Strategic Environmental Assessment Statement, Environmental Report and Appropriate Assessment

OF THE

Cork Science & Innovation Park Masterplan

Prepared By: **Planning Policy Unit**
Cork County Council

CONTENTS

1 INTRODUCTION

1.1 Background

Under Directive 2001/42/EC - Assessment of Effects of Certain Plans and Programmes on the Environment, certain plans and programmes require an environmental assessment. This is known as the Strategic Environmental Assessment (SEA) Directive. This Directive has been transposed into Irish Statute by S.I No. 435 of 2004 – European Communities (Environmental Assessment and Certain Plans and Programmes).

The SEA Directive, as set out in Article 1 of Directive 2001/42/EC of 27th June 2001, states that: -

"the objective of the Directive is to provide for a high level of environmental considerations into the preparation and adoption of plans and programmes with a view to promoting sustainable development, by ensuring that, in accordance with the Directive, an environmental assessment is carried out of certain plans and programmes which are likely to have significant effects on the environment".

The SEA statement includes a summary of the following information:

1. How environmental considerations have been integrated into the Masterplan.

2. i) How the environmental report was prepared pursuant to article 14B

   ii) How submissions and observations made to the competent authority in response to the notice issued, and,

   iii) Any Consultations under article 14F, have been taken into account during the making of the plan.

3. The reasons for choosing the Masterplan, as adopted, in the light of other reasonable alternatives dealt with, and,

4. The measures decided upon to monitor, in accordance with article 14J, the significant environmental effects of implementation of the plan.

1.2 Summary of SEA Process Undertaken

The SEA process for this Masterplan includes: -

1 Screening: To determine which plans and programmes are likely to have a significant impact on the environment.

2 Scoping: To liaise with statutory consultees to identify key issues of concern that should be addressed in the environmental assessment of the Plan.

3 Draft Environmental Report: Where the likely significant environmental effects of implementing the Masterplan are identified and evaluated.

4 Consultation: Consulting the public, statutory and public authorities, on the Draft Environmental Report and Draft Masterplan, giving adequate time for the receipt of submissions.

5 Final Masterplan Draft: Revision of the Draft Masterplan, taking account of the findings of the Draft Environmental Report and the outcome of consultations.

6 Adoption of Masterplan: Adoption of Masterplan by Council vote.

7 SEA Statement: Make known on adoption of the Masterplan how SEA process influenced the outcome. Identify how environmental considerations have been integrated into the Final Masterplan.

8 Monitoring: Monitoring of the Masterplan.

2 ENVIRONMENTAL CONSIDERATIONS

2.1 Background

The following is a summary of how environmental considerations and the Environmental Report have been integrated into the Cork Science and Innovation Park (CSIP) Masterplan.

Initially it was determined that an SEA of the Masterplan was required and, hence, screening of the project was not necessary. The initial scoping process and analysis of the baseline environment highlighted a number of key issues, which were further considered and explored in the formulation of alternative development strategies for CSIP. The baseline assessment covered the following:

- Biodiversity/ Flora and Fauna
- Population and Human Health
- Soils and Geology
- Water Resources
- Air and Climate
- Cultural Heritage, including archaeological heritage
- Landscape
- Material Assets

Baseline studies were undertaken in relation to the above items.

Six alternative development scenarios were considered as part of the SEA process:

Option 1 explored alternative locations within Metropolitan Cork.

Option 2 considered developing within CIT / UCC existing campuses.

Option 3 considered developing within existing employment centres.

Option 4 explored a reduced development area at the CSIP identified site at Curragheen.

Option 5 explored a reduced development density at the CSIP identified site at Curragheen.

Option 6 considered developing a maximum density science park located at Curragheen, on a Greenfield site linking CIT and UCC land banks.

Option 6 emerged as the preferred alternative during the process.

2.2 Environmental Objectives

Environmental objectives were devised for each of the major components of the environment. These are presented in Table 1 overleaf.

Table 1: SEA Objectives

EPO	*ENVIRONMENTAL OBJECTIVE*
	Biodiversity/ Flora and Fauna
B1	Conserve the diversity of habitats and species and to avoid significant adverse impacts (direct, cumulative and indirect)
B2	Protect habitats from invasive species and promote awareness of and support control and eradication programmes for invasive species
	Population and Human Health
Q1	Improve people's quality of life based on high-quality residential, working and recreational environments and on sustainable travel patterns
	Soils and Geology
S1	Maintain soil integrity and quality
	Water Resources
W1	Improve water quality and the management of watercourses to comply with the standards of the Water Framework Directive and incorporate the objectives of the Floods Directive into sustainable planning and development
W2	Make best use of existing water and wastewater infrastructure and promote the sustainable development of new infrastructure
W3	To maintain and improve the quality of drinking water supplies
	Air and Climate
A1	Maintain and promote continuing improvement in air quality through the reduction of emissions and promotion of renewable energy and energy efficiency
	Cultural Heritage, including archaeological heritage
CH1	Promote the protection and conservation of the cultural heritage
	Landscape
L1	Protect natural and historic landscapes and features within them in a sustainable manner

Having regard to the specific nature of the CSIP project and its critical informing characteristics / requirements, the matrix assessment of the preferred development option highlighted that the chosen strategy was acceptable, subject to the identified mitigation and monitoring measures.

The Environmental Objectives listed above were a main consideration throughout the development of the Masterplan.

2.3 Integration of Environmental Considerations into Masterplan

Table 2, below, lists how environmental considerations have been integrated into the Masterplan.

Table 2: Integration of Environmental Considerations into Masterplan

ENVIRONMENTAL REPORT	*MASTERPLAN RESPONSE*
Biodiversity/ Flora and Fauna	
As a large development area, the CSIP contains varying landscape characteristics, including ecologically diverse lands adjoining the traversing Curragheen River corridor that require protection and, if possible enhancement. As a Framework Masterplan, the CSIP Masterplan identifies 6 future development areas (called Precincts). Each Precinct has issues particular to its location and the Precinct Guidelines outlined in the Masterplan identify the development considerations for each development area.	For each development area identified, or Precinct, the Masterplan sets out the quantitative and qualitative criteria informing its development. Planning consent is required before development can proceed and future development within Precincts is required to be set within a wider Precinct Plan. Specific design and development decisions are required to conform with the Guidelines for that Precinct and also to conform with the wider development criteria set out in the Masterplan Appendices. While the Masterplan has ensured that no specific works identified undermine the fundamental biodiversity of the site, it has also set out a framework within which the next stage of design (at Precinct level) shall ensure no adverse impacts also. In parallel with the Masterplan an ecological study of the CSIP area was undertaken to inform the Masterplan decisions. This study identified the key biodiversity features within the site and informed the qualitative criteria as set out in the Masterplan for each Precinct. The ecological report identified ecological sensitivities and mitigation measures to offset potential impacts, to be incorporated into future development proposals at Precinct level.
As well as the development of buildings, the operation of buildings can have a significant impact on the receiving environment.	The Masterplan identifies, in its Appendices, specific development Principles and a specific Design Statement procedure in order to minimise construction and operational impacts on the receiving environment.
Population and Human Health	
A range of issues, not already addressed in other environmental categories, have the potential to impact on people's general quality of life and well-being. These include, economic well-being, transportation, overall quality of environment, noise, safety and amenity.	The project site, while a Greenfield location, is situated adjoining significant existing and planned for populations. It is also well serviced by public transport and is located on the preferred route corridor for future public transport Enhancements. The CSIP project seeks to provide the high quality physical environment that shall allow for the creation of a critical element of economic infrastructure required. Specifically, the CSIP will be an important additional element of the existing

	matrix of employment locations, targeted specifically at the knowledge based sector – heretofore not catered for in the available suite of employment locations. The Masterplan seeks, as a key objective, to facilitate the development of a person-centred, high quality working environment. Hence, the development criteria set out in the Precinct Guidelines and the Appendices seek to direct design decisions toward the creation of a high quality and sustainable campus-like employment location. The Masterplan identifies land uses that are appropriate to the CSIP and highlights the need to ensure that inappropriate uses are not permitted to dilute the informing concept – based on a high quality working environment that is also environmentally sustainable. In parallel with the Masterplan, a Transportation Study was undertaken to inform how the potential for non-car based access associated with movements to/from the CSIP could be facilitated. While the critical mass would not be available within the CSIP immediately to give effect to significant shifts away from private car usage, the Masterplan sets out specific targets in this regard. Precincts developments shall be required to set out how these targets will be achieved as the project evolves forward from Phase 1. Mobility Management is identified in the Masterplan as a cornerstone of the future success of the CSIP. The Masterplan requires that Construction Management Plans be developed by Precincts to minimise impacts arising from noise, safety and other facets of the construction phases. In addition, the Masterplan plot ratios, transportation targets and overall concept requiring person centred layouts and designs, are set out to contribute to the creation of a high quality employment location, thereby contributing to the overall well-being of users and nearby communities. The creation of amenity spaces are central to the layout concepts informing the CSIP project and the Masterplan Design Statement requires the setting out of high quality public realm as part of Precinct Plans. In addition, the Masterplan identifies the potential of the CSIP to form part of the green infrastructure serving the wider Cork region.
Soils and Geology	
Both the development of buildings and the	With regard to soil and geology, the Masterplan

operation of buildings can have a significant impact on the receiving environment and its soil integrity.	Appendices identify specific development Principles and a specific Design Statement procedure in order to minimise construction and operational impacts on the receiving environment. The Masterplan requires that Precinct proposals have specific regard to soil management and the use of Construction Management Plans and Waste Management Plans is required. The Masterplan also identifies relatively low plot ratios in order to safeguard Greenfield spaces and minimise impacts on existing ground conditions.
Water Resources	
Development applies pressure to areas such as water supply, wastewater discharge, water quality and flooding. As infrastructure that can either form critical support for human activity or threaten such activity, these issues require appropriate management.	The Masterplan requires that development can only proceed when sufficient and appropriate water / wastewater infrastructure is in place. Municipal services are available to serve the CSIP project and are subject to EPA licensing. The Masterplan requires the use of Construction Management Plans and Waste Management Plans, in order to reduce impacts arising from emissions. It also requires the minimisation of emissions and waste to be factored into the early design stages of Precinct design, via the Masterplan Design Statement. In parallel with the Masterplan, a flood risk assessment was undertaken to identify areas within the CSIP under flood risk and the extent of same. This study identifies that Precincts are exposed to flood risk to varying extents. It concluded that individual Precincts could address flood risks within their own development area, while a potential solution was identified for the central Precinct most at risk of flooding. The Masterplan has sought to balance the development requirements of the CSIP site as a unique strategic landbank within Metropolitan Cork with the requirements to avoid development at flood prone locations. Under the *2011 Local Area Plan* process the CSIP site (part of the Carrigaline Electoral Area Local Area Plan) was identified as passing the Justification Test for lands at risk of flooding, as set out under Chapter 4 of *The Planning System and Flood Risk Management Guidelines for Planning Authorities.* The Masterplan, as a framework document, requires that each development Precinct addresses flood risk on a Precinct basis, as each Precinct is at varying degrees of risk. Hence, at the next stage in the development process (preparation of Precinct Plans leading to planning consent applications)

	specific measures to incorporate flood risk management will be determined. The flood risk assessment, ecological report and Masterplan processes were undertaken in parallel in order to ensure compatibility between all processes.
Air and Climate	
Air and climate impacts can arise from a range of sources linked to transport, energy and waste generation. While high air quality exists at the site location, protection and enhancement is required.	As stated above, the project site is situated adjoining significant existing and planned for populations. It is also well serviced by public transport and is located on the preferred route corridor for future public transport Enhancements. The Masterplan seeks to ensure that a significant proportion of commuting to/from the CSIP is via public transport or by cycling/pedestrian mode. It also seeks to ensure that construction and operation of buildings minimises energy consumption and waste generation. These goals are set out in the Masterplan and will be achieved via the design Principles set out in the Masterplan as well as the Masterplan Design Statement. The Masterplan requires that all development proposals incorporate these efficiencies into the early project design stages within Precincts, as well as facilitating future advantages achievable via critical mass within the CSIP.
Cultural Heritage	
The project site contains a number of archaeological and cultural features that require protection. These features contribute positively to the historical nature of these lands and are part of the green infrastructure within the site.	In parallel with the Masterplan, a Cultural Heritage Impact Assessment Report was undertaken for the site. Its recommendations have been incorporated into the Masterplan, which requires that all historical sites are to be protected to form landmarks within a people centred campus. Where such features are threatened by development works, DOEHLG guidelines will be implemented via the development management process.
Landscape	
The landscape of the project area is identified as broad fertile lowland valley in character and it is important to retain a memory of the site post-development works.	The Masterplan recognises the key location of the CSIP site as a gateway to Cork City. Hence, it seeks to balance the requirement for landmark buildings with assimilation into the natural landscape. The Masterplan has identified individual Precincts based on their landscape characteristics and apportioned appropriate development accordingly. It allows for some landmark buildings up to 7 storeys in height, but also requires the retention of much of the natural landscape including existing field boundaries and mature trees.

	The Masterplan approach ensures that maximum development mass is achieved (to provide a compact development platform) and that sprawling development is prevented at this city edge site.
Material Assets	
The CSIP site contains a number of existing playing pitches, a limited access roadway, agricultural lands and some residential property.	The Masterplan seeks to utilise the existing access roadway by extending same further into the subject site. It also recognises the importance to CIT of its playing pitches and does not allocate development thereon at this time. As a satellite landbank to its main campus, it is possible that the existing UCC playing pitches within the CSIP can be relocated to a similar site. The existing sports ground within the site has only low-level usage. Having regard to its location, the CSIP site can be readily serviced by surrounding infrastructure, adding to the critical mass served by same.
General	
The Masterplan identifies the development pathway to a potential ultimate carrying capacity of in excess of 360,000m² of floorarea, incorporating 6 development areas. As a single site, development of this scale would require Environmental Impact Assessment.	The Masterplan has identifies the potential need for development Precincts to undertake Environmental Impact Assessment as part of their future design and development. Legislation sets out the criteria for the assessment of the need to undertake EIA at the development project level.

3 SUBMISSIONS AND OBSERVATIONS

This is summary of how submissions and observations were taken into account in the preparation of the Masterplan.

3.1 Submissions Received:
The following prescribed bodies were consulted:

- The Minister for the Environment, Communities and Local Government
- The Environmental Protection Agency (EPA)
- The Minister for Communications, Energy and Natural Resources
- The Department of Arts, Heritage and the Gaeltacht

In addition, the adjoining local planning authority, Cork City Council, was also consulted.

A range of observations were received in response to the Scoping Report, the Draft Environmental Report and Draft Masterplan (during the public consultation):

The Environmental Protection Agency (EPA):

This submission covered a range of issues including:

- Structure of the masterplan
- Phasing
- Roads
- Protective measures, targets and monitoring
- Have regard to current legislation
- Flood risk
- Infrastructure
- Future Impacts
- Future EIA

Department of Arts, Heritage and the Gaeltacht

This submission focused on:

- Protection of archaeological heritage
- Preservation in-situ of, or preservation by record of, archaeological features of historical and archaeological interest, archaeological monuments and subsurface archaeological features

Cork City Council

This submission addressed the following:

- Cork Docklands project
- Phasing
- Additional transport assessment
- Support services
- Parking.
- Student accommodation
- Infrastructure capacity
- Building heights

The South West Regional Authority

This submission stated the following:

- The proposed masterplan is consistent with the South West Regional Planning Guidelines.
- Recognises the Cork Docklands project.

Cork Chamber of Commerce

This submission addressed the following:

- Infrastructure
- Flood mitigation
- Future needs and demand analysis
- Consultation with key growth sectors
- Governance
- Plan review process
- Mobility

Inland Fisheries Ireland

This submission addressed the following:

- Potential for negative environmental impacts on local water bodies
- EIS
- Protection Measures

National Roads Authority

This submission addressed the following:

- Need for evidence based transportation assessment
- Need for appropriate monitoring and mitigation measures
- Transportation infrastructure
- Consistency with County Development Plan
- Local road issues
- Statutory nature of plan

Landowners

This submission addressed a range of site specific and project level issues:

- that Cork County Council would take responsibility for the installation, maintenance and upkeep of the proposed lake of approximately 10 acres.
- the council amend the current approach to the transfer of floor area allocations using a section 47 agreement.
- the Council should retain the right to reallocate floor area between precincts without the need for legal agreements.
- the council should consider using pre application Section 47 agreements in addition to the general contributions scheme. Additional contributions should be proportionate to the benefit that will accrue to each particular precinct.
- potential for land locking of certain lands.
- devaluing of land
- the council clarify the statutory position of the masterplan.
- car parking layout
- the masterplan should identify how the internal road network will provide access to landholdings within the masterplan site.
- capacity for additional gateway buildings..
- 33 acres of land to the west of the proposed access road should be included within the development boundary of the CSIP.
- betterment rations should be determined and a system of upfront levying of extra betterment of immediate beneficiaries could be used to pay for the land for the access road.
- provision for an unobstructed underpass be included in the plan
- the text of the masterplan should state that support facilities, such as shops, leisure facilities and restaurants be facilitated in the park centre and the hub only.
- development in precinct 4 should be commensurate with the population requirement within the CSIP.
- the masterplan should explicitly state the hub is to be located in precinct 4.
- clarity regarding methodology of ongoing transportation study and flood study
- the plan as proposed undermines the competitive advantage of previously zoned lands
- a sequential delivery methodology should be employed.

- EIS not required at project level
- early commencement of works where infrastructure is available.
- the cost of infrastructure should be levied in an equitable manner.
- use of specific progress timetables.
- greater flexibility regarding phasing.
- new access road from Model Farm Road
- an adopted supplementary contribution scheme should cover the majority of the costs identified in the plan.
- public funding should be sought to support the development.

Each of the issues raised has been considered in the drafting of the final Masterplan.

4 Response to Key Issues Raised During Consultation

4.1 Report on Submissions Received

A total of 13 submissions were received in response to the public display of the Draft Masterplan, Draft Environmental Report and Appropriate Assessment.

A report was prepared by Cork County Council for Members which considered the submissions and made a number of amendments to the Masterplan arising from these submissions. Not all comments in submissions resulted in an amendment to the Masterplan for the following reasons:

- the issue was deemed to be already adequately addressed in the Draft Environmental Report, Masterplan or Carrigaline Local Area Plan 2011
- the issue was deemed to be addressed by existing statutory legislation
- the issue was not deemed to be in accordance with the proper planning and sustainable development of the project

The Final Draft of the Framework Masterplan was approved by Members on October 10th 2011.

4.2 Issues

Protection of Biodiversity, Flora and Fauna:

The Masterplan sets out, in its Appendices, development principles that future development proposals must adhere to. These set the overall approach to management of the natural landscape and require that protection of species, habitats, features, etc. inform future design and development decision making. Additional principles were added following the consultation process which enhance the protection afforded.

Furthermore, specific Precinct Guidelines which direct development at Precinct level set out the context for future development at a lower level. As appropriate, the retention and protection of habitats and ecological corridors are required.

In addition, the Masterplan recognises the potential need for EIS assessment at Precinct development level. Where Precinct works exceed EIS thresholds as set down in legislation, or where a sub-threshold determination is made, then the EIS process will be activated.

Flooding:

The Masterplan identifies developable areas within the CSIP, set out as Precincts. A flood assessment has been undertaken that identifies flood risk extent and the Masterplan requires that future development must have regard to its findings. Development Precincts are affected to differing degrees within the overall project, but each Precinct has the capacity to address any flood issues as part of a Precinct planned approach. Specifically, the Masterplan requires that each Precinct must address its surface water issues in accordance with *The Planning System and Flood Risk Management Guidelines* in advance of development proceeding.

Climate Change/ Adaptability:

The Masterplan sets out, as a key feature of future development, the need for the project to be future-proofed. Hence, it sets out in its appendices key development principles across a range of

issues including Green Infrastructure, Waste Management, Energy Management, Mobility Management, Construction Management and Sustainable Design. These principles are incorporated into a Design Statement checklist to be used to inform future design decisions, in order to maximise efficiency and adaptability within the project.

Additional principles have been added to the appendices following consultation.

In addition, a key future action identified post-masterplan is the establishment of monitoring and review procedures to assess environmental impacts, to be undertaken by the park's future management and governance structures.

Transport:

The Masterplan is informed by a traffic assessment and resulting Mobility Management Plan. The Masterplan sets down specific empirical targets to be achieved in terms of modal shift to non-private car based transport before subsequent phases of development can be activated. The Masterplan directs the project to build upon existing and future planned public transport to create a 'reduced-car' campus that facilitates sustainable travel choices.

Additional supporting text has been inserted throughout the Masterplan in this regard following consultation.

Infrastructure:

The Masterplan recognises the edge of city location of the project site and, specifically, the advantages that arise from its ability to utilise the existing urban infrastructure networks. Development will proceed only where it can be demonstrated that access and capacity is available to these networks, and where required upgrade works can be facilitated, resulting in a efficient servicing of these lands.

The proposed access road will be designed to cater for public transport access and will be accompanied by an EIS at project level.

The Final Draft of the Framework Masterplan contained the following final material amendments (non-material text changes are not included in the following table):

Table 3: Final Masterplan Draft Material Amendments:

Amendment No.	Amendment Text	Arising From	Environmental Impact
1	p. vi *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*	CSIP Advisory Board	None
2	p.vii • 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	National Roads Authority / CSIP Access Study	None
3	p.viii • To enable the creation of a distinct innovation park brand that underpins its future success • To promote modal choice that involves a move away	National Roads Authority /	None

<table>
<tr><td></td><td>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</td><td>CSIP Access Study</td><td></td></tr>
<tr><td>4</td><td>p.xiii
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.</td><td>National Roads Authority / CSIP Access Study</td><td>None</td></tr>
<tr><td>5</td><td>p.xvi
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.</td><td>National Roads Authority</td><td>None</td></tr>
<tr><td>6</td><td>p.xvii
• To build upon the existing public transport services and promote pedestrian and cycling accessibility to create sustainable integration with the wider metropolitan area</td><td>National Roads Authority / CSIP Access Study</td><td>None</td></tr>
<tr><td>7</td><td>p.xvii
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.</td><td>CSIP Access Study</td><td>None</td></tr>
<tr><td>8</td><td>p.xvii
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.</td><td>National Roads Authority / CSIP Access Study</td><td>None</td></tr>
<tr><td>9</td><td>p.xviii
Table I: Target Development Floor Areas:<table><tr><th>CSIP Phase</th><th>Vehicle Access Capacity</th><th>Works Required</th><th>Total Development Floor Area</th></tr><tr><td>Phase 1</td><td>600</td><td>Minor improvements to N25 junction, provision of additional walking. cycling</td><td>42,240m²</td></tr></table></td><td>CSIP Access Study</td><td>None</td></tr>
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<tr><td></td><td></td><td>access</td><td></td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td>Phase 2</td><td>1,350</td><td>Increased vehicle access capacity to CSIP & increased modal shift to public transport</td><td>144,000m²</td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td>Phase 3</td><td>2,850</td><td>Increased vehicle access capacity to CSIP & modal shift to public transport in line with Smarter Travel targets</td><td>363,350m²</td></tr>
</table>
</td><td></td><td></td></tr>
<tr><td>10</td><td>p.xviii
Table II: Employment Phasing
<table>
<tr><th>CSIP Phase</th><th>Park Users</th></tr>
<tr><td>Phase 1</td><td>1,320 employees/students</td></tr>
<tr><td></td><td></td></tr>
<tr><td>Phase 2</td><td>4,500 employees/students</td></tr>
<tr><td></td><td></td></tr>
<tr><td>Phase 3</td><td>11,354 employees/students</td></tr>
</table>
</td><td>CSIP Access Study</td><td>None</td></tr>
<tr><td>11</td><td>p.xix
• High quality connectivity for pedestrians and cyclist, while minimising the use of the private car</td><td>CSIP Access Study</td><td>None</td></tr>
<tr><td>12</td><td>Table III: Quantitative Allocations:
<table>
<tr><th colspan="3">Quantitative Allocations*</th></tr>
<tr><th>Phase</th><th>CSIP Total</th><th>By Precinct</th></tr>
<tr><td></td><td></td><td></td></tr>
<tr><td>Phase 1</td><td>42,240m²</td><td>Precinct 1- 10,189m²**
Precinct 2- 12,460m²
Precinct 3- 5,914m²
Precinct 4- 4,806m²
Precinct 5- 8,870m²</td></tr>
<tr><td></td><td></td><td></td></tr>
<tr><td>Phase 2</td><td>144,000m²</td><td>Precinct 1- 17,000m²
Precinct 2- 42,500m²
Precinct 3- 20,200m²
Precinct 4- 34,200m²
Precinct 5- 30,100m²</td></tr>
<tr><td></td><td></td><td></td></tr>
<tr><td>Phase 3</td><td>363,320 m²</td><td>Precinct 1- 43,000m²
Precinct 2- 107,350m²
Precinct 3- 51,150m²
Precinct 4- 86,100m²
Precinct 5- 75,750m²</td></tr>
</table>
*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</td><td>Elected Members</td><td>None</td></tr>
</table>

	weighed in favour in recognition of its likely early commenced of development and its previous zoning designation.		
13	p.14 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	Masterplan Team	None
14	p.14 To safeguard institutional and capital investment in the project by ensuring a long term and phased strategic approach	Masterplan Team	None
15	p.14 To develop a self-sustaining governance regime to manage, monitor and review the principles of the CSIP	Masterplan Team / NRA	None
16	p.15 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	Masterplan Team / NRA	None
17	p.18 & 19 *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:	NRA	None

	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.		
18	p.22 Have good road and multi modal choice; cycling, walking and public transport accessibility	Masterplan Team / NRA	None
19	p.27 10. Governance, Monitoring & Masterplan Delivery Strategy	Masterplan Team / NRA	None
20	p.28 A critical feature of this approach is its concurrent delivery and monitoring methodology	Masterplan Team / NRA	None
21	p.29 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.	Masterplan Team / NRA	None
22	p.31 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.	Landowners / Elected Members	None
23	p.32 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.	CSIP Access Study	None
24	p.32 (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).	CSIP Access Study / Masterplan Team	None
25	p.32 Additional development in excess of the volumes	CSIP Access Study /	None

<table>
<tr><td></td><td>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.</td><td>Masterplan Team</td><td></td></tr>
<tr><td>26</td><td>p.33
Table 11.2: Potential Access Capacity Upgrade Options:
<table><tr><th>Option No.</th><th>Potential Access Capacity Upgrade*</th></tr><tr><td></td><td></td></tr><tr><td>1</td><td>Upgrade Works to N25 Curraheen Junction</td></tr><tr><td></td><td></td></tr><tr><td>2</td><td>Upgrade of existing access from north</td></tr><tr><td></td><td></td></tr><tr><td>3</td><td>New road access onto Curraheen Road east of N25 Junction</td></tr><tr><td></td><td></td></tr><tr><td>4</td><td>Possible auxiliary lanes on N25 between Bandon Road and Curraheen Junctions.</td></tr><tr><td></td><td></td></tr></table>*In association with CSIP Mobility Management Plan and demand management</td><td>CSIP Access Study / Masterplan Team</td><td>None</td></tr>
<tr><td>27</td><td>p.33
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.</td><td>CSIP Access Study / Masterplan Team</td><td>None</td></tr>
<tr><td>28</td><td>p.33/34
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.</td><td>CSIP Access Study / Masterplan Team</td><td>None</td></tr>
<tr><td>29</td><td>p.34
Supporting transport infrastructure – vehicle access and</td><td>CSIP Access Study /</td><td>None</td></tr>
</table>

	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.	Masterplan Team	
30	p.35 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.	Masterplan Team	None
31	p.38 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:	CSIP Access Study / Masterplan Team	None

<table>
<tr><td></td><td>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.</td><td></td><td></td></tr>
<tr><td>32</td><td>p.39
• To build upon the existing public transport services and promote pedestrian and cycling accessibility to create sustainable integration with the wider metropolitan area</td><td>CSIP Access Study / Masterplan Team</td><td>None</td></tr>
<tr><td>33</td><td>p.40/41
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:
<table><tr><th>CSIP Phase</th><th>Vehicle Access Capacity</th><th>Works Required</th><th>Total Development Floor Area</th></tr><tr><td>Phase 1</td><td>600</td><td>Minor improvements to N25 junction, provision of additional</td><td>42,240m²</td></tr></table></td><td>CSIP Access Study / Masterplan Team</td><td>None</td></tr>
</table>

			walking. cycling access		
	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: 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.

34	p.41 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.	CSIP Access Study / Masterplan Team	None
35	Table 13.3: Modal Shift Targets: **CSIP Phase** / **Modal Shift** Phase 1 — 20%	CSIP Access Study / Masterplan Team	None

	<table><tr><td>Phase 2</td><td>40%</td></tr><tr><td></td><td></td></tr><tr><td>Phase 3</td><td>50%</td></tr></table> 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%.		
36	p.42 <table><tr><th>Phase</th><th>Precinct Floor Area</th><th>Precinct Parking Spaces</th></tr><tr><td></td><td></td><td></td></tr><tr><td>Phase 1</td><td>Precinct 1- 10,189m² Precinct 2- 12,460m² Precinct 3- 5,914m² Precinct 4- 4,806m² Precinct 5- 8,870m²</td><td>Precinct 1- 212 Precinct 2- 260 Precinct 3- 123 Precinct 4- 100 Precinct 5- 185</td></tr></table> Note: Based on 20% modal shift and 1 employees per 32m² and 1.2 persons per car journey.	CSIP Access Study / Masterplan Team	None
37	p.42 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	CSIP Access Study / Masterplan Team	None
38	p.43 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	Masterplan Team	None

	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. However 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.		
39	p.45 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.	Masterplan Team	None
40	p.48 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.	EPA / AA / Landowners / Inland Fisheries Ireland / Cork Chamber of Commerce	None
41	p.52 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.	CSIP Access Study / Masterplan Team	None
42	p.53 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.	EPA / Landowners / Inland Fisheries Ireland / Cork Chamber of Commerce	None
43	p.55 • Ensure promotion of smarter travel by promotion of public transport and high quality connectivity for pedestrians and cyclist	CSIP Access Study / Masterplan Team	None
44	p.61 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	CSIP Access Study / Masterplan Team / EPA	None

	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.		
45	p.64 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	CSIP Access Study / Masterplan Team / EPA	None
46	p.65 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.	Masterplan Team	None
47	p.66 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	CSIP Access Study / Masterplan Team / EPA AA	None

	● 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).		
48	p.69 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).	CSIP Access Study / Masterplan Team / EPA AA	None
49	p.72 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.	CSIP Access Study / Masterplan Team / EPA	None
50	p.75 *Transport and Roads:*	CSIP Access Study /	None

	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.	Masterplan Team	
51	p.83 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.	EPA / AA /Landowners / Inland Fisheries Ireland / Cork Chamber of Commerce	None
52	p.87 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.	Cork City Council / South Western Regional Authority	None
53	p.88 *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	EPA / Landowners / Inland Fisheries Ireland / Cork Chamber of Commerce	None

	Statement. A determination in this regard shall be required to be made at the planning consent stage of the process.		
54	p.90 • *Establish monitoring, assessment & review of the CSIP Masterplan targets across a range of issues including mobility management, environmental management and economic indicators.*	EPA / Masterplan Team	None
55	p.91 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	EPA / AA / Department of Arts, Heritage and the Gaeltacht / Inland Fisheries Ireland / Masterplan Team	None
56	p.92 Green Infrastructure Principle 9: To include potential impacts arising from climate change into assessment of Precinct Plans and future Masterplan reviews.	EPA	None
57	p.94 Principle 8: Identification of measures to avoid or minimise impacts on air quality. • Disposal of waste outputs in a manner that ensures that no environmental impacts arise	EPA / AA	None
58	p.98 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.	NRA / EPA / CSIP Access Study / Masterplan Team	None
59	p.99 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.	CSIP Access Study / Masterplan Team	None
60	p.105 *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	EPA / AA / Landowners / Inland Fisheries Ireland / Cork Chamber of Commerce / Department of Arts, Heritage and	None

	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.	the Gaeltacht / Inland Fisheries Ireland / Masterplan Team	
61	p.107 It is important that water quality within the site is protected during the construction phases and in the longer term. 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.	EPA / AA	None
62	p.110 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?	CSIP Access Study / NRA / Masterplan Team	None
63	p.111 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.	Department of Arts, Heritage and the Gaeltacht / Masterplan Team	None
64	p.113 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?	EPA / AA / Landowners / Inland Fisheries Ireland / Department of Arts, Heritage and the Gaeltacht / Masterplan Team	None
65	p.114 *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.*	Masterplan Team	None
66	p.115 • Traffic and Transport Assessment, including a Mobility Management Plan in accordance with CSIP Mobility Management Plan. These plans should be set at the	EPA / AA / Landowners / Inland	None

	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.'	Fisheries Ireland / Cork Chamber of Commerce / CSIP Access Study / NRA / Masterplan Team	

4 CHOICE OF ALTERNATIVES

6 alternative plan approaches were examined in the course of preparation of the Masterplan. After assessing each of the alternatives against the environmental objectives, and having regard to the specific and targeted nature of this project, the results showed that the site an approach advocated by the Masterplan represented the best overall approach.

Having regard to the concepts that underpin the CSIP project, a number of criteria needed to be in place to facilitate the project. These included:

- UCC & CIT presence
- Potential for high quality working environment
- Site area to accommodate various building forms – small to large units
- Site area to allow for future expansion – over 20/30 year timeframe – without relocation or fragmentation of park
- High levels of connectivity – to settlements, transport nodes, business locations, movement corridors
- Ability for early construction

Having regard to the specific nature of the project and its requirements, the site identified and the Masterplan approach adopted was considered the most appropriate.

5 MONITORING

The SEA Directive requires that the significant environmental effects of the implementation of plans and programmes are monitored. The monitoring programme for the implementation of the Masterplan is outlined in Table 3 overleaf.

