table 13.2: Projected Park User Volumes:

CSIP Phase	Park Users
Phase 1	1,320 employees/students
Phase 2	4,500 employees/students
Phase 3	11,354 employees/students

Note 1: The above figures are based on current assumptions and will be impacted upon by modal shift, level of access to CIT, future volumes of non-peak traffic and future occupancy densities.

Modal shift and parking management are inter-related. It is important to encourage use of public transport, but also not to set the bar too high initially. Hence, it is envisaged that modal shift shall occur at the following rates:

Table 13.3: Modal Shift Targets:

CSIP Phase	Modal Shift
Phase 1	20%
Phase 2	40%
Phase 3	50%

Note 1: The above figures are targets on which certain assumptions in the masterplan relating to access and parking are based. The achievement or otherwise of these targets does not undermine the project, but rather only sets the context for future assessment / review of the plan in the context of development volumes achieveable.
Note 2: The above targets do not include for car sharing. When the anticipated vehicle occupancy of 1.4 is taken into account, the modal share for private car driver journeys as a percentage of total journeys is 36% - well ahead of the Smarter Travel target of 45%.

The number of parking spaces required in Phases 1, 2 & 3 of the park's development will vary as the user numbers grow and the modal shift increases.

It is anticipated that, based on a 50% modal shift, parking for approx. 4,000 vehicles will be required when the park is at maturity.

In order to facilitate Precinct designs that are person centred and defined by landscape rather than parking areas, the significant proportion of these parking spaces will be facilitated within two grouped parking areas – north and south of the park. The use of two grouped parking areas will facilitate ease of access to all Precincts within the park.

A proportion of this parking, however, should be available within Precincts in order to facilitate specific Precinct parking

requirements. Hence, each 'Precinct Plan' should accommodate 20% of its final parking requirement.

In Phase 1, however, the quantum of floor area will be lower than Phase 3. Hence, the parking requirement shall be significantly lower in Phase 1, as set out below:

Phase	Precinct Floor Area	Precinct Parking Spaces
Phase 1	Precinct 1- 10,189m² Precinct 2- 12,460m² Precinct 3- 5,914m² Precinct 4- 4,806m² Precinct 5- 8,870m²	Precinct 1- 212 Precinct 2- 260 Precinct 3- 123 Precinct 4- 100 Precinct 5- 185

Note: Based on 20% modal shift and 1 employees per 32m² and 1.2 persons per car journey.

It is envisaged that at these parking requirement levels, Phase 1 parking in totality can be provided within each Precinct. As Phases 2 and 3 develop a shift to grouped parking areas shall be facilitated with the final on-site Precinct parking not exceeding 20% of the final parking requirement for each Precinct.

It is clearly critical that, prior to Phase 2 development commencing, appropriate grouped parking facilities are provided as set out. It is also critical that a managed and co-ordinated approach to parking is adopted within the park in order to promote modal shift and achieve efficiencies in terms of transportation. This is seen as a central function of the future park management.

In order to support this managed approach to access, and by extension, parking, each Precinct Plan will be required to submit a Traffic and Transport Assessment that includes a Mobility Management Plan that accords with the CSIP Mobility Management Plan.

In addition, specific tenants matching or in excess of certain thresholds will be required to submit to the planning authority for approval Travel Plans that give effect to the Precinct Mobility Management Plans. The appropriate thresholds (Gross Floor Area) in this regard are as follows:

- CSIP Residential Units: 100 units
- Offices / Laboratory / Employment Spaces: 1,000m²
- Restaurant / Cafe: 500m²
- Leisure facilities: 500m²
- Hotel: 100 bedroom
- CSIP Retail: 500m²
- CSIP Non-Food Retail: 500m²

If the park is to develop as a person centred location, connectivity between Precincts is very important. It is envisaged that 'Precinct

Plans' will incorporate permeable routes through the Precinct that connect with adjoining Precincts. It is not intended herein to be prescriptive as to how this secondary connectivity is to be achieved, however, it shall form an important element of future 'Precinct Plans'.

Hence, it is anticipated that the use of grouped parking areas to service a maturing park coupled with person centred Precinct designs will achieve a high quality working environment.

The access road as proposed to serve the park both allows access to Precincts and also integrates the CSIP with CIT. This is a critical feature in the development of a successful science and innovation park – the physical and operational integration of the project with the HEIs.

The access road proposed to serve the Precincts shall have a secondary function in allowing access to the Cork Institute of Technology campus also. In conjunction with robust mobility management planning for both the CSIP and CIT, in the long term this project could have a beneficial consequence of easing traffic difficulties in the Bishopstown area. However, this is not the purpose of providing the access road, as set out above. In addition, and having regard to access volume constraints, such access will need to be controlled in order to protect the park's access capacities.

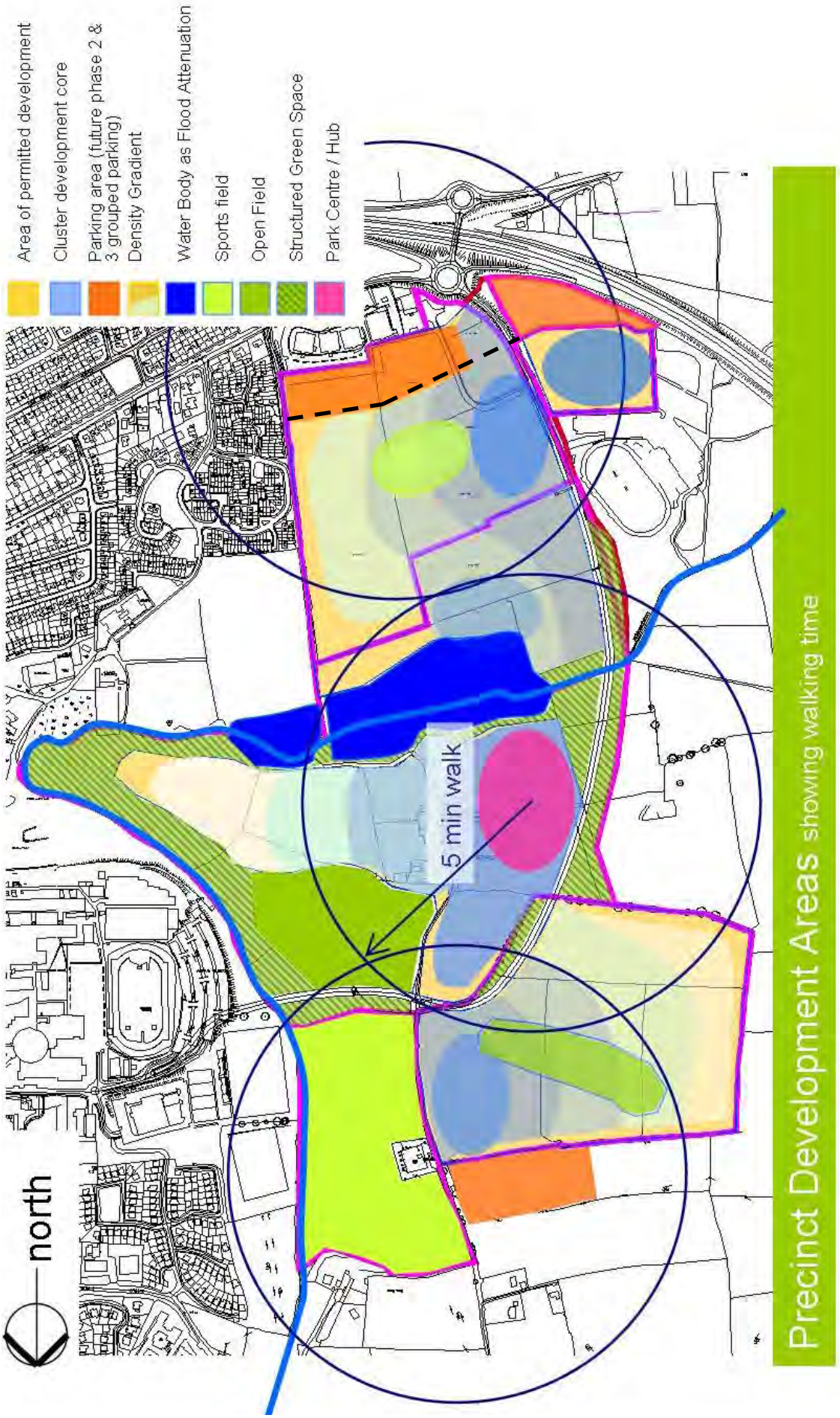
It is proposed to initially allocate 200 peak time car movements to benefit CIT. A barrier system shall be required to be employed at the new western entrance to CIT that limits access to 200 car parking spaces on the campus, while allowing bus public transport access to the park.

As stated previously, existing public bus transport – in particular the no.'s 5 & 8 routes – represent a significant benefit to the project. It is intended that these routes be extended in consultation with Bus Eireann to traverse the park. It is envisaged that this relatively simply extension of existing services will be further enhanced by the future Rapid Transit System planned for Metropolitan Cork.

Overleaf is a visual representation of the proposed movement strategy herein.

13. Mobility

- Person centred developments
- Grouped parking, but access to Precincts also
- Modal shift important as park matures
- Existing public transport available
- Future enhancements to public transport
- Access road shall also facilitate CIT needs
- Access to/from CIT requires control


Area of permitted development
Cluster development core
Parking area (future phase 2 & 3 grouped parking)
Density Gradient
Water Body as Flood Attenuation
Sports field
Open Field
Structured Green Space
Park Centre / Hub
5 min walk
north
Precinct Development Areas showing walking time

14. Site Characteristics

Site Description:

The Cork Science & Innovation Park is bounded to the north by agricultural lands and ultimately by the Model Farm Road, to the south by the N25 National Primary Route, to the east by Cork Institute of Technology and residential development, and to the west by agricultural lands and the existing Curragheen Park Greyhound Stadium.

The site is characterised by agricultural land, with hedgerows and some scrub. The ridgeline is located approximately midway between the northern and southern boundaries of the site and exceeds 30m OD in height.

The lands identified cover a total site area of approx. 100ha.

Site Access:

The existing primary vehicular access to the site is via the N25 from the south, with a laneway linking the Model farm Road to the north. It is intended to develop a road access linking the existing N25 access to the development Precincts within the park, extending ultimately to the Cork Institute of Technology campus to the east. This roadway, in conjunction with a transportation management strategy to be developed by the park governance body as the park matures, shall allow for access to the CSIP.

It is also, however, critical to the future success of the park that the existing higher education institutes have physical as well as operational links to the park. Hence, by allowing the access road to extend to the CIT campus the project will benefit significantly. A consequence of this connectivity will be the potential for the easing of traffic congestion and parking in Bishopstown - particularly in the vicinity of the CIT – in the long term. However, this benefit is subject to the development of an aggressive Mobility Management Strategy by CIT for their own campus, that is co-ordinated with the CSIP Mobility Management Plan.

The existing no. 5 & no. 8 public high frequency bus routes have their western terminals close to the site and, in consultation with Bus Eireann, can be extended into the CSIP to allow for a high level of public transport provision to serve the park. Furthermore, in the longer term, it is envisaged that the Bus Rapid Transit (BRT) service currently under consideration could traverse the site and thus create a high quality rapid transportation link to serve the CSIP.

Landscape:
The landscape character is predominately agricultural, in the form of hedgerows, trees, scrub, tillage and grassland. The lands are generally flat between the National Primary Road N25 to the south and the Curragheen River that traverses the site. To the north of the Curragheen River, the site contours rise to over 30m OD at the ridgeline. From this ridgeline the lands to the east fall again in levels, with more gently downward sloping lands at the northern portion of the site.

The park site, having regard to its varying landscape characteristics, forms a number of natural precincts – the low lying lands to the south, the higher but relatively gently sloping lands to the north and the sheltered sloping lands to the east. The intervening lands are generally either exposed ridge brow lines or are steeply sloping.

In general visual terms, the site is relatively well screened, with higher land contours immediately to the west and valley walls further to the north and south.

Ecology:
As previously stated, the CIP site is predominately agricultural and amenity lands, characterised by tillage, grassland, hedgerows, scrub and wetland.

The semi-natural habitats within the site area include rush dominated wet grassland to the south of the Curragheen River and bramble / willow / gorse dominated scrublands. The wetland complex includes small ponds, reed swamp, marsh and wet willow-alder woodland, and is reasonably diverse. Mallard, moorhen and little egret are among the waterfowl that use these wetlands.

The CSIP is not located within any Special Area of Conservation, Special Protection Area, or Natural Heritage Area. However, the watercourses that traverse the site flow into the River Lee, within 1 km of the CIP site. The Lee Valley pNHA is a designated site for protection.

While not a highly sensitive site, the ecology principles underpinning the CSIP design seek to protect the key ecological features of the site and to offset any impacts resulting from its development. Therefore, the river corridors & hedgerows / tree lines will be largely retained and the landscaping scheme for the site – including flood attenuation measures – will enhance its ecological diversity.

The above is in accordance with Cork County Council's Biodiversity Plan which seeks as its overall aim the conservation and enhancement of biodiversity, and to ensure that every person in the county has the opportunity to appreciate and understand its importance in our lives.

Archaeology & Heritage:
The CSIP contains a Recorded Monument CO073-068 Fulacht Fiadh and a newly discovered site since the publication of the Record of Monuments and Places (CO073-111 Fulacht Fiadh). Recorded Monuments are subject to statutory protection in the Record of Monuments established under section 12 of the National Monuments (Amendment) Act 1994. It is an objective Cork County Development Plan 2009 (ENV 3-2 Newly Discovered Archaeological Sites) to protect and preserve archaeological sites discovered since the publication of the Record of Monuments and Places.

While part of the ornamental gardens associated with the Bishopstown House CO074-05503 occur on the north-west side of the Curraheen river and within the CSIP area, the main part of this complex - country house site/ornamental tower/church of Ireland CO074-05501-03 and Limekiln CO074-046 - is on south-east bank of the river and immediately adjacent to the CSIP.

The Curraheen River traverses the CIT site with RMP CO073-068 fulacht fiadh identified on the south bank of the river and CO073 – 111 at the southern limits, which is one of a number in the immediate area. Fulacht fiadh can date back to the Bronze Age which begins in Ireland around 2500BC. The area surrounding the CSIP has a significant number of additional Bronze Age sites mainly fulacht fiadh with some standing stones. These monuments provide evidence of significant prehistoric activity in the area and may be the tangible physical remains of what could have been a more extensive prehistoric landscape.

Across the Curraheen river is another historic site of a much later period. These are the remains of Bishop Dr Peter Brown's (Church of Ireland Bishop of Cork and Ross 1710-1735) early 18th century residence at Bishopstown. The majority of this historic complex lies outside the CSIP development area on the south-east bank of the Curraheen River and within Cork City Council's operational area, with a small portion on the north-west side of the river and within the CSIP site area. Though the house no longer survives, there are a number of interesting features surviving which belonged to the house: the 18th century door surrounds, private chapel, remains of the terraced and ornamental gardens including bridges, limekiln and pond with a unique shell house. The two ornamental bridges provide access across the river to a small stone walled enclosure on the north-west bank of the river

and within the CSIP site. This area is also thought to be a possible burial ground but there is no physical evidence of this.

The proposed development contains a Recorded Monument CO073-068 and new archaeological monument CO073-111. The proposed park will be designed to accommodate this monument in a suitable setting. Given the known archaeological sites identified and the scale, extent and location of the CSIP, it is possible that subsurface archaeological may be present. Hence, every care will be made to identify any subsurface archaeology on the site before any detailed design/layout takes place and during construction.

Water Quality & Hydrology:
The CSIP is traversed by two rivers, the Curragheen River and the Twopot River. These watercourses meet within the CSIP site and flow northwards to join the River Lee outside of the site area.

The Curragheen and Twopot Rivers are of cobble and sand substrates and support little aquatic vegetation. There is no water quality data available from the EPA for these watercourses.

The LeeCFRAM study indicates flooding potential within the site from the Curragheen and Twopot Rivers and a detailed flood risk assessment study has been commissioned by Cork County Council. Its preliminary findings identifies the extent of flooding within the site and options regarding the attenuation of flooding located centrally within the park site.

In accordance with the delivery strategy advocated in this masterplan, infrastructural solutions to flooding and attenuation are required on a Precinct basis. Development cannot proceed within a Precinct unless issues relating to flood risk as addressed in accordance with the Flood Risk Management Guidelines 2009.

Air Quality:
The CSIP site forms part of the greater Cork conurbation, Zone B, for the purposes of air quality as designated by the Environmental Protection Agency. With regard to its location, uses and adjoining land uses, it is likely that the air quality in the area of the CSIP is well within the EPA thresholds.

Noise & Vibration:
As agricultural and amenity are the predominant land uses within the CSIP site area and education, sporting and residential

are the main adjoining uses, the primary source of noise and vibration is the adjacent primary road network. However, much of the site is insulated from these impacts due to separation distances.

In terms of noise sensitive receptors from future CSIP activities, impacts from noise and vibration on adjoining uses are unlikely. The nature of the processes undertaken within the CSIP will be relatively benign. During the construction phases, particularly in areas close to the site boundaries, some impacts are possible over a relatively short period of time. Mitigating measures to offset such impacts shall form part of all precinct development schemes.