Table 4: EPO's & MONITORING TARGETS AND INDICATORS

EPO	*ENVIRONMENTAL OBJECTIVE*	*TARGET*	*MONITORING INDICATORS*	*DATA SOURCE*	*ACCESSIBILITY*
B1	Conserve the diversity of habitats and species and to avoid significant adverse impacts (direct, cumulative and indirect)	No significant adverse impacts, (direct, cumulative and indirect impacts), to relevant habitats, species or their sustaining resources and to improve protection for protected sites and species including a provision of adequate and appropriate buffer zones	Retain integrity of existing habitats and species relative to the baseline year of 2010.	The Heritage Department of Cork County Council, Department of the Environment, Heritage and Local Government, National Parks and Wildlife Service.	Dependent on external information. Some information potentially available within Cork County Council
		Conserve the diversity of habitats and species in non-designated sites	Retain integrity of existing habitats and species relative to the baseline year of 2010.	The Heritage Department of Cork County Council, Department of the Environment, Heritage and Local Government, National Parks and Wildlife Service.	Dependent on external information. Some information potentially available within Cork County Council

EPO	*ENVIRONMENTAL OBJECTIVE*	*TARGET*	*MONITORING INDICATORS*	*DATA SOURCE*	*ACCESSIBILITY*
B2	Protect habitats from invasive species and promote awareness of and support control and eradication programmes for invasive species	No new invasive species in CSIP and no increase in coverage of existing invasive species	New types of invasive species or increase in coverage of existing invasive species	National Biodiversity Centre	Dependent on external information
Q1	Improve people's quality of life based on high-quality residential, working and recreational environments and on sustainable travel patterns	Avoid the location of inappropriate activities that impact on the quality of the campus within CSIP	Number of inappropriate uses permitted within the CSIP	Cork County Council	Available within Cork County Council
		Enhance provision of, and access to, amenity space within CSIP	Numbers of amenity areas provided within CSIP, number of accesses to amenities areas within CSIP	Cork County Council, Cork City Council	Available from within Cork County Council
		Increase number of cycle friendly measures in the associated with CSIP	Number of cycle friendly measures provided in the area	Cork County Council, Cork City Council	Available from within Cork County Council and Cork City Council
		Increase number of pedestrian friendly measures assoc. with CSIP	Number of pedestrian friendly measures provided in the area	Cork County Council, Cork City Council	Available from within Cork County Council and Cork City Council

EPO	*ENVIRONMENTAL OBJECTIVE*	*TARGET*	*MONITORING INDICATORS*	*DATA SOURCE*	*ACCESSIBILITY*
		Increase modal shift to public transport and reduction in journey to work (time/distance)	Journey to work times; % of commuters using public transport; % of commuters cycling to work; % of commuters walking to work;	CSO	Dependent on external information
		Use of Construction Management Plans to minimise adverse impacts during construction phase(s)	Number of Construction Management Plans provided to inform the development of the CSIP	Cork County Council	Available from within Cork County Council
S1	Maintain soil integrity and quality	Soil management to inform detailed designs within CSIP	Number of Soil Management Plans provided to inform the development of the CSIP	Cork County Council	Available from within Cork County Council
		Use of Waste Management Plans to minimise adverse impacts arising from pollution	Number of Waste Management Plans provided to inform the development of the CSIP	Cork County Council	Available from within Cork County Council

EPO	*ENVIRONMENTAL OBJECTIVE*	*TARGET*	*MONITORING INDICATORS*	*DATA SOURCE*	*ACCESSIBILITY*
W1	Improve water quality and the management of watercourses to comply with the standards of the Water Framework Directive and incorporate the objectives of the Floods Directive into sustainable planning and development	Improvement, or at least no deterioration, in water quality in rivers and groundwater	Achievement of the Objectives of the River Basin Management Plans; % increase or decrease in numbers of water bodies at good status compared with baselines of 2009.	Water Framework Directive: RBD's, EPA, Cork County Council	Dependent on external information. Some information potentially available within Cork County Council
		Appropriate management of zones vulnerable to flooding	Compliance with *The Planning System and Flood Risk Management Guidelines 2009,* amount of new developments within flood plain	Cork County Council	Available from within Cork County Council
W2	Make best use of existing water and wastewater infrastructure and promote the sustainable development of new infrastructure	CSIP to be adequately served by a public waste water treatment plant system	Use of best practice to extend existing water / wastewater infrastructure to serve CSIP	EPA, Cork County Council	Dependent on external information and information available within Cork County Council

EPO	*ENVIRONMENTAL OBJECTIVE*	*TARGET*	*MONITORING INDICATORS*	*DATA SOURCE*	*ACCESSIBILITY*
W3	To maintain and improve the quality of drinking water supplies	Maintain and improve drinking water quality in the CSIP to comply with the requirements of the European Communities (Drinking Water) Regulations and to prevent leakage in new systems	Compliance with Regulations, % leakage within system	EPA, Cork County Council	Dependent on external information and information available within Cork County Council
A1	Maintain and promote continuing improvement in air quality through the reduction of emissions and promotion of renewable energy and energy efficiency	Maintain good air quality standards	To remain within good air quality standards	EPA	Dependent on external information
CH1	Promote the protection and conservation of the cultural heritage	To protect all cultural features within the CSIP and where necessary to impact upon same to manage and record action in accordance with National Heritage Policies	Number of cultural features lost within CSIP	Cork County Council	Available from within Cork County Council

EPO	*ENVIRONMENTAL OBJECTIVE*	*TARGET*	*MONITORING INDICATORS*	*DATA SOURCE*	*ACCESSIBILITY*
L1	Protect natural and historic landscapes and features within them in a sustainable manner	Integrate natural & historic landscape features into detailed design	% of natural and historic landscape lost within CSIP, number of features within natural and historic landscape lost within CSIP	Cork County Council	Available from within Cork County Council

Cork Science and Innovation Park Masterplan
Environmental Report

2011

Table of Contents

Chapter 1: Non-Technical Summary

Chapter 2: Introduction

This is the Environmental Report of the Cork Science & Innovation Park Masterplan Strategic Environmental Assessment (SEA). The purpose of the report is to provide a clear understanding of the likely environmental consequences of decisions regarding the development of a science and innovation park under this Masterplan. The SEA is being carried out in order to comply with the provisions of the SEA Regulations and in order to improve the planning and environmental management of the area. This report should be read in conjunction with the Draft Cork Science & Innovation Park Masterplan.

Strategic Environmental Assessment

Strategic Environmental Assessment is an important mechanism in promoting sustainable development and in raising awareness of significant environmental issues and in ensuring that such issues are addressed within the capacity of the planning system. It seeks to inform the decision making process before a decision is made to adopt the plan.

The overall aim of SEA is to:

- provide a high level of protection of the environment,
- to integrate environmental considerations into the preparation and adoption of plans,
- to promote sustainable development and
- to increase public participation in environmental decision making.

SEA is the formal, systematic evaluation of the likely significant environmental effects of implementing a plan or programme before a decision is made to adopt the plan or programme. The SEA process is also intended to facilitate the identification and appraisal of alternative plan strategies, raise awareness of the environmental impacts of the Masterplan and encourage the inclusion of measurable targets and indicators.

Chapter 3: The Cork Science & Innovation Park Masterplan

The Cork Science & Innovation Park Masterplan is called for under the Carrigaline Electoral Area Local Area Plan 2011. The Planning and Development Acts require that local area plans must be consistent with the County Development Plan and, by extension, so must the Cork Science & Innovation Park Masterplan.

The relevant County Development Plan, for the purpose of preparing the Cork Science & Innovation Park Masterplan / Environmental Report, is the Cork County Development Plan 2009 which was made by the County Council in January of that year.

The relevant Local Area Plan, for the purpose of preparing the Cork Science & Innovation Park Masterplan / Environmental Report, is the Carrigaline Electoral Area Local Area Plan 2011 which was made by the County Council in July of 2011.

The County Development Plan 2009 sets out population and household targets for the period up to the year 2020 for the main Strategic Planning Areas of the County and sets out the context for the economic development of the County also. It sets out the County strategy for the local implementation of the National Spatial Strategy, the Atlantic Gateways Initiative and the Regional Planning Guidelines for the South-West Region. It also draws on the recommendations of the Cork Area Strategic Plan Update (2001-2020) and the North and West Cork Strategic Plan (2002-2020).

The strategy for the Carrigaline Electoral Area Local Area Plan is to implement the objectives contained in the County Development Plan 2009 to promote and maintain positive growth within its area.

The Cork Science & Innovation Park Masterplan is a further layer of planning to give effect to the above strategies at a local, site specific level.

Chapter 4: SEA Methodology

Screening

Screening, evaluating whether SEA needs to be carried out, was not relevant as it was considered appropriate that a Strategic Environmental Appriasal be undertaken of teh CSIP Masterplan.

Scoping

Scoping is the procedure whereby the range of environmental issues and the level of detail to be included in the Environmental Report are decided upon, in conjunction with the prescribed environmental authorities.

A Scoping Report was then prepared by the Planning Policy Unit in July 2011 which identified the key environmental issues that would be addressed appropriately in the Environmental Report.

The Scoping Report was sent to the following statutory and Environmental Authorities:

- the Environment Protection Agency (EPA),
- the Minister for the Environment, Heritage and Local Government,
- Department of Communications, Energy & Natural Resources
- Cork City Council

Three submissions on the Environmental Report were received from the EPA, Fisheries Ireland and the Department of Arts, Heritage and the Gaeltacht, that related to a number of issues and have been taken into account in the preparation of this Report.

Chapter 5 - Relationship of the Masterplan with other relevant plans and programmes

The preparation of this Draft Masterplan is an important part of the planning process and focuses on the implementation of a local level project of the overall strategy for the County set out in the County Development Plan 2009 and the 2011 Carrigaline Local Area Plan, with which, in law, it is obliged to be consistent. It must also adhere to the core strategies set down in higher level plans such as the National Spatial Strategy and the Regional Planning Guidelines for the South West Region. Section 8 of the Masterplan describes the conformity of the Masterplan with the provisions of the hierarchy of land use plans.

Chapter 6 – Environmental Baseline

This section of the Environmental Report summarises the environmental baseline in the Masterplan area. The baseline assessment methodology contains the following steps:

- Description of the current state of the environment
- The primary environmental issues of relevance to the Masterplan
- The characteristics of the environment likely to be significantly affected by the Masterplan
- The evolution of the environment in the absence of the Masterplan
- The interaction between environmental topics

The baseline has been compiled using all available datasets and in conjunction with indicators suggested during scoping. The main sources of data used in the compilation of this baseline were (amongst others):

- Scoping Responses from the Environmental Authorities
- Existing databases such as the EPA, Cork County Council and the Central Statistics Office (CSO)
- Information supplied by Cork County Council during the SEA scoping stage.

The characteristics of the existing environment are described under the following headings:

- Biodiversity/Flora and Fauna
- Population and Human Health
- Soil and Geology
- Water Resources
- Air and Climate
- Cultural, heritage including archaeological heritage
- Landscape
- Material Assets

There are also a number of maps included in this section to highlight the baseline environment of the Masterplan area, the majority of which indicate the existing situation for the environmental issues identified above.

Chapter 7 – SEA Objectives and Targets

This section aims to identify the relevant Environmental Protection Objectives (EPOs). SEA objectives are used to help show whether the objectives of the Masterplan are beneficial for the environment, to compare the environmental effects of alternatives, or to suggest improvements. The Environmental Protection Objectives set out in this section are set out under a range of topics and are used as the standards against which the future development scenarios, strategic aims, strategic principles and development objectives of the Masterplan can be evaluated, to help to identify areas in which significant adverse impacts are likely to occur, if unmitigated.

The SEA objectives are separate from the Masterplan objectives although they can influence each other and even overlap. In line with the requirements of the SEA Directive, they must cover environmental issues including biodiversity, population, human health, fauna, flora, soil, water, air, climatic factors, material assets, cultural heritage, landscape and the interrelationship between them. An indicative list of environmental protection objectives is outlined in the SEA Guidelines for the implementation of the SEA Directive, which was complied having regard to the checklist of national, European and international policy documents, strategies, guidelines, Directives, Conventions etc.

Chapter 8: Consideration of Alternatives

The following section identifies and describes the alternative strategies considered during the drafting process for the Masterplan. Article 5 of the Strategic Environmental Assessment Directive requires the Environmental Report to consider "reasonable alternatives taking into account the objectives and the geographical scope of the plan or programme" and the significant environmental effects of the alternatives selected. Alternatives must be realistic and capable of implementation.

The alternative scenarios that were proposed in the Masterplan for the area are discussed and the preferred strategy from an environmental perspective is provided. Mitigation measures which attempt to prevent, reduce and as fully as possible offset any significant adverse effects of the environment of implementing the preferred alternative are identified in this chapter where applicable.

Methodology
The aim of this chapter is to evaluate reasonable alternatives for the CSIP project. In order to carry out an evaluation of the alternatives identified in the Environmental Report it is necessary to determine where we expect development to be in the future and if this development will lead to pressure that is likely to conflict with environmental issues that were highlighted in the environmental baseline.

During the preparation process of the Masterplan, 6 Scenarios were proposed. These are briefly outlined in this chapter and the Masterplan's preferred Scenario (i.e. the Scenario that forms the basis of the draft Masterplan) has been presented. Reasons why the draft Masterplan adopted its preferred Scenario have also been explained in this chapter. If the SEA evaluation of the Scenario's finds that the Masterplan's preferred Scenario is not the most sustainable Scenario from an environmental perspective then mitigation measures have been provided.

The Scenarios
For the Masterplan, 6 alternative scenarios have been identified that could potentially achieve the objectives set out in the Masterplan. The scenarios that were considered in the preparation of the Masterplan are as follows;

- Alternative Location in Metropolitan Cork (Scenario 1)

This is the scenario where the CSIP is located at an alternative, unspecified location within Metropolitan Cork

- CIT / UCC Campuses (Scenario 2)

This is the scenario where the CSIP is located at, or adjoining, the existing campuses of University College Cork or Cork Institute of Technology

- Existing Employment Centres (Scenario 3)

This is the scenario where the CSIP is located at an existing strategic employment location within Cork

- Reduced Development Area (Scenario 4)

This is the scenario where the CSIP site area is reduced

- Reduced Development Density (Scenario 5)

This is the scenario where the CSIP density of development is reduced

- As per Draft Masterplan (Scenario 6)

This is the scenario where the CSIP is planned for as per the draft Masterplan

Findings of Scenario Evaluation
From an examination of the above it is considered that;

For Scenario 1 impacts arising would vary depending on the site specific location identified within Metropolitan Cork. Having regard to the characteristics and scale required to inform the design of the project, the timing of the project and long term nature of the project, no readily identifiable alternative site is available.

For Scenario 2 impacts arising are likely to be low, but no landbank is available to locate the CSIP within an existing educational campus.
For Scenario 3 moderate impacts are likely but existing employment centres have varying constraints, including, low level public transport provision and insufficient site area to accommodate CSIP.

For Scenario 4 impacts arising could be reduced via the planning for a smaller project area. However, this may in the future restrict the ability of the CSIP to expand and, hence, impact negatively on the economic and environmental consequences of the project.

For Scenario 5 impacts arising could be reduced via the planning for a lower density project. However, this would set a limit on the development quantum within the CSIP and restrict its ability to expand in the future. It would also not achieve the full benefits of infrastructural investment to serve the project.

For Scenario 6 – the preferred Scenario – impacts arise from the development of a Greenfield site. However, having regard to its location, scale and the project requirements, it is deemed to be the most appropriate Scenario, subject to the provision of mitigation measures to offset environmental impacts.

Chapter 9: Environmental Assessment of the Draft Plan

The purpose of this section of the Environmental Report is to predict and evaluate as far as possible the environmental effects of this Masterplan and to set out measures envisaged to prevent, reduce, and as fully as possible offset any significant adverse effects on the environment. This section evaluates the Masterplan's Development Objectives against the Environmental Protection Objectives (EPOs).

Table 1.1: Evaluation of EPO's and Masterplan Objectives:

Objectives	**No likely interaction with status of EPOs**	**Likely to improve status of EPOs**	**Potential Conflict with status of EPOs**	**Uncertain interaction with status of EPOs**	**SEA Recommendation**	**Masterplan Response**
GEN 1			B1 B2 Q1 S1 W1 W2 W3 A1 CH1 L1			
GEN 2			B1 B2 Q1 S1 W1 W2 W3 A1 CH1 L1			

Objectives	No likely interaction with status of EPOs	Likely to improve status of EPOs	Potential Conflict with status of EPOs	Uncertain interaction with status of EPOs	SEA Recommendation	Masterplan Response
GEN 3		B1 B2 Q1 S1 W1 W2 W3 A1 CH1 L1				
GEN 4		B1 B2 Q1 S1 W1 W2 W3 A1 CH1 L1				
GEN 5	B1 B2 Q1 S1 W1 W2 W3 A1 CH1 L1					
GEN 6		B1 B2 Q1 S1 W1 W2 W3 A1 CH1 L1				

Objectives	No likely interaction with status of EPOs	Likely to improve status of EPOs	Potential Conflict with status of EPOs	Uncertain interaction with status of EPOs	SEA Recommendation	Masterplan Response
GEN 7			B1 B2 Q1 S1 W1 W2 W3 A1 CH1 L1			
GEN 8		B1 B2 Q1 S1 W1 W2 W3 A1 CH1 L1				
GEN 9	B1 B2 Q1 S1 W1 W2 W3 A1 CH1 L1					
DEV 1	B2 W1 W2 W3	Q1	B1 S1 A1 CH1 L1			
DEV 2	B2 A1	Q1	B1 S1 W1 W2 W3 CH1 L1			

Objectives	No likely interaction with status of EPOs	Likely to improve status of EPOs	Potential Conflict with status of EPOs	Uncertain interaction with status of EPOs	SEA Recommendation	Masterplan Response
DEV 3	B2 W3	Q1 W2 A1	B1 S1 W1 CH1 L1			
GI 1	W2	B1 B2 Q1 S1 W1 W3 A1 CH1 L1			Additional Objective	
GI 2	W2	B1 B2 Q1 S1 W1 W3 A1 CH1 L1			Additional Objective	
GI 3	W1 W2 W3	B1 B2 Q1 S1 A1 CH1 L1			Additional Objective	
GI 4	W2 W3	B1 B2 Q3 S1 W1 A1 CH1 L1			Additional Objective	

Objectives	No likely interaction with status of EPOs	Likely to improve status of EPOs	Potential Conflict with status of EPOs	Uncertain interaction with status of EPOs	SEA Recommendation	Masterplan Response
GI 5		B1 B2 Q1 S1 W1 W2 W3 A1 CH1 L1			Additional Objective	
WM 1	B2 W2 W3 CH1 L1	B1 Q1 S1 W1 A1				
WM 2	B2 W2 W3 CH1 L1	B1 Q1 S1 W1 A1				
WM 3	B2 W2 W3 CH1 L1	B1 Q1 S1 W1 A1				
WM 4	B2 W2 W3 CH1 L1	B1 Q1 S1 W1 A1				
WM 5	CH1 L1		B1 B2 Q1 S1 W1 W2 W3 A1		Amend Wording	

Objectives	No likely interaction with status of EPOs	Likely to improve status of EPOs	Potential Conflict with status of EPOs	Uncertain interaction with status of EPOs	SEA Recommendation	Masterplan Response
WM 6	CH1 L1	B1 B2 Q1 S1 W1 W2 W3 A1				
WM 7	CH1 L1	B1 B2 Q1 S1 W1 W2 W3 A1				
EN 1	B1 B2 S1 W2 Ch1 L1	Q1 W1 A1				
EN 2	B1 B2 S1 W2 Ch1 L1	Q1 W1 A1				
EN 3	B1 B2 S1 W2 Ch1 L1	Q1 W1 A1				
EN 4	B1 B2 S1 W2 Ch1 L1	Q1 W1 A1				

Objectives	No likely interaction with status of EPOs	Likely to improve status of EPOs	Potential Conflict with status of EPOs	Uncertain interaction with status of EPOs	SEA Recommendation	Masterplan Response
EN 5	B1 B2 S1 W2 Ch1 L1	Q1 W1 A1				
MB 1	B2 W3	Q1	B1 S1 W1 A1 CH1 L1		Additional Objective	
MB 2	B2 W2 W3	B1 Q1 S1 W1 A1 CH1 L1			Additional Objective	
MB 3	B2 W2 W3	B1 Q1 S1 W1 A1 CH1 L1			Additional Objective	
MB 4	B2 W1 W2 W3	B1 Q1 S1 A1	CH1 L1		Additional Objective	
MB 5	B2 S1 W1 W2 W3	B1 Q1 A1 CH1 L1			Additional Objective	
MB 6	B2 S1 W1 W2 W3 CH1 L1	Q1 A1	B1		Additional Objective	

Objectives	No likely interaction with status of EPOs	Likely to improve status of EPOs	Potential Conflict with status of EPOs	Uncertain interaction with status of EPOs	SEA Recommendation	Masterplan Response
MB 7	S1 W1 W2 W3	B1 B2 Q1 A1 CH1 L1			Additional Objective	
DS 1		B1 B2 Q1 S1 W1 W2 W3 A1 CH1 L1			Additional Objectives	
DS 2	B2 S1 CH1 L1	B1 Q1 W1 W2 W3 A1			Additional Objectives	
DS 3	B2 S1 CH1 L1	B1 Q1 W1 W2 W3 A1			Additional Objectives	
DS 4	B2 S1 CH1 L1	B1 Q1 W1 W2 W3 A1			Additional Objectives	
DS 5	B1 B2 Q1 S1 W1 W2 W3 A1 CH1 L1				Additional Objectives	

Objectives	**No likely interaction with status of EPOs**	**Likely to improve status of EPOs**	**Potential Conflict with status of EPOs**	**Uncertain interaction with status of EPOs**	**SEA Recommendation**	Masterplan **Response**
DS 6	B1 B2 S1 W1 W2 W3 CH1	Q1 A1 L1			Additional Objectives	
DS 7		B1 B2 Q1 S1 W1 W2 W3 A1 CH1 L1			Additional Objectives	
DS 8		B1 B2 Q1 S1 W1 W2 W3 A1 CH1 L1			Additional Objectives	
DS 9		B1 B2 Q1 S1 W1 W2 W3 A1 CH1 L1			Additional Objectives	

Objectives	No likely interaction with status of EPOs	Likely to improve status of EPOs	Potential Conflict with status of EPOs	Uncertain interaction with status of EPOs	SEA Recommendation	Masterplan Response
CON 1		B1 B2 Q1 S1 W1 W2 W3 A1 CH1 L1			Additional Objective	
CON 2		B1 B2 Q1 S1 W1 W2 W3 A1 CH1 L1			Additional Objective	
CON 3		B1 B2 Q1 S1 W1 W2 W3 A1 CH1 L1			Additional Objective	

Chapter 10: Mitigation Measures

This section will outline the mitigation measures envisaged to prevent, reduce and as fully as possible offset any significant adverse effects on the environment of the area arising from the implementation of the Masterplan. This section seeks to tie together the SEA process. Environmental issues have been identified in Chapter 6 and the impact of the plan is outlined in Chapter 9. As a result of this analysis and in light of the SEA process, certain mitigation measures have been identified.

Mitigation involves ameliorating significant negative effects. Where the environmental assessment identifies significant adverse effects, consideration is given in the first instance to preventing such impacts or where this is not possible to lessening or offsetting those effects. Mitigation measures can be generally divided into those that:

- Avoid effects,
- Reduce the magnitude or extent, probability and/or severity of effect,
- Repair effects after they have occurred
- Compensate for effects, by balancing out negative impacts with positive ones.

Mitigation measures could include:

- The choice of an alternative, with less significant environmental effect,
- The addition of policies to the plan to reduce likely impacts from other policies,
- Refining policy/objective wording,
- Adding new policy criteria,
- Creating Supplementary Planning Guidance to add more detail to the Plan.

The methodology for the provision of mitigation measures for this Masterplan was to address the strategic level through the assessment of Alternative Scenarios in Chapter 8 and to address specific environmental consideration in Chapter 6.

Biodiversity/Flora and Fauna

Mitigation Measure: The Masterplan Guidelines for Development Precincts should include reference to the need for EIS at detailed planning stage and a specific objective to ensure the protection of protected species and habitats.

Mitigation Measure: The Masterplan Guidelines for Development Precincts should include reference to the promotion and implementation of measures to control and manage alien/noxious species and noxious weeds in consultation with the National Parks and Wildlife Service.

Mitigation Measure: The Masterplan should include additional wording under Precinct Guidelines requiring the protection, management, and as appropriate, enhancement of existing wetland habitats where flood protection/management measures are considered to be necessary.

Population and Human Health

Mitigation Measure: The Masterplan should require the preparation of a Mobility Management Plan to give effect to the modal shift targets set out**.**

Soil and Geology

Mitigation Measure: The Masterplan should include additional wording in Appendix 6 requiring soil management to be incorporated into the design stages of Precinct Plans.

Mitigation Measure: The Masterplan should include additional wording in the Design Statement requiring soil management to be incorporated into the design stages of Precinct Plans.

Water Resources
Mitigation Measure: The Masterplan should include additional wording under Precinct Guidelines requiring that a site-specific flood risk assessment be required for all areas identified as subject to the risk of flooding.

Mitigation Measure: The Masterplan should include an amendment to the wording of WM5 to reinforce the 'appropriate' disposal of waste outputs in order to ensure no environmental impacts arise.

Cultural Heritage including Architectural and Archaeological Heritage
Mitigation Measure: The Masterplan should include the recommendations of the Cultural Heritage Impact Assessment Report drafted by Cork County Council and the recommendations of the Department of Arts Heritage and Gaeltacht.

Chapter 11: SEA Monitoring
The SEA Directive requires that the significant environmental effects of the implementation of plans are monitored in order to identify at an early stage unforeseen adverse effects and to be able to undertake appropriate remedial action. Monitoring can also be used to analyse whether the Masterplan is achieving its environmental protection objectives and targets, whether such objectives need to be re-examined and whether the proposed mitigation measures are being implemented.

The following table shows selected EPOs and targets. Indicators are provide also. These indicators allow quantitative measures of trends and progress over time relating to the EPOs used in the evaluation. The targets and indicators may be subject to change through the publication of the SEA statement which will go into more detail on SEA monitoring and sources of data.

Table 1.2: EPO's & MONITORING TARGETS AND INDICATORS

EPO	*ENVIRONMENTAL OBJECTIVE*	*TARGET*	*MONITORING INDICATORS*	*DATA SOURCE*	*ACCESSIBILITY*
B1	Conserve the diversity of habitats and species and to avoid significant adverse impacts (direct, cumulative and indirect)	No significant adverse impacts, (direct, cumulative and indirect impacts), to relevant habitats, species or their sustaining resources and to improve protection for protected sites and species including a provision of adequate and appropriate buffer zones	Retain integrity of existing habitats and species relative to the baseline year of 2010.	The Heritage Department of Cork County Council, Department of the Environment, Heritage and Local Government, National Parks and Wildlife Service.	Dependent on external information. Some information potentially available within Cork County Council
		Conserve the diversity of habitats and species in non-designated sites	Retain integrity of existing habitats and species relative to the baseline year of 2010.	The Heritage Department of Cork County Council, Department of the Environment, Heritage and Local Government, National Parks and Wildlife Service.	Dependent on external information. Some information potentially available within Cork County Council

EPO	*ENVIRONMENTAL OBJECTIVE*	*TARGET*	*MONITORING INDICATORS*	*DATA SOURCE*	*ACCESSIBILITY*
B2	Protect habitats from invasive species and promote awareness of and support control and eradication programmes for invasive species	No new invasive species in CSIP and no increase in coverage of existing invasive species	New types of invasive species or increase in coverage of existing invasive species	National Biodiversity Centre	Dependent on external information
Q1	Improve people's quality of life based on high-quality residential, working and recreational environments and on sustainable travel patterns	Avoid the location of inappropriate activities that impact on the quality of the campus within CSIP	Number of inappropriate uses permitted within the CSIP	Cork County Council	Available within Cork County Council
		Enhance provision of, and access to, amenity space within CSIP	Numbers of amenity areas provided within CSIP, number of accesses to amenities areas within CSIP	Cork County Council, Cork City Council	Available from within Cork County Council
		Increase number of cycle friendly measures in the associated with CSIP	Number of cycle friendly measures provided in the area	Cork County Council, Cork City Council	Available from within Cork County Council and Cork City Council
		Increase number of pedestrian friendly measures in the associated with CSIP	Number of pedestrian friendly measures provided in the area	Cork County Council, Cork City Council	Available from within Cork County Council and Cork City Council

EPO	*ENVIRONMENTAL OBJECTIVE*	*TARGET*	*MONITORING INDICATORS*	*DATA SOURCE*	*ACCESSIBILITY*
		Increase modal shift to public transport and reduction in journey to work (time/distance)	Journey to work times; % of commuters using public transport; % of commuters cycling to work; % of commuters walking to work;	CSO	Dependent on external information
		Use of Construction Management Plans to minimise adverse impacts during construction phase(s)	Number of Construction Management Plans provided to inform the development of the CSIP	Cork County Council	Available from within Cork County Council
S1	Maintain soil integrity and quality	Soil management to inform detailed designs within CSIP	Number of Soil Management Plans provided to inform the development of the CSIP	Cork County Council	Available from within Cork County Council
		Use of Waste Management Plans to minimise adverse impacts arising from pollution	Number of Waste Management Plans provided to inform the development of the CSIP	Cork County Council	Available from within Cork County Council

EPO	*ENVIRONMENTAL OBJECTIVE*	*TARGET*	*MONITORING INDICATORS*	*DATA SOURCE*	*ACCESSIBILITY*
W1	Improve water quality and the management of watercourses to comply with the standards of the Water Framework Directive and incorporate the objectives of the Floods Directive into sustainable planning and development	Improvement, or at least no deterioration, in water quality in rivers and groundwater	Achievement of the Objectives of the River Basin Management Plans; % increase or decrease in numbers of water bodies at good status compared with baselines of 2009.	Water Framework Directive: RBD's, EPA, Cork County Council	Dependent on external information. Some information potentially available within Cork County Council
		Appropriate management of zones vulnerable to flooding	Compliance with *The Planning System and Flood Risk Management Guidelines 2009,* amount of new developments within flood plain	Cork County Council	Available from within Cork County Council
W2	Make best use of existing water and wastewater infrastructure and promote the sustainable development of new infrastructure	CSIP to be adequately served by a public waste water treatment plant system	Use of best practice to extend existing water / wastewater infrastructure to serve CSIP	EPA, Cork County Council	Dependent on external information and information available within Cork County Council

EPO	*ENVIRONMENTAL OBJECTIVE*	*TARGET*	*MONITORING INDICATORS*	*DATA SOURCE*	*ACCESSIBILITY*
W3	To maintain and improve the quality of drinking water supplies	Maintain and improve drinking water quality in the CSIP to comply with the requirements of the European Communities (Drinking Water) Regulations and to prevent leakage in new systems	Compliance with Regulations, % leakage within system	EPA, Cork County Council	Dependent on external information and information available within Cork County Council
A1	Maintain and promote continuing improvement in air quality through the reduction of emissions and promotion of renewable energy and energy efficiency	Maintain good air quality standards	To remain within good air quality standards	EPA	Dependent on external information
CH1	Promote the protection and conservation of the cultural heritage	To protect all cultural features within the CSIP and where necessary to impact upon same to manage and record action in accordance with National Heritage Policies	Number of cultural features lost within CSIP	Cork County Council	Available from within Cork County Council

EPO	*ENVIRONMENTAL OBJECTIVE*	*TARGET*	*MONITORING INDICATORS*	*DATA SOURCE*	*ACCESSIBILITY*
L1	Protect natural and historic landscapes and features within them in a sustainable manner	Integrate natural & historic landscape features into detailed design	% of natural and historic landscape lost within CSIP, number of features within natural and historic landscape lost within CSIP	Cork County Council	Available from within Cork County Council

Chapter 2: Introduction

Introduction

This is the Environmental Report of the Cork Science & Innovation Park Masterplan Strategic Environmental Assessment (SEA). The purpose of the report is to provide a clear understanding of the likely environmental consequences of decisions regarding regarding the development of a science and innovation park under this Masterplan. The SEA is being carried out in order to comply with the provisions of the SEA Regulations and in order to improve the planning and environmental management of the area. This report should be read in conjunction with the Cork Science & Innovation Park Masterplan.

Strategic Environmental Assessment

Strategic Environmental Assessment is an important mechanism in promoting sustainable development and in raising awareness of significant environmental issues and in ensuring that such issues are addressed within the capacity of the planning system. It seeks to inform the decision making process before a decision is made to adopt the plan.

The overall aim of SEA is to:

- provide a high level of protection of the environment;
- to integrate environmental considerations into the preparation and adoption of plans,
- to promote sustainable development and
- to increase public participation in environmental decision making.

SEA is the formal, systematic evaluation of the likely significant environmental effects of implementing a plan or programme before a decision is made to adopt the plan or programme. The SEA process is also intended to facilitate the identification and appraisal of alternative plan strategies, raise awareness of the environmental impacts of the Masterplan and encourage the inclusion of measurable targets and indicators.

Legislation

The European Community issued the Strategic Environmental Assessment (SEA) Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment. This introduced the requirement that SEA be carried out on plans and programmes, including those of land use planning. Article 1 of the SEA Directive states: "The objective of this directive is to provide for a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans and programmes with a view to promoting sustainable development, by ensuring that, in accordance with this directive, an environmental assessment is carried out if certain plans and programmes which are likely to have significant effects on the environment".

The SEA Directive was transposed into Irish Law under the European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004 (S.I. 435 of 2004), and the Planning and Development (Strategic Environmental Assessment) Regulations 2004 (S.I. 436 of 2004) and became operational on 21 July 2004. Under Section 14B (a) Strategic Environmental Assessment is mandatory for Local Area Plans for areas with a population of 10,000 or more.

Implications for Cork County Council and the Elected Members

As a result of the above legislation, certain plans and programmes which are prepared by Cork County Council (CCC) are required to undergo SEA. The findings of SEA are expressed in an Environmental Report which is submitted to the Elected Members alongside the relevant plan or programme. The Elected Members must take account of the Environmental Report before the adoption of the plan or programme. When the plan or

programme is adopted a statement must be made public, summarising, inter alia: how environmental considerations have been integrated into the plan or programme, and; the reasons for choosing the plan or programme as adopted over other alternatives detailed in the environmental report.

Chapter 3: The Cork Science & Innovation Park Masterplan

Planning Context

The Cork Science & Innovation Park Masterplan is called for under the Carrigaline Electoral Area Local Area Plan 2011. The Planning and Development Acts require that local area plans must be consistent with the County Development Plan and, by extension, so must the Cork Science & Innovation Park Masterplan.

The relevant County Development Plan, for the purpose of preparing the Cork Science & Innovation Park Masterplan / Environmental Report, is the Cork County Development Plan 2009 which was made by the County Council in January of that year.

The relevant Local Area Plan, for the purpose of preparing the Cork Science & Innovation Park Masterplan / Environmental Report, is the Carrigaline Electoral Area Local Area Plan 2011 which wade made by the County Council in July of 2011.

Cork County Development Plan 2009

The County Development Plan 2009, under Chapter 2, sets out the proposed medium term development strategy for County Cork looking forward to the year 2020. It sets out the County strategy for the local implementation of the National Spatial Strategy, the Atlantic Gateways Initiative and the Regional Planning Guidelines for the South-West Region. It also draws on the recommendations of the Cork Area Strategic Plan Update (2001-2020) and the North and West Cork Strategic Plan (2002-2020).

Key Aims

The key aims that underpin the strategy were first developed in the County Development Plan 2003 and this plan seeks to maintain and enhance their implementation into the future in order to achieve:

a) Enhanced quality of life for all, based on high quality residential, working and recreational environments and sustainable transportation patterns;

b) Sustainable patterns of growth in urban and rural areas, reflecting the need to reduce energy consumption and emissions and taking account of the need to plan for the effects of climate change, that are well balanced throughout the County, together with efficient provision of social and physical infrastructure;

c) Sustainable and balanced economic investment, in jobs and services, to sustain the future population of the County together with wise management of the County's environmental, heritage and cultural assets;

d) Responsible guardianship of the County so that it can be handed on to future generations in a healthy state.