14. Site Characteristics

- Rural character
- Well located and connectivity
- Public transport node
- Well screened visually
- Integrate biodiversity
- Protect heritage
- Flood study

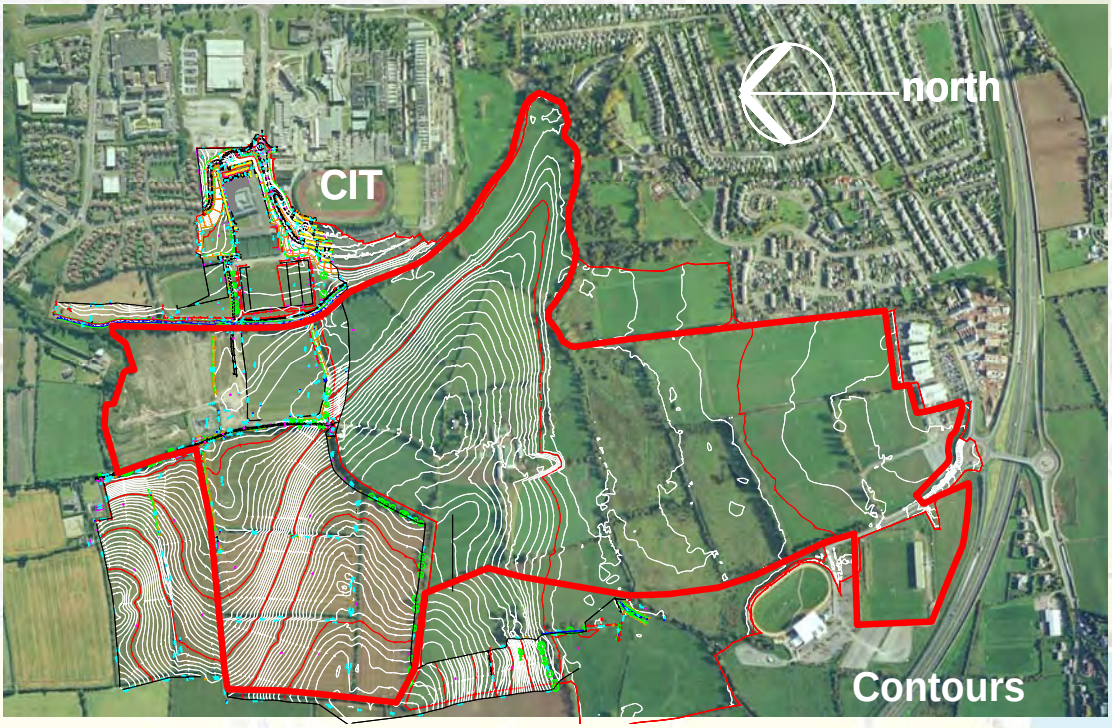


Figure 14.1: Cork Science & Innovation Park – site contour map

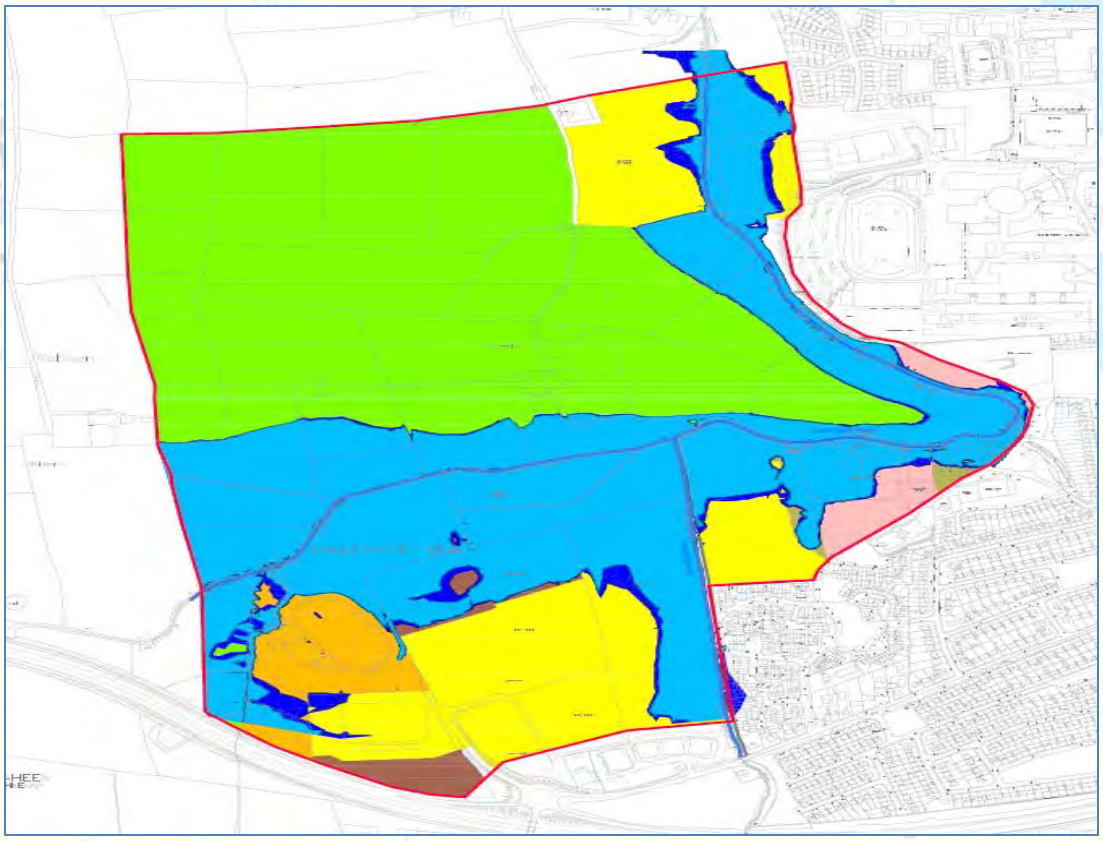


Figure 14.2: Cork Science & Innovation Park – flood extent map

15. Opportunities & Constraints

Opportunities:
The CSIP site is part of a dynamic landscape that offers significant opportunities to create an visually interesting and functionally efficient innovation park.

The existing landscape is not defined by a single characteristic, as many other innovation park locations are, but rather has a varying landscape language that can be developed upon. It is critical to retain a memory of what that landscape was, in visual and functional terms, while also creating a modern and efficient layout. This achievement would inform both the quality of experience for the CSIP users, as well as being representative of the underpinning culture of the project and its effective promotion thereafter.

In specific landscape terms, the peripheral site areas of the CSIP – and in particular the southern site areas – have the potential to accommodate landmark structures. Such structures have the potential to enhance the visibility of the site locally, while also expressing its modernity of function.

The Curragheen River is also an opportunity feature within the site. It is desirable to create a visual and functional centrepoint within the CSIP, as a fulcrum between the development precincts. A useable waterbody feature at this location can fulfil that role effectively. Furthermore, such water features create the opportunity to develop waterfront properties that would provide high quality working environments and competitive real estate offerings, as well as contributing to the biodiversity of the park.

The availability of public transport and physical proximity for pedestrians and cyclists to CIT, CUH and UCC, provides the potential for instant transport sustainability. In addition, the CSIP can initially benefit from, and in the future contribute to, the critical mass that exists west of Cork City to support public transport facilities.

Having regard to the transport benefits presented by its strategic location, it follows logically that internal movements within the CSIP should build upon this advantage. The relatively short travel distances across the site and the proximity of CIT to the eastern park boundary presents the opportunity to create a person dominated, rather than vehicle dominated, campus. This would greatly enhance the internal environment within the park and would be a centrepiece of the park brand.

Energy provision and usage continues to be central to all modern development concepts. For reasons of fiscal rectitude, resource future-proofing, quality of user experience and park

branding, energy is a central theme is the development of the CSIP. In accordance with the infrastructure, waste management, energy, mobility and design principles as set out in appendices, the CSIP strives to create a carbon neutral innovation park – both in its construction and operational phases.

Such energy efficiency can best be achieved via this masterplan process, where each development precinct can be linked in a strategic manner. This is achievable via shared design and mobility principles, in addition to operational co-ordination achieved via shared service conduits, etc.

In the creation of an enhanced users experience and in support of the future promotion of the park, its past and its future contexts are critical. The CSIP site contains a number of cultural signposts in the form of its historical features that can be incorporated into its overall design. Such features, as highlighted in Section 13 herein, can lend the CSIP a sense of place and human scale. Such an approach is compatible with the aims of the County Cork Heritage plan which seeks to secure benefits for local heritage and to increase awareness, appreciation and enjoyment of this heritage by all of the people of Co. Cork.

Similarly, the retention and enhancement of the site's natural features can contribute significantly to the project's success. The CSIP site is not highly sensitive in biodiversity terms, but does contain worthwhile and attractive natural elements. Hence, sensitive building design and siting can create a mutually beneficially relationship with the natural landscape.

Large developments that retain the users' sense of scale, as well as the 'memory' of the original site, and are specifically designed within the context of their surroundings, are most likely to succeed as real estate projects and places people want to be.

Constarints:
The two principle constraints impacting on this project are access and flooding.

Access:
As already highlighted in preceding sections, there is an existing access to the park site from the N25 to the south, subject to the implementation of the CSIP Mobility Management Plan. This allows for immediate access capacity. However, this capacity has a current limit that will serve only the vehicle access needs of Phase 1 development.

Subsequent phases of development shall require upgraded access in some form to increase vehicle access capacity.

Flooding:
Flooding affects various locations within the site to varying degrees. It is anticipated that, having regard to the limited scale of the problem, most Precincts shall address flooding within their own land bank with relatively straightforward solutions.

However, within the park's central lands and in particular Precinct 3, there is a significant issue with flooding that shall require major infrastructural works. Such works shall be required to meet environmental and legislative standards prior to consent for development being granted.

15. Opportunities & Constraints

- Dynamic landscape
- Retain memory of site
- Landmark buildings
- Connectivity
- Energy efficiency
- Biodiversity and heritage
- Access capacity
- Flooding

Figure 15.1: Cork Science & Innovation Park – locational context map

16. Development Precincts Concept, Precinct Plans & Floor Area Transfer

The *Draft Carrigaline Local Area Plan 2011* zoning sets the primary context for the future development, and specifically the permissible activities, for the CSIP. This masterplan seeks to provide clarity as to how these future activities can best be accommodated within the science & innovation park, while also allowing sufficient flexibility of choice within this dynamic innovative context.

The varying landscape throughout the site lends this project an opportunity to create a highly distinctive plan in terms of design and layout, while also providing a high quality campus environment.

Hence, a dual layered development strategy is envisaged. The first layer identifies design parameters specific to each Precinct, while the second layer identifies development parameters that apply to all precincts within the CSIP. This methodology ensures consistency of implementation throughout the CSIP, allied with appropriate location specific priorities.

Design and layout principles that shall apply to all precincts are as follows:

- Use innovative design appropriate to their location
- Ensure visual and operational co-ordination with adjoining building / precincts
- Create human scaled precincts and inter – connections
- Ensure sustainable and efficient management of resources such as water, infrastructure, energy and waste – during both construction and operational phases – towards a carbon neutral campus
- Future proofing for projected climate events
- Ensure promotion of smarter travel by promotion of public transport and high quality connectivity for pedestrians and cyclist
- Co-ordination with CSIP mobility management principles
- Detailed analysis and treatment of precinct boundaries to achieve seamless integration
- Integration and enhancement of biodiversity
- Incorporation of cultural features
- Minimal hard standing
- Avoid exposure of building plant and other external services facilities

These principles inform the Appendices to this masterplan, as well as the specific Precinct Guidelines as set out in Section 17. The appendices contain the principles that are

common to all precincts and address the issues of green infrastructure, waste management, energy, mobility and design. The above principles also underpin the CSIP Design Statement and planning consent process as outlined in Appendix 8.

As stated in Sections 10 & 11, the qualitative guidelines as set out in the Appendices and the Precinct narratives of Section 17, coupled with the quantitative guidelines for each Precinct, shall inform the design of 'Precinct Plans'. It is envisaged that these detailed 'Precinct Plans' shall be submitted to the planning authority for approval and shall form the vehicle for delivery of the built forms and mobility management requirements called for in this masterplan. 'Precinct Plans' shall articulate the physical and operational solutions for each development area, within the parameters as set out herein.

It is noted that circumstances may arise where floor area allocated to a particular Precinct within a particular Phase may not be used within that Phase. This situation may arise for infrastructural, commercial or other reasons. In the event of this occurring, the masterplan does not preclude the transfer of a floor area allocation to another Precinct - subject to adherence to the final limit set for that Precinct, as well as to the total limit set for each phase of the park's development.

It is envisaged that such a transfer of floor area allocation shall be in the form of a section 47 agreement or similar formal agreement in order to formalise and clarify the process.

Future masterplan reviews may also conclude that re-allocation of floor areas are necessary to ensure the viability of the project and, again, is appropriate provided the final carrying capacity of the receiving Precinct(s) is not exceeded.

16. Development Precincts Concept, Precinct Plans & Floor Area Transfer

- Varying landscape
- Dual layered approach
- Precinct Plans
- Mobility Mangement
- Transfer of floor area allocation

17. Precincts Guidelines

The following section outlines the characteristics of the development Precincts within the CSIP. These Precincts were identified by the omission of lands required for access, services, infrastructure and lands whose topography precluded development (steeply sloping / brow of ridgeline locations/proximity to existing development). The remaining lands were considered suitable for development. See Figures 17.1 and 17.2 overleaf.

The following text presents an overview of the individual Precincts and highlights the development opportunities therein. It is proposed that these Precinct Guidelines form the basis for future design plans to be developed for each Precinct, read in conjunction with the masterplan appendices that guide green infrastructure, waste management, landscape, energy, mobility and design within the overall park.

A quantitative development table is also provided for each Precinct, indicating its initial carrying capacity – referred to as *Phase 1 Development* – and subsequent Phase 2 and 3 floorarea allocations.

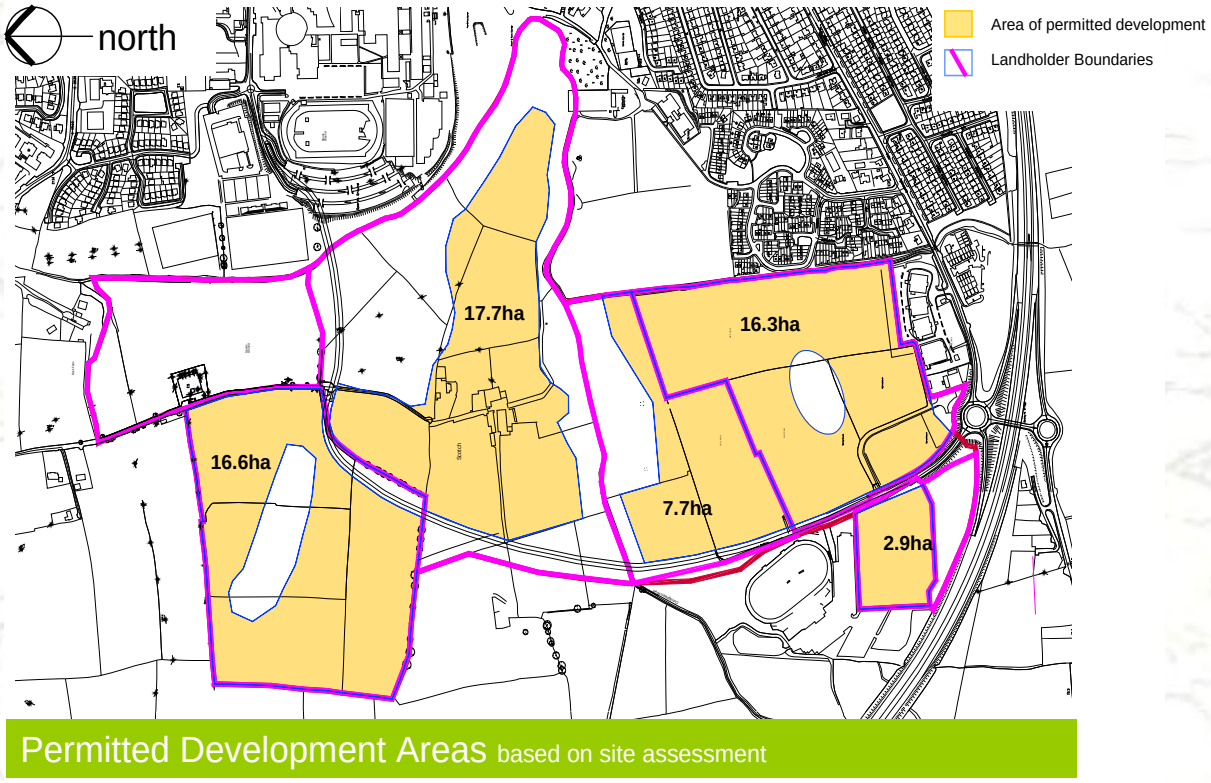


Figure 17.1: Permitted Development Areas – site assessment

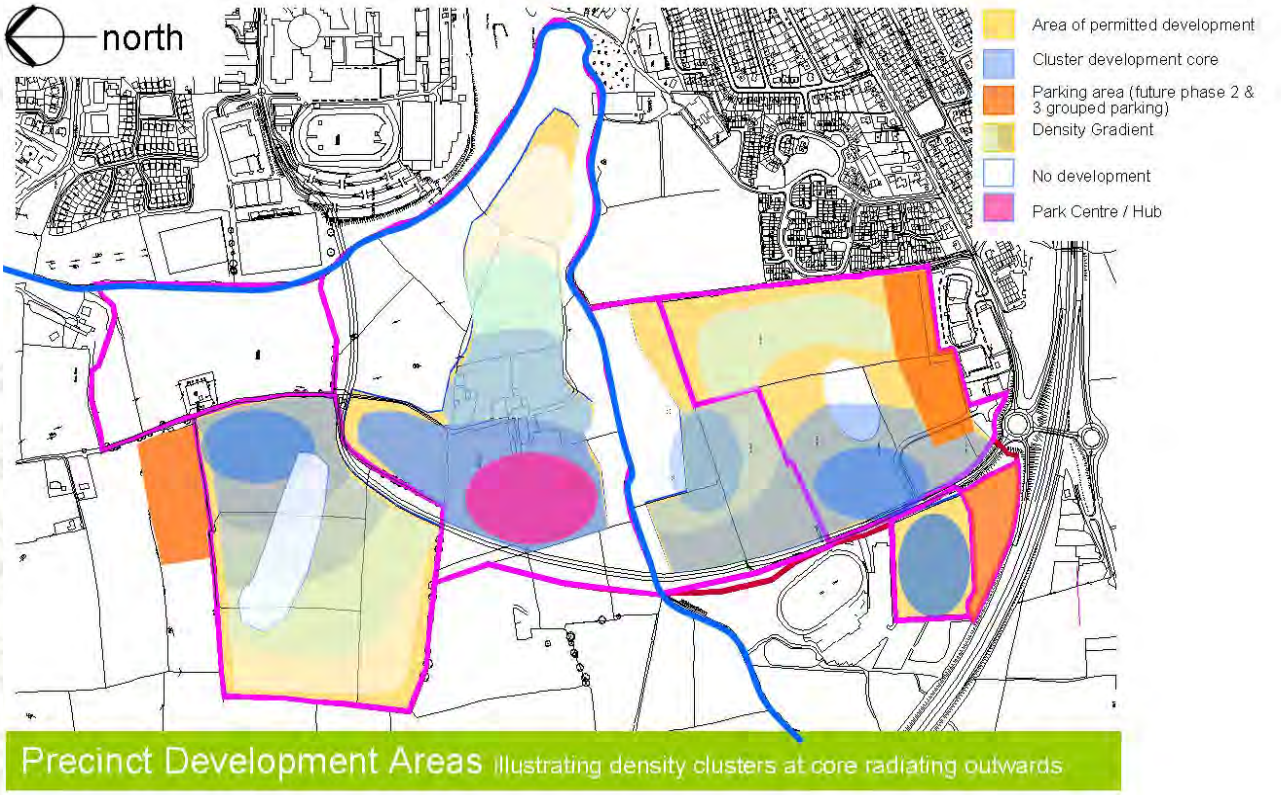


Figure 17.2: Permitted Development Areas – density clusters

Precinct 1 – Guidelines

Description:
This precinct is located at the southwest of the CSIP, within the elbow of the N25 National Primary Road and the existing roadway serving the Curragheen Park facility. The site is relatively flat and currently contains a football playing pitch and scrubland. The site is approximately level with the adjoining N25, but is significantly lower than the adjoining slip road network.