Economy and Employment

The County Development Plan 2009, under Chapter 5, Economy and Employment, sets out the planning policies and objectives for the planning of the economic development of the County, which is based on the following main strategic principles:

a) Facilitating the growth of the local economy through an informed planning policy framework that meets the existing and future employment needs of the County;

b) The promotion of a strategic, sustainable economic development strategy that identifies an appropriate hierarchy of employment centres, that are related to the overall development strategy of the County and areas of predicted population growth and residential development;

c) Promote and encourage economic development to meet the needs of rural areas while safeguarding their environmental character;

d) Enhance the economic vitality and viability of the main settlements in County Cork. Enhance the economy and local service function of key villages and villages across the County;

e) Ensure that the future economic growth of the County is supported by an Integrated Strategic Transportation Network.

Transport and Infrastructure

The County Development Plan 2009, under Chapter 6, Transport and Infrastructure, sets out the planning policies and objectives in relation to transport and infrastructure based on the following important principles:

a) An integrated approach to transport throughout the County is required with an increased emphasis on the use of public transport and particular attention given to social inclusion and environmental sustainability, efficiency, safety and competitiveness;

b) The County's principal transportation assets including ports, airports, and strategic road and rail corridors should be protected and developed;

c) Investment in the County's infrastructure should be made in a sustainable and efficient manner in order to promote the social and economic well-being of the County and its population;

d) The County's strategic infrastructural resources and distribution corridors should be protected and safeguarded, having regard to environmental and social considerations;

e) Future provision for transportation and infrastructure should be firmly integrated with the County's overall land use strategies.

f) Enhanced quality of life for all, based on high quality residential, working and recreational environments and sustainable transportation patterns.

Heritage and Environment

The County Development Plan 2009, under Chapter 7, Heritage and Environment, sets out the planning policies and objectives in relation to Heritage and Environment. They have been developed in accordance with the following principles that have been set out in the overall strategy of this plan:

a) The natural and built environment, particularly those elements that are non-renewable and most valuable, need to be properly protected, managed and enhanced;

b) The conservation and enhancement of biodiversity, natural heritage, landscape and the built environment should be promoted as important elements of the long term economic growth and development of the County. Sustainable patterns of growth in urban and rural areas, reflecting the need to reduce energy consumption and emissions and taking account of the need to plan for the effects of climate change, that are well balanced throughout the County, together with efficient provision of social and physical infrastructure;

c) The protection of Cork's physical heritage (including archaeology and historic buildings) is a tangible representation of the County's past and is a sound basis for economic growth and regeneration;

d) The 'polluter pays' principle and the 'precautionary approach' principle are important elements of any planning policies that deal with environmental and heritage matters;

e) The long term economic, social and environmental well-being of Cork requires water and air quality to be of the highest possible standard;

f) Responsible guardianship of the County so that it can be handed on to future generations in a healthy state;

g) The promotion of sustainable approaches to development by encouraging new building projects to be energy efficient.

In order to meet the requirement of the Planning and Development Acts and be consistent with the County Development Plan 2009, the local area plan process ensured that the Carrigaline Electoral Area Local Area Plan 2011, together with the cumulative effects of other local area plans also adopted, was consistent with the above policies and objectives.

The targets set out in the County Development Plan 2009 tables are based on population targets for the Irish Regions (including the South West Region) that were issued by the Department of the Environment Heritage and Local Government in February 2007. Since then, the Department has issued revised targets (October 2009) for the period up to 2022 and these have recently been included in the Regional Planning Guidelines for the South West Region that were adopted earlier this year. The County Development Plan 2009 as it stands is broadly consistent with the Regional Planning Guidelines.

The methodology used to arrive at these population 'targets' differs from the trends-based 'projection' methodology commonly used in earlier plans. The earlier trends-based 'projection' methodology is based on projecting past trends into the future with modifications to take account of how such trends may vary in the future. In the case of the new 'targets', the impact of the implementation of Government policy in the form of the National Spatial Strategy was specifically factored into the forecasting process and the underlying assumption in these targets is that the Government and Regional policy will be vigorously implemented and will have significant effects on regional population distribution.

The above County Development Plan policies support, and in turn are supported by the Cork Area Strategic Plan 2001 – 2020 & Update 2008

Cork Area Strategic Plan 2001 & 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.

Aims

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

Key Features

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

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.

Key Elements

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.

2011 Carrigaline Electoral Area Plan

Strategy

The strategy for the Carrigaline Electoral Area Local Area Plan 2011 is to implement the objectives contained in the County Development Plan 2009, and by extension CASP, to make the main towns more attractive as places to live, and, on the other hand, maintain positive growth in the villages and rural areas but at more moderate rates in line with the CASP Update.

The CASP Update and the County Development Plan 2009 have also committed to monitoring development in the villages and rural areas in the CASP Ring, with a view to extending rural housing controls, if required, to ensure closer adherence to the CASP strategy.

Population

The Cork Science & Innovation Park is primarily an employment project, with an element of on-site accommodation provided for students/researchers/park users. However, as an employment centre, linkage to existing and growth population areas is critical.

Household growth target for the entire Carrigaline Electoral Area for 2020 is 26,058, which is an increase of 29%. The reason for this large increase is the predicted drop in household size and the increase in housing density especially in the Cork City – South Environs. The overall household growth for the Electoral area is 5,909 and this

equates to 7,682 housing units, most of which will be accommodated in the three main settlements with the remainder going to the villages and rural area.

In addition, the target growth up to 2020 for the nearby settlement of Ballincollig to the west (part of the Macroom Electoral Area Local Area Plan) is 5,670 person - 3,640 households.

Furthermore, the population growth target for Cork City (the boundary of which the CSIP adjoins) is 62,241 households to 2020 - 16,344 of which will be located in the southwest of the city, close to the CSIP.

The Masterplan shall seek to develop innovate development and movement strategies to minimize environmental impacts and increase modal shift to public transport and alternative, non-car based, modes.

Cork Science & Innovation Masterplan

Science and Innovation Parks

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.

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.

Key attributes

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
- High quality public transport service to/from park
- Interaction with higher education authorities
- 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

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

Key Principles

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 strategic approach
- To build upon the existing public transport services 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

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.

Objectives

The CSIP 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

Conclusion

The Cork Area Strategic Plan, County Development Plan and the Cork County Electoral Area Local Areas Plans include a shared policy vision to direct the significant proportion of future population and economic growth toward the larger settlements and Metropolitan Cork. Ballincollig and Cork City Southern Environs, already

significant population centres, are identified as significant growth areas that can be serviced efficiently by public infrastructure – including effficient transportation networks. These plans also seek to facilitate the expansion and diversification of the region's existing economic base in an economically and environmentally appropriate manner.

The concept for the location for the Cork Science & Innovation Park is based upon existing connectivity to these population centres, as well as the potential for enhancement of same. The site chosen seeks to facilitate connectivity to Cork Institute of Technology, University College Cork, Cork University Hospital – locations of knowledge centres that are of paramount importance to a project of this nature.

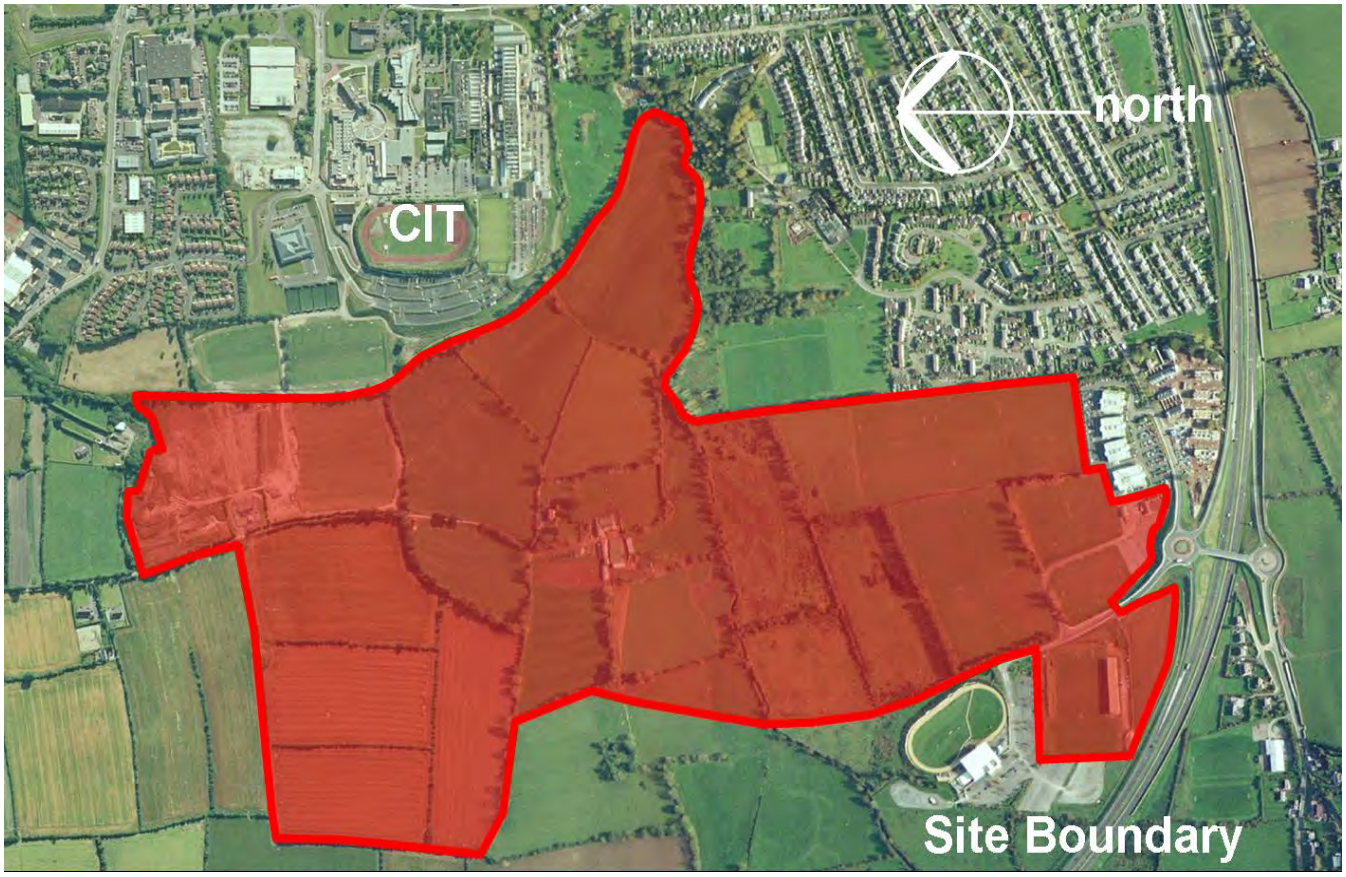


Figure 3.1 – Site Extent Map

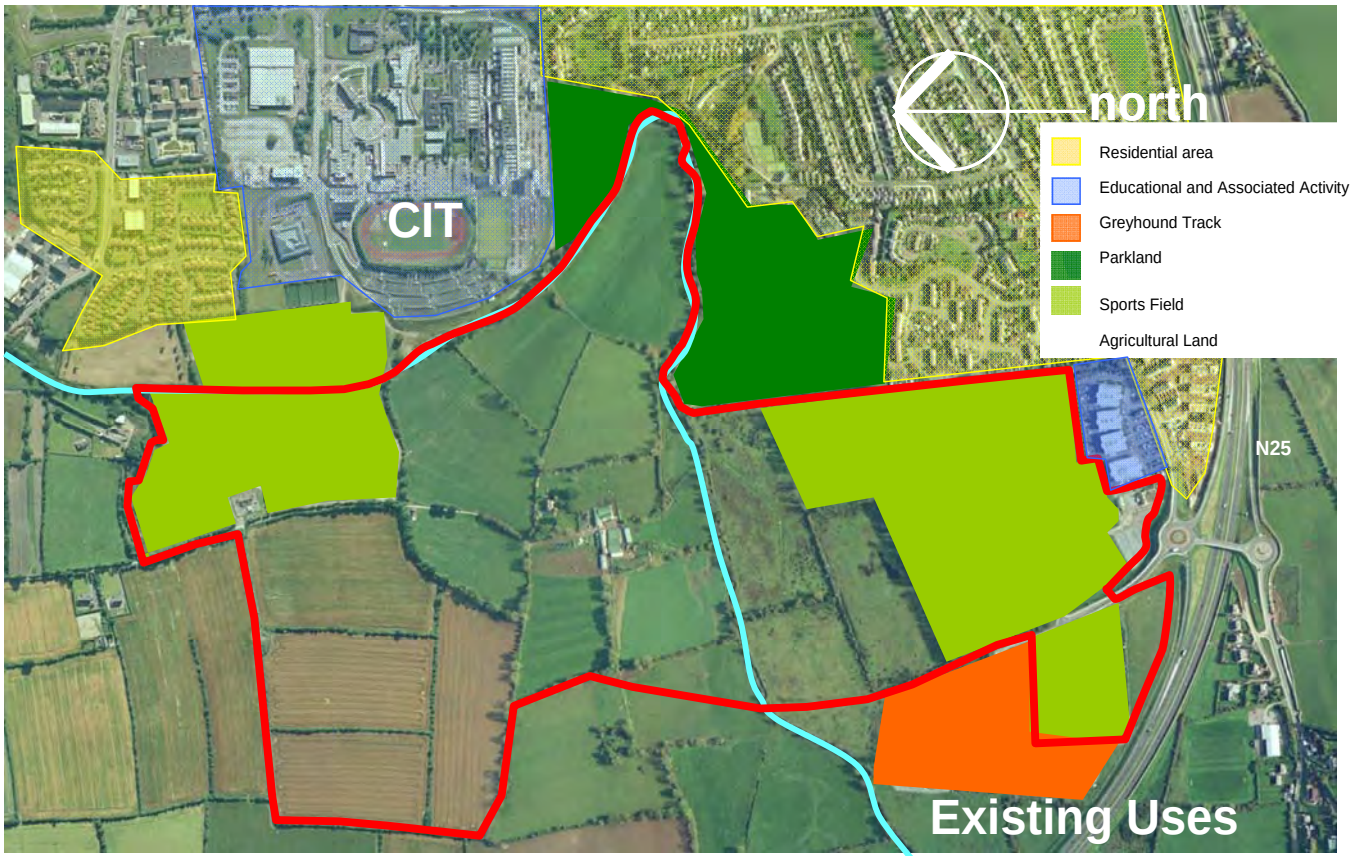


Figure 3.2 – Existing Land Uses Map

Figure 3.3 – Masterplan Site Locational Map

Chapter 4: SEA Methodology

Introduction

Strategic Environment Assessment (SEA) is a 'key mechanism in promoting sustainable development and in raising awareness of significant environmental issues and in ensuring that such issues are addressed within the capacity of the planning system'. SEA is intended to facilitate the identification and appraisal of alternative plan strategies, raise awareness of the environmental impacts of the Regional Planning Guidelines and encourage the inclusion of measurable targets and indicators.

This Environmental Report has been prepared in tandem with the preparation of the Draft CSIP Masterplan. As part of the SEA process, the Environmental Authorities, i.e. the Environmental Protection Agency, the Department of the Environmental, Heritage and Local Government and the Department of the Communication, Energy and Natural Resources were consulted.

The Department of the Environment, Heritage and Local Government has issued "Guidelines to Regional Authorities and Planning Authorities on the implementation of the SEA Directive", and the process of SEA can be divided into a number of steps:

1. Screening – process for deciding whether a particular plan, other than those for which SEA is mandatory, would be likely to have significant environmental effects, and thus would warrant SEA.
2. Scoping – procedure whereby the range of environmental issues and the level of detail to be included in the Environmental Report are decided upon, in consultation with the prescribed environmental authorities.
3. Environmental Report - Publishing an environmental report on the plan including its environmental effects, and consulting on it.
4. Adoption - Providing information on the adopted plan including incorporation of the consultation output and outlining the monitoring framework.
5. Monitoring - Monitoring significant environmental effects and taking appropriate remedial action for any unforeseen significant environmental effects.

Screening

Screening, evaluating whether SEA needs to be carried out, was not relevant as it was considered appropriate that a Strategic Environmental Appriasal be undertaken of teh CSIP Masterplan.

Scoping

Scoping is the procedure whereby the range of environmental issues and the level of detail to be included in the Environmental Report are decided upon, in conjunction with the prescribed environmental authorities.

A Scoping Report was then prepared by the Planning Policy Unit in July 2011 which identified the key environmental issues that would be addressed appropriately in the Environmental Report.

The Scoping Report was sent to the following statutory and Environmental Authorities:

- the Environment Protection Agency (EPA),
- the Minister for the Environment, Heritage and Local Government,
- Department of Communications, Energy & Natural Resources
- Cork City Council

Three submissions on the Environmental Report were received from the EPA, Fisheries Ireland and the Department of Arts, Heritage and the Gaeltacht, that related to a number of issues and have been taken into account in the preparation of this Report.

Environmental Baseline and Data Collection

The process of SEA is led by the description of the existing environmental baseline and from this information the likely effects of implementing the Plan can be identified and evaluated.

The SEA Directive (Annex 1) requires that information is provided on 'any existing environmental problems which are relevant to the plan or programme'. Information is therefore provided on existing environmental problems which are relevant to the Masterplan, thus, helping to ensure that the Masterplan does not result in any existing environmental problems to worsen.

The SEA Directive requires that information on the baseline environment be focused upon the relevant aspects of the environmental characteristics of areas likely to be significantly affected and the likely evolution of the current environment in the absence of the strategic action i.e. the masterplan. Any information that does not focus upon this is surplus to requirements; therefore, the SEA of the masterplan focuses on the significant issues, disregarding the less significant ones.

In order to describe the baseline – the current state of environment – data was collated from currently available, relevant environmental sources.

Alternatives

The Environmental Report is required by the SEA Directive to consider "reasonable alternatives taking into account the objectives and the geographical scope of the plan or programme" and the significant environmental effects of the alternatives selected.

Alternatives were formulated having regard to the objectives of the masterplan, its geographical scope and its location within the hierarchy of plans.

The Environmental Report

In this Environment Report, which has been prepared alongside the Masterplan, the likely environmental effects of the masterplan and the alternatives are predicted and their significance evaluated while having regard to the environmental baseline. The Environmental Report provides the decision-makers with a clear understanding of the likely environmental consequences of decisions regarding the future accomodation of this project. Mitigation measures to offset potential adverse impacts of implementing the masterplan and the identification of monitoring procedures to monitor the impacts of the masterplan are also undertaken in the Environmental Report.

The Environmental Report raises awareness of significant environmental issues for the Elected Members, as well as members of the public, and ensures that these issues are addressed within the capacity of the planning system. The Report also provides a clear indication of the likely environmental consequences of development policies and objectives conatined within the masterplan and suggests mitigation measures to minimise reduce or prevent such impacts. The Environmental Report also evaluates alternatives and puts forward measures to ensure monitoring of the masterplan's policies and objectives.

Consultation on Environmental Report

This Environmental Report constitutes one stage of the SEA process and the SEA process will continue after the public consultation on the draft CSIP Masterplan and the Draft Environmental Report. This Environmental Report will be circulated to the Elected Members and be on public display as it accompanies the Draft CSIP Masterplan. Written submissions are invited on both this Report and also on the Draft CSIP Masterplan.

It is considered that between the published Environmental Report and the final publication of the Environmental Statement there will be three key changes:

- The Environmental Report will be updated in light of the public consultation process and comments received from the environmental authorities.
- The SEA process will need to assess any significant changes to the draft Masterplan arising from the consultation process.

- The recommendations and mitigation measures identified through the SEA process should generate changes to the draft Masterplan.

The SEA Directive requires that the Environmental Report, the opinions expressed by the environmental authorities and the public, must be taken into account during the preparation of the Masterplan and before its adoption.

Environmental Statement

As required by the SEA Directive and the SEA Regulations a document referred to as an SEA Statement (DoEHLG, 2004) will be produced and made available to the public. The SEA Statement includes information on: how environmental considerations have been integrated into the masterplan - highlighting the main changes to the masterlan which resulted from the SEA process; how the Environmental Report and consultations have been taken into account - summarising the key issues raised in consultations and in the Environmental Report indicating what action, if any, was taken in response and; the reasons for choosing the masterplan in the light of the other alternatives, identifying the other alternatives considered, commenting on their potential effects and explaining why the masterplan was selected. As required, information is included on how environmental considerations have been integrated throughout the process as is a description on how the preferred alternative was chosen.

Technical Difficulties encountered during the preparation of the Environmental Report

During the preparation of the Scoping documents and Environmental Report, no new research – excepting refinement of flood data and - was undertaken and information was gathered from existing sources of data. It should be noted that there are a number of areas where data was not readily available which include:

- Lack of habitats surveys insufficient baseline data on habitats and species to allow for on-going monitoring (Cork County Council has commissioned a study in this regard)
- Lack of guiding legislation in some areas e.g. soils and their conservation.
- Limited Air Quality monitoring data (also arose during the preparation of the Local Area Plan).

Legislative Conformance

This Environmental Report complies with the provisions of the SEA Regulations and is written in accordance with Schedule 2B of the Planning and Development (Strategic Environmental Assessment) regulations 2004 (SI No. 436 of 2004).

The following table reproduces the checklist of information to be contained in the Environmental Report and includes the relevant sections of this report which ensure these requirements are met.

Table 4.1 - Checklist of information to be included in the Environmental Report

Information Required to be included in the Environmental Report	**Corresponding Section of this Report**
(A) Outline of the contents and main objectives of the guidelines, and of its relationship with other relevant plans and programmes	Chapter 3, 5
(B) Description of relevant aspects of the current state of the environment and the evolution of that environment without implementation of the guidelines.	Chapter 6
(C) Description of the environmental characteristics of areas likely to be significantly affected.	Chapters 5, 6, 7, 8
(D) Identification of any existing environmental problems, which are relevant to the guidelines, particularly those relating to European protected sites.	Chapters 6.9
(E) List environmental protection objectives, established at international, EU or national level, which are relevant to the guidelines and describe how those objectives and any environmental considerations have been taken into account when preparing the guidelines.	Chapters 9,10
(F) Describe the likely significant effects on the environment	Chapters 9,10
(G) Describe any measures envisaged to prevent, reduce and as fully as possible offset any significant adverse environmental effects of implementing the plan.	Chapter 10
(H) Give an outline of the reasons for selecting the alternatives considered, and a description of how the assessment was undertaken (including any difficulties)	Chapter 8
(I) A description of proposed monitoring measures.	Chapter 11
(J) A non-technical summary of the above information	Chapter 1

Chapter 5: Relationship of the CSIP Masterplan with other relevant plans and programmes

Introduction

The preparation of this Draft Masterplan is an important part of the planning process and focuses on the implementation of a local level project of the overall strategy for the County set out in the County Development Plan 2009 and the 2011 Carrigaline Local Area Plan, with which, in law, it is obliged to be consistent. It must also adhere to the core strategies set down in higher level plans such as the National Spatial Strategy and the Regional Planning Guidelines for the South West Region. Section 8 of the Masterplan describes the conformity of the Masterplan with the provisions of the hierarchy of land use plans.

Planning Hierarchy

The development of the Masterplan is influenced by a wide range of strategies and policies at varying levels; international, national and regional. These strategies and policies are all aimed at the continuous sustainable development and protection / improvement of the environment. Planning legislation is set out in the Planning and Development Act 2000-2006 and the principal regulations relating to the Act are outlined in the Planning and Development Regulations 2001-2007.

Guidance Documents

International

- EU Water Framework Directive & associated Directives;
- EU SEA Directive;
- EU Floods Directive;
- EU Groundwater Directive;
- EU Habitats Directive;
- EU Birds Directive;
- EU Freshwater Fish Directive;
- EU Drinking Water Directive;
- EU Bathing Water Directive;
- EU Environmental Impact Assessment Directive;
- EU Seveso Directive;
- EU Sewage Sludge Directive;
- EU Urban Waste Water Treatment Directive;
- EU Nitrates Directive;
- EU Integrated Pollution Prevention Control Directive;
- EU Plant Protection (Products) Directive;
- EU Soils Directive;
- EU Air Framework Directive;
- EU Climate Change Programme (ECCP II);
- EU REACH Initiative;
- Kyoto Protocol;
- Stockholm Convention;
- Valetta Convention;
- Ramsar Convention;
- OSPAR Convention;
- MARPOL Convention;
- Gothenburg Strategy

National

- National Climate Change Strategy 2007-2012

- Delivering a Sustainable Energy Future for Ireland - The Energy Policy Framework
- 2007-2020
- National Spatial Strategy 2002-2020
- Atlantic Gateways Initiative 2006
- National Development Plan 2007-2013
- Smarter Travel: A Sustainable Transport Future 2009 – 2020
- Draft Spatial Planning and National Roads Guidelines (June 2010) (pdf, 4,619kb)
- Transport 21: 2006 – 2015
- Planning Guidelines on the Planning System and Flood Risk Management;
- Sustainable Residential Development in Urban Areas - Consultation draft guidelines for planning authorities 2008;
- Sustainable Development – A Strategy for Ireland, 1997;
- National Biodiversity Plan, 2002 and subsequent review;
- Guidelines on HDA by the DoEHLG.
- 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
- Best Practice Urban Design Manual 2007

Regional & County

- South-West Regional Planning Guidelines 2010 – 2022
- Waste Management Plan for Cork County (2004)
- South Western River Basin District Draft River Basin Management Plan
- Lee CFRAMS
- Groundwater Protection Schemes
- Cork County Development Plan 2009-2015
- Cork City Development Plan 2009 – 2015
- Cork County Biodiversity Action Plan 2008
- Cork County Heritage Plan 2005-2010
- Cork Area Transit System Study 2009
- CASP 2001
- CASP Update 2008

Chapter 6: Summary of Baseline Environment

Introduction

This chapter of the Environmental Report summarizes the environmental baseline in the Masterplan area.

The baseline assessment methodology contains the following steps:

- Description of the current state of the environment
- The primary environmental issues of relevance to the Masterplan
- The characteristics of the environment likely to be significantly affected by the Masterplan
- The evolution of the environment in the absence of the Masterplan
- The interaction between environmental topics

The baseline has been compiled using all available datasets and in conjunction with indicators suggested during scoping. The main sources of data used in the compilation of this baseline were (amongst others):

- Scoping Responses from the Environmental Authorities
- Existing databases such as the EPA, Cork County Council and the Central Statistics Office (CSO)
- Information supplied by Cork County Council during the SEA scoping stage.

The characteristics of the existing environment are described under the following headings:

- Biodiversity/Flora and Fauna
- Population and Human Health
- Soil and Geology
- Water Resources
- Air and Climate
- Cultural, heritage including archaeological heritage
- Landscape
- Material Assets

As required by the SEA Directive, commentary is also included on the likely evolution of the various indicators in the absence of the implementation of the Local Area Plan review

Biodiversity, Flora and Fauna

Introduction

The site identified in the Masterplan for the Cork Science and Innovation Park is located in the Green Belt area which separates the City Suburbs and Ballincollig. It comprises mainly agricultural land with hedgerows and scrub. It is bisected by the Curragheen River which flows through the site in a north easterly direction, meeting the River Lee approximately 5km north east of the proposed development area. The Twopot River flows along the eastern most boundary of the site and connects to the Curragheen River just outside the site.

Parts of the site along the Curragheen River corridor have been identified as being susceptible to flooding. The Masterplan identifies that this area has the potential for the enhancement of biodiversity and it is an aim of the masterplan to retain existing hedgerows and treelines within the site and to enhance and develop green infrastructure within the site where possible.

This section of the Environmental Report examines the impact of implementation of the Masterplan on biodiversity. Biodiversity in its most general sense refers to all aspects of variety in the living world and includes the number of (flora and fauna) species, the amount of genetic variation and the amount of habitats present in an area. The 1992 United Nations Conference on Environment and Development was held in Rio de Janeiro. One landmark international agreement that resulted was the Convention on Biological Diversity (CBD). This recognised, for the first time that biological diversity is 'a common concern for humankind' with each country needing to take responsibility in order to halt the global loss of biodiversity. The Irish Government signed the CBD in 1992, and ratified it in 1996. Key documents and information sources include the National Heritage and Biodiversity Plans as well as those of the Local Authorities. These set out policies, aims and actions relating to the protection of biodiversity.

In 2009 Cork County Council produced the Cork County Biodiversity Action Plan which was to foster awareness of a range of heritage issues and development of pro-active policies. The overall aim of The County Cork biodiversity action Plan is to conserve and to enhance biodiversity and to ensure that every person in the county has the opportunity to appreciate and understand its importance on our lives. The Biodiversity Action Plan is County Cork's response to the national biodiversity planning process. Informed by the guidance set out in 'Guidelines for the Production of Local Biodiversity Action Plans' drafted by the Heritage Council and published by the Department of Environment, Heritage and Local Government, this document takes into account the overall goal, objectives and principles of the National Biodiversity Action Plan, and translates them into a local County Cork context.

European and National Legislation now protect the most valuable of our remaining wild places, through designation of sites as proposed Natural Heritage Area, Natural Heritage Areas, candidate Special Areas of Conservation and Special Protection Areas. The designation of these sites at a national level is the responsibility of the Department of the Environment, Heritage and local Government but it is the responsibility of all of us to protect these sites. The process of designation of such sites is ongoing, with new sites being added, redesignated and boundaries of existing sites being adjusted

The environmental designations within the Carrigaline Local Area Plan area include one SPA and seven pNHAs. Cork County Council is committed as part of their objectives in the county plan to *"provide protection to all natural heritage sites designated or proposed for designation in accordance with National and European legislation. This includes SACs, SPAs, NHAs Statutory Reserves and Ramsar sites."*

Table 6.1: Special Protection Areas Within Carrigaline Local Area Plan Area:

Name	Environmental Designation	Settlement
Cork Harbour	SPA 4030	Douglas; midleton; Glounthaune; carrigtohill; Aghada; whitegate;

		Crosshaven; Ringaskiddy; Monkstown and Rochestown

Table 6.2: Natural Heritage Areas Within Carrigaline Local Area Plan Area:

Name	Environmental Designation	Settlement
Douglas River Estuary	pNHA 1046	Douglas
Fountainstown Swamp	pNHA 371	Minane Bridge
Lough Beg	pNHA 1066	Ringaskiddy
Minane Bridge Marsh	pNHA 1966 Minane	Minane Bridge
Monkstown Creek	pNHA 1979	Ringaskiddy; Monkstown
Owenboy River	pNHA 1990	Carrigaline; Crosshaven
Templebreedy National School Crosshaven	pNHA 107	Crosshaven

The reasons for designation include ornithological, Mudflats, Annex 1 Birds Directive, Annex 11 EU Habitats Directive, Zoological Bats and Ecological.

There are no designated sites within or adjoining the Masterplan site and no threats are potentially posed by the Masterplan.

Table 6.3: Designated Sites for nature Conservation in Co. Cork, (Carrigaline LAP Area) - source Appendix 4 County Cork Biodiversity Action Plan:

Ramsar Sites	Wildfowl Sanctuaries
Cork Harbour	Douglas Estuary

Neither site is within or adjoins the Masterplan land area.

Ecological Networks

It is the intention of Cork County Council to map all areas of high biodiversity value and corridors. The ecological network approach promotes management of linkages between areas of high biodiversity value, between areas of high and low biodiversity value, between areas used by species for different functions and between local populations of different species. Corridors and linking areas can support migration, dispersal and daily movements.

This process has begun and a Habitat Mapping Programme has been completed in the Carrigaline Electoral Area.

The objectives of the Carrigaline Electoral District Habitat Survey and Mapping project are as follows:

- To carry out a survey of habitats within the Carrigaline Electoral district (ED);
- To map semi-natural habitats identified to level 111 of Fossitt (2000) classification scheme;
- To survey, map and provide supplementary information relating to all habitat listed on Annex 1 of the European union Habitats Directive 992/43/EEC) that occur within the survey area:
- To survey, map and provide supplementary information relating to sites of local biodiversity value and ecological corridors with the survey area;
- To provide a GIS database of habitat mapping and other data.

Many areas of local biodiversity value correspond to sites already designated by the Department of the Environment, Heritage and Local Government as Special areas of Conservation (SACs), special protection areas for birds (SPAs) or proposed natural heritage areas (pNHAs). Ecological corridors linking high biodiversity areas were also identified. The conservation value and threats to areas of local biodiversity value were assessed in greater detail. Management recommendations were made to maintain or enhance the conservation value of areas of local biodiversity value. As most of the lands identified in the habitat survey database are in private

ownership, achieving ecologically beneficial management will in many cases require a cooperative engagement with landowners.

The Carrigaline Electoral District Habitat Survey and Mapping project indicates that the land area of the Masterplan is not ecologically sensitive.

Protected Species
Within the Masterplan site area, arising from the Habitat Mapping undertaken, a single bat sighting was noted. In addition, visual inspection of the river hinterland would indicate the potential presence of Otters.

Plants and animals listed on Annex IV and Annex II(b) of the Habitats Directive are strictly protected wherever they occur in the country, whether inside a Natura 2000 site or outside. The list includes all bats, all cetaceans (whales, dolphins and porpoises), 5 other animals and 3 plants. Many of these species are also listed on Annex II. Each of these species is protected from injury, or disturbance / damage to their breeding or resting places. They are also protected from accidental harm so it is essential that developers know if these species are present or absent before they carry out any works.

Annex II (Protected within SACs)

- Otter
- Lesser Horseshoe Bat
- Grey Seal and Common Seal
- Bottle-nosed Dolphin
- Harbour Porpoise
- Kerry Slug
- White-clawed Crayfish
- Vertigo Snails (3 species)
- Freshwater Pearl Mussel
- Marsh Fritillary (a butterfly)
- Atlantic Salmon (in freshwater)
- River, Brook and Sea Lamprey (fish)
- Allis, Twaite and Killarney Shad (fish)
- Killarney Fern
- Slender Naiad (an aquatic plant)
- Yellow Marsh Saxifrage (a plant)
- Shining Sickle-moss
- Petalwort (a liverwort)
-

Annex IV (Protected wherever they occur)

- All bat species
- Otter
- Kerry Slug
- Natterjack Toad
- Killarney Fern
- Slender Naiad (an aquatic plant)
- Yellow Marsh Saxifrage (a plant)
- All Whales, Dolphins and Porpoises
- Leatherback Turtle
- Sturgeon (a fish)

Invasive Species

Introduced species have a major impact on biodiversity. When non native species become invasive they can transform ecosystems, and threaten native and endangered species. The impacts of invasive species on Irish biodiversity are widely demonstrated by competition (e.g. grey and red squirrels), herbivory (sika deer), predation (Gammarus pulex on freshwater invertebrates), alteration of habitat (Spartina anglica), introduction of parasites (eel swimbladder nematode) and pathogens (squirrel poxvirus) or dilution of native gene pools (Spanish bluebell). According to a recent UN report there are now almost 11,000 varieties of 'invasive species' in Europe. Alien species that become invasive are one of the main drivers of biodiversity loss across the globe. In addition, alien species have been estimated to cost economies across the world hundreds of billions of dollars each year. This has been recognised in international agreements such as the Convention on Biological Diversity and European and National Legislation.

Ten most invasive species in Co. Cork:

Scientific name	**Common name**	**Broad Habitat**	
Fallopia japonica	Japanese Knotweed	Terrestrial	Plant
Impatiens glandulifera	Himalayan Balsam	Terrestrial	Plant
Heracleum mantegazzianum	Giant Hogweed	Terrestrial	Plant
Elodea nuttallii	Nuttall's Waterweed	Aquatic	Plant
Petasites fragans	Winter Heliotrope	Terrestrial	Plant
Arhturdendyus trangulata	New Zealand Flatworm	Terrestrial	Flatworm
Cervus nippon	Sika Deer	Terrestrial	Mammal
Leuciscus leuciscus	Dace	Aquatic	Mammal
Mustela vison	American Mink	Terrestrial	Mammal
Carpobrotus edulis	Hottentot-fig	Terrestrial	Plant

Green Infrastructure

Green Infrastructure (GI) strategies are referenced in the Masterplan and appropriately forms part of the considerations for the detailed design stage. GI is a network of multifunctional open spaces, including formal parks, gardens, woodlands, green corridors, waterways, street trees and open countryside. It comprises all environmental resources and thus a green infrastructure approach also contributes towards sustainable resource management.

Issues

- Impacts on protected areas, European (e.g. Special areas of Conservation (SACs), Special Protection Areas (SPAs), Ramsar sites) and Nationally Designated Sites (e.g. Natural Heritage Areas (NHAs)
- Impacts on flora and fauna including protected species
- Impacts on sensitive habitats outside protected areas
- Protecting and enhancing biodiversity
- Potential for habitat loss and fragmentation

Discussion

The Masterplan site area consists of a mix of amenity (sports facilities), agricultural lands (tillage and pasture), rivers and associated wetland/scrub. No environmentally designated lands are within or adjoin the project site area.

The Carrigaline Electoral District Habitat Survey and Mapping project identified a bat sighting at the northern part of the CSIP site and visual inspection of the Curragheen River would indicate the presence of otters. As protected species, it is critical that they are protected from injury, or disturbance / damage to their breeding or resting places. It is noted that the Masterplan requires each Precinct to develop a Precinct Plan to inform the development of each developable area and that these plans will need to incorporate the development principles outlined in the Masterplan. Having regard to the scale of each Precinct, an EIS will be required to at planning

approval stage. While this is sufficient to ensure the protection of habitats and species, it would be helpful if the Precinct Guidelines specifically highlighted the need for EIS and the need to protect protected species.

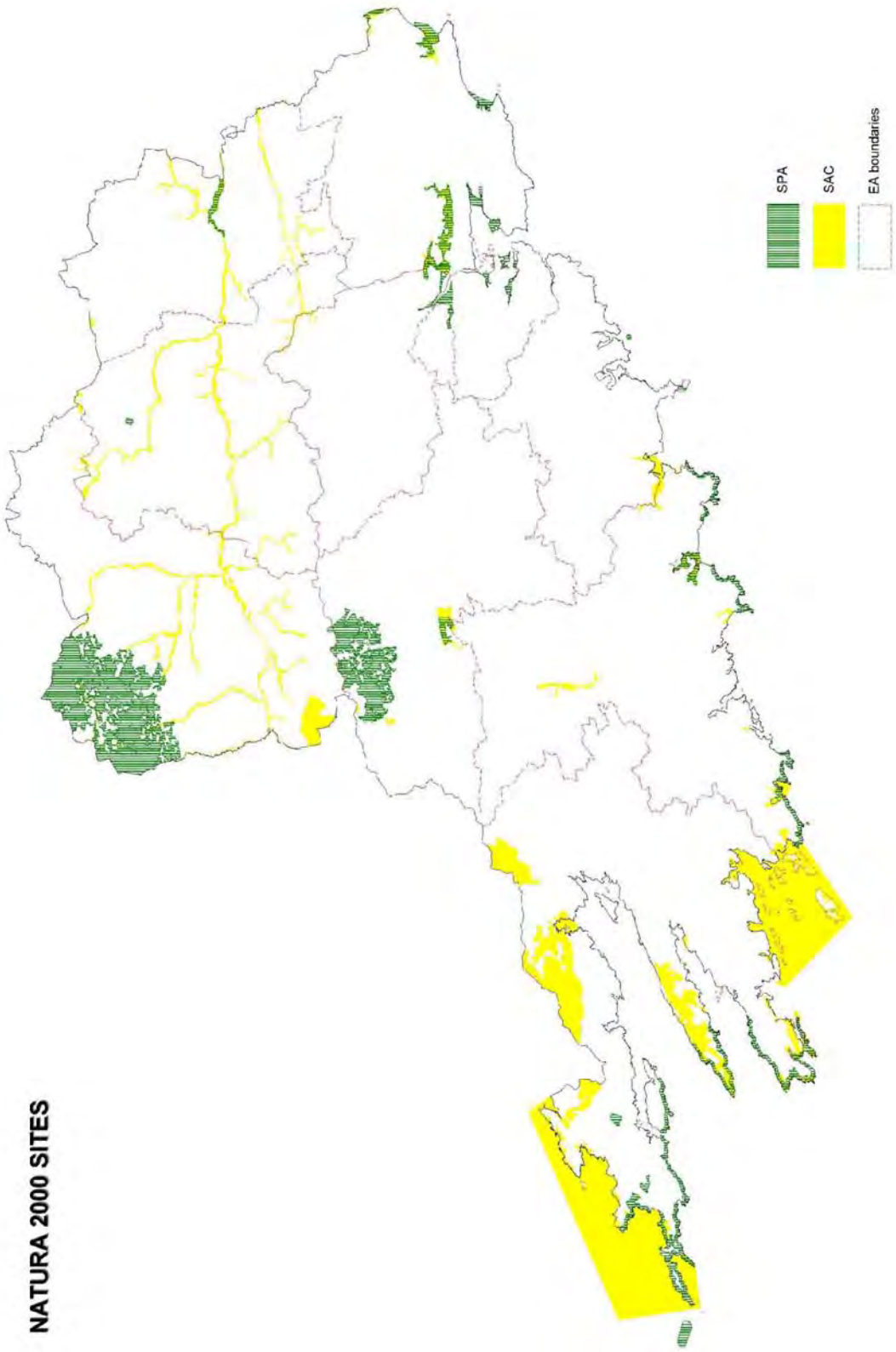
The Masterplan Appendices contain a range of principles that seek to inform the detailed design stage, across the spectrum of Green Infrastructure, Waste Management, Energy, Mobility, Sustainability and Construction Management, to achieve the protection and enhancement of existing biodiversity.

Development Guidelines set out in the Masterplan for Precincts (development areas) require that any future detailed designs retain, protect and enhance the existing natural landscape in accordance with the Green Infrastructure Principles outlined in the Appendices. This is particularly relevant to Precincts 3 & 4 (adjoining the Curragheen River and associated wetlands / scrubland). Such features to be retained include existing treelines & hedgerows and existing river related habitats.

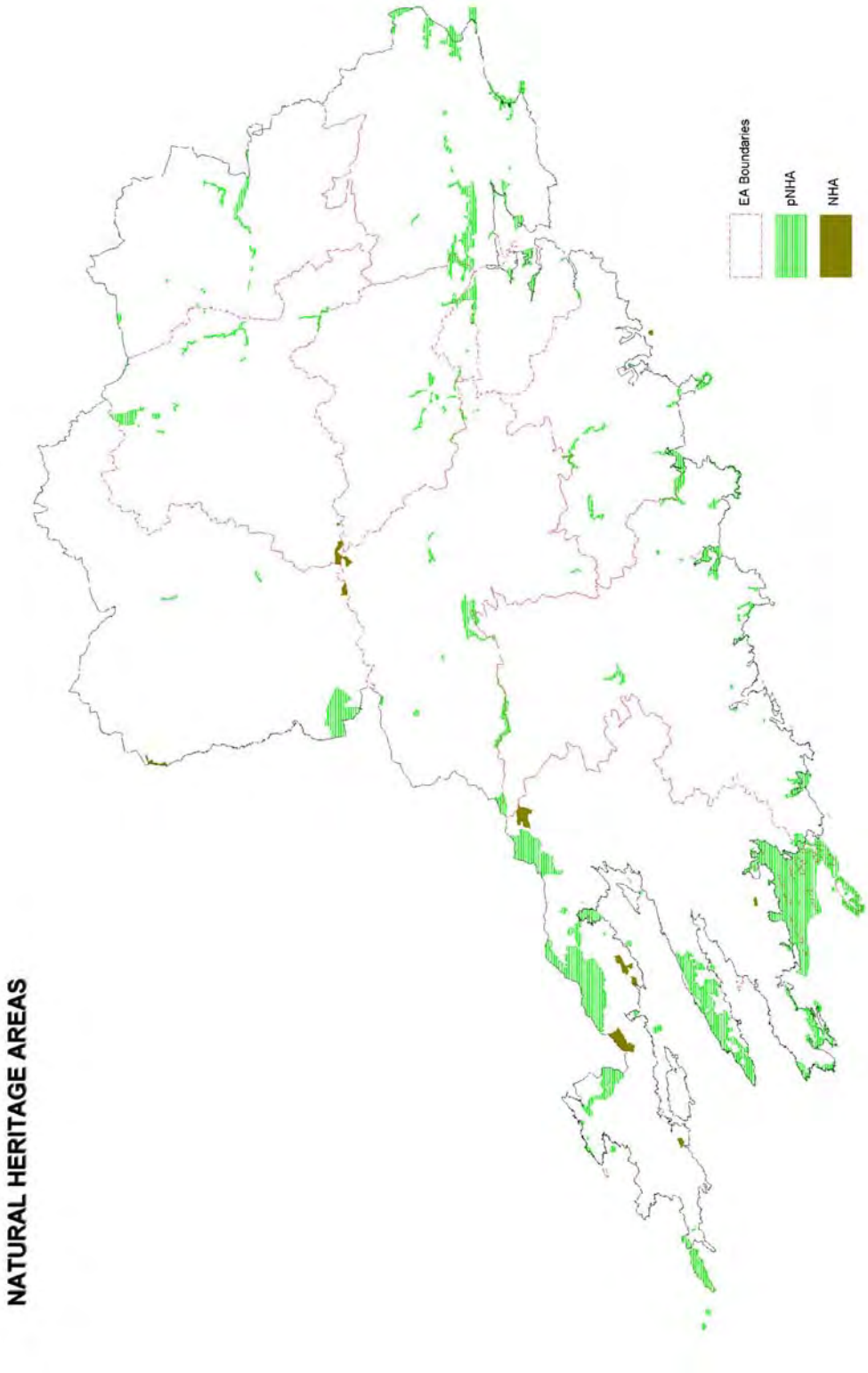
The Masterplan sets the overall framework within which individual developments must be designed to achieve a high level of integration with the natural environment. The development densities set out in the Masterplan allow for a significant volume of open space, with site coverage ranging between 15% and 45%, thereby allowing for development targets to be met in a flexible manner informed by their appropriate integration with the existing natural environment.

Non-implementation of Masterplan

The Masterplan provides for the development of an important element of the region's future economic infrastructure. It provides guidance as to the direction of this development and forms the basis upon which individual planning applications will be assessed. In the absence of the Masterplan, it is likely that the lands would continue in their existing agricultural and amenity uses. However, having regard to the location of these lands on the edge of the city's urban area, it is likely that development pressures would arise in an uncoordinated fashion. Hence, development within the project area would be have no long-term guidance and each planning application would be treated individually. Consequently, no long term, cumulative, causal or holistic impacts on ecological habitats within the study area would be assessed and, through time, fragmentation of habitats and loss of habitats would occur. Developments along riverbanks would result in a reduction in ecological connectivity within and between these and other habitats.



Map 6.1: Natura 2000 sites



Map 6.2: Natural Heritage Areas

Population and Human Health

Introduction

In this section, the existing targeted population of the Masterplan will be examined, as well as potential impacts on the adjoining resident population. The likely significant impacts of population change proposed in the plan on human health will be assessed and the foundation of this assessment will be based on quality of life issues. Other potential impacts on human health such as air quality and waste management facilities will be dealt under separate environmental receptors.

As the Masterplan relates to the development of a strategic employment location, the primary focus of this section shall be set within this context. The creation of a significant permanent residential element does not exist within this project, although some transient residential accommodation will be provided in the form of student / researcher accommodation. As a place of employment it is important that a high quality and safe environment is created, however, the characteristics of this environment by definition shall be somewhat different with that of a wider mixed use residential area.

The lists below show the areas covered in this section and also the environmental receptors which have a strong connection with Population and Human Health. For example, it is important to note that wastewater and drinking water issues have a strong link with water quality issues and this will be explored further in the Water Resources section.

Issues relating to Population and Human Health:

- Economic Well Being
- Transportation
- Quality of Environment
- Noise
- Safety
- Amenity

Environmental Receptors with Strong Links to Population and Human Health:

- Drinking Water Quality
- Wastewater Treatment
- Water Resources
- Biodiversity
- Air Quality
- Waste Management

Existing Population Within & Adjoining Masterplan Site

There is no significant residential population within the Masterplan site, with approx. 7 residential dwellings on or immediately adjoining the site boundaries. The lands abut to the east the Cork City Boundary where the Cork Institute of Technology and a large suburban residential area are located.

Within the site are located University College Cork's sports playing facilities and a sports ground not in full-time use.

Adjoining the site to the west is a Bord na gCon Greyhound racing Stadium.

Relevant Population Overview in the Carrigaline Electoral Area (also including Macroom Electoral area & City Council area)

The Cork Science & Innovation Park is primarily an employment project, with an element of on-site accommodation provided for students/researchers/park users. However, as an employment centre, linkage to existing and growth population areas is critical.

Household growth target for the entire Carrigaline Electoral Area for 2020 is 26,058, which is an increase of 29%. The reason for this large increase is the predicted drop in household size and the increase in housing density especially in the Cork City – South Environs. The overall household growth for the Electoral area is 5,909 and this equates to 7,682 housing units, most of which will be accommodated in the three main settlements with the remainder going to the villages and rural area.

In addition, the target growth up to 2020 for the nearby settlement of Ballincollig to the west (part of the Macroom Electoral Area Local Area Plan) is 5,670 person - 3,640 households.

Furthermore, the population growth target for Cork City (the boundary of which the CSIP adjoins) is 62,241 households to 2020 - 16,344 additional households of which will be located in the southwest of the city, close to the CSIP.

Employment Profile of Carrigaline Electoral Area

In the Carrigaline Electoral Area, the employment base is significant and centers on a mix of manufacturing and service industry. Outside of the main towns and strategic industrial areas there are employment and economic activities of varying scale occurring in the smaller settlements and rural areas of the Electoral Area, such as agriculture, quarries, service industries, tourism and other industrial and commercial uses.

The two major employment centres in the Carrigaline Electoral Area are Ringaskiddy and the Cork Airport Business Park. Ringaskiddy is categorised as a strategic employment centre which has modern port facilities and contains predominately large-scale manufacturing industrial uses that occupy large, stand alone sites. The Airport Business Park is a specialised employment centre that provides a prestigious office based industrial area for international traded services. In addition, Little Island located in eastern County County Cork is a strategic employment centre providing accommodation for industrial and logistics uses, while Cork City provides a range of employment uses with the existing urban fabric.

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, *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.

Table 6.4:: Business Land Supply – Carrigaline Electoral Area

Landuse	Total Land Zoned (Ha) (2003)	Developed / In course of development	Total Land Available (Ha) (2008)	Land for 'Stand Alone'	Other Business Land
Total	437	136	301	95	206

In the current economic climate it is difficult to estimate the future rate at which the remaining supply of land will be developed. In the Carrigaline Electoral Area, Ringaskiddy and the Airport Business Park in particular, were amongst the fastest growing employment areas in the County in recent years and could both be areas where early signs of economic recovery would be expected to manifest themselves in demand for new development.

Economic Well Being - Discussion

Notwithstanding the above availability of lands and current economic climate, the employment facilities to be provided are not catered for elsewhere, having regard to the specialized and targeted employment sector. Nor is a suitable alternative site available that contains lands in the ownership of UCC and CIT and that can accommodate third level institutional integration to the same extent.

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

In the absence of the achievement of the above, the Cork Region will fall behind other competitive location in terms of the range of employment opportunities offered. Hence, its attractiveness in economic will diminish, creating a feedback loop in this regard.

Transportation

Introduction

It is the stated goal of the Masterplan to ensure that the CSIP is a place dominated 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, 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 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 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

Places where we work for long periods ought to be places where high quality buildings and vibrant outdoor spaces are found. Best practice in this regard provides excellent examples of good urban spaces that are peaceful and yet vibrant – achieved in large part by the prevention of car dominance. Such places are sought after as places to work and live, tending as a result to attract high level of inward investment.

While brownfield sites are the optimum location for such development, when aligned with the principles of smart growth, suburban locations offer significant opportunity for sustainable development also. However, critical to sustainability are 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.

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.

However, transport is also vital to vibrant urban areas and no place can function efficiently without it. The choice to be made in the Masterplan relate to how that transport is provided. With increasing intensity, cities and town are developing strategic plans to sustainably link their places of work, leisure and residence, with the effect that they are claiming back the quantum of space that urban transport system – primarily private vehicles - absorb.

Vehicle movement plans operate across a wide spectrum. If effective mobility management can be implemented, it would greatly enhance the user environment within the CSIP and also form a key foundation in the creation of a special park brand - a critical element in the attraction of both fiscal and personal investment in the project..

It is noted in the Masterplan 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. This concept also assists in the aligning of development needs with the requirement to protect and enhance biodiversity within the site.

Existing Access

The CSIP Masterplan site currently hosts agricultural uses, University College Cork's sports playing facilities and a sports ground not in full-time use. Adjoining the site to the west is a Bord na gCon Greyhound racing Stadium. These lands and uses are accessed in the main from the south via an existing interchange on the Cork South Ring Road N25. A secondary access via a minor public laneway serves the lands to the north of the site. The site is, furthermore, bounded to the east by a public walkway.

The site is well served by existing bus public transport services adjoining the site – primarily the high frequency routes no.'s 5 & 8. It is proposed in the Masterplan that these services by extended into the CSIP and the potential for a future Bus Rapid Transit System (as identified in the Cork Area Transit Study) is made within the layout of the park.

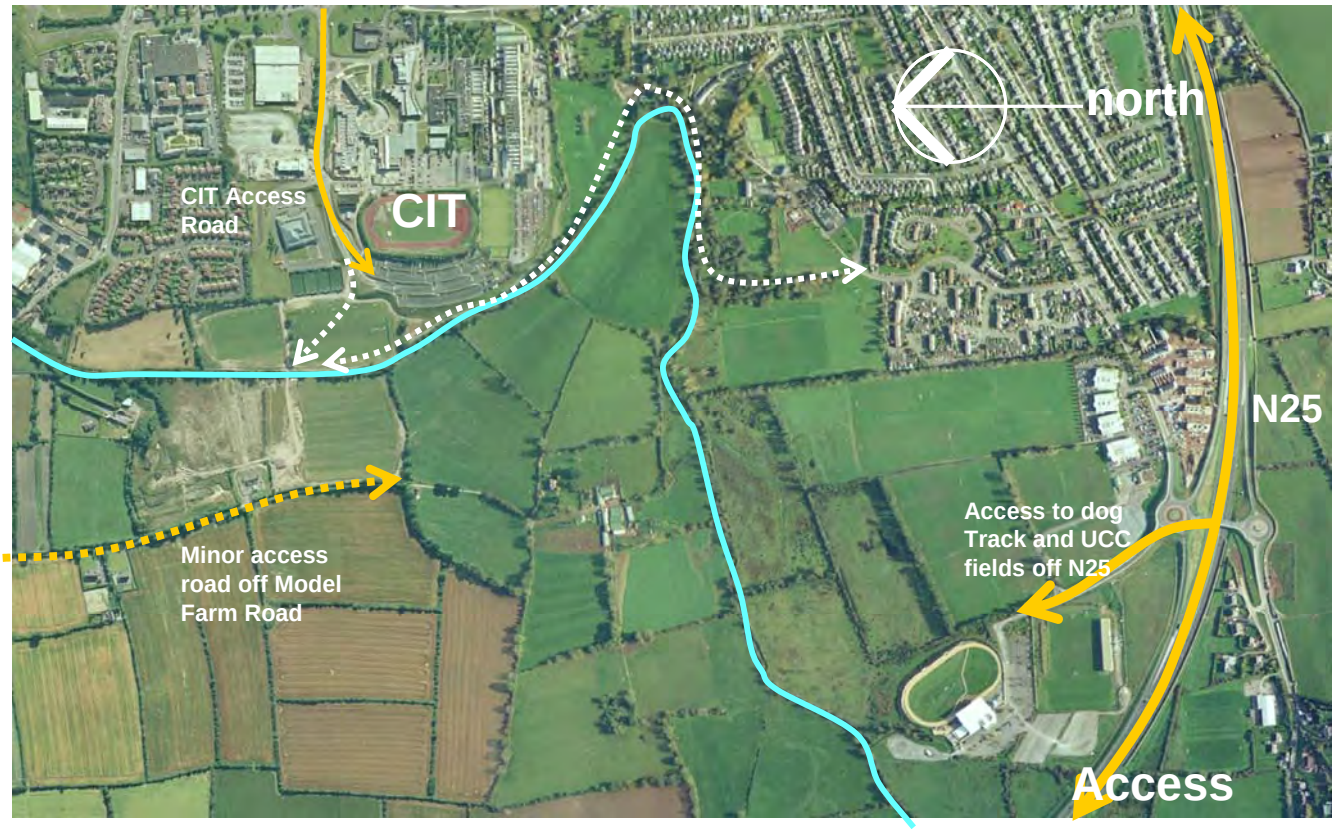


Figure 6.4: Cork Science & Innovation Park – Existing access routes

Proposed Access & Transportation

Primary 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 available. With relatively minor modifications, it will be possible to increase this junction capacity to facilitate 42,420m² of development in Phase 1. To accommodate Phase 2 and Phase 3 development quantums as identified in the Masterplan, additional modifications / alternative access arrangements, as well as significant modal shift to public transport, shall be required.

It is stated that Phase 1 development is based on 20% modal shift away from private vehicle access. To facilitate Phase 2 and 3 development, modal shift targets of 30% and 55% (in accordance with Smarter Travel targets) must be achieved. Hence, it is appropriate that these targets are included to ensure that the project does not proceed solely or primarily based on private car use.

Phase 1 development shall require the construction of an internal access roadway to link the development Precincts, to link the project site area with the CIT campus and to facilitate public transport access to the site.

The existing public pathway that bounds the CSIP site to the east provides a link for pedestrians and cyclists between the city urban area and the project site.

Internal to the CSIP, grouped parking and limited individual parking areas (20% of Precinct requirements) are proposed in order to facilitate and encourage transportation management. It is proposed in the Masterplan that a guiding role is played in this regard – in accordance with the modal shift targets identified – by the future operators (governance / management body) of the park.

Discussion

The modal shift targets identified in the Masterplan are ambitious and require a coordinated approach in the delivery of the transportation solutions – both within and outside the park.

The Masterplan states that Phase 2 & 3 development, which represents approx. 88% of the overall development quantum, cannot proceed without the achievement of the modal shift targets indicated without a review of the Masterplan. This safeguard provides a significant incentive to achieve a significant modal shift and also protects the project from unsustainable slippage.

Furthermore, the Mobility Principles set out in the Appendices of the Masterplan set a clear context for the prioritization of non-private vehicle access to the site to be incorporated into future detailed design proposals.

The combined impacts of these policies will direct the development patterns in a sustainable manner. This in turn shall improve significantly the environment of the park users, provide choice in transportation, minimize emissions and energy dependence in accordance with national policy, contribute to the achievement of critical mass within the existing public transportation network as well as to a future integrated transportation network to serve the Metropolitan Cork Area, and thereby enhance the quality of life for all citizens.

While the CSIP Masterplan sets out the parameters within which the overall project development is set, a mobility management plan would give effect to the actions required to achieve the targets as set out.

Quality of Environment

Introduction

As stated in the above sections, places where we work for long periods ought to be places where high quality buildings and vibrant outdoor spaces are found. Such places exist, although are less prevalent than they ought to be, and are sought after as places to work and live, tending as a result to attract high level of inward investment and productivity.

The core concept of the CSIP as outlined in the Masterplan is the creation of a best practice international standard science and innovation park. To achieve this goal, the CSIP will need to create an environment where;

- start up and incubation of innovation led, high growth, knowledge based businesses are encouraged
- larger and international businesses can develop specific and close interactions with a particular centre of knowledge creation for their mutual benefit
- centres of knowledge creation such as universities, higher education institutes and research organisations develop linkages

In order to achieve this dynamic, the Masterplan Objectives seek to;

- ensure that the built forms within the CSIP meets the functional and personal requirements within its spectrum of users
- create a high quality and sustainable natural environment within the park
- enable the creation of a distinct innovation park brand that underpins its future success

CSIP Layout & Form

The Masterplan has identified the landscape characteristics of each development area and sets out specific design parameters for each Precinct. These parameters are based on the identified carrying capacity of the Precincts, in conjunction with the overarching principles that inform the park's design and operation. The Masterplan Appendices contain a range of principles that seek to inform the detailed design stage, across the spectrum of Green Infrastructure, Waste Management, Energy, Mobility, Sustainability and Construction Management, to achieve the protection and enhancement of existing biodiversity and create an employment location of high quality.

By guiding development within the parameters as set out, the Masterplan seeks to ensure that future detailed designs achieve the highest level of compatibility with best practice. This is reinforced by the use of a project specific questionnaire that shall guide the Development Management process into the future. By doing so, the Masterplan seeks to ensure that all future designs within the park adhere to a range of principles and objectives that result in the creation of a high quality, people centered, employment location.

In addition, the location of the CSIP allows for a high level of connectivity to adjoining population centres, via a range of transportation modes. Such linkages are appropriate and increase the quality of the working experience. This benefit does not only serve the future park employees, but also the existing and future nearby populations who will benefit from greater connectivity developed as part of this project.

Furthermore, the CSIP Masterplan allows only for uses that are compatible with education, research and innovation-led business and production. Hence, uses that are normally accommodated within traditional industrial areas are not facilitated. The prevention of such uses within the park shall reinforce the quality of working environment provided for.

Discussion
Quality of environment is a broad and wide-ranging concept that incorporates many facets. This section has sought to address the specific issue of quality of working environment, as the project relates specifically to employment. Other aspects contributing to quality of environment are covered in complimentary sections.

As an employment location, it is critical to the concept that underpins the project and to its future success that the CSIP is a people centred and dynamic environment. A significant number of development criteria are included in the Masterplan that seek to safeguard this concept, to the benefit of future users.

Noise
Introduction
In terms of noise sensitive locations, the CSIP site contains or adjoins a relatively small number of dwellings, with a larger suburban population located at Bishopstown to the east. To the west is located the Bord na gCon Greyhound Stadium.

The CSP site is currently used for agricultural and amenity (sports facilities) uses and the existing background noise levels are low. When considering a development of this nature, the potential noise and vibration impact on the surroundings must be considered for each of two distinct stages:

- the short term impact of the construction phase
- the longer term impact of the operational phase

Predicted Impacts
Construction Phase:
During the construction phase of the project, a variety of items of plant will be in use such as excavators, lifting equipment, dumper trucks, compressors and generators. There will be vehicular movements to and from the site that will make use of existing roads. Due to the nature of the activities undertaken on a construction site, there is potential for generation of high levels of noise. The flow of vehicular traffic to and from a construction site is also a potential source of relatively high noise levels. The potential for vibration at neighbouring sensitive locations during construction is typically limited to excavation works and lorry movements on uneven road surfaces. The long term nature of the project is also noted and, hence, the potential for construction activities over a prolonged period.

Hence, Appendix 7 of the Masterplan requires that each development Precinct submit a Construction Management Plan to inform development within the park. Furthermore, the co-ordination of Construction

Management Plans across the park and the use where possible of pre-assembled building elements and complementary technologies are required in order to minimize impacts arising from the construction phases.

Operational Phase:
The proposed CSIP uses do not envisage activities that can be readily accommodated in existing business or industrial parks. The purpose of the CSIP is to provide a high quality campus type environment that fosters the interaction between education, research and innovation-led business. While innovation-led production activities are not ruled out, they would have to demonstrate compatibility with the primary intended uses.

Having regard to the above, coupled with the relatively low development density within the site and requirement for a high quality landscaped environment, it is anticipated that the use mix within the site is comparable to a college campus or suburban mixed use location.

Car Parking On Site:
A hybrid parking strategy is used to facilitate parking within the site. The main car parking areas are located at the northern and southern extremities of the site in order to minimize traffic movements in the long term. Individual Precincts shall also contain car parking areas, but at a reduced level – 20% of demand. Initially, parking will be provided by means of surface car parking within the Precincts, but as the park expands there will be a coordinated shift toward the grouped parking areas.

Discussion
While the scale of the park will extend the construction phase, it's scale and density of development (between 15% and 45% site coverage) also presents an opportunity via mitigating measures and location of structures away from boundaries to control construction impacts at the site boundaries and to existing adjoining land uses. Hence, there is a low likelihood of noise pollution or structural / cosmetic damage to existing neighbouring structures.

The use of Construction Management Plans allow for the minimization of noise and vibration impacts and these plans will be coordinated throughout the park. This coordination is a critical function of the future park governance / management body in order to both attract inward investment as well as to achieve the protection of nearby noise sensitive locations.

It will be the responsibility of the Planning Authority, in the fulfillment of its statutory regulatory function, to control the development of these lands in accordance with thresholds set down in legislation. The use of planning conditions will ensure that where noise and vibration pose a potential threat to any noise sensitive locations they will be averted.

During the park's operational phases, having regard to the nature of the uses allowable under the Carrigaline Local Area Plan zoning and embodied in the Masterplan, the noise emissions generated will be comparable to a mixed use suburban location. While significantly higher than the existing background noise levels within the site area, these levels will be comparable and compatible with the existing adjoining suburban area to the east and will be within normal operating levels. It is noted that industrial uses that can be accommodated within existing industrial landbanks are not proposed in the Masterplan. Furthermore, while the CSIP will have uses that extend beyond normal business hours, it will be primarily in daytime use.

Primary accesses to the site will initially be from the existing N25 National Primary Road from the south and via the existing road networks to the east (primarily via public transport). In the long term, during Phases 2 & 3, additional access points may be required to the north and west (the latter to incorporate a public transit link to Ballincollig). The corridor to the west will in the future form a significant artery linking the Metropolitan Cork Area to Ballincollig, but will traverse sparsely populated lands with minimal noise impacts to existing noise sensitive locations.

In terms of car parking, and particularly with reference to the grouped parking areas, noise level measurements conducted in the vicinity of existing car parks indicate that noise levels beyond 10m from the parking areas do not exceed acceptable operational levels.

Safety

Introduction

With regard to human safety, impacts relevant are those which arise as a result of interactions with environmental factors (i.e. environmental components such as air, water or soil through which contaminants or pollutants, which have the potential to cause harm, can be transported so that they come into contact with human beings, directly or indirectly). Furthermore, the combined and long term impacts of loss of habitat and biodiversity can ultimately lead to the undermining of human health and safety. These factors are dealt with elsewhere in this report.

Hazards or nuisances to human health can also arise as a result of exposure to incompatible adjacent land uses and transportation.

Land Uses:

As stated in the previous sections, the purpose of the CSIP is to provide a high quality campus type environment that fosters the interaction between education, research and innovation-led business. While innovation-led production activities are not ruled out, they would have to demonstrate compatibility with the primary intended uses. Hence, heavy industrial or similar activities are not appropriate to this project as they would be incompatible with the project concept.

Therefore, the nature of the future uses within the site will be compatible with an educational campus / research/innovation business location. Such uses are appropriately located within or close to residential areas (as the CSIP is located). Hazardous activities are, therefore, not an issue within this project and the proposal is suitable to its location in terms of protecting the safety of nearby users. This reasoning also extends to the future park users, as they will not be exposed to hazardous activities within the park.

Transportation:

The creation of a strategic employment centre at this location will create additional movements of peoples within the area. If solely car based, such movements would increase the risks to human health. However, it is noted that the project has specific modal shift targets to non-private vehicle modes. Having regard to the need to expand and diversify the regional economic base it is important that this expansion is facilitated by the use of sustainable and grouped (public) transportation. A number of principles that underpin the Masterplan, as outlined in earlier sections, direct the future detailed planning of the site toward management transportation.

Discussion:

The CSIP, in accommodating the expansion and diversification of the region's economic base, seeks to do so in an environmentally sustainable manner. Having regard to the location of the site and the uses proposed thereon, it is compatible with adjoining uses and does not pose a risk to human safety. Potentially hazardous activities are not suitable to be located within this project and are not envisaged to be so within the Masterplan.

While increasing the movement and activity levels of citizens by necessity, the targets set with regard to modal shift minimize potential for hazard related to movement. Hence, while the movements of people will increase as a result of this project (a necessary by-product of economic growth and diversification) it is proposed to facilitate this increase in a manner that minimises movements ratios and, hence, minimise risks to public health.

Amenity

Introduction

As previously stated, it is the stated goal of the Masterplan to ensure that the CSIP is a place dominated 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, 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 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 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

Layout

The design parameters set out in the Masterplan, that are intended to inform subsequent detailed Precinct designs, seek to create a high quality campus educational and employment campus that encourages interactions. Hence, the role of amenity areas within the park are critical and this is reflected in the devsity of development at between 15% and 45% site coverage – depending on development area characteristics.

The CSIP Design Statement – required to be submitted with all detailed plans post-adoption of the Masterplan – will inform those designs and focus attention on the creation of people centred places of high amenity value.

Users

The Masterplan intends that the CSIP will not only be a place for employees, students and researchers, but will in time create an overlap with adjoining land uses – such as with the CIT and adjoining residential areas. Hence, the CSIP can benefit from the existing adjoining land uses, facilities and amenities, as will the existing population benefit from the CSIP in time.

The CSIP project is an opportunity to extend the green infrastructure of the region, towards the goal of achieving a region-wide, interconnected resource for the benefit of all citizens.

Discussion:

Having regard to the nature of the CSIP project and its location, there is a significant opportunity for this project to integrate with the wider Metropolitan Area. The principles outlined in the appendices of the Masterplan under Green Infrastructure call for this opportunity to be exploited. It is intended that the CSIP will facilitate the enhancement of amenity connections in the area, toward the creation of a wider network of green infrastructure.

Non-implementation of Masterplan

The Masterplan provides for the development of an important element of the region's future economic infrastructure. It provides guidance as to the direction of this development and forms the basis upon which individual planning applications will be assessed. In the absence of the Masterplan, it is likely that the lands would continue in their existing agricultural and amenity uses. However, having regard to the location of these lands on the edge of the city's urban area, it is likely that development pressures would arise in an uncoordinated fashion.

The preparation and adoption of a strategic plan for these lands, toward a specific economic purpose, allows for impacts to be minimised and beneficial opportunities to be exploited.

Soil and Geology

Introduction

Soil is defined as the top layer of the earth's crust, an extremely complex, variable and living medium and is formed by mineral particles, organic matter, water, air and living organisms. Soil performs a number of key environmental, social and economic functions that are vital for life. Plants and crops are dependent on soil for the supply of water, nutrients and as a medium for growing. Soil stores, filters, buffers and transforms substances that are introduced into the environment and this quality is crucial in producing and protecting water supplies and for regulating greenhouse gases. Soil is a provider of raw materials. Soil is also an incredible habitat and gene pool, in excess of 5 tonnes of live organisms can exist in a hectare of arable soil. Soil is a fundamental component of our landscape and cultural heritage. Soil is a non-renewable resource, which performs many vital functions: food and other biomass production, storage, filtration and transformation of many substances including water, carbon, and nitrogen. In order to perform its many functions, soil condition must be maintained. However, the value of soil, a largely non-renewable resource, is not always appreciated. Soil degradation is accelerating, with negative effects on human health, natural ecosystems and climate change, as well as on our economy.