The boundaries of the site are of trees and hedgerow, with additional fencing.

Context within CSIP:
Having regard to the importance of visibility and the creation of an identifiable presence for the CSIP, this site is ideally situated for the location of a landmark gateway building at the entrance to the park. Such a building would need to be between 5 and 7 storeys in height.

In order to achieve integration within the CSIP, connectivity is required to the west - towards precinct two. This is best achieved via provision of a pedestrian crossing point across the CSIP access road.

It is proposed that the Precinct is developed as a cluster, which forms a high quality edge at the entrance to the CSIP. It is proposed that a vehicle parking area is provided adjoining the N25, as part of the 'park and move' facilities serving the Park.

The uses permissible for this Precinct are as set out in the *Draft Carrigaline Local Area Plan*, and include structures as follows:

- Incubator spaces/suites
- Grow-on facilities
- Stand alone premises
- Research facilities
- University linked training facilities
- Support facilities, including,
    - Business support
    - Conference facilities
    - Leisure facilities
    - Restaurants and appropriate shops
    - Accommodation for park users / third level institution personnel

Precinct 1, 2 and 5 have particular potential for the provision of accommodation to serve the park users / third level institution personnel. Accommodation facilities often require to be serviced by parking and, having regard to the CSIP's grouped parking strategy, this can be readily provided within these Precincts.

It is envisaged that the accommodation provided within the CSIP is to serve the short to medium

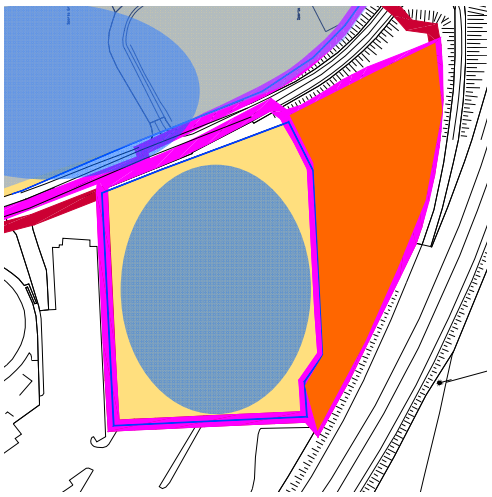
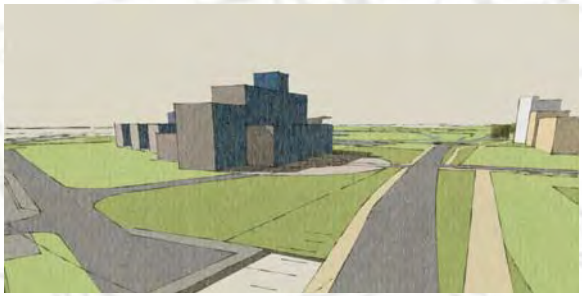


Fig 17.3 Precinct 1



Development as Gateway – Artist's Impression

term requirements of students, researcher staff, and similar users of the CSIP only.

In terms of leisure, restaurants and retail provision, it is the CSIP long term vision to provide a centralised services Hub that serves the needs of the maturing CSIP. However, provision of some services commensurate with the population requirements within individual Precincts is allowable.

In addition, as the initial car parking provision associated with the 'park and move' strategy is proposed to be located within / adjoining Precinct 1 (subject to agreement with Bord na gCon), it is appropriate to allow some additional services to locate within Precinct 1 that serve the retail needs of users of the 'park and move' site. It is envisaged that such services would comprise of relatively small scale reality of life services / convenience retail outlet.

It is not envisaged that the services provided within the Precinct shall be of a scale that meets the needs of users from outside the CSIP, or provide a final services offering of a wider population within a mature CSIP. To provide facilities in excess of the needs of the Precinct, with some allowance for the Precinct location adjoining the parking areas, would undermine the future provision of a central services Hub to serve a mature CSIP.

Precinct 1 – Development Guidelines†	
Precinct Character	Park Entrance Development Area with Parking
Precinct Area	4 Hectares
Parking Area	1 Hectare
*Development Cluster Area**	2.9 Hectares
Site Coverage	45% (applicable only to non-parking area)
Plot Ratio	1.45
Min-Max Building Heights**	1 – 7 Storey
Average Building Height	3.5 Storey
Phase 1 Development	
Gross Floor Area***	10,189m²
Phase 2 Development	
Gross Floor Area	17,000m²
Phase 3 Development	
Gross Floor Area	43,000m²

* This Precinct is defined by one development area (cluster), whereas other Precincts have a mix of development areas

** One 5 to 7 storey landmark building is required as part of the precinct design

*** Required to contain incubation facilities. 500m² of retail/services floor area allowable, subject to provision in tandem with student residential accommodation.

† The above figures are running totals and should not be added.

At planning approval stage, the following will be required prior to consent being granted for individual structures within Precinct 1 - see also Planning Consent Procedures in Appendix 8:

- Precinct Plan outlining overall development concept for Precinct
- Traffic and Transport Assessment, including Mobility Management Plan in accordance with CSIP Mobility Management Plan
- Environmental Impact Assessment for the overall Precinct may also be required, identifying also any potential cumulative impacts from other Precincts. (The relatively small scale of Precinct 1, its location removed from the ecologically sensitive area of the CSIP site as well as the area of high flood risk is noted in this regard).

Planning applications for individual or grouped structures will be required to include:

- CSIP Design Statement as set out in the Masterplan
- A qualitative and quantitative brief of the proposed activities within the context of the CSIP Vision, its guiding principles and objectives.
- Travel Plans for developments in excess of thresholds indicated in Section 13 of this Masterplan
- Additional site specific issues that may arise associated with Development Management Process

Precinct 2 - Guidelines

Description:
This precinct is located at the southeast of the CSIP, between the southern site boundary and Precinct 3 to the north. It is bounded by existing development to the south and east, commercial / offices and residential developments respectively. The Precinct is relatively flat and contains mature trees and hedgerows. It is currently used as playing pitches serving UCC.

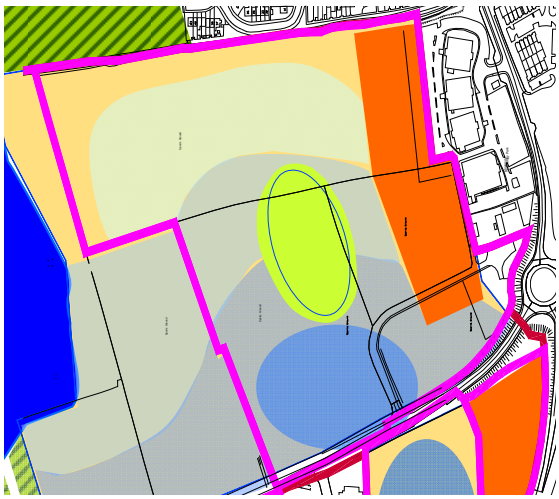


Fig 17.4 Precinct 2

Context within CSIP:
With Precinct 1, this area of the CSIP forms the gateway to the park and is an important location in terms of visibility. The buildings located at the southern site fringes, adjoining the park entrance, shall contribute significantly to the visual statement that the CSIP makes. Hence, this precinct has the potential to accommodate a landmark building or buildings, 5 to 7 storey in height.

Development as Gateway – Artist's Impression

This Precinct also fulfils an important function regarding parking and traffic management within the CSIP. Three hectares of land shall be required to be reserved within the CSIP, close to the site entrance, to facilitate a grouped parking strategy. Two hectares are identified for this purpose within Precinct 2. However, it should be noted that this grouped parking parking will only be required in Phase 2 when demand within the CSIP requires additional parking provision in excess of that provided within individual Precincts in Phase 1 – see section 13 also.

Connectivity and integration with Precinct 3 is important, as both Precincts share a natural hedgerow and tree boundary line. In accordance with Appendix 2, existing natural landscaping should be retained, protected and enhanced as part of any Precinct design.

A dedicated area of open space is identified to be centrally located within the Precinct. Having regard to the scale of the Precinct, such a feature would give a design focal point and could also be utilised as part of the surface water attenuation – possibly in conjunction with the main waterbody feature proposed at the Curragheen River.

Facilities & Phasing:
It is proposed that the Precinct is developed in two distinct patterns - a higher density cluster addressing the access roadway, with a lower density development pattern extending across the Precinct to the east.

The uses permissible for this Precinct are as set out in the *Draft Carrigaline Local Area Plan*, and include structures as follows:
- Incubator spaces/suites
- Grow-on facilities
- Stand alone premises

- Research facilities
- University linked training facilities
- Support facilities, including,
    - Business support
    - Conference facilities
    - Leisure facilities
    - Restaurants and appropriate shops
    - Accommodation for park users / third level institution personnel

Precinct 1, 2 and 5 have particular potential for the provision of accommodation to serve the park users / third level institution personnel. Accommodation facilities often require to be serviced by parking and, having regard to the CSIP's grouped parking strategy, this can be readily provided within these Precincts.

It is envisaged that the accommodation provided within the CSIP is to serve the short to medium-term requirements of students, researcher staff, and similar users of the CSIP only.

In terms of leisure, restaurants and retail provision, it is the CSIP long term vision to provide a centralised services Hub that serves the needs of the maturing CIP. However, provision of some services commensurate with the population requirements within the Precinct is allowable.

Precinct 2 – Development Guidelines†	
Precinct Character	Park Entrance Development Area with Parking
Precinct Area	16.3 Hectares
Parking Area	2 Hectares
Development Cluster Area	4 Hectares
Site Coverage	45%
Plot Ratio	1.5
Gross Development Floor Area	63,000m²
Min-Max Building Heights*	1 – 7 Storey
Average Building Heights	3.5 Storey
General Development Area	10.3 Hectares
Site Coverage	15%
Plot Ratio	.45
Gross Development Floor Area	46,350m²
Min-Max Building Heights*	1 – 3 Storey
Average Building Heights	2.5/3 Storey
Phase 1 Development	
Gross Floorspace**	12,460m²
Phase 2 Development	
Gross Floorspace	42,500m²
Phase 3 Development	
Gross Floor Area	107,350m²
	cntd. overleaf

*At least one 5 to 7 storey landmark building is required as part of the precinct design
**Required to contain incubation facilities. 500m² of retail/services floor area allowable, subject to provision in tandem with student residential accommodation.
† The above figures are running totals and should not be added.

At planning approval stage, the following will be required prior to consent being granted for individual structures within Precinct 2 - see also Planning Consent Procedures in Appendix 8:

- Precinct Plan outlining overall development concept for Precinct
- Traffic and Transport Assessment, including Mobility Management Plan in accordance with CSIP Mobility Management Plan
- Environmental Impact Assessment for the overall Precinct is likely to also be required, identifying also any potential cumulative impacts from other Precincts

Planning applications for individual or grouped structures will be required to include:
- CSIP Design Statement as set out in the Masterplan
- A qualitative and quantitative brief of the proposed activities within the context of the CSIP Vision, its guiding principles and objectives.
- Travel Plans for developments in excess of thresholds indicated in Section 13 of this Masterplan
- Additional site specific issues that may arise associated with Development Management Process

Precinct 3 – Guidelines

Description:
This precinct is located adjoining the southern bank of the Curragheen River, between the river and Precinct 2. It is bounded by an existing areas of open space to the east. The Precinct is relatively flat and contains mature trees and hedgerows. It is identified as an area at risk of flooding and, hence, development cannot proceed until this issue is satisfactorily addressed.

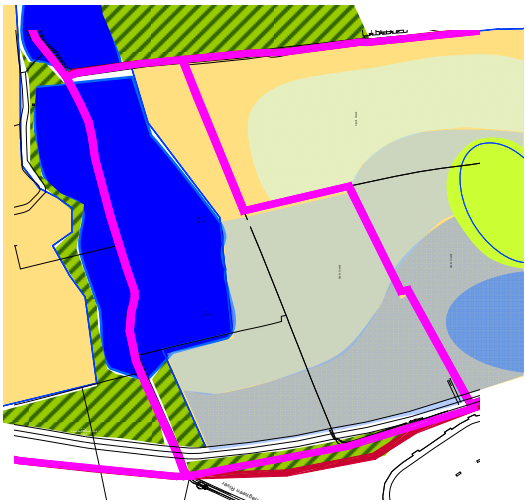
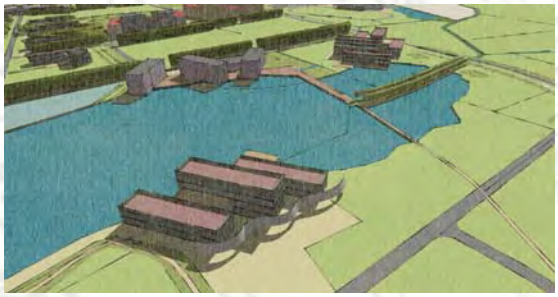


Fig 17.5 Precinct 3

Context within CSIP:
This Precinct has the potential to be an attractive waterfront location if the proposed central waterbody feature within the CSIP is constructed. It is envisaged that, subject to mitigating measures to prevent flooding and as part of a flood management scheme, there is a particular design opportunity to create attractive waterside buildings.

Such a landscape feature would benefit the CSIP, as it would create an attractive landscape centrally within the park. The landscape within the park is of high importance as its sets the physical context for tenants and also has the potential to stimulate positive interactions within the park – in accordance with the CSIP concept.

Connectivity and integration with Precinct 2 is important, as both Precincts share a natural hedgerow and tree boundary. In accordance with Appendix 2, existing natural landscaping should be retained, protected and enhanced as part of any Precinct design.



Waterside opportunity for unique developments – Artist's Impression

Facilities & Phasing:
It is proposed that the Precinct is developed in two distinct patterns - a higher density cluster addressing the access roadway, with a lower density development pattern extending across the Precinct to the east.

The uses permissible for this Precinct are as set out in the *Draft Carrigaline Local Area Plan*, and include structures as follows:

- Incubator spaces/suites
- Grow-on facilities
- Stand alone premises
- Research facilities
- University linked training facilities
- Support facilities, including,
    - Business support
    - Conference facilities
    - Leisure facilities
    - Restaurants and appropriate shops

In terms of leisure, restaurants and retail provision, in Precinct 3 only the services needs commensurate with the population requirement

within the Precinct are permissible. It is not envisaged that the services provided within the Precinct shall be of a scale that meets the needs of users from outside the CSIP, or of a wider population within the CSIP. To provide facilities in excess of the needs of the Precinct would undermine the future provision of a central services Hub to serve a mature CSIP.

Precinct 3 – Development Guidelines†	
Precinct Character	Waterside Development Area
Precinct Area*	7.7 Hectares
*Development Cluster Area**	3 Hectares
Site Coverage	25%
Plot Ratio	1.0
Gross Development Floor Area	30,000m²
Min-Max Building Heights*	1 – 4 Storey
Average Building Heights	3.5/4 Storey
*General Development Area**	4.7 Hectares
Site Coverage	15%
Plot Ratio	.45
Gross Development Floor Area	21,150m²
Min-Max Building Heights	1 – 3 Storey
Average Building Heights	2.5/3 Storey
Phase 1 Development	
Gross Floor Area**	5,914m²
Phase 2 Development	
Gross Floor Area	20,200m²
Phase 3 Development	
Gross Floor Area	51,150m²

*All areas subject to finding of flood study
**Required to contain incubation facilities
† The above figures are running totals and should not be added.

At planning approval stage, the following will be required prior to consent being granted for individual structures within Precinct 3 - see also Planning Consent Procedures in Appendix 8:

- Precinct Plan outlining overall development concept for Precinct
- Traffic and Transport Assessment, including Mobility Management Plan in accordance with CSIP Mobility Management Plan
- Environmental Impact Assessment for the overall Precinct is likely to also be required, identifying also any potential cumulative impacts from other Precincts

Planning applications for individual or grouped structures will be required to include:
- CSIP Design Statement as set out in the Masterplan

- A qualitative and quantitative brief of the proposed activities within the context of the CSIP Vision, its guiding principles and objectives.
- Travel Plans for developments in excess of thresholds indicated in Section 13 of this Masterplan
- Additional site specific issues that may arise associated with Development Management Process. (In particular, protection, management and, as appropriate, enhancement of existing wetland habitat in this area will be required. Also, as this area is subject to flooding, flood risk assessment and management in accordance with statutory requirements will need to be addressed).

Precinct 4 – Guidelines

Description:
This precinct is located at the centre of the CSIP, forming the ridgeline and its hinterland. It is bounded to the south and east by the Curragheen River, with Cork Institute of Technology campus to the east also.

The Precinct is elevated, but is reasonably well screened from surrounding views. It contains mature trees and hedgerow and its lower contour areas are liable to flooding. The exact development area within the Precinct is subject to the findings of the flood study commissioned by Cork County Council.

Context within CSIP:
This Precinct, due to its central location within the site, will play an important development role within the CSIP in the long-term. Part of the Precinct is identified as the suitable location for a future central services Hub to serve a mature park – adjoining the potential future route of the Bus Rapid Transit system.

The remaining developable lands within the Precinct are set within an attractive landscape that shall provide a pleasant environment for users.

Connectivity and integration with adjoining Precincts is important, as Precinct 4 is the central land bank within the park site. Having regard to its elevated location and the role existing planting can play in assimilating new structures, all natural hedgerow and tree boundaries need to be retained, protected and enhanced.

Facilities & Phasing:
It is proposed that this Precinct is developed in a two step approach. An area of land is reserved for the future Hub location to be a higher density cluster, with a lower density development pattern extending across the Precinct to the east.

The uses permissible for this Precinct are as set out in the *Draft Carrigaline Local Area Plan*, and include structures as follows:
- Incubator spaces/suites
- Grow-on facilities
- Stand alone premises
- Research facilities
- University linked training facilities
- Support facilities, including,
    - Business support
    - Conference facilities
    - Leisure facilities
    - Restaurants and appropriate shops

In terms of leisure, restaurants and retail provision, excluding the Hub, only the services needs commensurate with the population requirement within the Precinct are permissible.

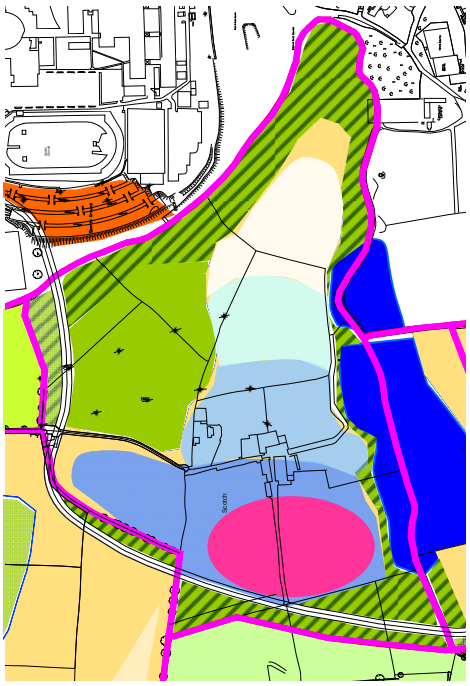


Fig 17.6 Precinct 4

'Town Centre' as focal point – Artist's Impression

'Town Centre' as focal point – Artist's Impression

It is not envisaged that the services provided within the Precinct initially shall be of a scale that meets the needs of users from outside the CSIP, or of a wider population within the CSIP.

However, once critical mass is achieved within the CSIP to support such services, central park services such as those listed above and of a scale to serve the wider needs of the park can be provided within the land area reserved for use as the Hub. Future design layouts for the Hub are required to facilitate connection to the future BRT junction.

Precinct 4 – Development Guidelines†	
Precinct Character	Central Development Area
Precinct Area*	17.7 Hectares
Hub Development Cluster Area	4 Hectares
Site Coverage	45%
Plot Ratio	1.1
Gross Development Floor Area	45,000m²
Min-Max Building Heights	1 – 3 Storey
Average Building Heights	2/2.5 Storey
*General Development Area**	13.7 Hectares
Site Coverage	15%
Plot Ratio	.3
Gross Development Floor Area	41,100m²
Min-Max Building Heights	1 – 2 Storey
Average Building Heights	2 Storey
Phase 1 Development	
Gross Floor Area**	4,806m²
Phase 2 Development	
Gross Floor Area	34,200m²
Phase 3 Development	
Gross Floor Area	86,100m²

*Areas subject to finding of flood study
**Required to contain incubation facilities
† The above figures are running totals and should not be added.

At planning approval stage, the following will be required prior to consent being granted for individual structures within Precinct 4 - see also Planning Consent Procedures in Appendix 8:

- Precinct Plan outlining overall development concept for Precinct
- Traffic and Transport Assessment, including Mobility Management Plan in accordance with CSIP Mobility Management Plan
- Environmental Impact Assessment for the overall Precinct is likely to also be required,

identifying also any potential cumulative impacts from other Precincts.

Planning applications for individual or grouped structures will be required to include:

- CSIP Design Statement as set out in the Masterplan
- A qualitative and quantitative brief of the proposed activities within the context of the CSIP Vision, its guiding principles and objectives.
- Travel Plans for developments in excess of thresholds indicated in Section 13 of this Masterplan
- Additional site specific issues that may arise associated with Development Management Process (In particular, protection, management and, as appropriate, enhancement of existing wetland habitat in this area will be required. Also, as this area is subject to flooding, flood risk assessment and management in accordance with statutory requirements will need to be addressed).

Precinct 5 – Guidelines

Description:
This Precinct is located at the northern periphery of the CSIP, with a western boundary also. The site is a mix of sloping and relatively level lands containing natural hedgerow and tree boundaries.

Context within CSIP:
This Precinct has the potential to accommodate a mix of facilities close to the Cork Institute of Technology. The changing contour levels lend themselves to an integrated design scheme that should result in an interesting Precinct layout.

In accordance with Appendix 2, existing natural landscaping should be retained, protected and enhanced as part of any Precinct design. A landscaped buffer, approx. 20m in depth, will be required at the western boundary to minimise visual impacts of views from the west.

Facilities & Phasing:
It is proposed that the Precinct is developed in two distinct patterns - a higher density cluster at its eastern portion, with a lower density development pattern extending across the Precinct to the west in order to assist in integrating the structures into the landscape.

The uses permissible for this Precinct are as set out in the *Draft Carrigaline Local Area Plan*, and include structures as follows:
- Incubator spaces/suites
- Grow-on facilities
- Stand alone premises
- Research facilities
- University linked training facilities
- Support facilities, including,
    - Business support
    - Conference facilities
    - Leisure facilities
    - Restaurants and appropriate shops

Precinct 1, 2 and 5 have particular potential for the provision of accommodation to serve the park users / third level institution personnel. Accommodation facilities often require to be serviced by parking and, having regard to the CSIP's grouped parking strategy, this can be readily provided within these Precincts.

In terms of leisure, restaurants and retail provision, in Precinct 5 only the services needs commensurate with the population requirements within the Precinct are permissible. It is not envisaged that the services provided within the Precinct shall be of a scale that meets the needs of users from outside the CSIP, or of a wider population within the CSIP. To provide facilities in excess of the needs of the Precinct would undermine the future provision of a central services Hub to serve a mature CSIP.

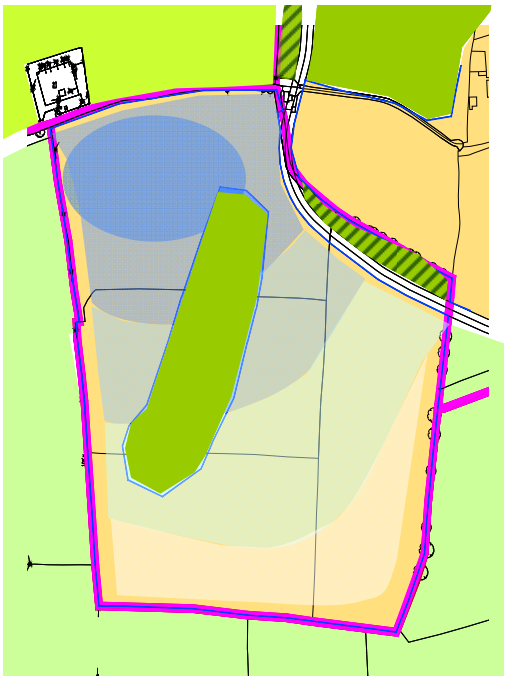


Fig 17.6 Precinct 5

Development cluster to acknowledge edge of site and green space – Artist's Impression

Precinct 5 – Development Guidelines†	
Precinct Character	Northern Development Area
Precinct Area	16.6 Hectares
Development Cluster Area	2 Hectares
Site Coverage	30%
Plot Ratio	1.05
Gross Development Floor Area	21,000m²
Min-Max Building Heights	1 – 4 Storey
Average Building Heights	3 Storey
General Development Area	14.6 Hectares
Site Coverage	15%
Plot Ratio	.38
Gross Development Floor Area	54,750m²
Min-Max Building Heights	1 – 3 Storey
Average Building Heights	2.5 Storey
Phase 1 Development	
Gross Floor Area*	8.870m²
Phase 2 Development	
Gross Floor Area	30,100m²
Phase 3 Development	
Gross Floor Area	75,750m²

*Required to contain incubation facilities. 500m² of retail/services floor area allowable, subject to provision in tandem with student residential accommodation.
†The above figures are running totals and should not be added.

At planning approval stage, the following will be required prior to consent being granted for individual structures within Precinct 5 – see also Planning Consent Procedures in Appendix 8:

- Precinct Plan outlining overall development concept for Precinct
- Traffic and Transport Assessment, including Mobility Management Plan in accordance with CSIP Mobility Management Plan
- Environmental Impact Assessment for the overall Precinct is likely to also be required, identifying also any potential cumulative impacts from other Precincts

Planning applications for individual or grouped structures will be required to include:

- CSIP Design Statement as set out in the Masterplan
- A qualitative and quantitative brief of the proposed activities within the context of the CSIP Vision, its guiding principles and objectives.
- Travel Plans for developments in excess of thresholds indicated in Section 13 of this Masterplan

- Additional site specific issues that may arise associated with Development Management Process

Precinct 6 – Guidelines

Description:
This Precinct is located at the northern periphery of the CSIP. It is a relatively flat area of land that is bounded by natural trees and hedgerows.

Context within CSIP:
This Precinct currently serves an important role within Cork Institute of Technology as part of its sporting facilities.

Facilities & Phasing:
It is not envisaged that this Precinct shall play a role in the immediate development of the CSIP. Hence, it is not used as reckonable lands for the purposes of development herein.

However, it may in the future provide an important development link between the Cork Institute of Technology and the Cork Innovation Park.

If the future expansion of CIT was to require locating existing CIT uses or related uses within this Precinct, it would be in accordance with the vision for the CSIP and the planning requirements as set out in this Masterplan.

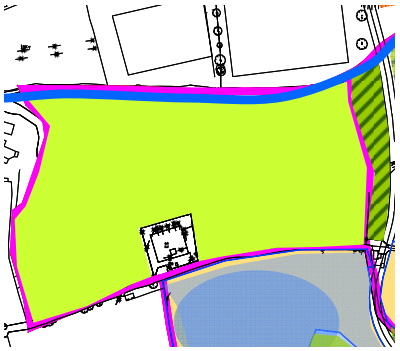


Fig 17.7 Precinct 6

Aerial view

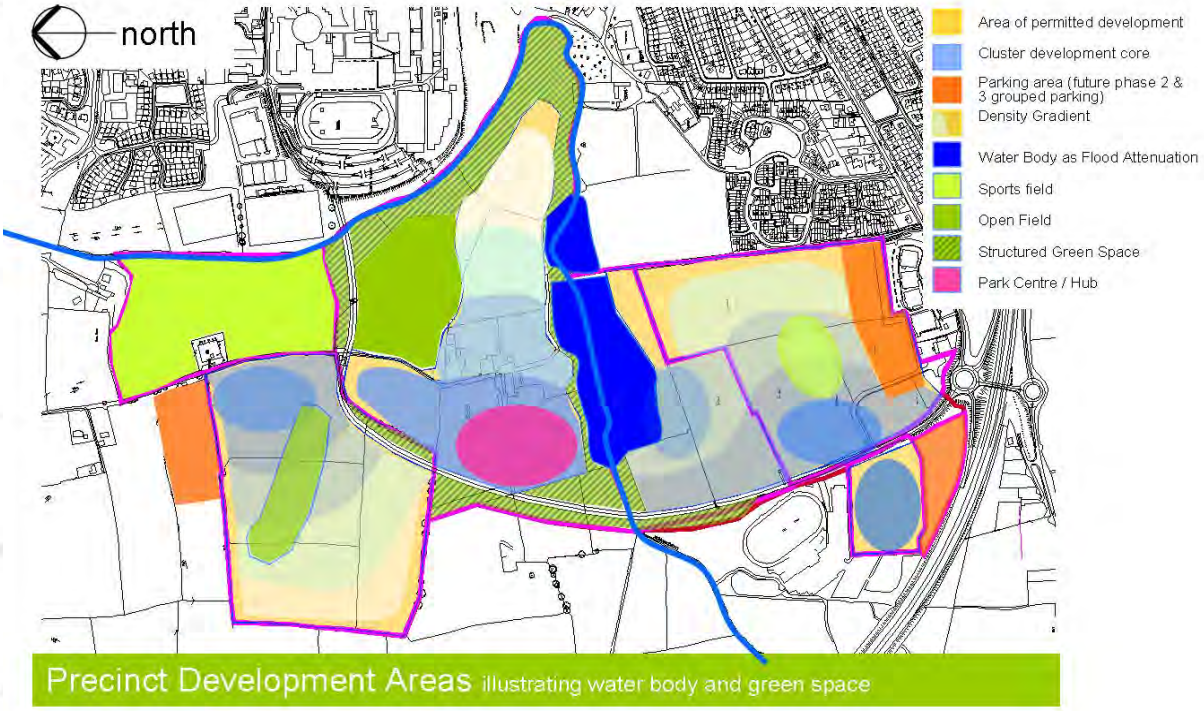


Figure 17.8: Permitted Development Areas – overall layout

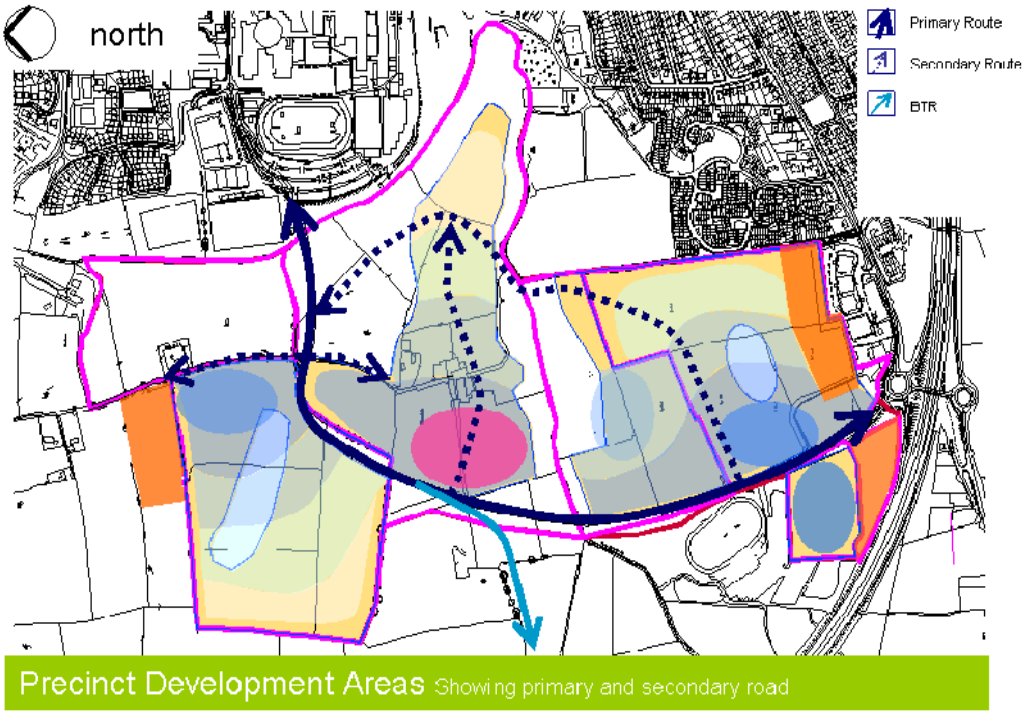


Figure 17.9: Permitted Development Areas – overall layout

18. Infrastructure Provision

Transport and Roads:
In keeping with the CSIP vision and design principles, it is proposed to minimise impacts from road design and vehicles. This shall assist the park in its integration with the natural landscape and also reduce operational impacts on the environment and park users.

One of the primary elements of a successful development is its efficacy in accommodating traffic movement. Ease of access enhances significantly the user experience and positively reinforces the park's reputation. Hence, the mobility principles as outlined in Section 13 and Appendix 5 are a key feature of the CSIP.

Specifically with regard to traffic management and demand management, Cork County Council has commissioned a Transportation Masterplan and Mobility Management Plan, with specific reference to the existing N25 site entrance. The report will detail the infrastructural interventions required to accommodate each phase of development, in conjunction with active and aggressive mobility management to effect modal shift.

It is envisaged that the access road through the CSIP will facilitate access to the Precincts. Managed connectivity between the park and CIT can be achieved via the extension of the access road, creating an important physical linkage to the benefit of the project. A consequential impact shall be the reduction in traffic and haphazard parking in the Bishopstown area, the benefit of which can be enhanced in Phases 2 and 3. However, this benefit is subject to the development of an aggressive Mobility Management Strategy by CIT for their own campus, that is co-ordinated with the CSIP Mobility Management Plan.