Geological Setting

Bedrock:

The proposed development area is located on the Cork Syncline, in an area of relatively flat, low-lying terrain. The underlying bedrock (Appendix 2, Figure 5) is exclusively Carboniferous with the northern and southern end of the development area underlain by Waulsortian Limestones (massive unbedded lime-mudstone). Above this, and confined to the mid northern section of the site is a thin wedge of Cork Red Marble Formation (comprising red brecciated calcilutite limestone). The central two thirds of the site is underlain by younger rock of the Little Island Formation (comprising massive and crinoidal fine limestone).

Subsoil:

The principal subsoil (Appendix 2, Figure 6) consists of a dominant sandstone glacial till of Devonian parent material. This encompasses approximately four fifths of the development site. The remaining subsoil is confined to the broad flood plains of the Curragheen River in the southern half of the site.

Soil Cover:

Mirroring the local subsoils, the soil cover (Appendix 2, Figure 7) is dominated by fertile acid brown earths/brown podzolics. These are believed to signify the presence of extensive oak woodland in early prehistoric times. Mineral alluvium deposits follow the line of the low-lying Curragheen River valley, flanking the eastern side of the site and cutting acrossthe southern half of the site.

Agriculturally Productive Soils

Soil is recognised as a significant carbon reservoir by the Kyoto protocol and the proposed EU Soil Directive and depending on its chemistry, mineralogy and the climatic environment, it can act as a carbon sink. Productive soils are highly valued for agricultural production and will play a significant role in combating Climate Change thus they should be retained for vegetation and construction could be considered on unproductive soils. Soil disturbance should be kept to a minimum during construction and tree planting should be encouraged. Urban sprawl also needs to be kept to a minimum in order to preserve soils (European Commission (May, 2009) 'Urban soils: how can we preserve their carbon and nitrogen sink?' Science for Environmental Policy).

Threats

Degradation:

Soil is constantly changing and evolving, and while some degradation processes are natural, human activity can accelerate these processes, and introduce others, and thereby impair the soil's capacity to carry out the

functions we require from it. Erosion by wind and water, surface sealing, loss of organic matter, contamination, landslides, loss of soil biodiversity, compaction and salinisation are soil threats that can lead to a reduction in soil functionality. Peat extraction and land-use changes such as increased urbanisation or ploughing of rough or permanent grassland for tillage and energy crops will lead to increased Soil organic matter (SOM) loss from soils. It is likely that increased soil temperatures as a result of global warming will increase biological activity in the soil, resulting in losses of organic carbon, as carbon dioxide and methane, to the atmosphere.

Soil Erosion:
Soil erosion is a process whereby soil is worn away by physical processes such as wind and flowing water. Soil erosion also impacts on water courses, in which the eroded sediments can result in fish kills or eutrophication. Soil erosion occurs as a result of poor soil management practices on vulnerable soils including inappropriate cropping regimes, overgrazing, and direct access to watercourses. Forestry activities can also cause significant soil erosion.

Surface Sealing:
Soil is sealed when it is taken into the built environment as a result of development for housing, industry, transport and other physical infrastructure. By using soil as a physical support medium, clearly other soil functions are lost, e.g. food production; environmental interactions; and support for ecosystems, habitats and biodiversity

Soil Contamination:
Soil can be contaminated by a wide range of potential pollutants, through either local (point source) contamination or diffuse contamination. Contamination from point sources can arise as a result of leakages and accidental spillages from commercial activities that use the soil for support or space, e.g. petroleum storage tanks, old gas work sites, tanneries, timber treatment or landfills. Diffuse contamination relates to land-spreading of agricultural and industrial organic wastes to exploit the soil's ecological capabilities to utilize, filter, absorb, buffer and transform these wastes. Problems arise where the soil's assimilative and/or buffering capacity is exceeded and where the wastes contain potentially toxic contaminants.

Given that soil data coverage of Ireland is incomplete and exists in many variable and disparate forms, tackling issues such as quantifying the extent of soil threats in Ireland will be extremely difficult. Nevertheless our soil needs to be afforded the same protection as is given to air and water.

Discussion
The change of use proposed for the CSIP site will remove from use a quantum of lands in use for agricultural purposes and will also impact upon the ground formulation within the site, via construction activities.

The need to create usable amenity spaces within the park gives an opportunity to retain a significant proportion of the existing landscape in its present form.

Appendix 6 of the Masterplan outlines design principles to inform sustainable design practices during the design and construction stages. These principles include the incorporation of sustainability concepts at design stage, the minimization of waste production and the re-use of waste products during the design, construction and operational phases of the project.

Additional wording within Appendix 6 requiring soil management to be incorporated into the design phase of the project would be beneficial, as would additional wording within the Design Statement to direct development toward soil retention and re-use.

A co-ordinated waste management plan for the CSIP, as highlighted in Appendix 3 of the Masterplan, is an important facet in the protection of the soil integrity within the science and innovation park.

Non-implementation of Masterplan

In the absence of the Masterplan, it is likely that the lands would continue in their existing agricultural and amenity uses. However, having regard to the location of these lands on the edge of the city's urban area, it is likely that development pressures would arise in an uncoordinated fashion.

The preparation and adoption of a strategic plan for these lands, toward a specific economic purpose, allows for impacts to be minimised and beneficial opportunities to be exploited.

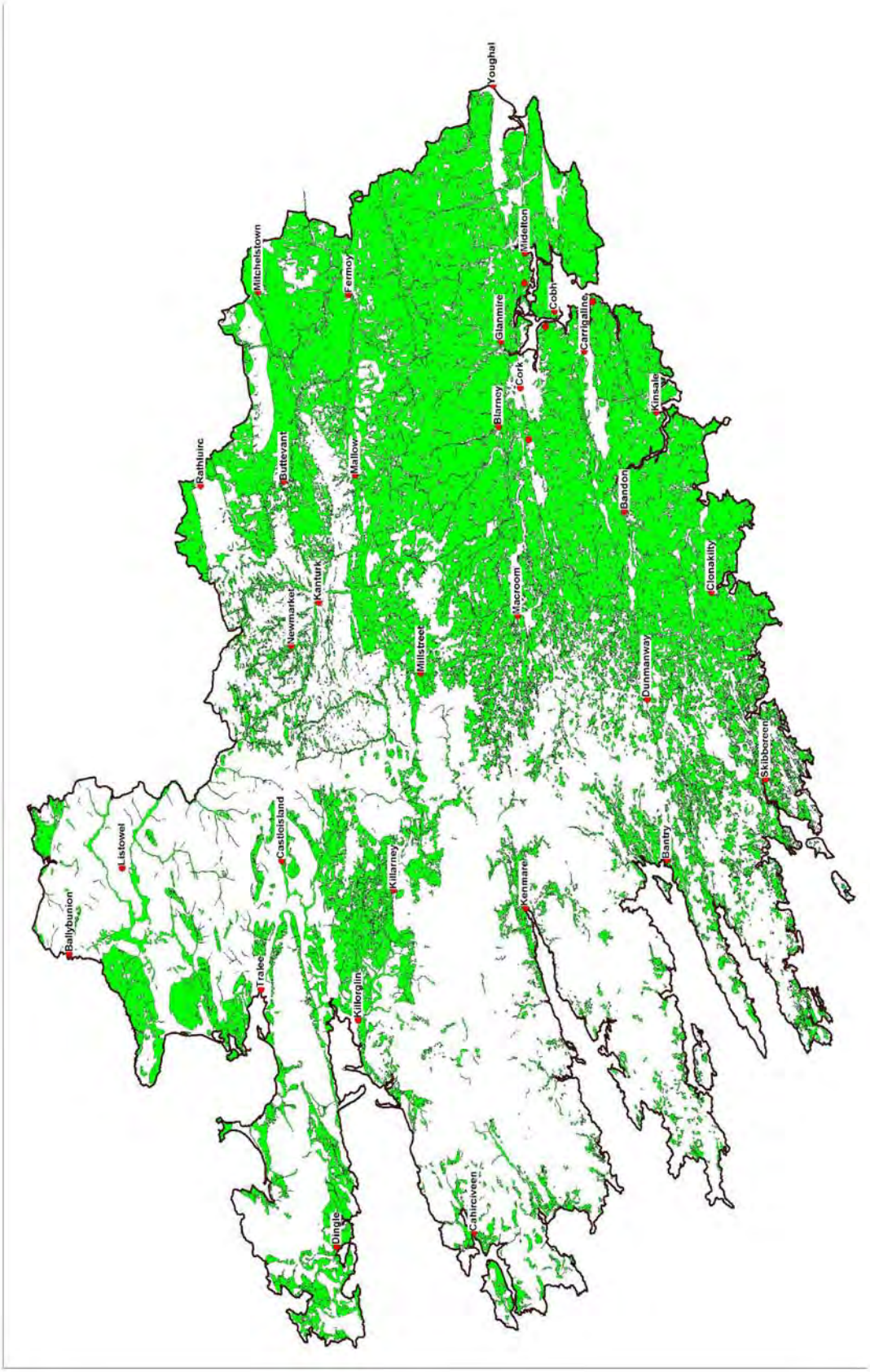
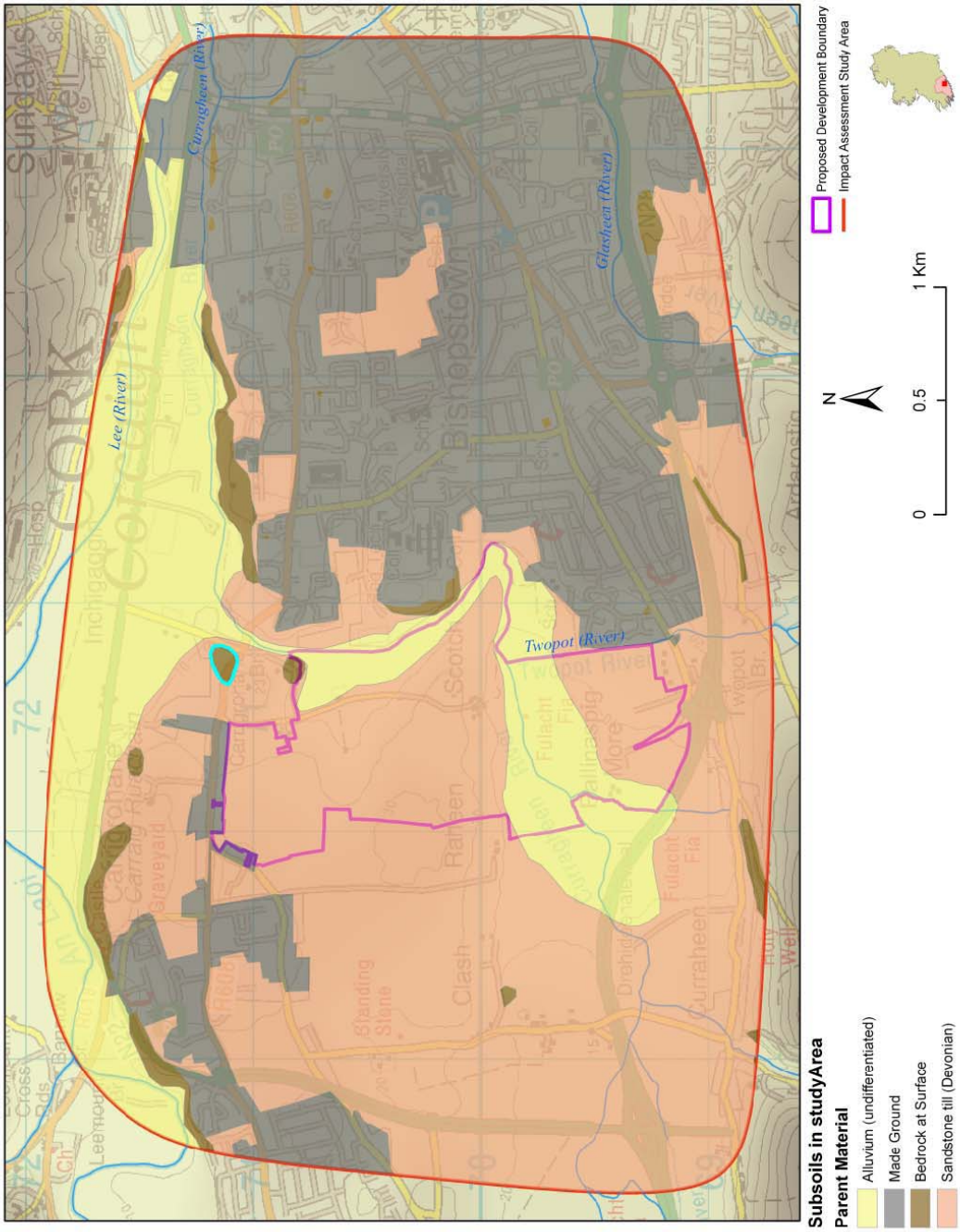
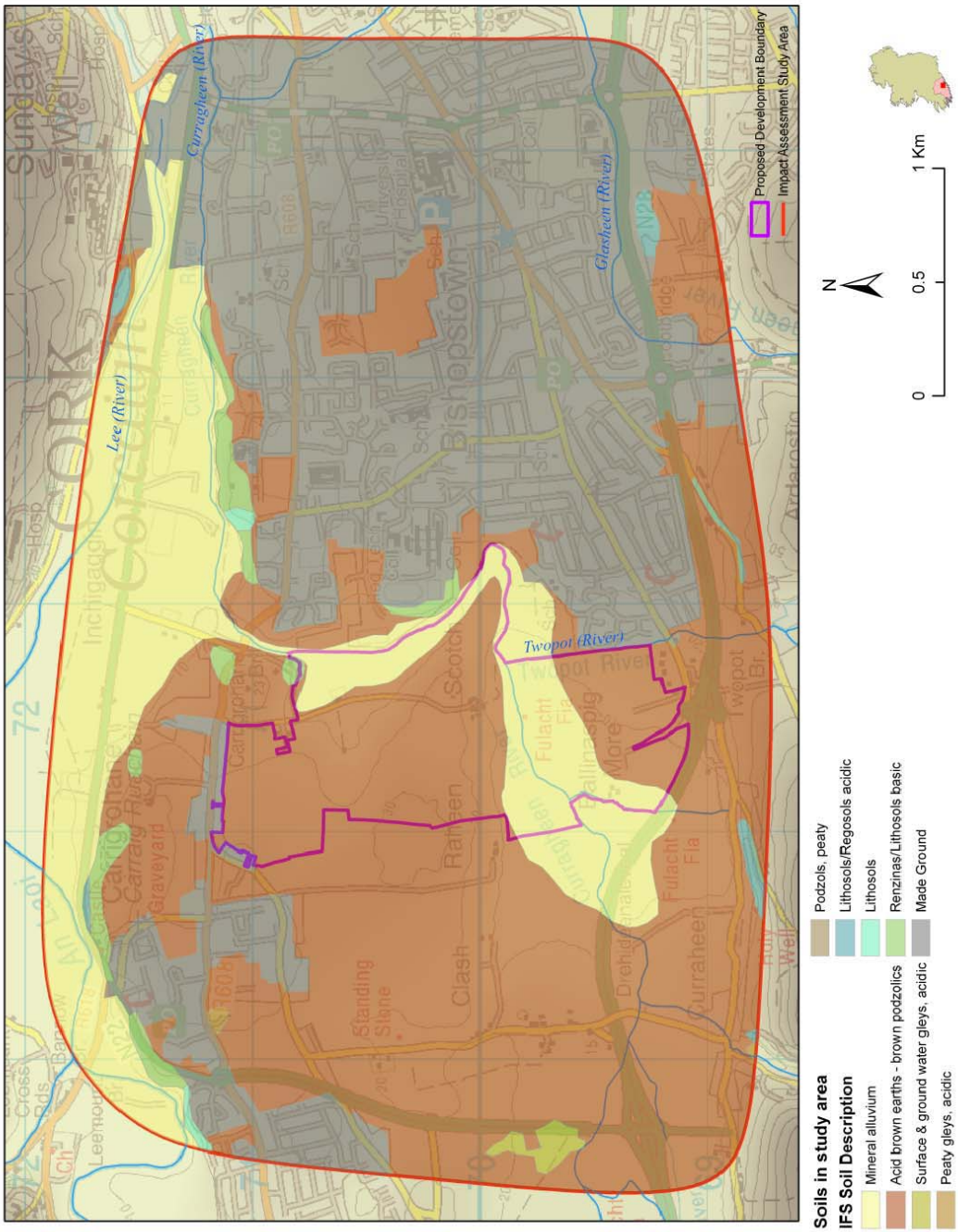


Fig 6.4: Agricultural Productive Soils

Map 6.5: Bedrock underlying proposed development area



Map 6.6: Subsoil underlying proposed development area



Map 6.7: Soil cover over proposed development area

Water Resources

Introduction

The CSIP is traversed by the Curragheen River and is bounded (to the east) by the Twopot River. The site is subject to some flooding to the north of the Curragheen River, with primary flooding to the south of the Curragheen River.

Water supply to serve the park will initially be from the public Harbour and City Trunk Main supply, 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.

It is proposed to serve the CSIP via a 600mm diameter concrete sewer pipe to connect to the Inchigaggin public sewer, with discharge at the Carrigrennan Waste Water Treatment Plant.

Water Framework Directive (WFD)

In response to the increasing threat of pollution and the increasing demand from the public for cleaner rivers, lakes and beaches, the EU has developed the Water Framework Directive (WFD). This Directive is unique in that, for the first time, it establishes a framework for the protection of all waters including rivers, lakes, estuaries, coastal waters and groundwater, and their dependent wildlife/habitats under one piece of environmental legislation. It requires governments to take a new holistic approach to managing their waters and it applies to rivers, lakes, groundwater, estuaries and coastal waters. Member States must aim to achieve good status in all waters and must ensure that status does not deteriorate in any waters.

Specifically the WFD aims to:
protect/enhance all waters (surface, ground and coastal waters)
achieve "good status" for all waters by December 2015
manage water bodies based on river basins (or catchments)
involve the public
streamline legislation

The Water Framework Directive also allows alternative objectives to be set for certain waters. It is estimated that implementation of the measures in the SWRBD plan will result in good status being achieved by 2015 in 84% of rivers, 99% of lakes, 16% of estuaries, 31% of coastal waters and 94% of groundwaters, with further improvements during the second (2021) and third planning cycles (2027).

The Water Framework Directive requires the status of water bodies to be classified as high, good, moderate, poor or bad. Water bodies are rivers, lakes, estuaries, coastal waters out to 1 nautical mile and groundwater. Status is defined with respect to its biology, chemistry, quantity and morphology.

As part of the implementation of the Water Framework Directive, the island of Ireland was subdivided into eight River Basin Districts (RBD's). The majority of Cork County is located within the South West River Basin District (SWRBD), as is the CSIP site.

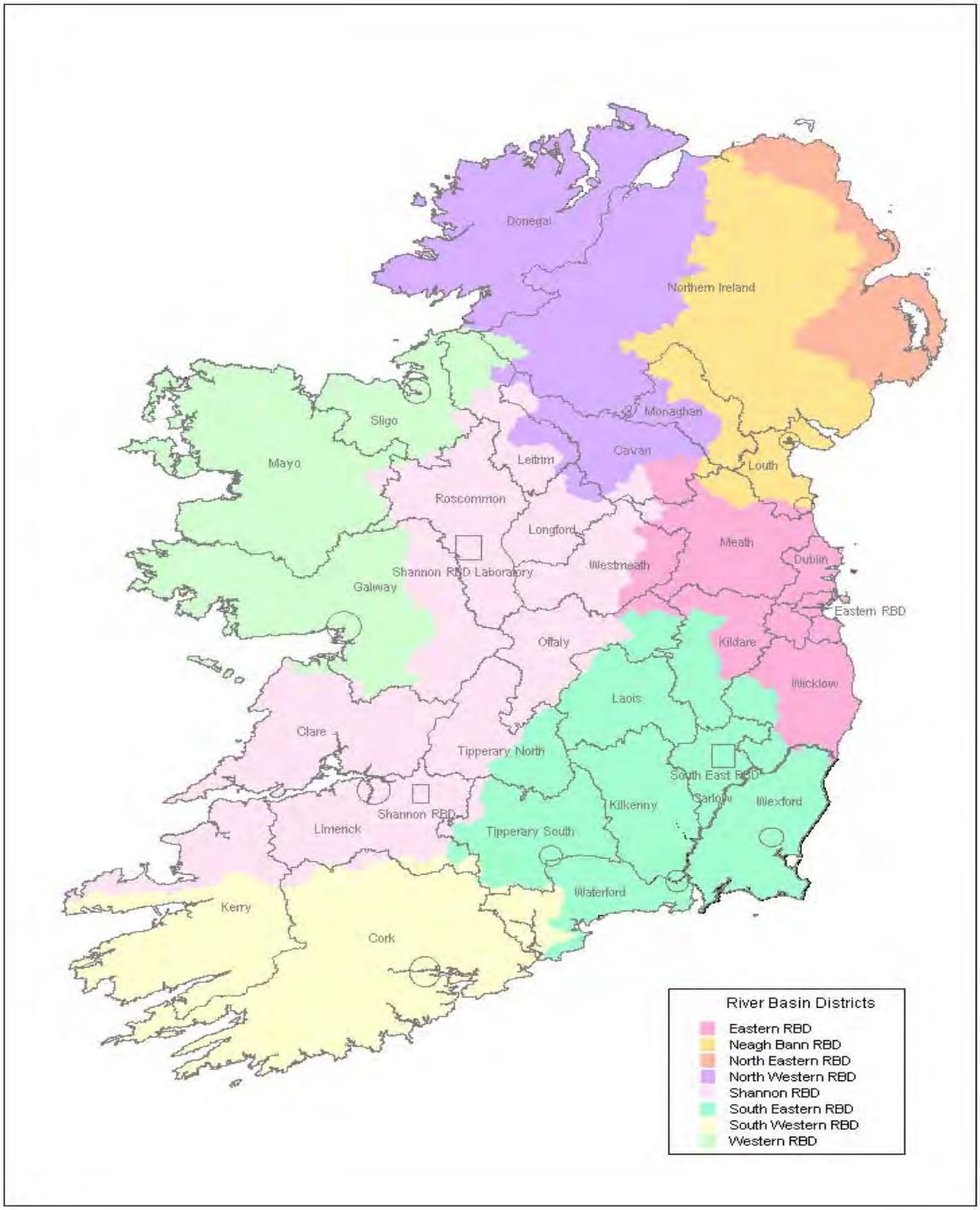


Figure 6.8: River Basin Districts in Ireland

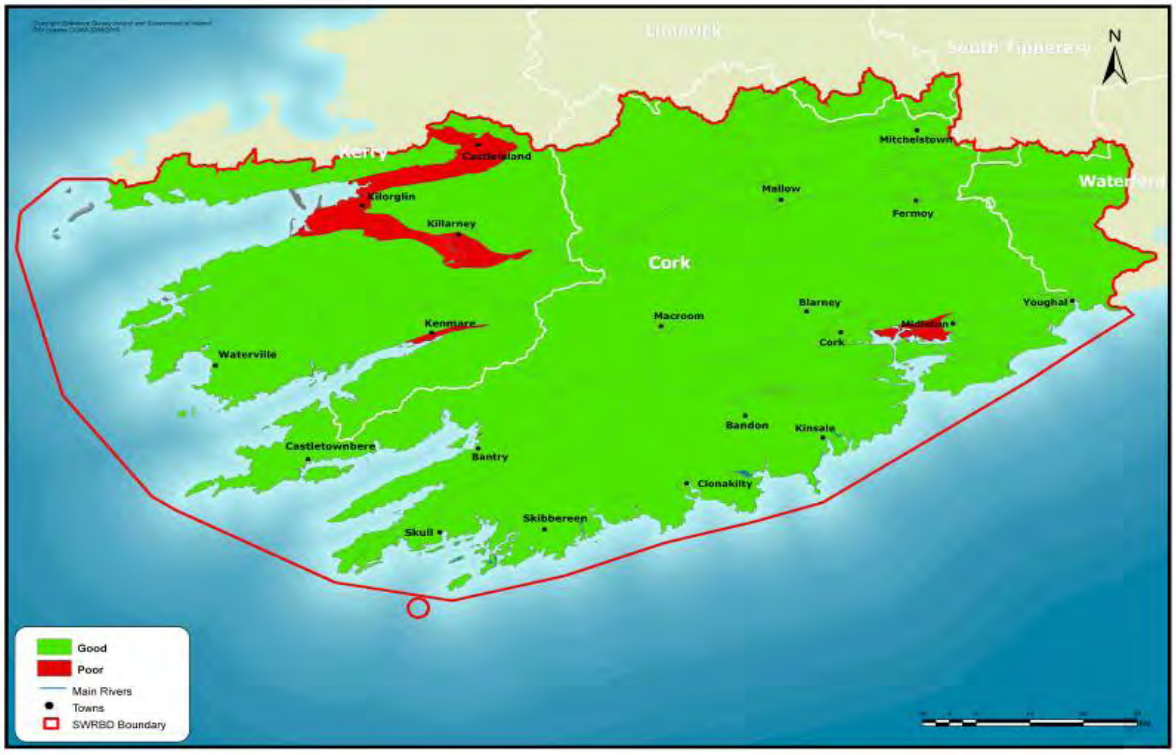


Figure 6.9: Groundwater status in the South Western RBD

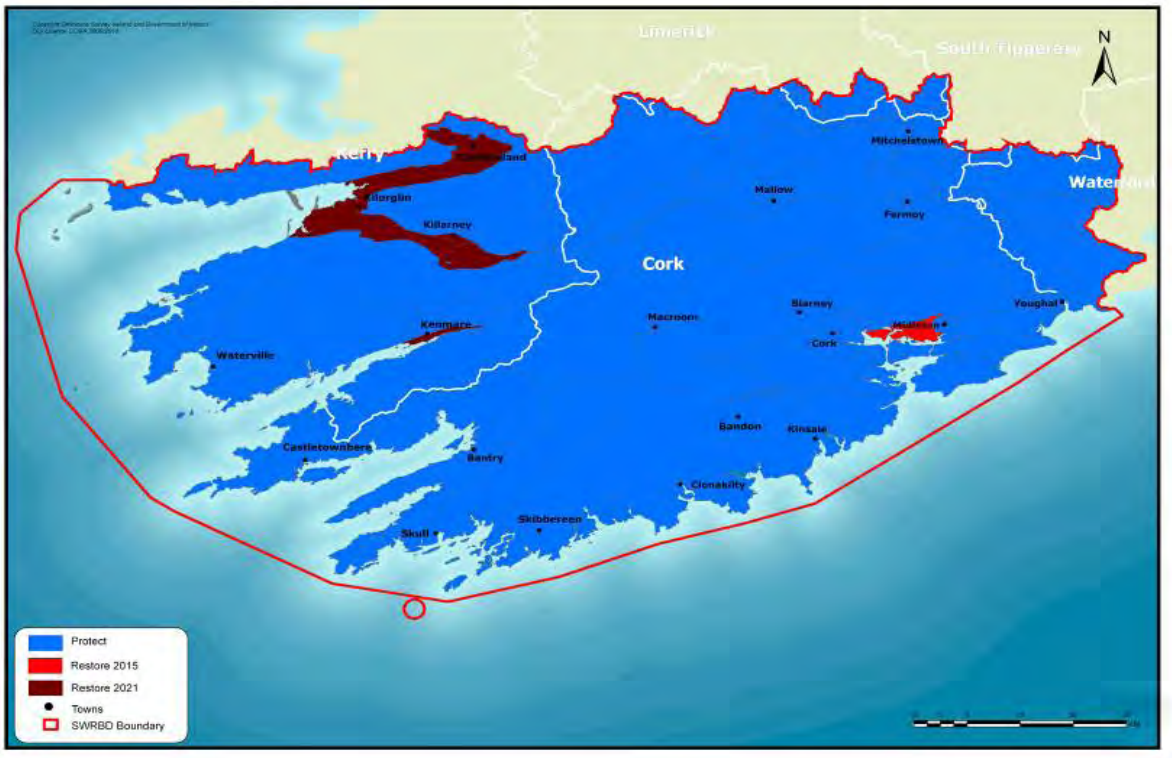


Figure 6.10: Overall groundwater objectives in the South Western RBD

The entire area of the Carrigaline Electoral Area is designed as having 'good' Groundwater status. Therefore the objective is to protect this good status.

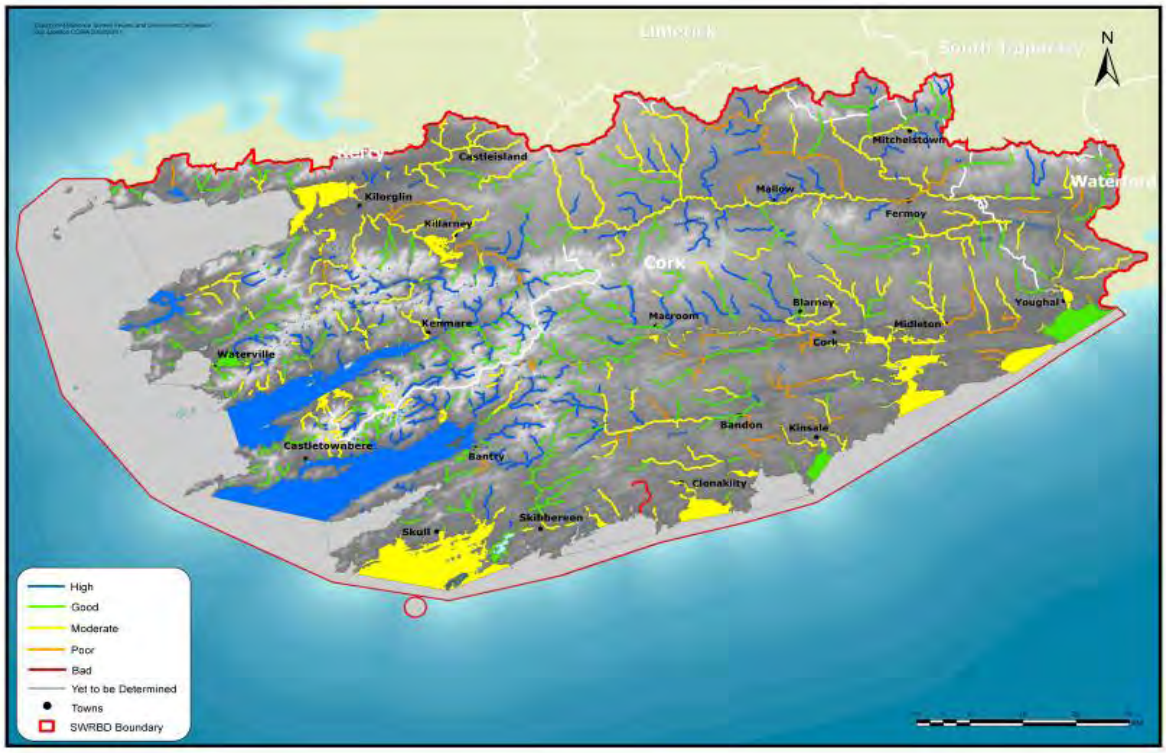


Figure 6.11: Surface water ecological status in the South Western RBD

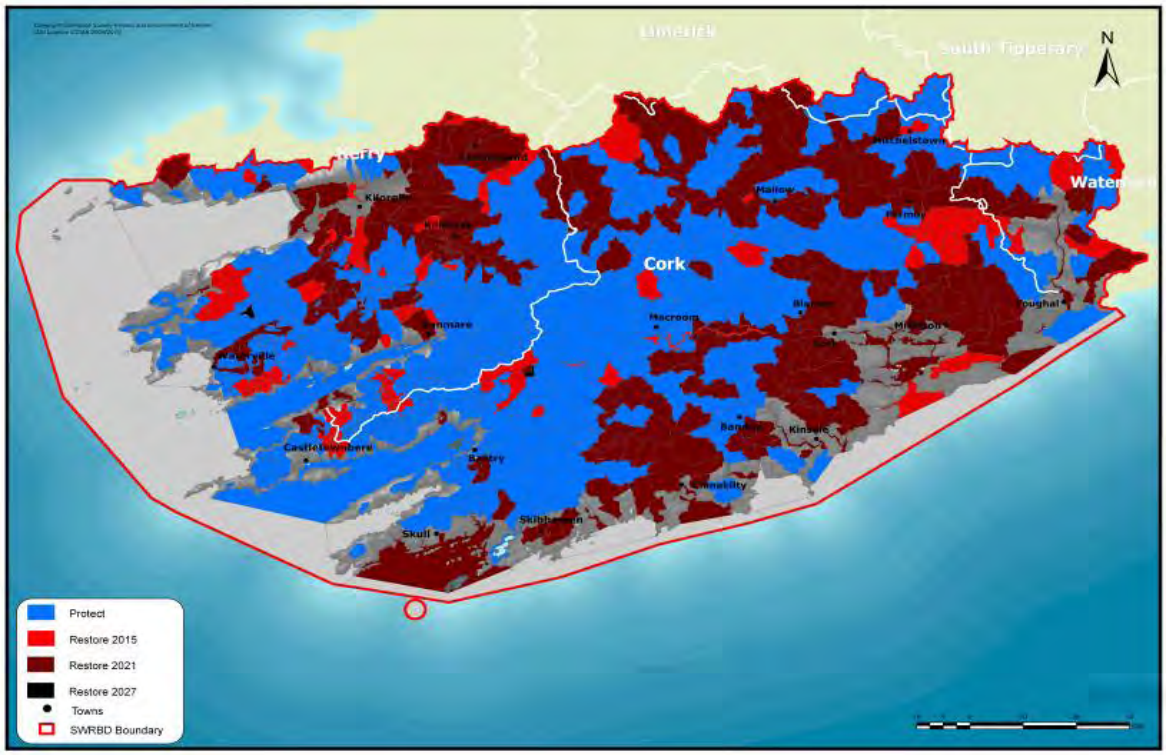


Figure 6.12: Overall surface waters objectives in the South Western RBD

These figures shows that the majority of the Carrigaline Electoral Area must be restored to 'good' status by 2021. Therefore objectives and policies in the Masterplan should support the realisation of the SWRBD objectives and should not result in deterioration of water

quality. The achievement of these objectives also depends on adjoining electoral areas / specific development projects managing their population and associated growth in a sustainable manner.

Flooding

Chapter 1 of the Carrigaline Local Area Plan includes a section on flood risks in order to provide information about possible flood risks to the public generally and to those contemplating development.

To comply with the EU Floods Directive introduced on 26th November 2007, and in line with the under Section 28 of the Planning & Development Acts an assessment of flood risks has been formally taken into account in the preparation of the local area plan.

The assessment and management of flood risks in relation to planned future development is an important element of the Masterplan. A flood risk study has been undertaken for the CSIP and the majority of the lands within the CSIP are not subject to significant flood risks, however, the site areas immediately adjoining the traversing Curragheen River and adjoining the Twopot River are the subject of flood risk.