In accordance with the CSIP principles and objectives, effective access can be provided without the need to allow vehicles to traverse the site unrestricted. As set out in section 13 and Appendix 5, it is proposed to manage the vehicle movements within the site with the aim of creating a comfortable walking-campus, as well as allowing for people centred Precinct designs. This is made possible by the configuration of the site that allows for relatively easy access by foot, bicycle and public transport / shuttle bus, to all areas.

Hence, the primary access road shall function as an important public transport bus route, with automated access at the two bus entry points to the park – from the Bishopstown (south) and CIT (east). The road shall also serve maintenance, delivery, emergency,

Fig 18.1 Appropriate road design

Fig 18.2 Appropriate footbridge design

Fig 17.3 Bus primary transport

construction and disabled driver vehicles, in addition to private vehicles.

It is necessary to balance the above with the practical needs of Precinct users. Hence, limited parking – and therefore vehicle access – will be permitted to each precinct, but vehicles will not be allowed to dominate these spaces.

It is proposed that a minimal design standard be applied to the main access road, sufficient to facilitate two passing vehicles only and a pedestrian/cycling lane. Subject to design details, this roadway will follow the natural landscape contours in order to minimise cutting/filling and the construction of supporting embankments. Preliminary design of this roadway is currently being undertaken by Cork County Council.

It is proposed that the bridge connecting the CSIP with CIT, and the other river crossing points, will be of a high design standard but minimal in design.

A secondary route through the CSIP shall also need to be provided, along the landscaped river corridor. This shall act as a secondary spine road for maintenance vehicles, delivery vehicles, emergency vehicles and disabled driver vehicles, but shall be used primarily by pedestrians and cyclists to traverse the site and also access various precinct locations. It is envisaged that this secondary route shall be evolve via individual Precinct designs in a co-ordinated fashion.

In addition, it is an objective of this masterplan to facilitate a pedestrian link between the existing surface parking adjoining the greyhound stadium / future southern surface parking areas and the existing public walk that borders the park site to the east. This connection will facilitate immediate pedestrian / cyclist movements between the park and CIT.

Following completion of the flood study commissioned by Cork County Council, a detailed design package shall be undertaken by consultants, to provide for the road, pedestrian/cyclist and bridge network and the relevant consent acquired to commence construction can commence.

The following paragraphs outline the watermain and foul sewer requirements to service the proposed CSIP, sufficient to cater for its final carrying capacity when reached.

Watermain:

As indicated in Figure 18.4 overleaf, a 300mm diameter ductile iron watermain is proposed to be installed to service the proposed science & innovation park.

This pipeline shall be laid from the proposed CSIP site to the N25 Bandon Road Roundabout, where it will be connected to the pipework to the existing Bishopstown supply network. A second connection will be made to the pipework to be installed during the overpass construction. Provision has been made for this connection in the design of the pipework at the N25 Bandon Road Roundabout. Reference Figures 18.4 and 18.5, overleaf, for the proposed pipeline route. Figure 18.6, also overleaf, outlines the advance pipework construction works to be undertaken as part of the overpass construction.

It is planned that the initial water supply to the CSIP will be provided from the Harbour and City Trunk Main, via the Bishopstown distribution watermain at the Bandon Road Roundabout. In the long term, the CSIP will be supplied from the proposed high level Chetwynd Reservoir.

The pipeline is to be laid on public roads from the N25 Bandon Road Roundabout to the southern site boundary, and then along the proposed main access road within the site.

Potential development after a number of years – indicative layout

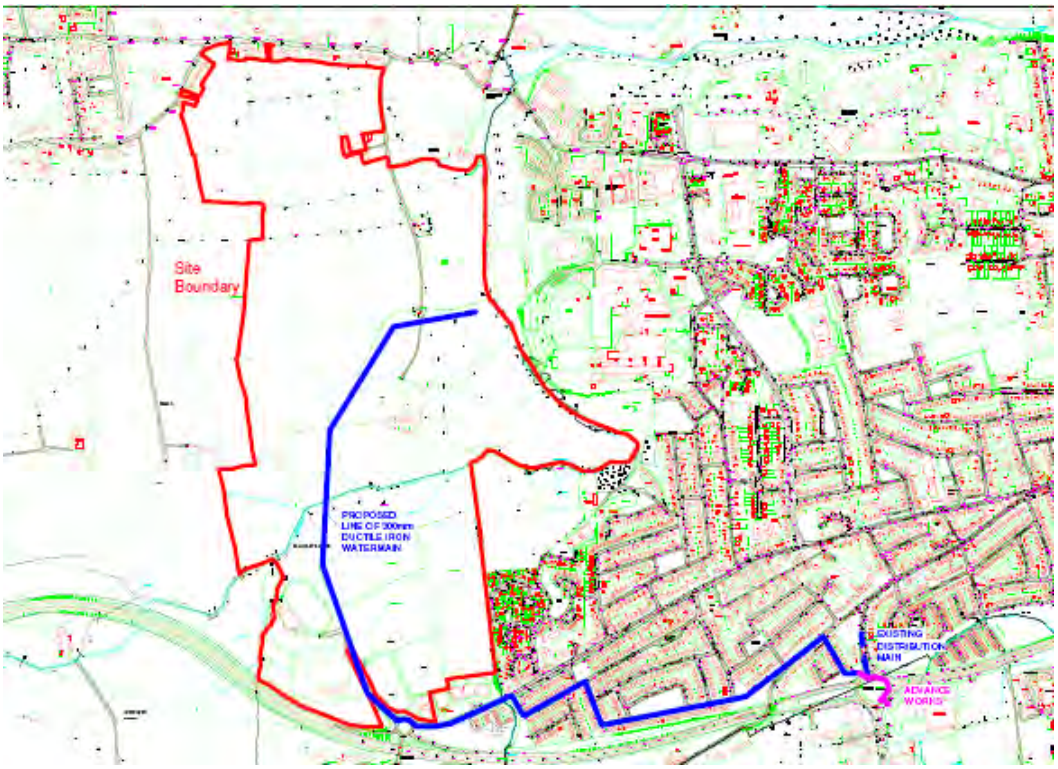


Figure 18.4: Proposed Watermain Layout

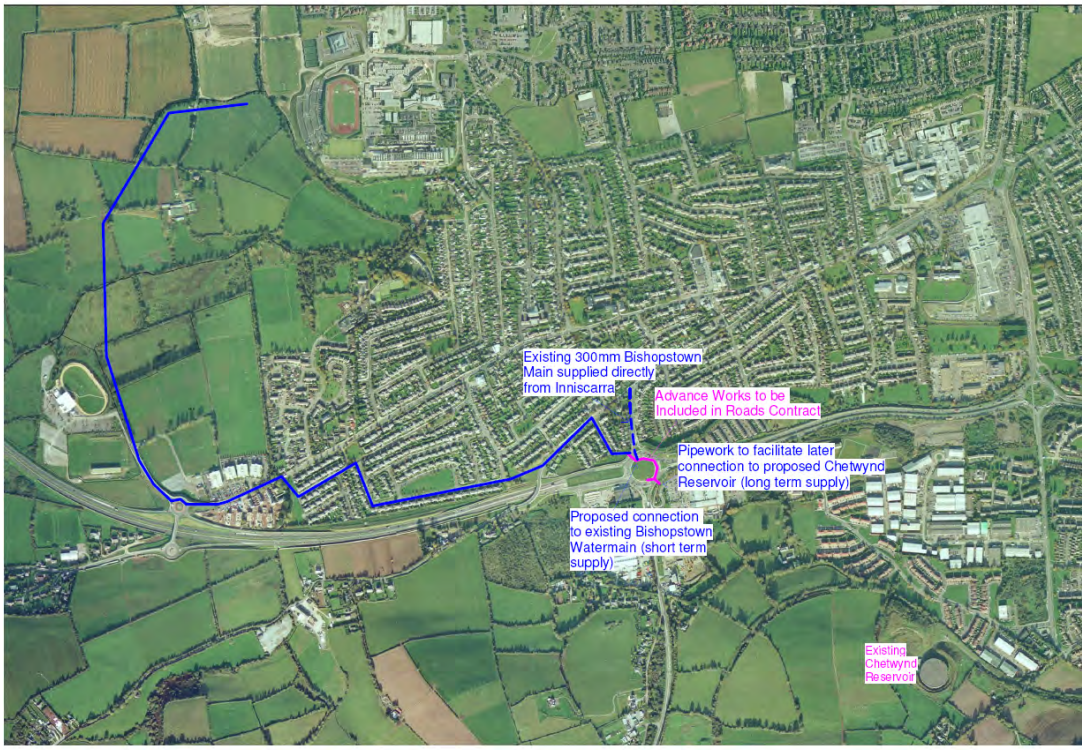


Figure 18.5: Proposed Watermain Layout – Orthophotos

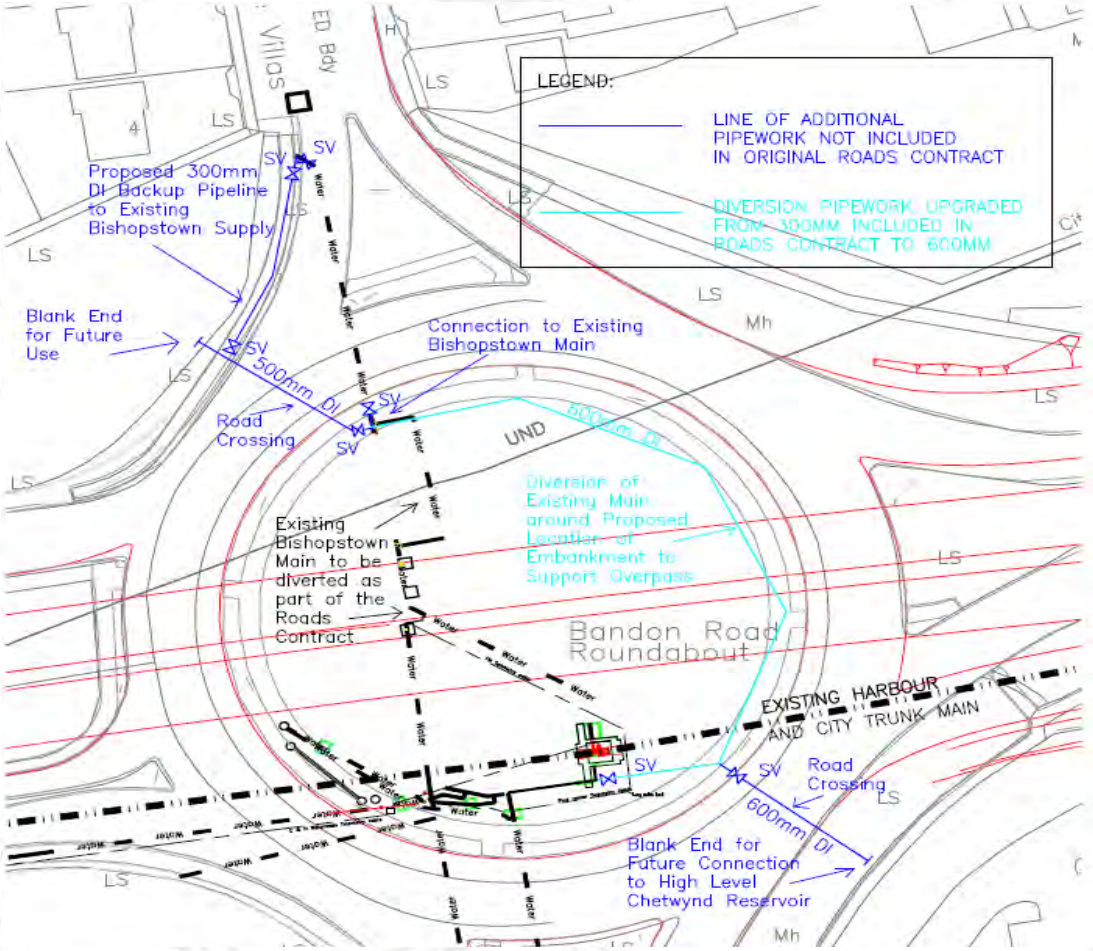


Figure 18.6: Proposed Works at Bandon Road Roundabout
(To be undertaken as part of the Roadworks Overpass Contract)

Foul Sewer:
It is proposed that a 600mm diameter concrete pipe is installed as the primary sewer for the development. Initial studies would indicate that the Inchigaggin sewer has sufficient capacity available to accept flows from the CSIP.

The header manhole for the Inchigaggin sewer is located in the walkway adjacent to the Eden Hall Development, on the Model Farm Road. The route of this existing sewer is indicated on Figure 18.7, overleaf. Flows to the Inchigaggin sewer eventually discharge at Carrigrennan Waste Water Treatment Plant (WWTP).

Figure 18.8, overleaf, outlines details of a suitable route for the proposed sewer. In addition to the primary sewer, collector sewers will be required to facilitate access to the various developments to be constructed within the site footprint.

As a consequence of the existing invert levels at the Inchigaggin sewer and the bed levels of the Inchigaggin River, a pumping station or siphon will be required to allow the flows to discharge to the existing sewer. The location of a pumping station would be dictated by access requirements and is likely to be located west of the Curraheen River near the CIT playing fields, as indicated on Figure 18.8. An access road to the pump station will be required for maintenance purposes.

Detailed design of the above water and sewer infrastructure shall include:

- Undertaking a flow survey at locations along the Inchigaggin sewer, with the co-operation of Cork City Council, to confirm the available capacity of the sewer.
- Acquisition of wayleaves (3no.) outside the CSIP boundary, along the route of the proposed foul sewer. In addition an agreement must be made with Cork City Council, who owns the land between the existing Inchigaggin header manhole and the Model Farm Road.
- Acquisition of wayleaves within the CSIP boundary to facilitate all services.
- Cork City Council may want to incorporate the replacement of an existing cast iron watermain with the installation of the CSIP supply.
- Cork City Council has requested that consideration be given to the feasibility of diverting existing flows from a number of existing City Council areas to the proposed new sewer for the CSIP.

Other issues which may arise in relation to the provision of the water services infrastructure include:

- Investigation of the existing agreement between Cork County Council and Cork City Council in relation to allowable discharge volumes to Carrigrennan WWTP may required.
- Analysis of current discharge volumes from Cork County Council catchments to Carrigrennan WWTP may be required.

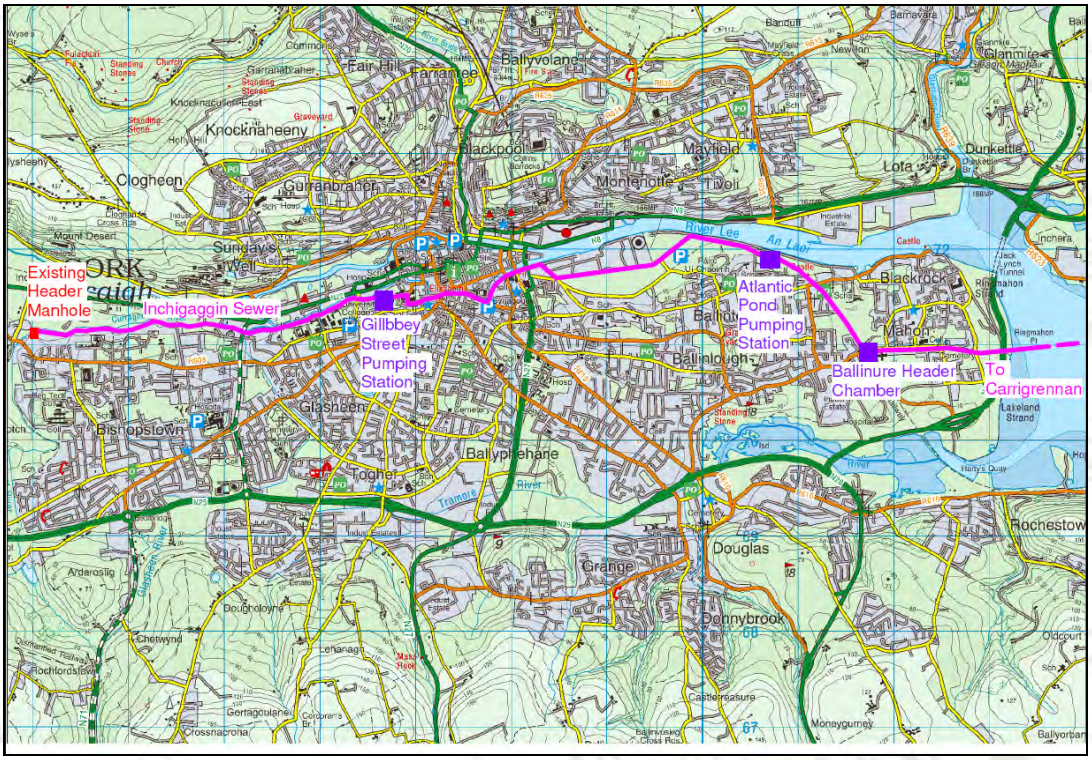


Figure 18.7: Route of the Inchigaggin Pipeline

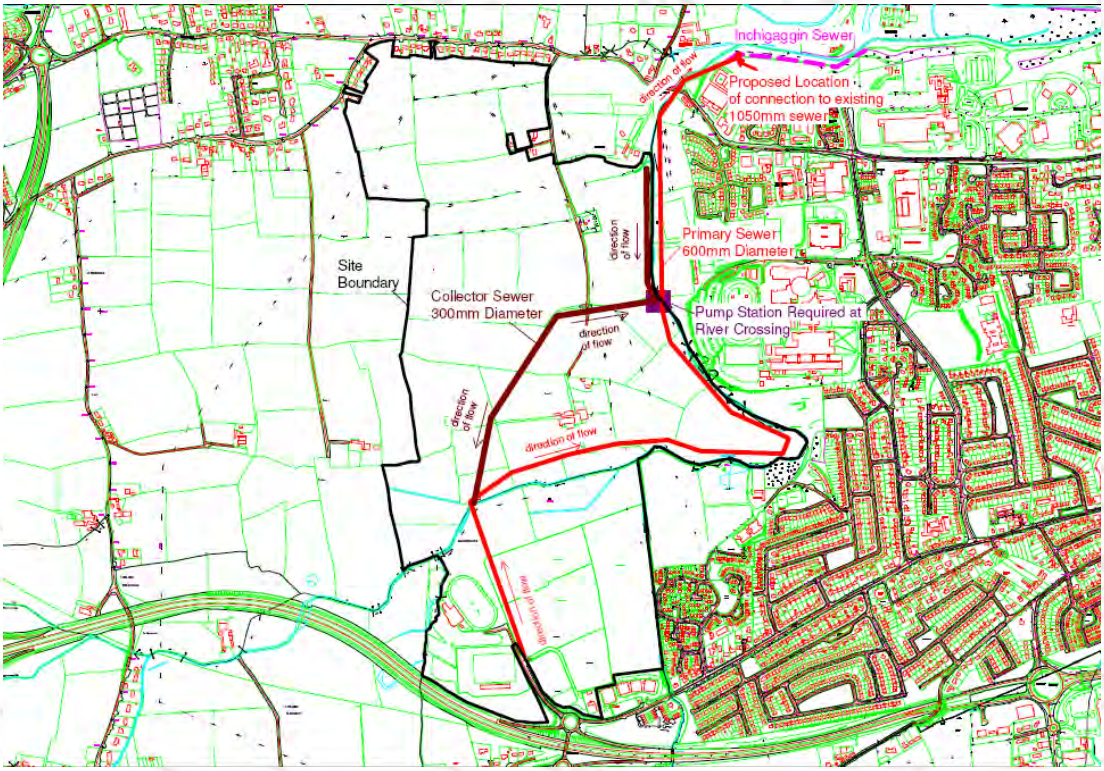


Figure 18.8: Proposed Sewer Route

Surface Water:
As stated, a flood study of the CSIP site area has been commissioned by Cork County Council in order to ascertain vulnerabilities to flooding and potential mitigation measures. That study will inform specific design decisions within the CSIP for affected areas, detailed in the form of 'Precinct Plans'.

Flooding has been identified as a feature of this site, in the vicinity of the traversing rivers. In accordance with DOEHLG guidelines, no development shall be sited within flood vulnerable areas within the site without first putting measures in place to compensate for the loss of areas within the flood plain. Hence, a possible solution is the creation of at least one permanent waterbody feature (possibly two, pending the final Flood Study findings). The water feature(s) may form part of the solution to the flooding issue, but each Precinct must address their individual onsite attenuation plans in accordance with sustainable urban drainage systems (SUDS) and *The Planning System and Flood Risk Management Guidelines.*

The main line road structure will require smaller attenuation ponds (possibly located near the new bridge structures) to address road surface water.

As a design principle for the CSIP, hardstanding areas shall be minimised and permeable surfacing shall be employed to minimise surface water runoff. Another core design principle, as set out in Appendix 6, shall be the collection and re-use of water whenever possible.

Telecommunications:
The CSIP site is strategically well located to accommodate telecommunications. It is located adjacent to the City Metropolitan Area Network and a number of telecom providers operate in this area.

Underground ducting will be provided along a proposed service corridor to facilitate the provision of an advanced telecommunications network. Wayleaves will be required both within the CSIP site footprint and through adjoining lands to accommodate the ducting.

Energy:
Energy provision and use are central themes within the CSIP project. It is proposed that the CSIP should strive to be a carbon neutral park and all operations within the CSIP will contribute to facilitating this achievement.

Specific design principles, as set out in Appendix 6, direct precinct and building design

toward energy efficiency. In addition, Appendix 4 sets out the principles and potential for energy generation and/or energy re-use within the CSIP.

A 'services loop corridor' shall be provided within the CSIP, along the primary and secondary road routes. The road, footpath and bridge designs shall specifically cater for this feature. The loop shall provide ducting to accommodate all services to the park and shall, critically, allow for the monitoring of resource use (water, energy, etc) within the park. This shall significantly aid in the maximising of efficiencies within the park, in accordance with the CSIP objectives and principles.

As noted in the previous paragraph, wayleaves will be required, both within the site footprint and in adjoining lands to facilitate the provision of a services corridor.

19. Development Contributions:

Contributions payable in respect of developments within the Cork Science and Innovation Park will include the following:

- Cork County Council's General Contribution Scheme, provided for under Section 48 of the Planning and Development Act, 2000.
- Special Development Contributions, provided for under Section 48 of the Planning and Development Act, 2000.

Special Contributions are required in respect of specific exceptional costs incurred by Cork County Council in the provision of infrastructure and facilities which benefit the proposed overall development and are not covered by the General Contribution Scheme. All developments within the masterplan site shall be subject to both the General and Special Development Contribution Schemes.

The overall budget costs of infrastructure provision to serve the Cork Science and Innovation Park, as well as the relevant contribution scheme, are as follows:

Summary of Budget Cost Plan		
Item & Undertaken By	**Cost €**	**Contribution Scheme**
Consultant Fees/ Advance Exploratory Studies *Cork County Council*	€1,080,000	Special Contribution
Access Road & Bridges *Cork County Council*	€8,120,000	Special Contribution
Water Supply *Cork County Council*	€2,070,000	General Contribution Scheme
Foul Sewer *Cork County Council*	€1,380,000	General Contribution Scheme
Storm Sewer *Cork County Council*	€230,000	General Contribution Scheme
Attenuation of Central Flood Risk Area - Waterbody *Cork County Council and/or Precinct Developer*	€1,600,000	Special Contribution
Vehicle Access Capacity Upgrade – Phase 2 *Cork County Council*	To be Determined	Special Contribution
Grouped Parking Areas and Secondary Pedestrian / Cyclist Access to CIT *Cork County Council and/or Precinct Developer and/or Park Management*	To be Determined	Special Contribution

Acquisition of lands For Access Road / Services	To be Determined	Special Contribution
Other Sundry Costs (including landscaping, alterations to CIT carpark, relocation of CIT attenuation pond, service provider costs etc.)	€450,000	Special Contribution
Site Supervision Costs	€640,000	Special Contribution
Contingencies (at 7.5% of estimated construction cost)	€750,000	Special Contribution

Note 1: Having regard to the long term nature of the project, the early stage in the planning process and the options available, the above funding costs are based on preliminary estimates and are subject to changes as the project progresses and the project costs become more certain.
Note 2: Alternative funding mechanisms are also being investigated.

Special Contributions shall be allocated on a pro-rata basis, linked to the benefit accruing to the development from the works undertaken to facilitate that proposed development.

Section 47 Agreements shall be used as an implementation tool for the provision of strategic infrastructure to serve the project and its transfer to Cork County Council. In the absence of agreement, Cork County council will use Compulsory Purchase Orders where necessary.

The infrastructure required to serve development within the park is based on the use of contributions as detailed above. As outlined in Section 11, each Precinct has its specific infrastructure requirements that must be overcome in order to 'unlock' its development potential. Connections and extension of the infrastructure shall be made as part of the development of each Precinct by the developer. The process and mechanisms that are required to be put in place to achieve this will be agreed as part of the Development Management statutory process.

20. Strategic Environmental Assessment / Appropriate Assessment:

Strategic Environmental Assessment:
The masterplan site has been included as a Special Policy Area (X-01) in the Draft Carrigaline Electoral Area Local Area Plan 2011. The development principles for the site are included in the Local Area Plan and the objective of X-01 identifies the key components of the project.

The principles behind the selection of the site and the composition of the land uses, has been subjected to the Strategic Environmental Assessment (SEA) undertaken for the Draft Carrigaline Electoral Area Local Area Plan. In addition, an Environmental Report has been prepared in conjunction with this Masterplan as part of the SEA process.

The Environmental Report, as part of the SEA process for this Masterplan, outlines potential impacts arising from this plan and appropriate mitigation measures arising. These measures have been incorporated into the Masterplan.

The issue of site selection and alternatives possible locations for this project has been addressed in the Environmental Report. The criteria for site selection is critical for the success of a science and innovation park and, in particular, the physical presence of UCC and CIT on the campus. It is the central involvement of the HEIs that lends the park its principle foundation for future success. With approx. 20% of the site area in UCC ownership and the presence of CITs main campus overlapping with the CSIP, no alternative existing site location can provide this level of necessary future interaction. Within Metropolitan Cork, the Cork Docklands project is an alternative suitable location for science and innovation development, but it currently does not, as yet, have the proximity characteristics to UCC & CIT that the CSIP site has.

Habitats Directive Assessment:
Habitats Directive Assessment (HDA), also known as Appropriate Assessment, is provided for under EU Habitats Directive 92/43/EEC as transposed into Irish Law through the European Communities (Natural Habitats) Regulations, 1997, SI no. 94 of 1997. The directive indicates the need for plans and projects to be subject to Habitats Directive Assessment if the plan or project is not directly connected with or necessary to the management of a Natura 2000 site, but is likely to have a significant effect either individually or in combination with other plans or projects on the site.

The screening assessments required under SEA / AA has been undertaken and the mitigation measures recommended have been incorporated into this Masterplan.

Environmental Impact Statements:
The CSIP project is environmentally assessed at plan level via the SEA process. This process identifies the known environment baseline, outlines the project characteristics, assesses potential environmental impacts and sets out appropriate mitigation and monitoring measures to be incorporated into the Masterplan.

It is noted that each development area, or Precinct, is sub-threshold in its statutory requirement to provide an EIS at planning application stage, as set out in Schedule 5 of the Planning and Development Regulations 2001. However, it is also noted that cumulatively the Precincts significantly exceed the thresholds as set out.

Having regard to the foregoing, and the quantum of development ultimately envisaged for the CSIP, it is important that the Precinct development approach is not seen as project-splitting. Hence, it is possible that the development of all or some Precincts shall be required to be accompanied by an Environmental Impacts Statement. A determination in this regard shall be required to be made at the planning consent stage of the process.

Appendix Foreword

The following appendices seek to support the fundamental concepts outlined within the main body of the masterplan document. The main body has identified the principles that underpin the CSIP project, the site specific considerations and the specific development quantums that apply to the identified Precincts.

The appendices are envisaged as supporting the delivery of the above vision, by providing a development roadmap towards the achievement of the overall vision for the CSIP. They seek to identify the critical principles that apply to green infrastructure, energy, mobility, design and construction, within the context of the CSIP project.

It is noted that aspects of the appendices overlap, which is inevitable considering the close relationship between these facets of sustainable development. In essence, they all seek to achieve the same fundamental objective of creating a sustainable development project in economic, functional and environmental terms.

The principles articulated should not been seen as limiting, but rather supporting appropriate design within each Precinct. It is expected that design teams, via the preparation of 'Precinct Plans', shall develop even further the principles outlined herein.

In addition, it is envisaged that the future Park Management / Governance bodies shall assist in the co-ordination of the individual Precincts towards the creation of a science and innovation park that is greater than the sum of its parts, contributing to the creation of a strong park brand.

Appendix 1 – Key Actions

The following Key Actions are required to be undertaken in the fulfilment of the delivery of the masterplan for the CSIP. The actions, while approximately sequential, are not in fixed order.

Key Actions:

- Establishment of Governance Body / Management Structures
- Completion of Strategic Environmental Assessment of Masterplan
- Acquisition of Development Rights, as required, for implementation of;
    - Road works, including primary and secondary network
    - Landscaping, including development of water feature
    - Infrastructure provision, including water supply, foul sewer, storm/surface water, flood attenuation, IT, utilities
    - Car parking, by use of existing parking areas and development of new parking areas
- Acquisition of necessary planning consents for above works
- Future detailed access capacity upgrade study
- Future Needs and Demand Analysis for CSIP
- Development of Precinct Plans
- Establish monitoring, assessment & review of the CSIP Masterplan targets across a range of issues including mobility management, environmental management and economic indicators.

It is appropriate that the Governance Body / Management Structures are established at the earliest opportunity post-agreement of the Masterplan. This park governance structure should play a key role in the co-ordination of development across the park, in order to maintain momentum within the project and also to ensure operational co-operation between Precincts. This, for example, will be critical in the management of mobility where co-ordination will achieve increased efficiencies and effectiveness. It is also critical in creating the operational environment that shall encourage interactions within the park, as well as between the park and the wider business world.

Appendix 2 – Green Infrastructure Management

Green infrastructure is the network of multi-functional green spaces and linkages in the countryside, as well as in development area environs. It can include features such as parks, gardens, woods, nature reserves and water-bodies. Linkages include linear features such as off road paths, highways, rivers, streams or hedgerows, which can provide dispersal corridors for wildlife and connect people to open spaces.

Green infrastructure includes all aspects of human activity. Design, energy and mobility are addressed separately herein, so the specific focus of this appendix is on landscape, ecology & heritage.

The concept of green infrastructure planning is based on a strategic approach to ensuring that environmental assets of natural and cultural value are integrated with land development, growth management and built infrastructure planning at the earliest stage. This approach enables land management to be more proactive, less reactive and better integrated with efforts to manage growth and development at all spatial planning levels. Green infrastructure planning is, therefore, a key mechanism for delivering sustainable communities and quality of life benefits within growth areas.

The Key Principles of the green infrastructure as applied to the CSIP are;

Green Infrastructure Principle 1: To protect the existing key physical, natural, ecological, landscape, historical, access and recreational assets that contribute to the functionality of the green infrastructure network

Green Infrastructure Principle 2: To ensure the protection of all archaeological and architectural heritage in consultation with the Department of Arts, Heritage and the Gaeltacht

Green Infrastructure Principle 3: To ensure the protection of all protected species and habitats

Green Infrastructure Principle 4: To promote and implement measures to control and manage alien/noxious species and noxious weeds in consultation with the NPWS

Green Infrastructure Principle 5: To create new and enhanced assets that improve the functionality of the green infrastructure network - including opportunities for landscape and habitat enhancement, and the provision of new green spaces and green links

Green Infrastructure Principle 6: To create a hierarchy of green space provision, in terms of

location, function, size and levels of accessibility / use

Green Infrastructure Principle 7: To integrate green infrastructure provision into development schemes

Green Infrastructure Principle 8: To monitor biodiversity levels within the CSIP.

Green Infrastructure Principle 9: To include potential impacts arising from climate change into assessment of Precinct Plans and future Masterplan reviews.

The above principles have informed the layout of the park as proposed herein. Specifically, an existing ecological corridor along the Curragheen River has been protected from intrusion, with enhanced biodiversity proposed via the creation of the water body. It is also envisaged that all existing natural landscaping within the CSIP, unless shown to be already compromised, shall be retained and enhanced throughout the park's development and operation.

It is expected that Precinct Plans shall incorporate the above principles to inform the design rationale. Specifically, Precinct Plans must demonstrate that landscape, ecology and heritage have been incorporated at an early stage into their planning. The resulting designs and layouts should allow for the protection and, where possible, enhancement of these features.

On a more strategic scale, it is envisaged that the CSIP shall form a critical element of green infrastructure within Metropolitan Cork. It is the stated policies of Cork County and City Councils to enhance and develop green corridors between Cork City and the surrounding urban / peri-urban areas. The CSIP has the potential to provide an important link in such a corridor to the west of Cork City.

Green Infrastructure Principle 1
- To protect the existing key physical, natural, ecological, landscape, historical, access and recreational assets that contribute to the functionality of the green infrastructure network

Green Infrastructure Principle 2
- To ensure the protection of all archaeological and architectural heritage in consultation with the Department of Arts, Heritage and the Gaeltacht

Green Infrastructure Principle 3
- To ensure the protection of all protected species and habitats

Green Infrastructure Principle 4
- To promote and implement measures to control and manage alien/noxious species and noxious weeds in consultation with the NPWS

Green Infrastructure Principle 5
- To create new and enhanced assets that improve the functionality of the green infrastructure network - including opportunities for landscape and habitat enhancement, and the provision of new green spaces and green links

Green Infrastructure Principle 6
- To create a hierarchy of green space provision, in terms of location, function, size and levels of accessibility / use

Green Infrastructure Principle 7
- To integrate green infrastructure provision into development schemes

Green Infrastructure Principle 8
- To monitor biodiversity levels within the CSIP.

Green Infrastructure Principle 9
- To include potential impacts arising from climate change into assessment of Precinct Plans and future Masterplan reviews.

Appendix 3 – Waste Management

Traditionally, land use planning and waste management functions have been undertaken in isolation from each other. However, policy and operational changes are beginning to address this issue and reflect a new approach to environmental management.

Planning for waste management is underpinned by detailed data collation in relation to the origin, quantity and composition of the waste stream. There can be significant variations in the proportions of different wastes generated and waste management plans must reflect these variations.

A range of alternative technologies for waste treatment are available, often including energy recovery. They include;
- composting
- anaerobic digestion
- energy recovery
- thermochemical processes

These technologies raise varying issues associated with their application, such as;
- differing environmental impacts
- considerable variation in cost structures
- different sensitivities with regard to scales of operation.

No one solution can address all waste management requirements. Consequently, the emphasis of this policy statement is on integrated waste management.

Each Precinct Plan should incorporate at an early stage the elements of best practice in waste management, based on the following principles;

Waste Management Principle 1: Prevention of waste generation

Waste Management Principle 2: Minimisation of waste generation

Waste Management Principle 3: Reuse of waste outputs

Waste Management Principle 4: Recycling of waste outputs

Waste Management Principle 5: Disposal of waste outputs

As critical mass increases within the park, appropriately co-ordinated waste management has the potential to secure efficiencies and underpin the CSIP sustainability branding. A Site Waste Management Plan (SWMP) should be developed for each Precinct and needs to be incorporated into the design stage. Early inclusion of best practice principles enhances the

adoption of good practice waste minimisation in design and subsequent operation.