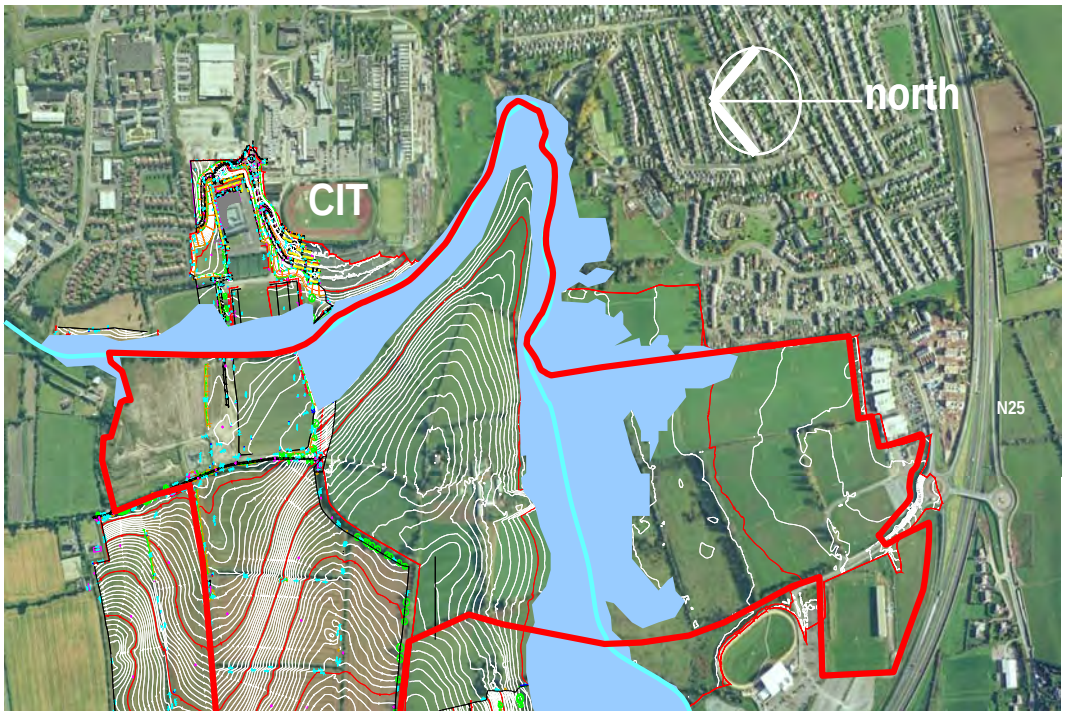


Figure 6.13: Flood Extent Map

The Information about flood risks that has been used in the preparation of this Masterplan has been collated from a number of sources including:

- 'Floodmaps.ie' – The national flood hazard mapping website operated by the Office of Public Works, where information about past flood events is recorded and made available to the public. 'Flood point' information is available on this site and has been noted.
- 'Draft Flood Hazard Mapping' for fluvial and tidal areas commissioned by Cork County Council from Consultants JBA Associates. These indicative flood extent maps provide flood extent information for river catchments where a more detailed CFRAMS study is not currently available.

- On-site survey.

It is noted in the Masterplan, under Precinct Guidelines, that each Precinct must overcome a range of Precinct-specific infrastructural issues in order to facilitate development. A number of the Precincts will be able to attenuate surface and storm waters on-site, however and in particular Precinct 3, some lands are the subject of significant flood risk. The Masterplan advocates the creation of a waterbody within the park as an amenity feature, but only subject to the protection of the natural habitat supported by the rivers and their hinterland. This waterbody may provide a solution in full or part to the flood risks identified and, hence, the Masterplan does not preclude development on these lands. However, all such lands will be subjected to the requirements of The Planning System and Flood Risk Management Guidelines 2009. This accords with the general approach undertaken in the Carrigaline Local Area Plan, where the flood risk zone affects only a part of a site, the zoning has been maintained but the objective for the site modified so that, after a detailed site-specific study, built development can avoid the areas at risk. The Masterplan advocates such an approach, particularly with regard to Precincts 3 & 4, where a site-specific flood risk assessment will be required. This site-specific study should include:

- Plans showing the site and development proposals and its relationship with watercourses and structures which may influence local hydraulics
- Surveys of site levels and cross-sections relating relevant development levels to sources of flooding and likely flood water levels
- Assessments of:
    - All potential sources of flooding
    - Flood alleviation measures already in place
    - The potential impact of flooding on the site and any cumulative effects elsewhere
    - How the layout and form of the development can reduce those impacts, including arrangements for safe access and egress
    - Proposals for surface water management according to sustainable drainage principles
    - The effectiveness and impacts of any necessary mitigation measures
    - The residual risks to the site after the construction of any necessary measures and the means of managing those risks
    - A summary sheet which describes how the flood risks have been managed for occupants of the site and its infrastructure

Where it can be satisfactorily shown in the site-specific flood risk assessment that the proposed development, and its infrastructure, will avoid significant risks of flooding in line with the principles set out in the Ministerial Guidelines, then, subject to other relevant proper planning considerations as set out in the Masterplan, permission may be granted for the development.

Potential Pressures on Water Quality

In general, the principal suspected causes of less than satisfactory water in the state are discharges, principally of nutrients, from agricultural activities and from municipal wastewater treatment works. Industrial discharges, wastewater from unsewered properties and discharges from several other activities have also been identified as contributing. Action should concentrate in the first instance on these issues which pose the greatest threat to the water environment, but it is also important to address other possible sources of water pollution and impact, including issues such as water abstraction and physical modification and issues specific to the RBD.

The RBD Plans identify a programme of measures to protect and restore water status by addressing the main pressures (that is sources of pollution or status impact) in the district. Many of the measures are already provided for in national legislation and are being implemented. These include, for example, the Urban Waste Water Treatment Regulations 2001 to 2010 and the Good Agricultural Practice for the Protection of Waters Regulations of 2009. Other measures have been recently introduced (for example new Bathing Water

Regulations, 2008) or are under preparation (for example proposed authorisation regulations for abstractions and physical modifications).

The key measures include:
Control of urban wastewater discharges
Control of unsewered waste water discharges
Control of agricultural sources of pollution
Water pricing policy
Sub-basin management plans and programmes of measures for the purpose of achieving environmental water quality objectives for Natura 2000 sites designated for the protection of Freshwater Pearl Mussel populations
Pollution reduction programmes for the purpose of achieving water quality standards for designated shellfish waters
Control of environmental impacts from forestry.

Having regard to the above, and also having regard to the nature of the CSIP project as proposed, it is considered that the potential environmental impacts of this Masterplan on water quality will come mainly from wastewater discharges.

Wastewater Discharges
As stated, it is proposed to serve the CSIP via a 600mm diameter concrete sewer pipe to connect to the Inchigaggin public sewer, with discharge at the Carrigrennan Waste Water Treatment Plant. Hence, no wastewater discharges shall occur other than to this municipal receiver. The Carrigrennan Waste Water Treatment Plant is licensed and certified by the EPA and is governed by a range of legislative requirements, including:

Urban Wastewater Treatment Regulations, 2001 and 2004
European Communities (Quality of Shellfish Waters) Regulations (S.I.268 of 2006)
Waste Water Discharge (Authorisation) Regulations (S.I. No. 684 of 2007)
Water Framework Directive (WFD)

Appendix 6 of the Masterplan requires that Precinct Designs incorporate the minimisation of waste production and the re-use of waste products where possible. Furthermore, the Masterplan requires that a Waste Management Plans be developed in conjunction with Precinct Plans in order to minimise waste generation. Such plans will include the reduction of waste generation and also the appropriate disposal of same, as part of the Development Management Process. Hence, specific development related threats to ground water and surface water can be identified and avoided.

Threats to ground and surface water during the construction phase(s) will need to be addressed in the Construction Management Plans required as part of the Masterplan.

Water Supply
The proposed water supply to serve the park will initially be from the public Harbour and City Trunk Main supply, 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. Hence, teh CSIP will be served via an extension of the existing public water supply network.

In addition, the extension of the former system, and the construction of the new system, will be new build features. Hence, losses of water via the usage of older pipe runs will be avoided.

Appendix 6 of the Masterplan requires that Precinct Designs minimise water usage via smart design and technology.

Discussion
The CSIP is served by public water and public sewerage systems that are licensed and certified in accordance with legislative requirements. As new systems, they will be efficient. However, the Masterplan principles require that future designs minimise consumption and reduce waste generation within the park.

Threats to ground and surface water exist wherever development occurs – during the construction and operational phases. However, the Masterplan requires that Construction and Waste Management Plans be submitted as part of future Precinct Design Plans. Hence, at an early stage best practice can be incorporated in to the Development Management process.

Flood risk areas are present within the CSIP and while most developable areas will be in a position to attenuate low levels of such waters on-site, some central lands are under significant threat. A flood study commissioned by Cork County Council has identified the creation of a waterbody as a possible solution – and one that aligns with the creation of a high quality campus. However, the Masterplan also states that development within flood risk areas may not be possible, subject to adherence to the Flood Management Guidelines 2009, as well as protection of the river habitat.

Therefore, the Masterplan does not preclude development within the flood risk area, however, it requires that a site-specific flood risk assessment be undertaken.

Having regard to the CSIP location, being located between CIT and UCC, and its future role as a knowledge based employment / research campus, the above approach is appropriate. Development may or may not proceed within the areas at risk of flooding without undermining the appropriate guidelines nor at the same time the ability of the park to develop in any case.

Non-implementation of Masterplan
In the absence of the Masterplan, it is likely that the lands would continue in their existing agricultural and amenity uses. However, having regard to the location of these lands on the edge of the city's urban area, it is likely that development pressures would arise in an uncoordinated fashion.

The preparation and adoption of a strategic plan for these lands, toward a specific economic purpose, allows for impacts to be minimised and beneficial opportunities to be exploited.

The Masterplan outlines the strategy for the long term development of these lands. Such development will impact on the quality of waters within and adjoining the site if not properly controlled. In addition, additional loading on the public water and sewer networks will arise, that would otherwise not occur.

Air and Climate

Introduction

Air pollution can affect the health of people, animals and plants. It can promote eutrophication of water, leading to excessive plant growth and decay. It can also damage buildings and materials and cause odour problems. The indirect health impacts of poor air quality, particularly from particulate matter, are significant. *Sustainable Development a Strategy for Ireland (1997)* commits the Government to the following objectives:

- Local air quality will be maintained and improved particularly in urban areas.
- Ireland will actively support international action on climate change, ozone depletion and transboundary air pollution.
- Ireland will participate in international actions to reduce low-level ozone precursor emissions from transport and power generation, and to develop acidification abatement strategies.
- Research will be undertaken on the impacts of acidifying depositions, in particular sulphur dioxide and nitrogen oxides.
- Ireland will support the development of stricter EU standards for air pollutants.
- EPA will prepare a national air quality monitoring programme.
- Achieving a significant modal shift towards public transport, walking and cycling in the Region especially in the Gateway and Hubs.
- Future energy requirements and the achievement of the National Emissions Ceiling Directive.

The European Union introduced a new approach to the monitoring, assessment and management of air quality in 1996 when it introduced a framework directive on air quality (96/62/EC, 2nd September 1996). The basic principle of the framework directive is that each country should be divided into zones and that the monitoring, assessment, management and reporting of air quality will be undertaken in relation to these zones. For the purposes of the directive, Ireland has been divided into four zones; Dublin (Zone A), Cork Urban Area (Zone B), specified population centres > 15,000 inhabitants (Zone C) and non-urban areas (Zone D). Limit values are set for each individual pollutant, which need to be met by a specific attainment date. Upper and lower assessment thresholds are also set for each pollutant, assessment thresholds are levels below the limit value, used solely in the determination of the level of monitoring needed for that pollutant in a particular zone.

The extent of monitoring in any zone is determined by population size and air quality status. Measurement is mandatory in agglomerations (population >250,000) and where concentrations are above the lower assessment threshold. The greatest monitoring effort applies if concentrations are above the upper assessment threshold. Less intensive monitoring is required when concentrations are between the two assessment thresholds. Limit values, assessment thresholds, measurement techniques and other specifics for each pollutant are defined in a series of daughter directives. The first Daughter Directive was adopted in April 1999 (1999/30/EC) and covered SO2, NOX, particulate matter and lead.

The second Daughter Directive was adopted in November 2000 (2000/69/EC) and covers CO2 and Benzene. The third Daughter Directive relates to ozone (2002/3/EC) while the fourth Daughter Directive relates to heavy metals and polycyclic aromatic hydrocarbons (2004/107/EC). The first three Directives were transposed into Irish law as the Air Quality Standard Regulations 2002 (S.I. No 271 of 2002) and the Ozone in Ambient Air Regulations 2004 (S.I. No 53 of 2004). To comply with the directive the Environmental Protection Agency uses mobile laboratories to carry out assessments in areas with no history of air pollution measurements. These trailers contained the following instruments:

Monitoring instruments which continuously measure and record concentrations of the pollutants sulphur dioxide, nitrogen oxides, carbon monoxide and PM10
Sampler for lead and other metals in air (collection on filter for determination in the laboratory).

Because air quality is a global issue it is difficult to address the issues at a masterplan level. However, it is now evident that, due mainly to the very significant increase of vehicles on the public roads the biggest threat now facing air quality are emissions from road traffic.

Cork
Air quality is generally good in Cork as it is located in an area with a relatively mild climate and has an almost continuous movement of clean air. There are four air monitoring stations in Cork City and County located at Cork City Centre, Heatherton Park, Glashaboy and Cork Harbour. These are operated by the local authorities and the EPA. The County is classified as Zone D with monitoring at Cork Harbour and Glashaboy.

Industrial Air Monitoring
In addition there are currently 14 licenses issued by Cork County Council under the Air Pollution Acts.

Table 6.5: Licenses Issued By Cork County Council under the Air Pollution Acts:

FMC International, Wallingstown, Little Island, Co. Cork
DD Williamson (Ire) Ltd, Little Island Industrial Estate, Little Island
Kerry Bio Science Ltd, kilnaglery, Carrigaline, Co Cork
John a. wood Ltd, Carrigtwohill quarry, Ballyvodock west, Carrigtwohill
Murray Bros, Tarmacadam Ltd, Dunmanway, Co. Cork
Eurostone Ltd, Carrigcleena, Bweeng, Co Cork
Bord Gais, wallingstow, Little Island, Co. Cork
Irish Asphalt Ltd, Carrigtwohill, Co. Cork
Mid Stone Quarries Ltd, Manch, Ballineen Co. Cork
Whelan's Quarries, Carrigtwohill, Co. Cork
Arkil ltd, Ballyhandle quarry, Crossbarry, Co. Cork
Michael Cronin (Readymix Ltd), Ceim Quarry Carrigacooleen, Millstreet, Co. Cork
Carbon Chemicals group Ltd, Ringaskiddy, Co. Cork
Castlemore Quarries Ltd, Crookstown, Co. Cork

The EPA Report on IRELAND'S GREENHOUSE GAS EMISSIONS IN 2008 show total GHG emissions were 67.44 million tonnes carbon dioxide equivalent (Mt CO2eq), which is 0.21 Mt CO2eq (0.3 percent) lower than the level of emissions in 2007.

The effects of the economic downturn are mainly evident in the 522,710 tonne reduction (4.4%) in emissions from the Industry and Commercial sector with smaller decreases (<1%) from the Agriculture and Transport sectors. Energy sector emissions are largely unchanged. However an increase in emissions of 603,710 tonnes from the Residential sector (reflecting colder winter months) cancels the benefit of these reductions to a large extent.

Industry and Commercial
Emissions decreased by 522,710 tonnes (4.4 percent) from 11.92 Mt CO2eq in 2007 to 11.40 Mt CO2eq in 2008 mainly from combustion sources.

Agriculture
The emissions from Agriculture decreased by 172,400 tonnes or 0.9 percent in 2008, continuing the downward trend from the 1998 peak. The decline in emissions reflects lower sheep and cattle numbers and reduced use of fertiliser.

Transport

Transport emissions were 121,100 tonnes CO2eq lower in 2008 than in 2007. This represents a decrease of 0.8 percent increase on 2007 levels, following sustained increases in this sector since 1990. Emissions in 2008 were 176 percent higher than the 1990 transport emissions.

Energy
Emissions in 2008 were similar to 2007 with an increase of 98,560 tonnes CO2eq or 0.7 percent.

Residential
Emissions in 2008 increased by 603,710 tonnes CO2eq or 8.7 percent from the 2007 level. This was the largest sectoral change in 2008 and would appear to reflect increased use of domestic heating as a result of the winter months of 2008 being significantly colder than for the same period in 2007.

Waste
The new emissions time-series for this sector shows a decrease of 94,570 tonnes CO2eq or 8 percent from the 2007 level. Emissions in 2008 are 16 percent lower than in 1990.

Power Station provisions
Power stations are the principal sources of sulphur dioxide (SO2) emissions contributing approximately 60% of the national total in 2005. On a national level the emissions of S02 from industrial sectors have decreased by 69% from 1990 while the emissions in the residential and commercial sectors have decreased by approximately 62% during that time. Power Generation is fully committed to conducting its activities in an environmentally responsible manner. The ESB has successfully completed the verification process for 2008 CO2 emissions, with CO2 emissions dropping to 9.04 million tonnes, down from 9.78 million tonnes in 2007. Also in 2008, the ESB successfully completed re-certification of Environmental Management Systems (EMS) to ISO 14001 at the Lee power station. Today, the ESB is at the leading edge of power generation. Its newest plants include a new Combined Cycle Gas Turbine (CCGT) power plant at Aghada, Co. Cork, is fully operational. This is a state-of-the-art, gas-fired CCGT plant, using the most environmentally friendly and efficient technology in the world.

Other Sources
Other greenhouses gases include methane from agriculture and landfills and nitrogen oxides primarily arising from agriculture. Nationally the emissions of greenhouse gases from the energy sector in 2005 were 38% above the 1990 levels showing an increased demand for electricity. While some variations in emissions from the residential sector over that period has occurred and seems to reflect a shift from the use of coal and peat to oil and gas, these reductions were negated by the increases in population and housing stock in Ireland.

Travel to Work
Fig. 6.14 (Sustainable Commuting) shows the percentage of people per DED who travel to work by sustainable means e.g. walking, cycling, public transport or working at home. This information was taken from the travel to work patterns, which emerged from the 2006 census.

The key to significantly increasing sustainable commuting and decreasing car dependency is focusing targeted population growth to major employment centres that are well served by public transportation and where high levels of sustainable commuting can be achieved.

The majority of the population travelling to work in the Carrigaline Electoral Area are car dependant, especially in rural areas. As expected, the majority of Cork City scores highly but there is a notable drop in the percentage of people travelling to work by sustainable means in the east of the city. Midleton is the only other area in the Metropolitan area that achieves a good level of sustainable commuting while other settlements and rural areas in the Metropolitan area are more car dependant. In the CASP area, 4 out of the 6 Ring Towns achieve a good level of sustainable commuting.

The rural areas of the Carrigaline Electoral Area, with the notable exception of one DED, display a high level of car dependency. Thus the travel to work patterns which have emerged from the 2006 census have shown that car dependent travel plays an overwhelming role in the Carrigaline Electoral Area. In the longer term these trends are unsustainable and if they are allowed to continue, congestion and emissions will increase and competitiveness will decline.

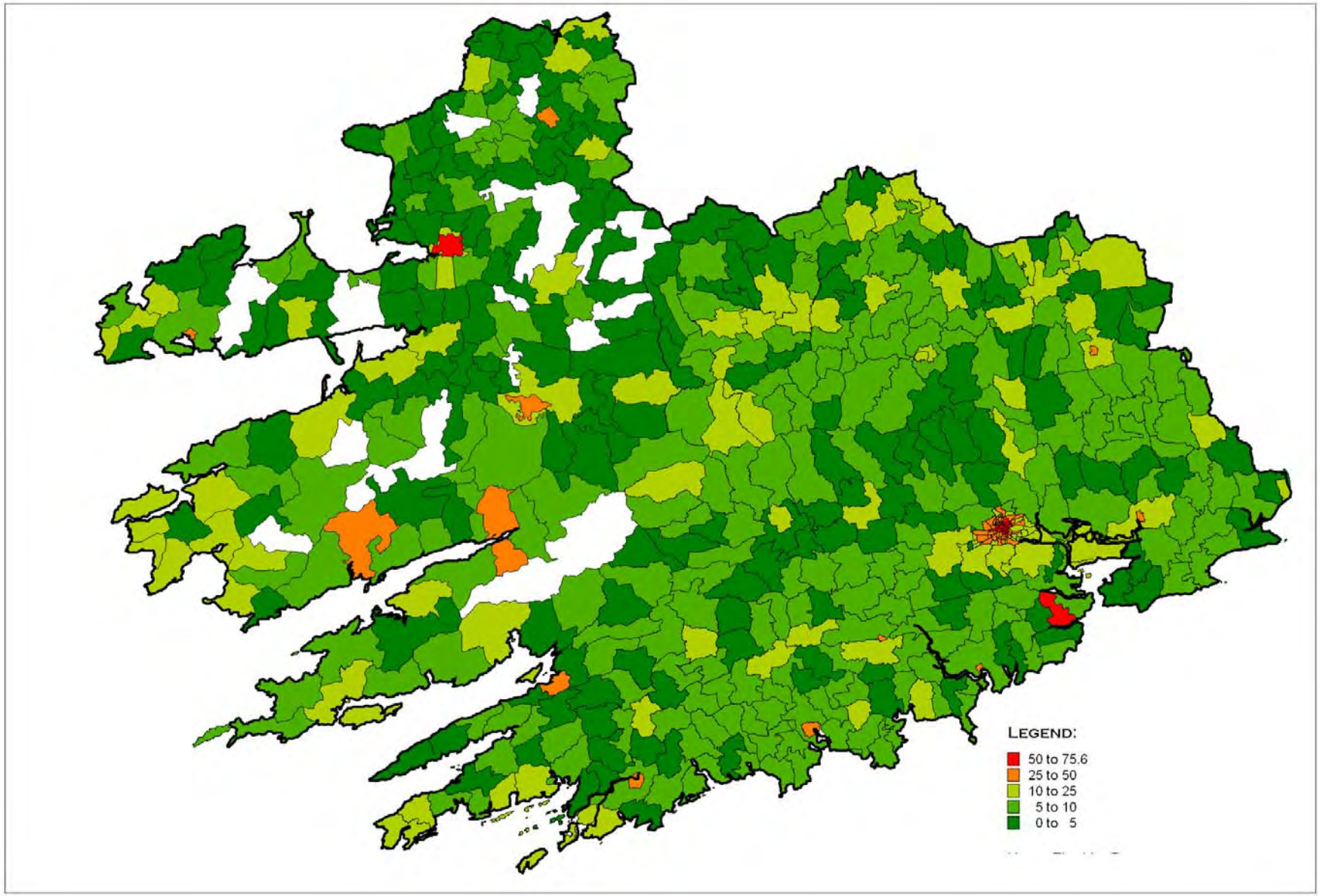


Fig 6.14 : Sustainable Commuting

Quality of Life

As indicated in the section above much of the Carrigaline Electoral Area is car dependant, thus an increase modal shift to public transport and co-ordination of land use and transportation policies would improve peoples quality of life based on sustainable travel patterns. This would help create a reduction in journey to work (time/distance) and a high quality residential and working environment. In this context it is noted that population growth is concentrated in areas where the Carrigaline Electoral Area Local Area Plan envisages employment growth and where high levels of sustainable commuting can be achieved.

Climate Change and Impact in County Cork

There are a wide range of expected impacts of climate change. It is anticipated that climate change will present significant challenges and potential opportunities for water management in Ireland. There has been a reduction in the number of frost days and a shortening of the frost season length. (The EPA and Climate Change, Responsibilities, Challenges and Opportunities 2009). Climate change impacts are projected to increase in the coming decades and during the rest of this century and uncertainties surround the extent of these impacts, particularly for the second half of the century as follows:

- The sea-level is projected to rise by between 18cm and 59cm this century
- There will be more intense storms and rainfall events
- There will be an increased likelihood and magnitude of river and coastal flooding; increased storm surges
- There will be water shortages in summer in the east, and a need for the irrigation of crops
- There will be negative impacts on water quality
- Changes in the distribution of species will occur, and it is possible we will see the extinction of vulnerable species requiring cooler conditions, e.g. the Arctic char
- There will be effects on fish species that are sensitive to small changes in temperature, e.g. cod
- There will be an increased frequency of wild fires and pest infestation

Agriculture, Aquaculture and Fisheries

Irish agriculture will be challenged by wetter winters and drier summer soils with spatial contrasts likely to develop across the country. This may reduce the need for fertilizer in areas of poorly drained soils (EPA, 2009 Climate Change - Refining the Impacts for Ireland). An expected rise in sea level may have implications for aquaculture and result in a shift of the North Atlantic Drift and therefore water temperatures. Estuarine systems are important nursery and breeding areas for many commercial fish species and fisheries may be impacted on due to saline intrusion, salinity gradients, flooding, sedimentation, warm temperatures etc. may disrupt spawning grounds and shellfish production.

Landscape, Biodiversity, Flora and Fauna

It is likely that changes will occur in biodiversity with 'life cycles' being altered for many species and the availability of migration or ecological corridors will be important in the long-term shifts/movements of habitats. The most vulnerable habitats include sand dunes, lowland calcareous and calminarian grasslands, montane heath, raised bogs, calcareous fens, turloughs and upland lakes. It is expected that there will be increased decomposition of peatlands, due to cracking during drier summers and compositional changes within the peatlands resulting in further deterioration.

There is a likelihood of new non-native species thriving in the environment and the increase of pests and diseases occurring. Other temperature dependent species may come under increasing pressure and result in species loss. There may be a loss of ecological goods and services and habitat loss along the coastlines (due to sea level rise and increasing storm surges), saline inundation landwards, wetlands and estuaries impacts (Failte Ireland, Heritage Council (April, 2009) Climate Change, Heritage and Tourism: Implications for Ireland's coast

and Inland waterways). Breeding seabird colonies and wintering waterfowl may be impacted due to sea level change.

Weather Patterns and Flood Impact
It is likely that more extreme weather patterns will emerge such as storms and increased rainfall, flooding and droughts with increased mean temperatures, rainfall and drier summers. Flood impact analysis may factor in climate change as 10 and 50 year 'likely flood intervals' will be reduced in certain catchments. It is likely that there will be increased incidences of flooding within the county. It is estimated that winter run-off will increase in the county and all areas are likely to experience a decrease in summer run-off and the frequency and duration of low flows are likely to increase in many areas (EPA, 2009 Climate Change – Refining the Impacts for Ireland).

Environmental Issues - Discussion
The Sustainable Commuting map which was prepared from the 2006 census shows that car dependent travel plays a significant role in the Carrigaline Electoral Area. In the longer term these trends are unsustainable and if they are allowed to continue, congestion and emissions will increase and competitiveness will decline. This will have significant impact on quality of life, air quality and climate change, biodiversity and the landscape.

The Carrigaline Electoral Area Local Area Plan, informed by the Cork Area Strategic Plan and the Cork County Development Plan, has sought to achieve population and employment growth in the future to facilitate sustainable patterns of commuting. The Carrigaline Electoral Area Local Area Plan envisages employment growth where high levels of sustainable commuting can be achieved. In addition population is being directed to areas where sufficient infrastructural capacity exists or where it can be provided for in a sustainable manner.

The CSIP reflects this strategy, in that, it is located close to existing and expanding population centres, is served by existing public transportation that is extendable, has the potential to expand upon existing pedestrian and cyclist connectivity and is located within the preferred route as identified by the Cork Area Transit Study to accommodate an integrated public transport route.

The Masterplan sets targets for modal shift away from private car ownership, in phases toward the achievement of 55% modal shift in accordance with Smarter Travel targets.

The Masterplan seeks to minimise environmental impacts across a range of policies. Inherent in its formulation is the facilitation of public transport, pedestrians and cyclists, as well as the management of traffic and movements associated with the project.

In addition, and in particular in the Appendices, the Masterplan sets out a range of principles that will be used to inform detailed Precinct Plans. These include the (re-)use of natural resources such a grey water, the use of prefabricated material with reduced embedded energy, the design of buildings that operate on passive energy principles, etc. It is noted, having regard to the concepts that underpin the project, that the CSIP in conjunction with the third level educational institutes should be a model of best practice in this regard. All the initiatives outlined in the Appendices and in the Masterplan generally will reduce the energy use and waste generation associated with the park and, hence, the impacts on air and climate.

It is inevitable that the project will lead to emissions during the construction and operational phases of the project, however, these impacts shall be minimised via a range of measures. Having regard to expand and diversify the regional economic base, the Masterplan seeks to create the framework within which this can be achieved with minimal impacts.

In the absence of a Masterplan for the study area there would be no framework for the location of new development such as a consequence uncontrolled dispersed development would be likely to occur – having regard to the location of the site area on the periphery of the city. Such development would be driven by economic pressures in an uncontrolled fashion, with a commensurate reduction in the gains that can be achieved via the use of critical mass.

Cultural Heritage including Architectural and Archaeological Heritage
Introduction
Cultural heritage includes inherited artefacts and intangible attributes that are inherited from past generations, maintained in the present and bestowed for the benefit of future generations. The 2009 Cork County Development Plan, and incorporated into the Carrigaline Local Area Plan, has stated it is the Council's policy to:

- Protect the architectural heritage of the County
- Facilitate public access to National Monuments
- Preserve and maintain existing archaeological monuments within the county and to safeguard the integrity of the setting of archaeological sites.

The Heritage Plan (2005-2010) has identified a number of objectives, including inter alia:

- To raise awareness and to promote appreciation and enjoyment of the heritage of Co. Cork.
- To develop and encourage best practice in relation to the management and care of heritage in Co. Cork and to deliver practical actions to achieve this
- To gather and disseminate information about heritage in Co. Cork.

It is an objective to implement the County Heritage Plan 2005-2010 in partnership with all relevant stakeholders.

The built environment refers to all features built by man in the environment including buildings and other structures such as bridges, archaeological sites and field boundaries. Non-structural elements, such as historic gardens, stone walls, ditches and street furniture, make a significant contribution to our built heritage. A lack of awareness of their inherent and associative value can result in the loss of these elements and subsequent erosion of heritage assets. While not every structure is of sufficient importance to warrant the rigors of special protection, the conservation of good examples of the built heritage is vital if a sense of continuity with the past is to be maintained.

The principle legislation that provides the protection to our architectural heritage is the Planning and Development Act, 2000 – 2007. The Minister for Environment, Heritage and Local government is responsible for the protection of archaeological heritage, including the licensing of archaeological excavations, through the exercise of powers under the national Monuments Acts 1930 to 2004.

In addition the National Inventory of Architectural Heritage of the Department of Environment, Heritage and Local Government is carrying out a survey which involves identifying and recording the architectural heritage of Ireland from 1700 to the present day.

Cultural Heritage Impact Assessment
A Cultural Heritage Impact Assessment was undertaken by Cork County Council as part of the CSIP project. The assessment sought to identify any features (known or potential) of cultural heritage significance relative to the proposed development area, the perceived significance of such sites, and mitigation proposals where cultural heritage is deemed likely to impact on the design of the project.

It was found that the scheme will impact on 10 cultural heritage sites. A considerable 'green field' area of archaeological potential will also be impacted upon.