Principle 6: Development of Site Waste Management Plan to underpin Precinct design concepts

Principle 7: Identification of opportunities to implement co-ordinated waste management strategy to serve CSIP

Principle 8: Identification of measures to avoid or minimise impacts on air quality.

Waste Management Principle 1
• Prevention of waste generation
Waste Management Principle 2
• Minimisation of waste generation
Waste Management Principle 3
• Reuse of waste outputs
Waste Management Principle 4
• Recycling of waste outputs
Waste Management Principle 5
• Disposal of waste outputs in a manner that ensures that no environmental impacts arise
Waste Management Principle 6
• Development of Site Waste Management Plan to underpin Precinct design concepts
Waste Management Principle 7
• Identification of opportunities to implement co-ordinated waste management strategy to serve CSIP
Waste Management Principle 8
• Identification of measures to avoid or minimise impacts on air quality.

Appendix 4 – Energy Management

Energy and the important role it performs in assisting / sustaining economic growth is widely recognised. The energy sector targets, as defined by the *Department of Communication, Energy and Natural Resources,* are;

- To develop a competitive energy supply industry.
- To ensure security and reliability of energy supply.
- To develop energy conservation and end-use efficiency.

In new build projects there is significant scope to investigate the potential for energy conservation, as well as local energy generation. Many of the design principles as set out in Appendix 6 highlight the need to incorporate into the early design process energy efficiencies.

Energy Principle 1: To incorporate energy efficiency considerations into the initial Precinct/building design stage

There are also potential enhanced benefits inherent in co-ordinating development within a larger development programme – as for example within the CSIP. A community approach can lead to greater efficiencies in on-site energy generation and efficient energy usage.

Within a project such as the CSIP, the potential exists to seek enhanced environmental, economic, and social performance through collaboration in managing environmental and resource issues. By working together, the community of activities can create park benefits that are greater than the sum of individual benefits each activity would realize by only optimizing its individual performance.

Energy Principle 2: Identification of opportunities to implement co-ordinated energy use strategy to serve CSIP

The use of Energy Management Plans (EMPs) can result in significant improvements in the economic performance of the participating users, while at the same time minimizing the resulting environmental impacts. Components of this approach include green design of park infrastructure and plant, pollution prevention, energy efficiency and inter-user partnering.

Such an approach will achieve profitable return on investment while demonstrating an environmentally and socially sound form of real estate development. This model of development is a significant element for sustainable regional development.

An Energy Management Plan is a critical management tool that clearly articulates the measures that are, or will be, deployed by a park user to reduce its energy consumption. The scope and coverage of the EMPs can vary and users must decide on the different hierarchical levels of EMPs they require for their building and Precinct. The number of EMP tiers will be determined by factors such as the size and complexity of the portfolio within a particular Precinct.

Energy Principle 3: Development of Energy Management Plan to underpin Precinct design concepts
Examples of particular technologies that may form part of an EMP include;
- Passive Solar Design
- Energy Management, Conservation & Performance
- Lighting Management
- Space Heat Management
- Solar Energy
- Geothermal Energy
- Water Management & Conservation
- External Water Use & Management
- Sustainable Urban Drainage Systems (SUDS)
- Waste Minimisation & Management

It is envisaged that the above technologies and concepts, in conjunction with complimentary technologies, will be incorporated where practicable into Precinct Plans and building designs. A balance needs to be established in the design outputs between energy generation/conservation goals and additional design parameters (such as, visual impacts, impacts on nearby users, etc). Hence, a holistic approach must be taken when incorporating technologies into designs.

Energy Principle 4: Implementation of energy technologies will be compatible with overall masterplan objectives and principles
The provision of a service conduit 'loop' to facilitate implementation of an energy management system, is envisaged to serve the park. This 'loop' should be planned for and facilitated as part of the road and associated infrastructure design. Such provision will allow for the future monitoring, management and upgrading of energy management within the CSIP.

Energy Principle 5: Provision of energy 'loop' to facilitate future energy monitoring, management and upgrading within the park

Energy Principle 1
- To incorporate energy efficiency considerations into the initial Precinct/building design stage

Energy Principle 2
- Identification of opportunities to implement co-ordinated energy use strategy to serve CSIP

Energy Principle 3
- Development of Energy Management Plan to underpin Precinct design concepts

Energy Principle 4
- Implementation of energy technologies will be compatible with overall masterplan objectives and principles

Energy Principle 5
- Provision of energy 'loop' to facilitate future energy monitoring, management and upgrading within the park

Appendix 5 – Mobility Management

This appendix seeks to build upon Section 13 and sets out mobility principles that it is intended will inform future 'Precinct Plans'.

It is previously recognised in Section 13 that the management of movements within and to/from the park are of paramount importance and, hence, the core mobility principles of the CSIP are:

Principle 1: To ensure all development within the CSIP is designed to facilitate use by public transport, maintenance, delivery, construction, emergency disabled-person vehicle access, as appropriate, as well as facilitate limited private vehicle access

Principle 2: To ensure all developments within the CSIP is designed so as to allow priority use by pedestrians, cyclists and internal movement devices (shuttle bus, etc)

Principle 3: To ensure the creation of people centred spaces and movement routes

The design and layout of the CSIP as outlined in earlier sections of this masterplan identifies future communal parking areas at the southern and northern site boundaries, with integrated mobility management in tandem with Cork Institute of Technology. It is envisaged that this parking area shall be surface parking initially, rising to multi-level parking as may be required as the park grows.

Access to specific and CIT Precincts (outside of private vehicle access) from these parking areas shall be via the following methods, as part of the CSIP's grouped parking strategy:

- Walking
- Cycling
- Shuttle bus service

In addition, expansion of the park to reach its ultimate carrying capacity is predicated on the provision of an integrated transit system within Metropolitan Cork. It is anticipated that existing bus public transport and the future BRT system will access the centre of the park and, thereby reduce walking distances to approx. 300/400m maximum.

Principle 4: To facilitate the provision of a rapid transit system to traverse the CSIP

Hence, as outlined in Appendices 6 and 7, Precinct designs will be required to create interconnected weather-resistant movement corridors, along pedestrian desire lines. Effective design at conceptual stage can increase comfort and, hence, user ratios.

Principle 5: To ensure the integration of internal park movement within Precinct Plans and in association with individual building designs

Principle 6: To co-ordinate CSIP mobility management with the management of traffic using the Cork Institute of Technology

The reduction in vehicle parking within individual Precincts offers an opportunity to provide more efficient and attractive locations within the park. The floorspace provision within individual Precincts is ambitious and relies on reduced car parking within Precinct Plans. If increased vehicle volumes are introduced into Precincts, the design dynamic fundamentally alters and will require a reappraisal.

Principle 7: To commit in the long-term to a 'reduced car' campus.

Principle 8: To ensure the development of the CSIP supports and facilitates the provision of alternative modes of transport and access to that of the private car, and to protect the strategic investments in the national road network.

In terms of car parking spaces provided, a phased approach in tandem with the park's development is advocated. Initially, surface car parking within the designated parking areas shall be sufficient to accommodate the park user's needs. The early provision during Phase 2 of a shuttle bus service within the park and serving the CIT would enhance the offering significantly.

Parking areas are calculated according to employee levels and modal shift achieved. Hence, it is envisaged that the CSIP – in co-ordination with the Cork Institute of Technology – will promote at an early stage the use of alternative transports modes other than private vehicles.

It should be noted that science and innovation parks tend to achieve higher rates of modal shift to public transport and the CSIP site has the potential to be served by a high standard of public transportation.

Parking spaces should be 2.5m x 4.8m in area, with disabled parking (3m wide) provided as a minimum at 1 per 100 spaces. It may be a requirement to provide additional limited disabled spaces adjoining buildings.

Integrating the above, as well as additional management measures, will be the Mobility

Management Plan commissioned by Cork County Council. However, at Precinct level and lower, mobility management and the implementation of travel plans is of high importance towards achieving significant modal shift.

Principle 9: To ensure that the CSIP Mobility Management Plan is actively implemented in the CSIP site. The implementation of the Plan must be monitored on an ongoing basis.

Mobility Principle 1:
• To ensure all development within the CSIP is designed to facilitate occasional use by public transport, maintenance, delivery, construction, emergency and disabled-person vehicle access, as appropriate
Mobility Principle 2:
• To ensure all developments within the CSIP is designed so as to allow priority use by pedestrians, cyclists and internal movement devices (shuttle bus, etc)
Mobility Principle 3:
• To ensure the creation of people centred spaces and movement routes
Mobility Principle 4:
• To facilitate the provision of a rapid transit system to traverse the CSIP
Mobility Principle 5:
• To ensure the integration of internal park movement within Precinct Plans and in association with individual building designs
Mobility Principle 6:
• To co-ordinate CSIP mobility management with the management of traffic using the Cork Institute of Technology
Mobility Principle 7:
• To commit in the long-term to a 'reduced car' campus
Mobility Principle 8:
• To ensure the development of the CSIP supports and facilitates the provision of alternative modes of transport and access to that of the private car, and to protect the strategic investments in the national road network.
Mobility Principle 9:
• To ensure that the CSIP Mobility Management Plan is actively implemented in the CSIP site. The implementation of the Plan must be monitored on an ongoing basis.

Appendix 6 – Sustainable Design Principles

Introduction:
The practices and technologies employed in building design are constantly evolving and differ across varying locations. However, there are fundamental principles of sustainable building design that are common to all development projects. The essence of sustainable building, or green building as it is often referred to as, is an optimization of the following principles:

- Siting and Structure Design Efficiency
- Energy Efficiency
- Water Efficiency
- Materials Efficiency
- Indoor Environmental Quality
- Qperations & Maintenance Optimization
- Waste Reduction

Also, within an appropriate masterplan design framework, individual green building technologies may work together to produce a greater cumulative effect.

In aesthetic terms, green architecture is the philosophy of designing a building that is in harmony with the natural features and resources surrounding the site. There are several key steps in designing sustainable buildings: specify 'green' building materials from local sources, reduce loads, optimize systems, and generate on-site renewable energy.

Siting and Structure Design Efficiency:
The foundation of any construction project is rooted in the concept and design stages. The concept stage, in fact, is one of the major steps in a project life cycle, as it has the largest impact on cost and performance. In designing environmentally optimal buildings, the objective is to minimize the total environmental impact associated with all life-cycle stages of the building project.

However, building as a process is not as streamlined as an industrial process, and varies from one building to the other, never repeating itself identically. In addition, buildings are much more complex products, composed of a multitude of materials and components each constituting various design variables to be decided at the design stage. A variation of every design variable may affect the environment during all the building's relevant life-cycle stages.

Design Principle 1: To Incorporate sustainability principles at the concept and design stages

Energy Efficiency
Green buildings often include measures to reduce energy use. To increase the efficiency of the building envelope, (the barrier between

conditioned and unconditioned space), they may use high-efficiency windows and insulation in walls, ceilings, and floors.

Another strategy, passive solar building design, is often implemented in low-energy structures. Designers orient windows and walls and place awnings, porches, and trees to shade windows and roofs during the summer while maximizing solar gain in the winter. In addition, effective window placement (day lighting) can provide more natural light and lessen the need for electric lighting during the day. Solar water heating further reduces energy loads.

Power generation is generally the most expensive feature to add to a building and is best utilised to compliment the energy passivity of the design. On-site generation of renewable energy via a range of options can significantly reduce the environmental impact of the building. However, it is critical to its efficacy that any on-site energy generation is designed specifically for the building(s) it serves. Furthermore, on-site energy sources should be capable of demonstrating their long term feasibility in empirical terms.

Design Principle 2: To achieve the highest level of passivity in design as is practicable

Design Principle 3: To use energy only to supplement passive design, and on-site energy sources where practicably achievable

Water Efficiency:
Reducing water consumption and protecting water quality are key objectives in sustainable building. One critical issue of water consumption is the demands on the supplying aquifer exceeding its ability to replenish itself. To the maximum extent feasible, green buildings should increase their dependence on water that is collected, used, purified, and reused on-site.

The protection and conservation of water throughout the life of a building may be accomplished by designing for a range of low-water usage elements.

Point of use water treatment and heating improves both water quality and energy efficiency while reducing the amount of water in circulation. The use of non-sewage and greywater for on-site use such as site-irrigation will minimize demands on the local aquifer.

Design Principle 4: To minimise water usage via smart design and technology

Materials Efficiency:
Building materials typically considered to be sustainable include rapidly renewable plant materials, timber from forests certified to be sustainably managed, ecology blocks, dimension stone, recycled stone, recycled metal, and other products that are non-toxic, reusable, renewable, and/or recyclables.

Building materials should, as an initial principle, be extracted and manufactured locally to the building site to minimize the energy embedded in their transportation. However, embedded energy assessments must also account for the efficiencies inherent in bulk production and transportation that can often compete favourably with locally produced products on a small scale.

Where possible, building elements should be manufactured off-site and delivered to site, to maximise benefits of off-site manufacture including minimising waste, maximising recycling (because manufacture is in one location), high quality elements and less noise and dust creation.

Regard needs also to be had to the lifespan of materials used. A balance must be achieved between using energy efficient and ecologically sustainable materials against the requirement to replace those materials.

Design Principle 5: To use building materials with minimal embedded energy and minimal ecological footprint, assessed across the total lifespan of its use

Indoor Environmental Quality:
Indoor environmental quality seeks to provide comfort, well-being, and productivity of occupants, with regard to indoor air quality, thermal quality and lighting quality. This may be of particular importance to some future research / technological activities within the CSIP.

Indoor Air Quality seeks to reduce volatile organic compounds and other air impurities such as microbial contaminants. Buildings rely on a properly and adequate ventilation and air filtration, as well as isolate operations from other occupancies.

During the design and construction process choosing construction materials and interior finish products with zero or low emissions will improve indoor environmental quality. Many building materials require cleaning/maintenance products emit toxic gases, such as volatile organic compounds and formaldehyde. These gases can have a detrimental impact on occupants' health and productivity. Avoiding the use of such materials will increase a building's indoor environmental quality.

Personal temperature and airflow control over the HVAC system coupled with a properly designed building envelope will aid in increasing a building's thermal quality. Creating a high performance luminous environment through the careful integration of natural and artificial light sources will improve on the lighting quality and efficiency of a structure.

The integration of the above considerations with high quality people-centred design, has a fundamental impact on the indoor environmental quality of the building and enhances the user experience.

Design Principle 6: To create a sustainable indoor environmental quality that contributes to the on-going environmental sustainability of the building and underpins the quality of user experience

Operations and Maintenance Optimization:
No matter how sustainable a building may have been in its design and construction, it can only remain so if it is operated responsibly and maintained properly. Ensuring operations and maintenance personnel are part of the project's planning and development process will help retain the green criteria designed at the onset of the project

Every aspect of green building is integrated into the operations and maintenance phase of a building's life. The addition of new green technologies also falls on the operations and maintenance staff. Although the goal of waste reduction may be applied during the design and construction phases of a building's life-cycle, it is in the operations and maintenance phase that green practices such as recycling and air quality enhancement take place.

Design Principle 7: To ensure that the operation and maintenance considerations are incorporated into the design concept of the building

Waste Reduction:
Green architecture seeks to reduce waste of energy, water and materials used during construction. During this phase, a central goal should be to reduce the amount of material going to landfills.

Well-designed buildings also help reduce the amount of waste generated by the occupants, by providing on-site solutions such as compost bins to reduce matter going to landfills.

Several options exist to reduce the impact on wells or water treatment plants. Greywater (wastewater from sources such as dishwashing or washing machines) can be used for subsurface irrigation, or if treated, for non-

potable purposes, e.g., to flush toilets and wash cars. Rainwater collectors are used for similar purposes.

Also, conversion of waste and wastewater into usable products, such as fertilizer, can be a meaningful alternative to centralized wastewater treatment systems that use a high level of energy overall. Such conversion can be achieved on-site, however, any such system needs to be compatible with the nearby land uses in terms of odours, etc. Such practices, or similar, provide soil with organic nutrients and create carbon sinks that remove carbon dioxide from the atmosphere, offsetting greenhouse gas emission.

Design Principle 8: To ensure the minimisation of waste production and the re-use of waste products during the design, construction and operational phases of the building project.

Building Adaptability:
Adaptability comes in two principle forms: use and future environmental conditions.

Building users change over time and it is not sustainable to replace completely or substantially retrofit existing facilities. While it is acknowledged that such actions are required in some circumstances, appropriate design consideration at an early stage can reduce significantly the need to fundamentally alter the building form. Hence, building designs should be capable of demonstrating their ability to convert easily to alternative uses (usually within the same or similar use classes). This adaptability often comes in the form of modulated building practices and appropriate provision of service conduits.

In terms of environmental adaptability, buildings need to be future-proofed as much as is possible. This is one of the core principles underpinning energy efficiencies in building design. However, future energy resources are not the only future fundamental changes that are predicted to occur. Future climate changes are also likely to require buildings to be adaptable to variances in weather and linked impacts. Again, when incorporated into the design scheme at an early stage, mitigation against future environmental variables do not impact negatively on building form, cost or functionality. In fact, it is often the case that such mitigation enhances the design outcome.

Design Principle 9: To ensure the adaptability of structures to future uses and future environmental conditions

Cost and Payoff:
The most criticized issue about constructing environmentally friendly buildings is the price. Photovoltaics, for example, and modern technologies tend to cost more money. Most

green buildings cost a premium of <2%, but yield 10 times as much over the entire life of the building. The difficulty exists between the knowledge of up-front cost versus life-cycle cost.

The savings in money come from more efficient use of utilities which result in decreased energy bills. In well designed, studies have demonstrated that in appropriately constructed and operated buildings the monetary saving can be significant. Also, higher worker productivity can result in savings and cost deductions.

Further studies of the commercial real estate market have found that efficient and sustainable buildings achieve significantly higher rents, sale prices and occupancy rates as less well designed schemes.

Soil Management:
Early design considerations regarding the management of the site's natural features, including soil, will mitigate significantly potential impacts arising from development. The role soil plays in the biodiversity and integrity of the site's environment is critical.

Design Principle 10: To ensure that soil management is incorporated into all design stages of development.

Surface Water Management:
Flooding and surface water management are important elements of creating sustainable development that are future-proofed. The CSIP site is subject to flooding to varying extents and this threat must be adequately dealt with at planning consent stage.

The CSIP Masterplan has identified the extent of flooding within the site, however, no single solution to address this issue within the CSIP is available. Hence, it is for individual Precincts to establish solutions to flooding and surface water disposal.

Design Principle 11: Where Precincts are the subject of flooding, development proposals must be accompanied by a brief that shows how the proposed development complies with the guidelines as set out in *The Planning System and Flood Risk Management.*

Design Principle 12: Applications for planning consent must be accompanied by surface water management plans, having regard to flood risk and surface water management proposals for other Precincts.

Design Principle 1
•To Incorporate sustainability principles at the concept and design stages.
Design Principle 2
•To achieve the highest level of passivity in design as is practicable.
Design Principle 3
•To use energy only to supplement passive design, and on-site energy sources where practicably achievable.
Design Principle 4
•To minimise water usage via smart design and technology
Design Principle 5
•To use building materials with minimal embedded energy and minimal ecological footprint, assessed across the total lifespan of its use.
Design Principle 6
•To create a sustainable indoor environmental quality that contributes to the on-going environmental sustainability of the building and underpins the quality of user experience.
Design Principle 7
•To ensure that the operation and maintenance considerations are incorporated into the design concept of the building.
Design Principle 8
•To ensure the minimisation of waste production and the re-use of waste products during the design, construction and operational phases of the building project.
Design Principle 9
•To ensure the adaptability of structures to future uses and future environmental conditions.
Design Principle 10
• To ensure that soil management is incorporated into all design stages of development.
Design Principle 11
• Where Precincts are the subject of flooding, development proposals must be accompanied by a brief that shows how the proposed development complies with the guidelines as set out in *The Planning System and Flood Risk Management.*
Design Principle 12
• Applications for planning consent must be accompanied by surface water management plans, having regard to flood risk and surface water management proposals for other Precincts.

Appendix 7 – Construction Management

With particular regard to long-term development horizon for the CSIP project, the management of construction activity within the site is of paramount important. The use of Construction Management Plans (CMPs) can form a clear framework within which the construction phasing can evolve.

The content of Construction Management Plans can vary widely, depending on the exact nature of the work required to be undertaken, the timing, pace and sequence of those works, the construction methods employed, as well as potential impacts of on-going adjacent construction activity. However, they generally address the following key areas:

- Public safety
- Amenity
- Site security
- Operating Hours
- Noise
- Vibration
- Air and dust
- Soil and water
- Construction waste
- Construction traffic
- Construction methods

It is envisaged that each Precinct Plan / individual building design proposal shall be informed by a clear CMP, which allows for impacts as outlined to be minimised.

Construction Principle 1: Construction Management Plans shall inform and be provided with all development proposals within the CSIP

Having regard to parallel development phasing advocated within the masterplan, it is critical that on-going construction works do not create a barrier to potential investment. Efficiencies in this regard can potentially be achieved via a co-ordinated strategy to facilitate delivery of construction materials, storage of materials and access by construction personnel.

Construction Principle 2: Construction Management Plans shall be co-ordinated between Precincts to maximise efficiencies and minimise impacts on existing and potential CSIP activities

There is an inherent advantage in the use of building elements that are manufactured and partially constructed off-site. As already highlighted in the masterplan, such an approach minimises waste and maximises recycling due to manufacture being in a single location. However, the use of such building elements also results in

reduced on-site construction noise, dust creation, frequency of construction traffic, etc.

Construction Principle 3: Building designs should seek to minimise construction impacts, via the use of pre-assembled building elements and complimentary technologies.

It is important that water quality within the site is protected during the construction phases and in the longer trem.

Construction Principle 4: All construction within the CSIP shall be carried out in accordance with best practice to protect water quality and habitats and other natural features of the landscape which have been identified, or arre identified, to be retained on site.

Construction Principle 1
- Construction Management Plans shall inform and be provided with all development proposals within the CSIP

Construction Principle 2
- Construction Management Plans shall be co-ordinated between Precincts to maximise efficiencies and minimise impacts on existing and potential CSIP activities

Construction Principle 3
- Building designs should seek to minimise construction impacts, via the use of pre-assembled building elements and complimentary technologies.

Construction Principle 4:
- All construction within the CSIP shall be carried out in accordance with best practice to protect water quality and habitats and other natural features of the landscape which have been identified, or are identified, to be retained on site.

Appendix 8 – CSIP Design Statement and Planning Consent Procedures

The purpose of the CSIP Design Statement is to create a focus for the Precinct design team and the planning authority, in order to achieve the overall objectives of the CSIP, as well as the design principles of the masterplan as set out in Appendices 2 – 7.

Introduction:
Addressing climate change has been identified by the Irish Government as a key challenge facing Ireland. Specifically, implementing mitigation measures and meeting our Kyoto emissions limits are critical. Also fundamental to our future sustainability is the reversing of our dependence on imported energy. These issues, coupled with the ongoing process of creating high quality places, underpin the Department of Environment, Heritage and Local Government's approach to land use development.

The following passage is quoted directly from the Department of Environment, Heritage and Local Government's *Urban Design Manual - A best practice guide*:

'The core aim of the Guide is to provide developers, designers and planners with the information and support they need to improve the design quality and sustainability of the development schemes with which they are involved. The Guide therefore seeks to fulfil a number of different roles. It will need to be useful when developers are selecting a site and briefing their design team; in helping to frame design statements and planning applications; and in helping planning authorities to assess the quality of submitted planning applications.

How well a site's context is understood by the designers of a scheme will perhaps be the most important determinant of how successful the scheme will ultimately be. Those proposing a scheme will need to communicate their understanding of a site's context clearly and simply. Demonstrating that the design has undergone a thorough site analysis, context review and appropriate response, will aid the dialogue in the design process between developers, their agents, local authorities and the community.'

The CSIP Design Statement seeks to build upon this rationale, in order to create a focus for the design and development dialogue that will inform the development of the CSIP.

Structure:
The proposed design statement is drafted in the form of a questionnaire, to be completed by the design team as part of the design process and

subsequent planning consent procedures. It is envisaged that this design statement will inform proposals for development works within the CSIP.

Purpose and Content:
The purpose of this design statement is to ensure that best practice principles are at the core of future design of the CSIP and to reinforce the linkage between the masterplan principles and implementation. It is often not feasible to incorporate best practice late in the design process, hence, greatest efficiencies can be achieved at the conceptual stage if carried through to completion and operation.

The combined aims of national land use related policies are varied, but interlinked. They include, improving citizens' quality of life, reduction in travel distances/times, increase in affordable choices to citizen's across a range of sectors, improvement in environmental quality across a range of criteria, increased economic and infrastructural efficiencies, reduction in harmful and costly emissions, support to new/adapted technologies and reduction in dependence on energy – in particular imported energy. To achieve these combined aims underpins the successful attraction of inward investment, a particular requirement of a Ireland's economic model.

The full CSIP Design Statement is attached overleaf.

CIP DESIGN STATEMENT

1. CONTEXT
1.1 How has the development proposed evolved naturally as part of its surroundings?
1.2 How does the density proposed respect the form of buildings and landscape around the site's edges and the amenity enjoyed by neighbouring users?
1.3 How has the form, architecture and landscaping proposed been informed by the development's place and time?
1.4 How does the proposed development positively contribute to the character and identity of the Precinct?
1.5 How does the development as proposed respond to the nature of specific boundary conditions?

2. CONNECTIONS
2.1 How does the development concept address the Mobility Principles set out in the CSIP Masterplan and the measures included in the CSIP Mobility Management Plan?
2.2 Are specific design measures included in the proposed development to give effect to facilitating modal shift?
2.3 How are attractive and weather resistant routes for pedestrians / cyclists, to and from the proposed development, provided?
2.4 Does the proposed development's layout make it easy for users to access public transport within the scheme? If yes, please demonstrate same.
2.5 Does the layout as proposed provide links to existing movement routes and the places people will want to get to? If yes, please demonstrate same.

3. INCLUSIVITY
3.1 How does the design and layout enable easy access by all potential users?
3.2 Does the layout proposed provide appropriate public realm, within the context of the wider Precinct / CSIP? Please provide quantitative as well as qualitative analysis.
3.3 Is the public realm provided clearly defined, accessible and open to all potential users? If yes, please demonstrate how this is achieved.
3.4 Do the buildings proposed present a positive aspect to passers by, avoiding unnecessary physical and visual barriers / intrusion? If yes, please demonstrate how this is achieved.

4. VARIETY
4.1 How do the activities generated by the development contribute to the quality of life in its precinct?
4.2 Are the proposed uses that attract the most people in the most accessible places? If yes, please demonstrate how this is achieved.
4.3 In the context of the proposed development, are neighbouring uses and activities compatible with each other? If yes, please explain.
4.4 Does the proposed development provide 'reality of life' support services that complement those already available in the Precinct / CSIP? If yes, please provide relevant details.

5. EFFICIENCY
5.1 Are landscaped areas designed to provide a) amenity b) biodiversity, c) protect buildings and spaces from the elements and d) incorporate sustainable urban drainage systems? If yes, please provide relevant details.
5.2 Does the proposed design and layout allow for water conservation? If yes, please provide relevant details.
5.3 Are buildings, gardens and public spaces laid out to exploit the best solar orientation? If yes, please provide relevant details.
5.4 Has waste management and recycling informed the proposed design and layout? If yes, please provide relevant details.
5.5 How does the scheme design and layout incorporate permeable surfaces?

6. DISTINCTIVENESS
6.1 Does the layout makes the most of the opportunities presented by existing buildings, landform and ecological features to create a memorable layout? If yes, please provide relevant details.
6.2 Does the proposal successfully exploit views into and out of the site? If yes, please provide relevant details.
6.3 Is there a discernable focal point(s) to the proposed development scheme, or does the proposal reinforce the role of an existing focal point? If yes, please provide relevant details.
6.4 Does the proposal protect existing landscape and historical features to inform a design which retains a 'memory' of the original site location? If yes, please provide relevant details.

7. LAYOUT
7.1 How does the layout align routes with desire lines to create a permeable interconnected series of routes that are easy and logical to navigate around?
7.2 How does the layout focus activity on the movement corridors by creating active building frontages?
7.3 Are the movement corridors designed as places instead of roads for vehicles, helping to create a hierarchy of space with less busy routes having surfaces shared by pedestrians, cyclists and occasional drivers (in accordance with the CSIP Mobility Principles)? If yes, please provide relevant details.
7.4 Does the layout as proposed protect and enhance existing biodiversity? If yes, please provide relevant details.

8. PUBLIC REALM
8.1 Is all public realm overlooked by surrounding buildings so that this amenity is owned by the park users and safe to use? If yes, please provide relevant details.
8.2 Is the public realm considered as a usable integrated element in the design of the development? If yes, please provide relevant details.
8.3 Is there a clear definition between public, semi private, and private space, where applicable? If yes, please provide relevant details.
8.4 Are movement corridors and parking areas (where appropriate in accordance with the CSIP Mobility Principles) considered as an integral landscaped element in the design of the public realm? If yes, please provide relevant details.

9. ADAPTABILITY
9.1 Does the proposed design facilitate a range of differing future uses, within the context of the CSIP uses? If yes, please provide relevant details.
9.2 Can the facilities proposed be easily adapted to alternative uses, within the context of the CSIP uses? If yes, please provide relevant details.

10. USER AMENITY
10.2 Does the design maximise the potential for enjoying dual aspect? If yes, please provide relevant details.
10.3 Does the design prevent sound transmission by appropriate acoustic insulation or layout? If yes, please provide relevant details.
10.4 If applicable, are windows sited to provide a reasonable level of privacy to occupants? If yes, please provide relevant details.
10.5 Does the design provide for adequate storage? If yes, please provide relevant details.

11. MOVEMENT FACILITIES
11.1 Are appropriate vehicle, bicycle parking facilities and bus shelters (in accordance with the CSIP Mobility Plan concepts) provided to suit the needs of the users (residents, employees, visitors)? If yes, please provide relevant details.
11.2 Are the above facilities overlooked and secure, appropriate to the situation? If yes, please provide relevant details.
11.3 Are materials used for the above facility areas of similar quality to the rest of the development? If yes, please provide relevant details.

12. DETAILED DESIGN
12.1 How do the materials and external design make a positive contribution to the Precinct? Please provide relevant details.
12.2 How will the external design of the buildings and public space facilitate easy and regular maintenance? Please provide relevant details.
12.3 Has care been taken over the siting of flues, vents and bin stores? If yes, please provide relevant details.

13. ENERGY
13.1 Has the design and orientation of the building(s) contributed significantly to energy passivity? If yes, please provide relevant details.
13.2 Have renewable energy technologies been incorporated into the design and layout? If yes, please provide relevant details.
13.3 How has the design and layout addressed the energy performance standards as set out in the Building Regulations?
13.4 Does the proposed development exceed the energy performance standards as set out in the Building Regulations? If yes, please provide relevant details.
13.5 Does the development include the use of materials that have a low energy input in their manufacture, sourcing and maintenance? If yes, please provide relevant details.
13.6 Has the design incorporated future operation and maintenance efficiency? If yes, please provide relevant details.

13.7 Does the design and layout have regard to the potential need to adapt to future technologies? (i.e. electric vehicles, etc). If yes, please provide relevant details
13.8 How is the development protected against future predicted climate events? (i.e warmer summers, wetter winters, increased flooding, increased soil instability). Please provide relevant details.

14. BIODIVERSITY
14.1 How have the existing key physical, natural, ecological, landscape, historical, access and recreational assets that contribute to the functionality of the green infrastructure network been incorporated into the proposed development?
14.2 How has the proposed development design ensured the protection of all protected species and habitats potentially impacted upon, as well as the control and management alien/noxious species and noxious weeds?
14.3 How has soil management informed the design and layout of the proposed development?

15. CONSTRUCTION
15.1 Has the layout proposed been informed by the need to minimise impacts during the construction phase? If yes, please provide relevant details.
15.2 Does the design proposed use maximise the use of materials that minimise impacts during the construction phase? If yes, please provide relevant details.

Guidance Notes:

1. It may not be possible, nor is it expected, that best practice with regard to all indicators shall be achieved. The purpose of the design statement is to demonstrate that the maximum design efficiencies *possible* have been achieved.
2. The design statement questionnaire does not in itself indicate the sustainability or otherwise of a development, it is solely a vehicle to explain the rationale underpinning design decisions.
3. It is understood that some of the above questions cannot be answered solely in the context of the proposed development, but rather in the wider context of its CSIP setting.

Planning Consent Procedures:

Having regard to the distinctive function of the Cork Science & Innovation Park and the demands that this particular functionality places upon its future development, a number of supporting documents would assist in the formulation of effective formal planning application submissions*. It is not suggested that this additional information would replace the statutory requirements as set out in primary land use guiding legislation, rather that the information would elaborate upon the statutory submissions required.*

Additional information as follows is deemed appropriate:

- *A Precinct Plan outlining the overall development concept for Precinct. This Precinct Plan may be the subject of the planning application in itself, or may inform a planning application for a portion of the overall Precinct.*

- *A qualitative and quantitative brief of the proposed activities within the context of the CSIP Vision, its guiding principles and objectives, and specific Precinct Guidelines and/or subsequent permitted Precinct Plans.*

  Note:
  Science & Innovation Related Activities:
  Innovation can be described as change that creates a new dimension of performance. Hence, it can occur across a wide spectrum of activities in the creation and implementation of new processes, products, services and methods of delivery, which result in significant improvements in outcomes, efficiency, effectiveness or quality. The required brief should articulate clearly how the proposed activity performs this innovative, or innovation related, function.

  Support Facilities:
  Support facilities include business support facilities, conference facilities, leisure facilities, restaurants and appropriate shops, as well as accommodation for park users. It is envisaged that such facilities shall be provided commensurate with the demand from CSIP users only. While some overlap in use of such facilities from the nearby population is inevitable, and can benefit the integration of the project, it is not intended that the CSIP be a primary vehicle for services or retail provision outside of the park site and within its catchment area. However, as the CSIP develops toward maturity a greater merging of land uses in the area may occur. Such a merger is not

envisaged within the lifetime of the current Draft Carrigaline Local Area Plan 2011.

Research & University Linked Training Facilities:
It is envisaged that research & university linked training facilities shall form a central function within the CSIP and shall support, and in turn be supported by, innovation activities within the park.

- *Endorsement by CSIP Park Manager / Intake Committee (or similar as appropriate) as to the innovative nature of the activity proposed and how, in specific terms, the proposed activity would a) benefit from and b) provide benefit to other users within the CSIP.*

- *Project design statement based upon the CSIP Design Statement*

- *Traffic and Transport Assessment, including a Mobility Management Plan in accordance with CSIP Mobility Management Plan. These plans should be set at the Precinct scale.*

- *Travel Plans for developments in excess of thresholds indicated in Section 13 of this Masterplan.*

- *Environmental Impact Assessment for the overall Precinct may also be required, identifying also any potential cumulative impacts from other Precincts*

- *Where lands are identified at being at risk of flooding, development proposals will need to be accompanied by a brief or flood risk assessment as may be required, that demonstrates compliance with the Guidelines 'The Planning System and Flood Risk assessment.'*

- *Additional site specific issues that may arise associated with Development Management Process*

Notes