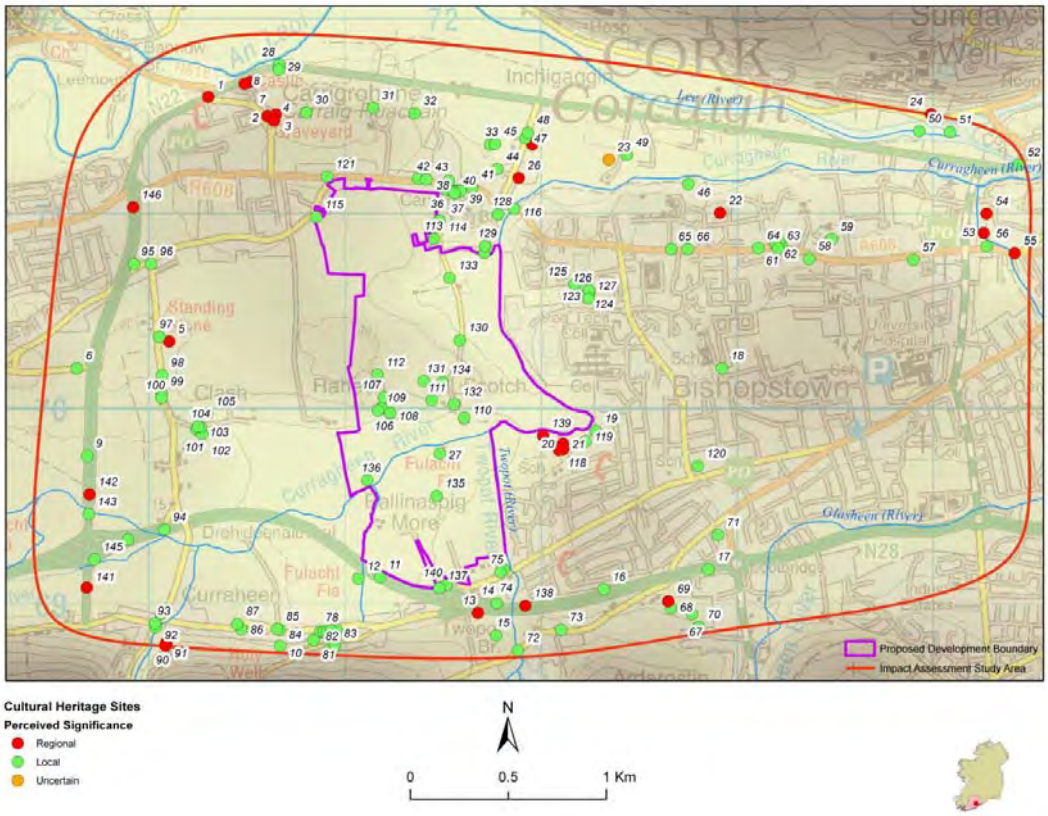


Fig6.15 : Cultural Heritage Sites

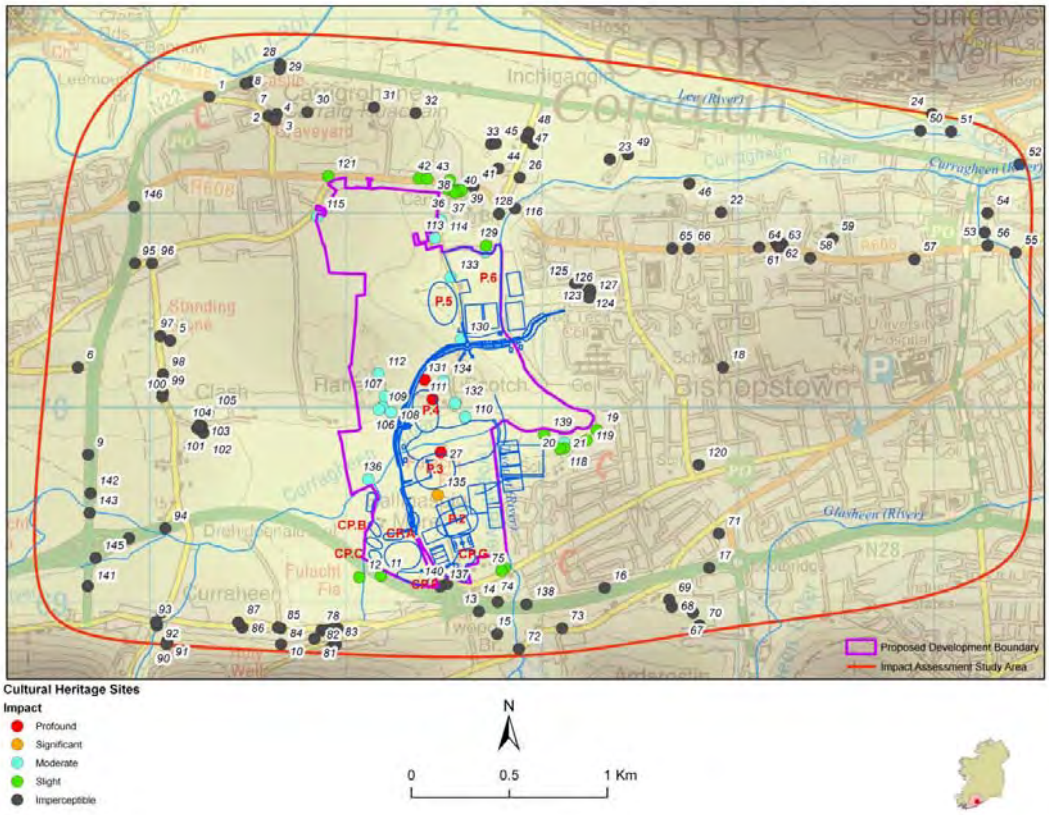


Fig 6.16 : Impacts on sites of Cultural Heritage Significance

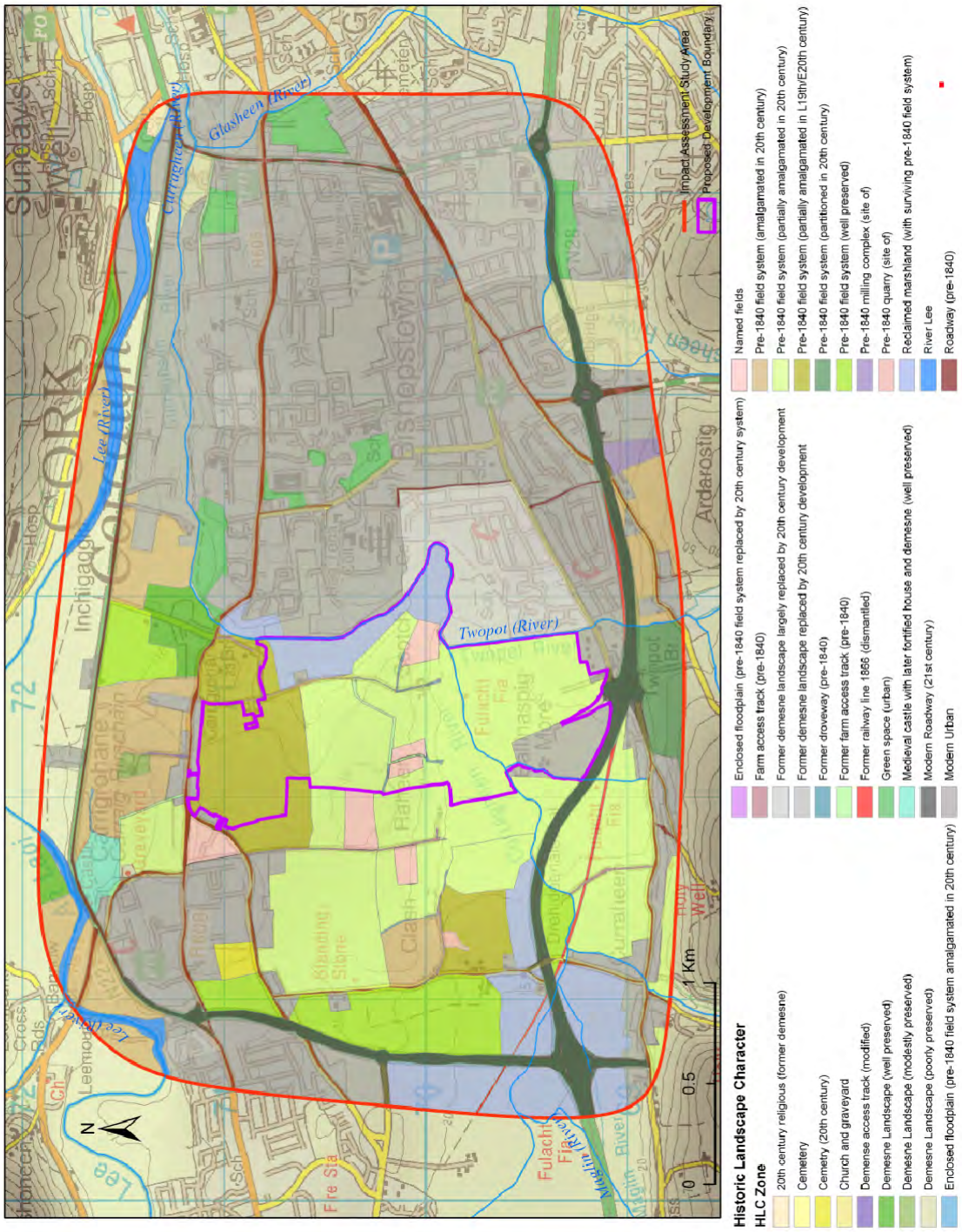


Fig 6.17: Historic Landscape Character

Mitigation measures proposed allow for geophysical surveying and archaeological testing of all areas within the development boundary. Sites determined to be significantly impacted by the proposed development will be archaeologically investigated in advance. Investigations will be on a site-by-site basis and may involve surveying, geophysical surveying, archaeological testing and/or archaeological excavation, pending approval by the *National Monuments Section of the Department of Arts, Heritage and Gaeltacht Affairs*. The recommendations of the Cultural Heritage Impact Assessment in full are as follows:

In order to mitigate against impacts on cultural heritage the following measures are recommended:

(i) All recommendations are to be considered subject to approval from the National Monuments Service, of the Department of Environment, Community and Local Government.
(ii) Where possible, all sites of cultural heritage value should be avoided (preserved *in-situ*) or have any necessary impact upon them reduced to a minimum.
(iii) Where avoidance is not possible, then all affected sites must be preserved by record, in compliance with national heritage policy (DAHGI 1999, 25).
(iv) Following consultation with the National Monuments Service (see Section 11.0, above), it is recommended that a LiDAR survey digital terrain model (DTM) and digital surface model (DSM) be acquired that incorporates the proposed development area. This is in order to help increase the thoroughness of cultural heritage assessment, particularly of the green field areas.
(v) With respect to the proposed new road way, the following mitigation recommendations are made:

a. That all green field areas within the required road take be archaeo-geophysically surveyed by a competent geophysist under licence from the National Monuments Service. The survey shall comprise a Magnetometer Survey. The following shall apply:

i. The survey is to be based on recorded magnetometry, by making either magnetic total field or vertical gradient measurements. In the case of total field measurements the instrument sensitivity should be 0.05 nT or better and have a built-in datalogger. A recording total field base station must be used to correct for diurnal variation and pulsations in the Earth's magnetic field. The base station should be set up within the local survey area.

Gradient measurements shall be carried out using fluxgate gradiometers or equivalent gradiometric sensors and an appropriate digital data-logger. The instrument sensitivity should be 0.1 nT or better.

ii. The surveys should be carried out on a grid or series of parallel transects with a maximum line spacing of 1 m and maximum station spacing of 0.25m.

iii. Each instrument should be calibrated and/or zeroed, following the manufacturer's guidelines, before each series of readings is taken.

iv. The location of each data-point is to be tied to the Irish National Grid to an accuracy of 0.1 m or better, using DGPS equipment or equivalent means of achieving the required level of accuracy.

v. Data should be downloaded from all the dataloggers onto a separate computer at appropriate intervals, and at least daily, to achieve a secure record of the data.

vi. To confirm the operational status of each magnetic sensor or sensor array on a daily basis, a continuous stream of readings should be made at a single point over a period of at least 1 minute (to record at least 60 readings). This daily test should be annotated with instrument serial number, date and time, and presented and discussed in the final report.

vii. In the absence of national guidelines, the survey shall comply with English Heritage guidelines (2008) *Geophysical Survey in Archaeological Field Evaluation*, subject to the conditions of the survey license.

b. That, subject to the professional advice of the appointed geophysist, provision is made for the carrying out of an earth resistance survey of targeted areas of identified archaeological potential, as determined by the results of the magnetometry survey and subject to approval by Cork County Council's Archaeological Officer.

c. That, following the availability of the geophysical survey report(s), all green field areas within the required road take be archaeologically tested, under licence from the National Monuments Service.

i. The testing shall be by means of a centreline test trench with regular offshoots leading to the edge of the road take. The offshoots shall be 25 m apart, or less, on alternating sides of the centre trench.

ii. The results of the geophysical survey shall be used to inform the testing programme and provision shall be made to allow for a higher concentration of testing in areas where anomalies of archaeological potential have been identified.

iii. For sampling purposes, the testing regime should cover at least 15% of the required road take.

iv. Where sites of significant archaeological remains are identified, provision should be allowed for the retention and analysis environmental samples and/or samples for radiocarbon dating in order to assist in the understanding of archaeological remains.

v. All archaeological artefacts are to be retained and analysed for inclusion in the archaeological texting report.

(vi) With respect to the proposed provision of underground services the following mitigation recommendations are made:

a. That are excavation works relating to the provision of underground services are archaeologically monitored by a competent archaeologist, under license from the National Monuments Service.

b. That provision is allowed for to provide the appointed archaeologist with sufficient time to adequately carry out his/her duties under the license arrangement. (Note: This may include the temporary suspension of works or other arrangements necessary in order allow features of archaeological significance to be examined and recorded in an appropriate and safe manner.)

(vii) With respect to all sites to be profoundly or significantly impacted the affected portion of such sites be preserved by record. The nature of the record shall be agreed with Cork County Council's Archaeological Officer when detailed designs for the various precincts and other development proposals are made available.

(viii) With respect to all sites to be moderately impacted provisions should be made to ensure such sites are at all times buffered from development works by means of exclusion zones so as to ensure their preservation.

(ix) With respect to all sites to be slightly or imperceptibly impacted no archaeological mitigation measures are deemed necessary.

(x) With respect to Precincts 1-6, to the proposed car parks CP.A-G and the proposed attenuation pond, it is recommended that mitigation measures for identifying latent archaeological potential within these areas be considered when detailed designs are made available. (Note: While geophysical surveying and archaeological test trenching would be warranted, deciding on the appropriate location and methodology for such works would require the availability of detailed development designs.)

In addition, the Department of Arts Heritage and Gaeltacht recommends the following:

- The developer shall commission an archaeological assessment to establish the extent of archaeological material associated with the monument or site. This assessment shall also define the buffer area or area contiguous with the monument which will preserve the setting and visual amenity of the site.
- The area of the monument and buffer should not be included as part of the open space requirement demanded of a specific development but should be additional to the required open spaces.
- Should a monument or place included in the Record of Monument and Places lie within the open space requirement for a development, a conservation plan for that monument should be requested as part of the landscape plan for that proposed open space.
- Should a monument or site included in the Record of Monument and Places be incorporated into a development the monument and attendant buffer area should be ceded to Local Authority Ownership once the development and associated landscaping works are complete so that the future protection of the monument can be assured.

Discussion

The CSIP site contains a number of archaeological and cultural features that require protection. The Masterplan requires that Precinct Plans protect the historical features that contribute to the functionality of the green infrastructure network. This is reinforced in the use of the Design Statement that requires historic features to be incorporated where possible into Precinct Plans in order to retain the 'memory' of the site.

The incorporation of the above Cultural Heritage Impact Assessment Report and the recommendations of the Department of Arts Heritage and Gaeltacht into the Masterplan would further enhance the protection afforded to the cultural assets within the park.

Non-implementation of Masterplan

The Masterplan provides for the development of an important element of the region's future economic infrastructure. It provides guidance as to the direction of this development and forms the basis upon which individual planning applications will be assessed. In the absence of the Masterplan, it is likely that the lands would continue in their existing agricultural and amenity uses. However, having regard to the location of these lands on the edge of the city's urban area, it is likely that development pressures would arise in an uncoordinated fashion.

The preparation and adoption of a strategic plan for these lands, toward a specific economic purpose, allows for impacts to be minimised and beneficial opportunities to be exploited.

The Masterplan, by requiring the protection and incorporation of cultural assets within the park's design brief, seeks to ensure that future development in this area is undertaken in an orderly fashion that protects these assets.

Landscape

Introduction

County Cork contains significant areas of landscape importance, which are important not only for their intrinsic value as places of natural beauty but also because they provide a real asset for residents and visitors alike in terms of recreation and tourism and other uses. The landscape type for this area has been identified in the Local Area Plan as being of broad fertile lowland valley. The area to the north of the CSIP, the Lee Valley, is a designated scenic landscape with a network of scenic routes, as designated by the Cork County Development Plan 2009.

Landscape in the Existing Environment

Cork County Council has prepared a Draft Landscape Strategy for Cork County. This Draft Strategy aims to provide an explanation of Cork County's landscape by way of describing what the landscape actually entails, while highlighting how areas within the County have their own distinctiveness and character

The landscape type for this area has been identified as being of broad fertile lowland valley in character.

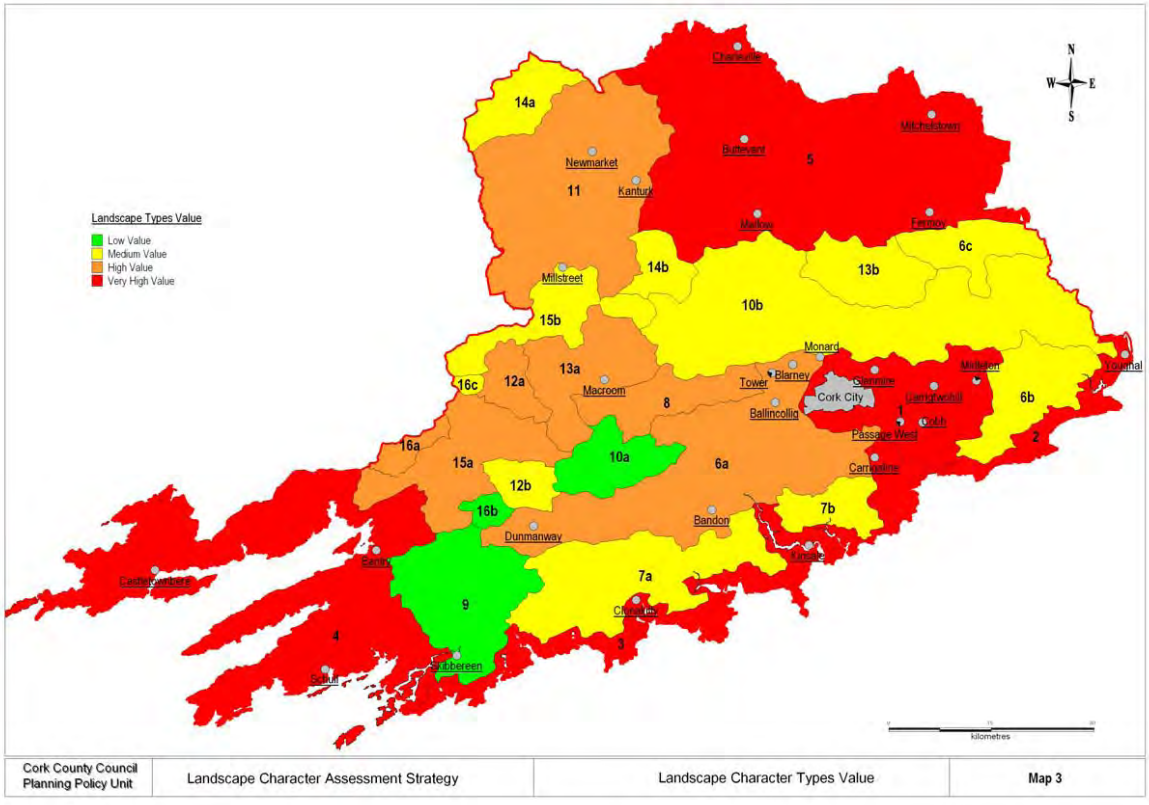


Fig 6.18 : Landscape Character Type Value

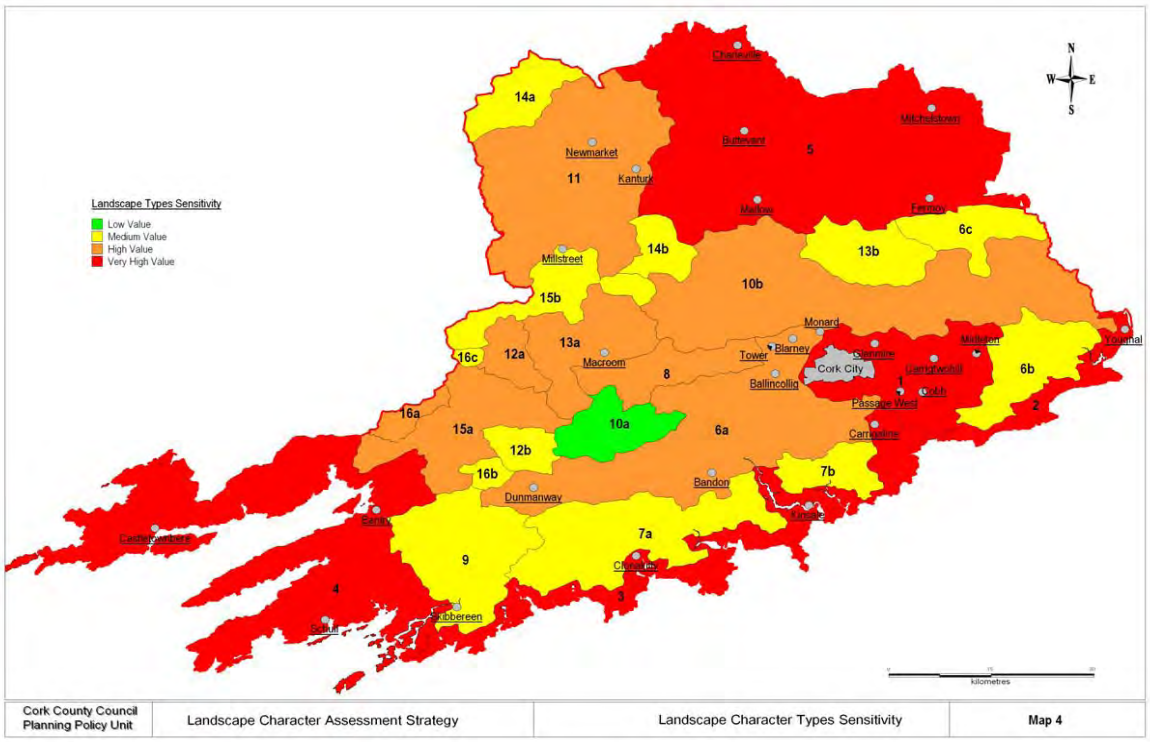


Fig 6.19 : Landscape Character Types Sensitivity

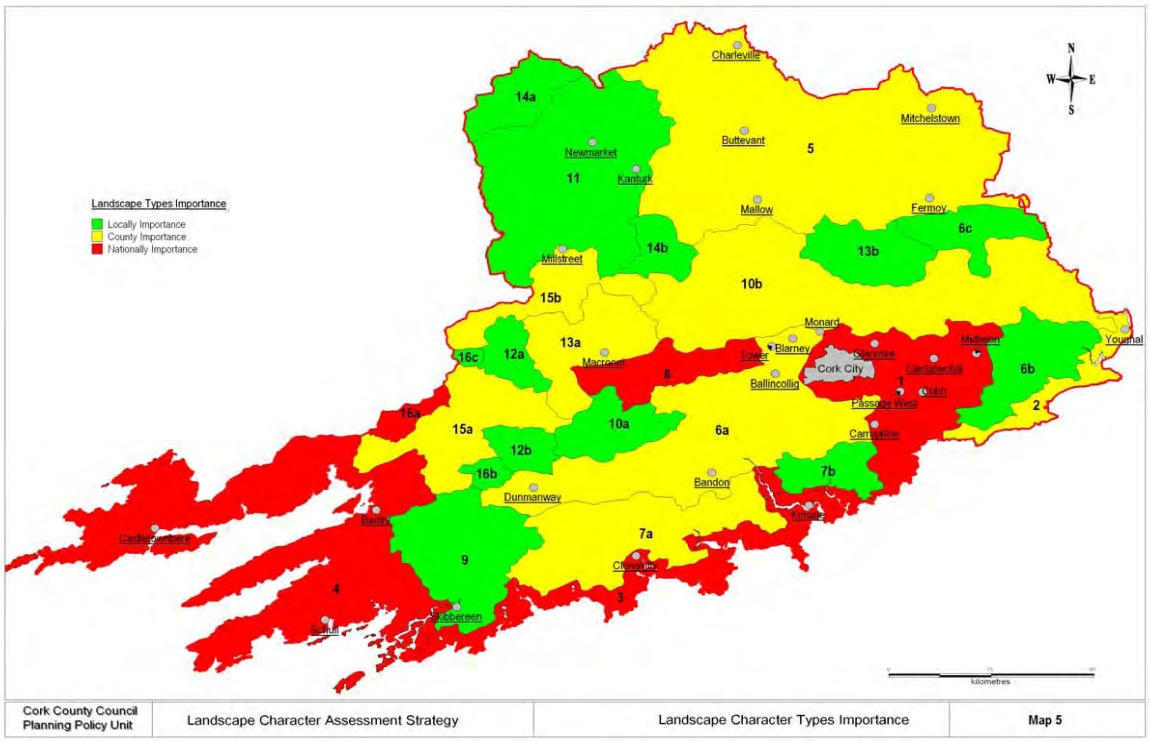


Fig 6.20 : Landscape Character Types Importance

Landscape Description

The landscape description identified for this area is:

- Landscape Value: Very High

- Landscape Sensitivity: Very High
- Landscape Importance: National / County

This landscape type stretches west and east from the environs of Cork City. In general, the valleys in these areas are created by the rivers flowing east to west and are surrounded by low well spaced ridges. These shallow and flat valleys wind as they follow the course of the river, rising to the north and south with gentle slopes where the valley is wide but with steeper faced slopes where the valley narrows. Further upstream to the west the broad flatness narrows and winds between low hills. Landcover comprises highly fertile, regularly shaped fields typically of medium size and with mature broadleaf hedgerows. Agricultural use primarily involves intensive dairying as well as tillage, with farmsteads relatively well screened by the hedgerows.

There is a network of scenic routes within the Lee Valley, to the north of the CSIP site, with only intermittent views presenting themselves.

Key Characteristics

Land use, field, boundaries, trees and wildlife

- Landcover comprises a mosaic of regularly shaped fields typically of medium size. The fields throughout this landscape are bounded mostly by mature broadleaf hedgerows but also by post and wire fencing. Lower hedgerows prevail further to the west on higher ground.
- Scrub and areas of gorse are relatively rare but groups of broadleaf trees and shelterbelts are common, providing punctuation across the landscape or hinting at the presence of farmsteads.
- Heathland on hilltops is more evident further west. Field sizes are also noticeably smaller in the western part of this Landscape Character Type.
- In the south west of this Landscape Character Type agriculture is interspersed with areas of marginal land and established broadleaf forestry.
- The valleys in these areas are created by the rivers flowing east to west, for example the Lee and Bandon Rivers, and are surrounded by low well-spaced ridges. They have also created imposing views across the landscape.

Built Environment

- Farmsteads comprise houses as well as metal sheds (with older barrel vaulted or modern A-frame roofs) and traditional out buildings, most of which are relatively well screened by the hedgerows.
- Overall, this landscape type is located close to Cork City and two of the key settlements of metropolitan Cork are located within or at the edge of the landscape (Carrigaline and Ballincollig). The main settlement of Bandon is also located to the South West of the area.
- The CSIP site adjoins the established urban area at the edge of the city.

Socio Economic

- Some of the larger settlements include Bandon, Ballincollig (close to the west of the CSIP) and Blarney.
- The agricultural use of this landscape primarily involves intensive dairying and tillage.
- Major roads such as the N22 between Macroom and Cork City and the N71 between Innishannon and Bandon tend to follow the rivers, often providing distant views across the landscape.
- There is some quarry activity in this area, to the west.

Population

In recent years the population of the CSIP area has increased particularly in the main settlement of Ballincollig, with additional growth proposed.

Rural Housing

Significant pressure exists for individual rural dwellings in this area and this type of development could have a negative impact on the vernacular landscape.

Relevant Recommendations of Draft Landscape Strategy

- Protect and preserve the Lee Valley and the Bandon River and their surrounding floodplains as unique landscape features in this Landscape Character Type and as valuable resource for scenic and amenity values.
- Control development that will adversely affect distinctive linear sections of the Lee River Valley, especially its open flood plains, when viewed from relevant scenic routes and settlements.
- Have regard to the rich and diverse natural heritage in this Landscape Character Type and the concentration of NHA's that are designated for protection. While protecting these areas it is also important to recognise their potential as key recreation and amenity sources.
- Protect the existing character and setting of villages and village nuclei which are under pressure from population growth particularly those villages which are located close to Cork City.
- Discourage ribbon development along approach roads to main settlements.
- Promote sustainable growth in the existing main settlements of Carrigaline, Ballincollig and Bandon by encouraging new development, which respects the existing character of these settlements in terms of both scale and design.
- Recognise that the lowlands are made up of a variety of working landscapes that are critical resources for sustaining the economic and social well being of the county.
- Recognise that agriculture is a major landuse in this LCT. This will help maintain the existing features of this landscape while also supporting the local economy and rural diversification.

Discussion:

Having regard to its location adjoining the city boundary (to the east), the CSIP is located at an important visual point in the landscape. It shall create a new edge of city location.

The concepts that underpin the CSIP seek to create a modern employment location while retaining key existing visual assets. This is reflected in the principles that informs future detailed design, including the retention of trees and hedgerows, historic features, creation of open spaces within the park, use of low impact infrastructure design as far as is possible, etc.

The CSIP will significantly alter the character of its immediate area and will impact on some existing distant views also. However, impacts shall benefit from the co-ordinated approach facilitated by the Masterplan, rather than an incremental development pattern that could result in ad hoc design solutions. These lands, located at the city's edge, are particularly susceptible to such incremental development patterns.

The CSIP seeks to create a transitional landscape character between rural and urban, which facilitates economic growth in the region. It is noted that the Masterplan identifies the carrying capacity of each developable area and sets out appropriate qualitative and quantitative criteria within which future structures shall be developed.

Non-implementation of Masterplan

The Masterplan provides for the development of an important element of the region's future economic infrastructure. It provides guidance as to the direction of this development and forms the basis upon which individual planning applications will be assessed. In the absence of the Masterplan, it is likely that the lands would continue in their existing agricultural and amenity uses. However, having regard to the location of these lands on the edge of the city's urban area, it is likely that development pressures would arise in an uncoordinated fashion, thereby impacting incrementally on the existing landscape character of the area. Over time such a piecemeal development pattern could impact significantly on the existing character.

The preparation and adoption of a strategic plan for these lands, toward a specific economic purpose, allows for landscape character changes to be managed toward a high quality solution.

Material Assets

Introduction

The CSIP land uses include a range that incorporate:

- Agricultural lands
- UCC's playing pitches
- CIT's playing pitches
- Sports ground not in full-time use
- Residential property
- Access road to adjoining Bord na gCon's racing stadium

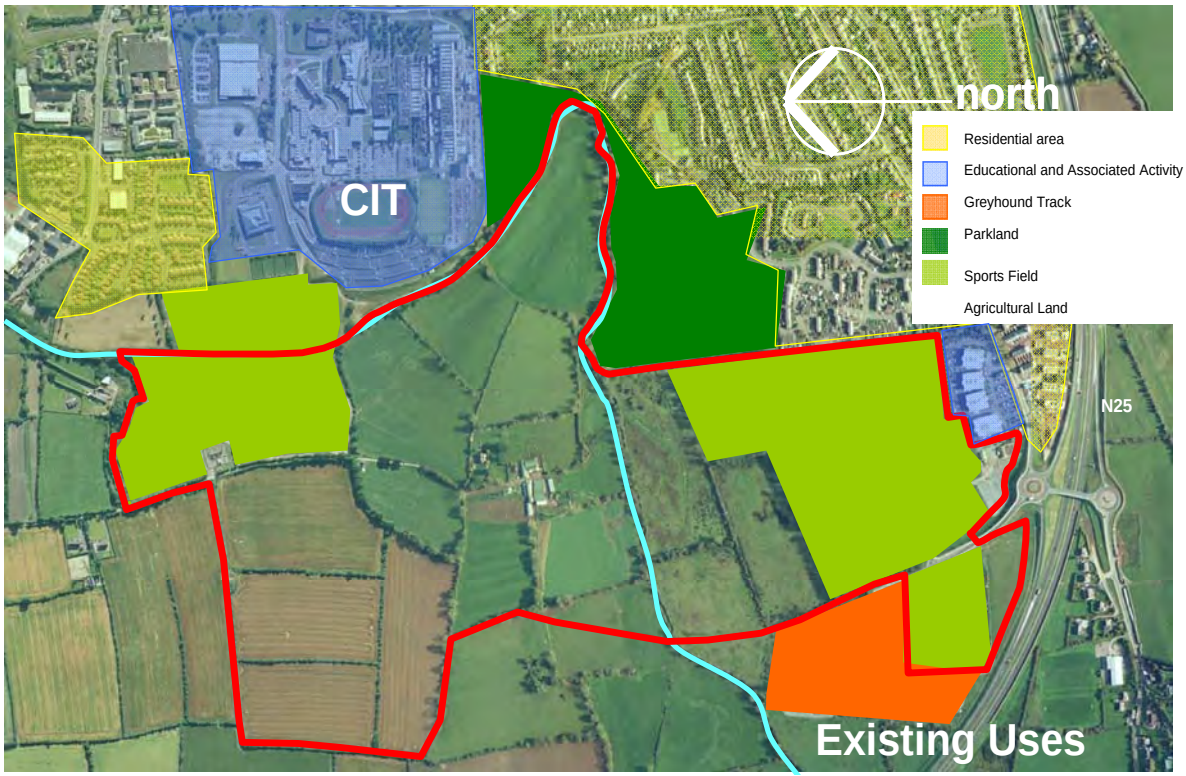


Fig 6.21: Existing Land Uses

Impacts:

The development of the CSIP will result eventually in the loss of the above assets (with the possible exception of CIT's playing pitches) and their replacement with employment and related structures and spaces. The existing roadway will be retained and extended to serve the entire park, including the facilitation of public transport.

Discussion:

It is anticipated that UCC shall seek to relocate their sport facilities to an alternative location in the future. Thereafter, the significant loss in usage terms is that of the lands in agricultural use. While it is appropriate to retain in as much as is possible agricultural lands that will be required in the future, this project seeks to diversify the economic base of the region to strengthen its economic position. No existing brownfield site exists with the locational characteristics of the CSIP – critically the presence of UCC and CIT campuses.

Non-implementation of Masterplan

The Masterplan provides for the development of an important element of the region's future economic infrastructure. It provides guidance as to the direction of this development and forms the

basis upon which individual planning applications will be assessed. In the absence of the Masterplan, it is likely that the lands would continue in their existing agricultural and amenity uses. However, having regard to the location of these lands on the edge of the city's urban area, it is likely that development pressures would arise in an uncoordinated fashion, thereby impacting incrementally on the existing land uses in the area. Over time such a piecemeal development pattern could impact significantly on the extent of the existing land uses.

The preparation and adoption of a strategic plan for these lands, toward a specific economic purpose, allows for the maximum benefit to be derived from the loss of the existing assets on site.

Chapter 7: SEA Objectives and Targets

Introduction

This section aims to identify the relevant Environmental Protection Objectives (EPOs). SEA objectives are used to help show whether the objectives of the Masterplan are beneficial for the environment, to compare the environmental effects of alternatives, or to suggest improvements. The Environmental Protection Objectives set out in this section are set out under a range of topics and are used as the standards against which the future development scenarios, strategic aims, strategic principles and development objectives of the Masterplan can be evaluated, to help to identify areas in which significant adverse impacts are likely to occur, if unmitigated.

The SEA objectives are separate from the Masterplan objectives although they can influence each other and even overlap. In line with the requirements of the SEA Directive, they must cover environmental issues including biodiversity, population, human health, fauna, flora, soil, water, air, climatic factors, material assets, cultural heritage, landscape and the interrelationship between them. An indicative list of environmental protection objectives is outlined in the *SEA Guidelines* for the implementation of the SEA Directive, which was complied having regard to the checklist of national, European and international policy documents, strategies, guidelines, Directives, Conventions etc.

The objectives have been developed based on the baseline data and environmental issues identified for the Masterplan project. The primary source used in formulating the EPOs was Table 4B of the SEA Guidelines; however, this list has been amended to ensure it is relevant to the Masterplan. While all of the environmental protection objectives were considered to be important, there are some, which will have a greater influence on the plan preparation than others.

Indicators are used to monitor the effectiveness of the Masterplan in meeting the SEA environmental protection objectives and targets and act as a benchmark against which the plan's performance is measured. The selection of indicators has been informed by the assessment of the baseline environment and the scoping process. However, indicators are also influenced by the availability of information. The list of indicators is given in Chapter 11 – SEA Monitoring - and these may change in the SEA Statement.

The following table sets out the environmental objectives and targets for the environmental aspects that are likely to be affected by the Masterplan.

Table 7.1: EPO's & MONITORING TARGETS

EPO	*ENVIRONMENTAL OBJECTIVE*	*TARGET*
B1	Conserve the diversity of habitats and species and to avoid significant adverse impacts (direct, cumulative and indirect)	No significant adverse impacts, (direct, cumulative and indirect impacts), to relevant habitats, species or their sustaining resources and to improve protection for protected sites and species including a provision of adequate and appropriate buffer zones
		Conserve the diversity of habitats and species in non-designated sites
B2	Protect habitats from invasive species and promote awareness of and support control and eradication programmes for invasive species	No new invasive species in CSIP and no increase in coverage of existing invasive species
Q1	Improve people's quality of life based on high-quality residential, working and recreational environments and on sustainable travel patterns	Avoid the location of inappropriate activities that impact on the quality of the campus within CSIP
		Enhance provision of, and access to, amenity space within CSIP
		Increase number of cycle friendly measures in the associated with CSIP
		Increase number of pedestrian friendly measures in the associated with CSIP
		Increase modal shift to public transport and reduction in journey to work (time/distance)
		Use of Construction Management Plans to minimise adverse impacts during construction phase(s)
S1	Maintain soil integrity and quality	Soil management to inform detailed designs within CSIP

EPO	*ENVIRONMENTAL OBJECTIVE*	*TARGET*
		Use of Waste Management Plans to minimise adverse impacts arising from pollution
W1	Improve water quality and the management of watercourses to comply with the standards of the Water Framework Directive and incorporate the objectives of the Floods Directive into sustainable planning and development	Improvement, or at least no deterioration, in water quality in rivers and groundwater
		Appropriate management of zones vulnerable to flooding
W2	Make best use of existing water and wastewater infrastructure and promote the sustainable development of new infrastructure	CSIP to be adequately served by a public waste water treatment plant system
W3	To maintain and improve the quality of drinking water supplies	Maintain and improve drinking water quality in the CSIP to comply with the requirements of the European Communities (Drinking Water) Regulations and to prevent leakage in new systems
A1	Maintain and promote continuing improvement in air quality through the reduction of emissions and promotion of renewable energy and energy efficiency	Maintain good air quality standards
CH1	Promote the protection and conservation of the cultural heritage	To protect all cultural features within the CSIP and where necessary to impact upon same to manage and record action in accordance with National Heritage Policies

EPO	*ENVIRONMENTAL OBJECTIVE*	*TARGET*
L1	Protect natural and historic landscapes and features within them in a sustainable manner	Integrate natural & historic landscape features into detailed design

Chapter 8: Consideration of Alternatives

Introduction

The following section identifies and describes the alternative strategies considered during the drafting process for the Masterplan. Article 5 of the Strategic Environmental Assessment Directive requires the Environmental Report to consider "reasonable alternatives taking into account the objectives and the geographical scope of the plan or programme" and the significant environmental effects of the alternatives selected. Alternatives must be realistic and capable of implementation.

The alternative scenarios that were considered for the Masterplan are discussed and the preferred strategy from an environmental perspective is provided. Mitigation measures which attempt to prevent, reduce and as fully as possible offset any significant adverse effects of the environment of implementing the preferred alternative are identified in this chapter where applicable.

Methodology

The aim of this chapter is to evaluate reasonable alternatives for the CSIP. In order to carry out an evaluation of the alternatives identified in the Environmental Report it is necessary to determine where we expect appropriate development to be in the future and if this development will lead to pressure that is likely to conflict with environmental issues that were highlighted in the environmental baseline.

During the preparation process of the Masterplan, 6 Scenarios were proposed. These are briefly outlined in this chapter and the Masterplan's preferred Scenario (i.e. the Scenario that forms the basis of the Masterplan) has been presented. Reasons why the Masterplan adopted its preferred Scenario have also been explained in this chapter. If the SEA evaluation of the Scenario's finds that the Masterplan's preferred Scenario is not the most sustainable Scenario from an environmental perspective then mitigation measures have been provided.

The Scenarios

Having regard to the concepts that underpin the CSIP project, a number of criteria needed to be in place to facilitate the project. These included:

- UCC & CIT presence
- Potential for high quality working environment
- Site area to accommodate various building forms – small to large units
- Site area to allow for future expansion – over 20/30 year timeframe – without relocation or fragmentation of park
- High levels of connectivity – to settlements, transport nodes, business locations, movement corridors
- Ability for early construction

Having regard to international best practice, the above criteria was deemed critical in the creation of a science and innovation park that is capable of attracting inward personal and fiscal investment. Hence, a site location that could provide all of the above was required. Potential alternative locations include:

- Alternative Location in Metropolitan Cork
- CIT / UCC Campuses
- Existing Employment Centres

In addition, a smaller development area commensurate with the shorter term needs of the project or a lower density of development could have been identified:

- Reduced Development Area
- Reduced Development Density

The above scenarios represent the alternative approaches that were considered in the drafting of the CSIP Masterplan.

Scenario 1 - Alternative Location in Metropolitan Cork
In this scenario, alternative locations within Metropolitan Cork were considered. Having regard to the target of achieving a high modal shift, only locations with existing or planned future high levels of public transport and pedestrian / cyclist facilities could be considered. Hence, locations within Cork City, or within Ring Towns that are served by public transport were considered (such as Mallow, Midleton, Cobh, Blarney).

While the Ring Towns could potentially provide high levels of public transport, the range of transportation options in this regard were limited. Also, distance from Cork City – as the economic focal point of the region – were considered excessive for a high degree of pedestrian / cyclist usage.

Brownfield lands within Cork City is an alternative that can provide the high levels of connectivity required, however, assembling a significant land bank similar to that of the CSIP site is a challenge. A large land bank, while not critical in building terms immediately, will become an important asset to the CSIP as it develops – in order to provide expansion areas as well as high levels of amenity within the park. Furthermore, the relatively low density level of employees associated with such development (3 per 100m²) could result in an underuse of lands that may accommodate more intensive employee densities appropriate to a city centre.

Cork Docklands project could be a suitable location for the CSIP, however, its timescales and significant infrastructure requirements would not facilitate an early project start date. National policy requires an aggressive diversification of our economic base.

Scenario 2 - CIT / UCC Campuses
Internationally, many science and innovation parks are located within or adjoining existing university / college campuses. This is a natural extension of third level education practices that allow for merging with the business world.

In Cork, CIT and UCC fulfil the third level education role, at Bishopstown and Cork City respectively. However, neither campus is capable of accommodating significant science and innovation space into the future, in fact, both campuses are seeking options to expand to fulfil their current obligations.

Having regard to the critical role that UCC and CIT will play in the success of this project, it is important that the CSIP is accessible to both populations. No existing available landbank exists adjoining UCC, with the CIT landlocked in all directions excepting to the west.

Scenario 3 - Existing Employment Centres
A number of existing employment centres are located within Metropolitan Cork. These include locations within Cork City and locations such as Ringaskiddy, Little Island, Airport Business Park in Cork County. In many instances, however, the uses that are located at these centres are either incompatible with a science and innovation park or not amendable to the requirements of such a park.

In addition, science and innovation is a defined brand and it is important in the attraction of investment that that brand is not compromised by inappropriate uses.

Furthermore, supporting infrastructure in existing employment locations has capacity difficulties that in some cases cannot be overcome easily.

Scenario 4 - Reduced Development Area
Having regard to the long term nature of the project, it was considered to identify a smaller landbank. However, on investigation of international best practice, it was found that there is a significant risk that economic success associated with such projects can be undermined due to an inability to expand in the future. Identifying a smaller site area may reduce initial infrastructure costs, but such an approach may undermine the long term strategic aims of the project – as well as ultimately diminish the return on initial investment.

In addition, the project seeks to avoid incremental development that often results in poor environmental stewardship. Rather, it is deemed more appropriate to address environmental issues on a scale that allows for sustainable solutions to be identified and implemented.

Scenario 5 - Reduced Development Density
Assessing the potential various development approaches, a lower density of development within the CSIP was considered. Such an approach would reduce the impacts of the project in terms of visual amenity and potential impacts on biodiversity. It would also reduce the impacts arising from movement of persons to and from the site.

However, having regard to the edge of city location of the site that is well serviced by public transport and close to population centres, it was considered that a reduced density of development would not be an efficient use of these lands. It is sought to maximise the benefits arising from future infrastructural investments in roads, water services, etc. Furthermore, reducing further the quantum of development allowable within the CSIP may, in the long term, impact on the viability of the project by limiting its potential to expand at maturity.

Preferred Masterplan Scenario 6 - Rationale
Having regard to the criteria identified as necessary to develop a successful science and innovation park, the CSIP site and development density identified was considered the most appropriate.

The site chosen, while a greenfield site, is located adjoining and close to existing and expanding population bases. It also has, or can be provided with, high levels of connectivity to these population centres, Cork City, public transport, as well transportation nodes such as Cork Airport and Kent Rail Station. Furthermore, it is located adjoining the preferred route corridor as identified in the Cork Area Transit Study that seeks to integrate public transport within Metropolitan Cork.

The CSIP site also adjoins CIT's main campus and contains a significant quantum of lands already in UCC ownership. This allows for the expansion of the third level institutions within the CSIP, facilitating the critical involvement of these institutions in the project.

The location and scale of the site also facilitates the design and layout of a science and innovation park to international best standards. The physical environment of such parks is of high importance to potential users and underpins the dynamic interactions that are sought to be encouraged as part of the innovative process.

The development approach utilised in the Masterplan, and specifically the use of Precincts, allows for certainty in the quantums and nature of development allowable but also flexibility in the detailed design stage to accommodate site specific issues (such as flooding, protection of habitats, etc.).

Having regard to all the informing criteria, as well as alternative locations / design approaches, it is considered that the CSIP site identified and the development approach taken maximises the economic benefit to the region while allowing for the environmental impacts arising at this location to be minimised.

From the tables below, the site chosen has the potential to have environmental impacts arising from the development of Greenfield lands. However, the mitigation measures outlined in chapter 10 seek to safeguard environmentally sensitive receptors.

Table 8.1: Types of Cumulative Effects

Types of Cumulative Effects		
Cumulative Effects	**Affected Receptor**	**Causes**
Habitat fragmentation	Biodiversity	Use of land for flood management, transport Infrastructure, buildings, zoning of Greenfield lands
Climate Change	Air and Climate	Greenhouse gas emissions from development and increases in traffic volumes
Loss of Tranquillity	Population and Human Health	Development and increases in traffic volumes
Deterioration in Water Quality	Population and Human Health	Inappropriate Wastewater Treatment, pollution
Loss of Agricultural Lands	Soils and Geology	Zoning of Greenfield lands
Loss of Natural Landscape Features	Landscape	Zoning of Greenfield lands

Table 8.2: Comparison of Alternatives - Cumulative Effects

Comparison of Alternatives - Cumulative Effects							
LAP Objective	**Possible Cumulative Effects**						
	Habitat fragmentation	**Climate Change**	**Loss of tranquillity**	**Deterioration in water quality**	**Loss of agricultural lands**	**Loss of natural landscape features**	**COMMENTS**
Scenario 1	?	-	?	0	?	?	Impacts arising will vary depending on specific site location within Metropolitan Cork.
Scenario 2	+	-	0	0	+	+	Low impacts likely, but no landbank available to locate science park within existing educational campus
Scenario 3	?	-	0	0	?	?	Moderate impacts likely, car usage within existing employment centres is high and public transport is not always prevalent
Scenario 4	-	-	-	0	-	-	As a Greenfield site development, likely to have potential to impact on environment
Scenario 5	-	-	-	0	-	-	As a Greenfield site development, likely to have potential to impact on environment
Scenario 6	-	-	-	0	-	-	As a Greenfield site development, likely to have potential to impact on environment

Key:
+ likely to have no significant effect - likely to have a negative effect 0 neutral ? uncertain

Chapter 9: Environmental Assessment of the Draft Plan

Introduction

The purpose of this section of the Environmental Report is to predict and evaluate as far as possible the environmental effects of this Masterplan and to set out measures envisaged to prevent, reduce, and as fully as possible offset any significant adverse effects on the environment. This section evaluates the Masterplan's Development Objectives against the Environmental Protection Objectives (EPOs).

A matrix approach is used to evaluate the environmental effects of implementing the Masterplan, which aids the understanding of the implications of each of the different strategies. Significant environmental effects of the plan have been predicted to determine whether the plan has negative, positive, uncertain or no likely effects.

This exercise will set out any environmental problems that are likely to arise from the implementation of the Masterplan. Arising from this analysis, the Environmental Report provides recommendations on what mitigation measures will be taken. Mitigation measures can take the form of:

- Amend the wording of an existing objective
- Delete the objective
- Addition of a new objective

A column has been provided to show the Environmental Report's recommendations and another has been provided to display the resulting Masterplan's action or response to these recommendations. The Masterplan's action could be to reject, accept or to partly accept the Environmental Reports recommendation. In the event that a recommendation is rejected or partly accepted, the onus is on the Masterplan to provide reasons for this course of action. Chapter 10 describes mitigation measures and how these measures aim to prevent, reduce or compensate for the negative effects of implementing the local area plan.

The Masterplan's Development Objectives are set out and numbered as follows (it should be noted that, having regard to the layout of the Masterplan document, the Development Objectives have been extracted and numbering for the purposes of the Environmental Report):

GEN:

1. To set the development framework toward the creation of a leading edge science & innovation park, by international standards
2. To identify the initial development phases and key actions required to realise the CSIP vision
3. To encourage and facilitate the use of leading edge design and layout principles in order to create a sustainable and future-proofed innovation park
4. To encourage and facilitate sustainable building designs that produce competitive long term real estate offerings
5. To utilise the development project as a learning experience to inform future related development
6. To facilitate the physical integration of the park with its immediate surrounds and wider metropolitan area
7. To ensure that the built forms within the CSIP meets the functional and personal requirements within its spectrum of users
8. To create a high quality and sustainable natural environment within the park
9. To enable the creation of a distinct innovation park brand that underpins its future success

DEV:

1. To provide an access road to serve the CSIP
2. To develop a water feature within the Park
3. To provide buildings for science and innovation uses, and associated uses

GI:

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
2. 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
3. To create a hierarchy of green space provision, in terms of location, function, size and levels of accessibility / use
4. To integrate green infrastructure provision into development schemes
5. To monitor biodiversity levels within the CSIP.

WM:

1. Prevention of waste generation
2. Minimisation of waste generation
3. Reuse of waste outputs
4. Recycling of waste outputs
5. Disposal of waste outputs
6. Development of Site Waste Management Plan to underpin Precinct design concepts
7. Identification of opportunities to implement co-ordinated waste management strategy to serve CSIP

EN:

1. To incorporate energy efficiency considerations into the initial Precinct/building design stage
2. Identification of opportunities to implement co-ordinated energy use strategy to serve CSIP
3. Development of Energy Management Plan to underpin Precinct design concepts
4. Implementation of energy technologies will be compatible with overall masterplan objectives and principles
5. Provision of energy 'loop' to facilitate future energy monitoring, management and upgrading within the park

MB:

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
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)
3. To ensure the creation of people centred spaces and movement routes
4. To facilitate the provision of a rapid transit system to traverse the CSIP
5. To ensure the integration of internal park movement within Precinct Plans and in association with individual building designs
6. To co-ordinate CSIP mobility management with the management of traffic using the Cork Institute of Technology
7. To commit in the long-term to a 'reduced car' campus

DS:

1. To Incorporate sustainability principles at the concept and design stages.

2. To achieve the highest level of passivity in design as is practicable.
3. To use energy only to supplement passive design, and on-site energy sources where practicably achievable.
4. To minimise water usage via smart design and technology
5. To use building materials with minimal embedded energy and minimal ecological footprint, assessed across the total lifespan of its use.
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.
7. To ensure that the operation and maintenance considerations are incorporated into the design concept of the building.
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.
9. To ensure the adaptability of structures to future uses and future environmental conditions.

CON:

1. Construction Management Plans shall inform and be provided with all development proposals within the CSIP
2. Construction Management Plans shall be co-ordinated between Precincts to maximise efficiencies and minimise impacts on existing and potential CSIP activities
3. Building designs should seek to minimise construction impacts, via the use of pre-assembled building elements and complimentary technologies.

Table 9.1: **Evaluation of EPO's and Masterplan Objectives:**

Objectives	No likely interaction with status of EPOs	Likely to improve status of EPOs	Potential Conflict with status of EPOs	Uncertain interaction with status of EPOs	SEA Recommendation	Masterplan Response
GEN 1			B1 B2 Q1 S1 W1 W2 W3 A1 CH1 L1			
GEN 2			B1 B2 Q1 S1 W1 W2 W3 A1 CH1 L1			
GEN 3		B1 B2 Q1 S1 W1 W2 W3 A1 CH1 L1				
GEN 4		B1 B2 Q1 S1 W1 W2 W3 A1 CH1 L1				

Objectives	No likely interaction with status of EPOs	Likely to improve status of EPOs	Potential Conflict with status of EPOs	Uncertain interaction with status of EPOs	SEA Recommendation	Masterplan Response
GEN 5	B1 B2 Q1 S1 W1 W2 W3 A1 CH1 L1					
GEN 6		B1 B2 Q1 S1 W1 W2 W3 A1 CH1 L1				
GEN 7			B1 B2 Q1 S1 W1 W2 W3 A1 CH1 L1			
GEN 8		B1 B2 Q1 S1 W1 W2 W3 A1 CH1 L1				

Development Objectives Section 3: Settlements and Other Locations

Objectives	No likely interaction with status of EPOs	Likely to improve status of EPOs	Potential Conflict with status of EPOs	Uncertain interaction with status of EPOs	SEA Recommendation	Masterplan Response
GEN 9	B1 B2 Q1 S1 W1 W2 W3 A1 CH1 L1					
DEV 1	B2 W1 W2 W3	Q1	B1 S1 A1 CH1 L1			
DEV 2	B2 A1	Q1	B1 S1 W1 W2 W3 CH1 L1			
DEV 3	B2 W3	Q1 W2 A1	B1 S1 W1 CH1 L1			
GI 1	W2	B1 B2 Q1 S1 W1 W3 A1 CH1 L1			Additional Objective	

Objectives	No likely interaction with status of EPOs	Likely to improve status of EPOs	Potential Conflict with status of EPOs	Uncertain interaction with status of EPOs	SEA Recommendation	Masterplan Response
GI 2	W2	B1 B2 Q1 S1 W1 W3 A1 CH1 L1			Additional Objective	
GI 3	W1 W2 W3	B1 B2 Q1 S1 A1 CH1 L1			Additional Objective	
GI 4	W2 W3	B1 B2 Q3 S1 W1 A1 CH1 L1			Additional Objective	
GI 5		B1 B2 Q1 S1 W1 W2 W3 A1 CH1 L1			Additional Objective	
WM 1	B2 W2 W3 CH1 L1	B1 Q1 S1 W1 A1				

Objectives	No likely interaction with status of EPOs	Likely to improve status of EPOs	Potential Conflict with status of EPOs	Uncertain interaction with status of EPOs	SEA Recommendation	Masterplan Response
WM 2	B2 W2 W3 CH1 L1	B1 Q1 S1 W1 A1				
WM 3	B2 W2 W3 CH1 L1	B1 Q1 S1 W1 A1				
WM 4	B2 W2 W3 CH1 L1	B1 Q1 S1 W1 A1				
WM 5	CH1 L1		B1 B2 Q1 S1 W1 W2 W3 A1		Amend Wording	
WM 6	CH1 L1	B1 B2 Q1 S1 W1 W2 W3 A1				
WM 7	CH1 L1	B1 B2 Q1 S1 W1 W2 W3 A1				

Objectives	**No likely interaction with status of EPOs**	**Likely to improve status of EPOs**	**Potential Conflict with status of EPOs**	**Uncertain interaction with status of EPOs**	**SEA Recommendation**	Masterplan **Response**
EN 1	B1 B2 S1 W2 Ch1 L1	Q1 W1 A1				
EN 2	B1 B2 S1 W2 Ch1 L1	Q1 W1 A1				
EN 3	B1 B2 S1 W2 Ch1 L1	Q1 W1 A1				
EN 4	B1 B2 S1 W2 Ch1 L1	Q1 W1 A1				
EN 5	B1 B2 S1 W2 Ch1 L1	Q1 W1 A1				
MB 1	B2 W3	Q1	B1 S1 W1 A1 CH1 L1		Additional Objective	

Objectives	**No likely interaction with status of EPOs**	**Likely to improve status of EPOs**	**Potential Conflict with status of EPOs**	**Uncertain interaction with status of EPOs**	**SEA Recommendation**	Masterplan **Response**
MB 2	B2 W2 W3	B1 Q1 S1 W1 A1 CH1 L1			Additional Objective	
MB 3	B2 W2 W3	B1 Q1 S1 W1 A1 CH1 L1			Additional Objective	
MB 4	B2 W1 W2 W3	B1 Q1 S1 A1	CH1 L1		Additional Objective	
MB 5	B2 S1 W1 W2 W3	B1 Q1 A1 CH1 L1			Additional Objective	
MB 6	B2 S1 W1 W2 W3 CH1 L1	Q1 A1	B1		Additional Objective	
MB 7	S1 W1 W2 W3	B1 B2 Q1 A1 CH1 L1			Additional Objective	

Objectives	**No likely interaction with status of EPOs**	**Likely to improve status of EPOs**	**Potential Conflict with status of EPOs**	**Uncertain interaction with status of EPOs**	**SEA Recommendation**	Masterplan **Response**
DS 1		B1 B2 Q1 S1 W1 W2 W3 A1 CH1 L1			Additional Objectives	
DS 2	B2 S1 CH1 L1	B1 Q1 W1 W2 W3 A1			Additional Objectives	
DS 3	B2 S1 CH1 L1	B1 Q1 W1 W2 W3 A1			Additional Objectives	
DS 4	B2 S1 CH1 L1	B1 Q1 W1 W2 W3 A1			Additional Objectives	
DS 5	B1 B2 Q1 S1 W1 W2 W3 A1 CH1 L1				Additional Objectives	

Objectives	**No likely interaction with status of EPOs**	**Likely to improve status of EPOs**	**Potential Conflict with status of EPOs**	**Uncertain interaction with status of EPOs**	**SEA Recommendation**	Masterplan **Response**
DS 6	B1 B2 S1 W1 W2 W3 CH1	Q1 A1 L1			Additional Objectives	
DS 7		B1 B2 Q1 S1 W1 W2 W3 A1 CH1 L1			Additional Objectives	
DS 8		B1 B2 Q1 S1 W1 W2 W3 A1 CH1 L1			Additional Objectives	
DS 9		B1 B2 Q1 S1 W1 W2 W3 A1 CH1 L1			Additional Objectives	

Objectives	No likely interaction with status of EPOs	Likely to improve status of EPOs	Potential Conflict with status of EPOs	Uncertain interaction with status of EPOs	SEA Recommendation	Masterplan Response
CON 1		B1 B2 Q1 S1 W1 W2 W3 A1 CH1 L1			Additional Objective	
CON 2		B1 B2 Q1 S1 W1 W2 W3 A1 CH1 L1			Additional Objective	
CON 3		B1 B2 Q1 S1 W1 W2 W3 A1 CH1 L1			Additional Objective	

Chapter 10: Mitigation Measures

Introduction

This section will outline the mitigation measures envisaged to prevent, reduce and as fully as possible offset any significant adverse effects on the environment of the area arising from the implementation of the Masterplan. This section seeks to tie together the SEA process. Environmental issues have been identified in Chapter 6 and the impact of the plan is outlined in Chapter 9. As a result of this analysis and in light of the SEA process, certain mitigation measures have been identified.

Mitigation involves ameliorating significant negative effects. Where the environmental assessment identifies significant adverse effects, consideration is given in the first instance to preventing such impacts or where this is not possible to lessening or offsetting those effects. Mitigation measures can be generally divided into those that:

- Avoid effects,
- Reduce the magnitude or extent, probability and/or severity of effect,
- Repair effects after they have occurred
- Compensate for effects, by balancing out negative impacts with positive ones.

Mitigation measures could include:

- The choice of an alternative, with less significant environmental effect,
- The addition of policies to the plan to reduce likely impacts from other policies,
- Refining policy/objective wording,
- Adding new policy criteria,
- Creating Supplementary Planning Guidance to add more detail to the Plan.

The methodology for the provision of mitigation measures for this Masterplan was to address the strategic level through the assessment of Alternative Scenarios in Chapter 8 and to address specific environmental consideration in Chapter 6.

Mitigation Measures

Biodiversity, Flora and Fauna

The Masterplan site area consists of a mix of amenity (sports facilities), agricultural lands (tillage and pasture), rivers and associated wetland/scrub. No environmentally designated lands are within or adjoin the project site area.

The Carrigaline Electoral District Habitat Survey and Mapping project identified a bat sighting at the northern part of the CSIP site and visual inspection of the Curragheen River would indicate the presence of otters. As protected species, it is critical that they are protected from injury, or disturbance / damage to their breeding or resting places. It is noted that the Masterplan requires each Precinct to develop a Precinct Plan to inform the development of each developable area and that these plans will need to incorporate the development principles outlined in the Masterplan. Having regard to the scale of each Precinct, an EIS will be required at planning approval stage. While this is important to ensure the protection of habitats and species, it would be helpful if the Precinct Guidelines specifically highlighted the need for EIS and the need to protect protected species.

Mitigation Measure: The Masterplan Guidelines for Development Precincts should include reference to the need for EIS at detailed planning stage and a specific objective to ensure the protection of protected species and habitats.

Mitigation Measure: The Masterplan Guidelines for Development Precincts should include reference to the promotion and implementation of measures to control and manage alien/noxious species and noxious weeds in consultation with the National Parks and Wildlife Service.

Mitigation Measure: The Masterplan should include additional wording under Precinct Guidelines requiring the protection, management, and as appropriate, enhancement of existing wetland habitats where flood protection/management measures are considered to be necessary.

Population and Human Health

Transportation
The modal shift targets identified in the Masterplan are ambitious and require a coordinated approach in the delivery of the transportation solutions – both within and outside the park.

The Masterplan states that Phase 2 & 3 development, which represents approx. 88% of the overall development quantum, cannot proceed without the achievement of the modal shift targets indicated without a review of the Masterplan. This safeguard provides a significant incentive to achieve a significant modal shift and also protects the project from unsustainable slippage.

Furthermore, the Mobility Principles set out in the Appendices of the Masterplan set a clear context for the prioritization of non-private vehicle access to the site to be incorporated into future detailed design proposals.

The combined impacts of these policies will direct the development patterns in a sustainable manner. This in turn shall improve significantly the environment of the park users, provide choice in transportation, minimize emissions and energy dependence in accordance with national policy, contribute to the achievement of critical mass within the existing public transportation network as well as to a future integrated transportation network to serve the Metropolitan Cork Area, and thereby enhance the quality of life for all citizens.

While the CSIP Masterplan sets out the parameters within which the overall project development is set, a mobility management plan would give effect to the actions required to achieve the targets as set out.

Mitigation Measure: The Masterplan should require the preparation of a Mobility Management Plan to give effect to the modal shift targets set out.

Soil and Geology
The change of use proposed for the CSIP site will remove from use a quantum of lands in use for agricultural purposes and will also impact upon the ground formulation within the site, via construction activities.

The need to create usable amenity spaces within the park gives an opportunity to retain a significant proportion of the existing landscape in its present form.

Appendix 6 of the Masterplan outlines design principles to inform sustainable design practices during the design and construction stages. These principles include the incorporation of sustainability concepts at design stage, the minimization of waste production and the re-use of waste products during the design, construction and operational phases of the project.

Additional wording within Appendix 6 requiring soil management to be incorporated into the design phase of the project would be beneficial, as would additional wording within the Design Statement to direct development toward soil retention and re-use.

A co-ordinated waste management plan for the CSIP, as highlighted in Appendix 3 of the Masterplan, is an important facet in the protection of the soil integrity within the science and innovation park.

Mitigation Measure: The Masterplan should include additional wording in Appendix 6 requiring soil management to be incorporated into the design stages of Precinct Plans.

Mitigation Measure: The Masterplan should include additional wording in the Design Statement requiring soil management to be incorporated into the design stages of Precinct Plans.

Water Resources

Flooding

It is noted in the Masterplan, under Precinct Guidelines, that each Precinct must overcome a range of Precinct-specific infrastructural issues in order to facilitate development. A number of the Precincts will be able to attenuate surface and storm waters on-site, however and in particular Precinct 3, some lands are the subject of significant flood risk. The Masterplan advocates the creation of a waterbody within the park as an amenity feature, but only subject to the protection of the natural habitat supported by the rivers and their hinterland. This waterbody may provide a solution in full or part to the flood risks identified and, hence, the Masterplan does not preclude development on these lands. However, all such lands will be subjected to the requirements of *The Planning System and Flood Risk Management Guidelines 2009*. This accords with the general approach undertaken in the Carrigaline Local Area Plan, where the flood risk zone affects only a part of a site, the zoning has been maintained but the objective for the site modified so that, after a detailed site-specific study, built development can avoid the areas at risk. The Masterplan advocates such an approach, particularly with regard to Precincts 3 & 4, where a site-specific flood risk assessment will be required. This site-specific study should include:

- Plans showing the site and development proposals and its relationship with watercourses and structures which may influence local hydraulics
- Surveys of site levels and cross-sections relating relevant development levels to sources of flooding and likely flood water levels
- Assessments of:
    - All potential sources of flooding
    - Flood alleviation measures already in place
    - The potential impact of flooding on the site and any cumulative effects elsewhere
    - How the layout and form of the development can reduce those impacts, including arrangements for safe access and egress
    - Proposals for surface water management according to sustainable drainage principles
    - The effectiveness and impacts of any necessary mitigation measures
    - The residual risks to the site after the construction of any necessary measures and the means of managing those risks
    - A summary sheet which describes how the flood risks have been managed for occupants of the site and its infrastructure

Where it can be satisfactorily shown in the site-specific flood risk assessment that the proposed development, and its infrastructure, will avoid significant risks of flooding in line with the principles set out in the Ministerial Guidelines, then, subject to other relevant proper planning considerations as set out in the Masterplan, permission may be granted for the development.

Mitigation Measure: The Masterplan should include additional wording under Precinct Guidelines requiring that a site-specific flood risk assessment be required for all areas identified as subject to the risk of flooding.

Mitigation Measure: The Masterplan should include an amendment to the wording of WM5 to reinforce the 'appropriate' disposal of waste outputs in order to ensure no environmental impacts arise.

Cultural Heritage including Architectural and Archaeological Heritage

The CSIP site contains a number of archaeological and cultural features that require protection. The Masterplan requires that Precinct Plans protect the historical features that contribute to the functionality of the green infrastructure network. This is reinforced in the use of the Design Statement that requires historic features to be incorporated where possible into Precinct Plans in order to retain the 'memory' of the site.

The incorporation of the Cultural Heritage Impact Assessment Report drafted by Cork County Council into the Masterplan would further enhance the protection afforded to the cultural assets within the park.

Mitigation Measure: The Masterplan should include the recommendations of the Cultural Heritage Impact Assessment Report drafted by Cork County Council and the recommendations of the Department of Arts Heritage and Gaeltacht.

Chapter 11: SEA Monitoring

Introduction

The SEA Directive requires that the significant environmental effects of the implementation of plans are monitored in order to identify at an early stage unforeseen adverse effects and to be able to undertake appropriate remedial action. Monitoring can also be used to analyse whether the Masterplan is achieving its environmental protection objectives and targets, whether such objectives need to be re-examined and whether the proposed mitigation measures are being implemented.

Cork County Council is required to monitor the significant environmental effects arising from the implementation of the Masterplan. This Environmental Report puts forward proposals for monitoring the Masterplan. The primary purpose of monitoring is to cross check significant environmental impacts which arise during the implementation stage against those predicted during the plans preparation stage.

Monitoring is often based on indicators which measure changes in the environment, for example the CSO provides important data in relation to demographic changes and can therefore act as an indicator to measure population change in a study area. Employment data can also be similarly used. Measurements for indicators should come from existing monitoring sources and no new monitoring should be required to take place. The indicators identified in the following section will be used to monitor the predicted environmental impacts of implementing the Masteplan. These indicators (data) will be assessed for future reviews of the Masterplan in order to determine its effect on the environment.

Most of the sources of data are available to Cork County Council but close co-operation with other authorities may be required in some instances e.g. National Parks and Wildlife Service (NPWS), EPA etc. In all cases the indicators will both quantify and simplify the information and will also enable both the public and the policy makers to access and understand the information more clearly.

EPOs, Targets and Indicators

The following table shows selected EPOs and targets. Indicators are provide also. These indicators allow quantitative measures of trends and progress over time relating to the EPOs used in the evaluation. The targets and indicators may be subject to change through the publication of the SEA statement which will go into more detail on SEA monitoring and sources of data.

Table 11.1: EPO's & MONITORING TARGETS AND INDICATORS

EPO	*ENVIRONMENTAL OBJECTIVE*	*TARGET*	*MONITORING INDICATORS*	*DATA SOURCE*	*ACCESSIBILITY*
B1	Conserve the diversity of habitats and species and to avoid significant adverse impacts (direct, cumulative and indirect)	No significant adverse impacts, (direct, cumulative and indirect impacts), to relevant habitats, species or their sustaining resources and to improve protection for protected sites and species including a provision of adequate and appropriate buffer zones	Retain integrity of existing habitats and species relative to the baseline year of 2010.	The Heritage Department of Cork County Council, Department of the Environment, Heritage and Local Government, National Parks and Wildlife Service.	Dependent on external information. Some information potentially available within Cork County Council
		Conserve the diversity of habitats and species in non-designated sites	Retain integrity of existing habitats and species relative to the baseline year of 2010.	The Heritage Department of Cork County Council, Department of the Environment, Heritage and Local Government, National Parks and Wildlife Service.	Dependent on external information. Some information potentially available within Cork County Council

EPO	*ENVIRONMENTAL OBJECTIVE*	*TARGET*	*MONITORING INDICATORS*	*DATA SOURCE*	*ACCESSIBILITY*
B2	Protect habitats from invasive species and promote awareness of and support control and eradication programmes for invasive species	No new invasive species in CSIP and no increase in coverage of existing invasive species	New types of invasive species or increase in coverage of existing invasive species	National Biodiversity Centre	Dependent on external information
Q1	Improve people's quality of life based on high-quality residential, working and recreational environments and on sustainable travel patterns	Avoid the location of inappropriate activities that impact on the quality of the campus within CSIP	Number of inappropriate uses permitted within the CSIP	Cork County Council	Available within Cork County Council
		Enhance provision of, and access to, amenity space within CSIP	Numbers of amenity areas provided within CSIP, number of accesses to amenities areas within CSIP	Cork County Council, Cork City Council	Available from within Cork County Council
		Increase number of cycle friendly measures in the associated with CSIP	Number of cycle friendly measures provided in the area	Cork County Council, Cork City Council	Available from within Cork County Council and Cork City Council
		Increase number of pedestrian friendly measures in the associated with CSIP	Number of pedestrian friendly measures provided in the area	Cork County Council, Cork City Council	Available from within Cork County Council and Cork City Council

EPO	*ENVIRONMENTAL OBJECTIVE*	*TARGET*	*MONITORING INDICATORS*	*DATA SOURCE*	*ACCESSIBILITY*
		Increase modal shift to public transport and reduction in journey to work (time/distance)	Journey to work times; % of commuters using public transport; % of commuters cycling to work; % of commuters walking to work;	CSO	Dependent on external information
		Use of Construction Management Plans to minimise adverse impacts during construction phase(s)	Number of Construction Management Plans provided to inform the development of the CSIP	Cork County Council	Available from within Cork County Council
S1	Maintain soil integrity and quality	Soil management to inform detailed designs within CSIP	Number of Soil Management Plans provided to inform the development of the CSIP	Cork County Council	Available from within Cork County Council
		Use of Waste Management Plans to minimise adverse impacts arising from pollution	Number of Waste Management Plans provided to inform the development of the CSIP	Cork County Council	Available from within Cork County Council

EPO	*ENVIRONMENTAL OBJECTIVE*	*TARGET*	*MONITORING INDICATORS*	*DATA SOURCE*	*ACCESSIBILITY*
W1	Improve water quality and the management of watercourses to comply with the standards of the Water Framework Directive and incorporate the objectives of the Floods Directive into sustainable planning and development	Improvement, or at least no deterioration, in water quality in rivers and groundwater	Achievement of the Objectives of the River Basin Management Plans; % increase or decrease in numbers of water bodies at good status compared with baselines of 2009.	Water Framework Directive: RBD's, EPA, Cork County Council	Dependent on external information. Some information potentially available within Cork County Council
		Appropriate management of zones vulnerable to flooding	Compliance with *The Planning System and Flood Risk Management Guidelines 2009,* amount of new developments within flood plain	Cork County Council	Available from within Cork County Council
W2	Make best use of existing water and wastewater infrastructure and promote the sustainable development of new infrastructure	CSIP to be adequately served by a public waste water treatment plant system	Use of best practice to extend existing water / wastewater infrastructure to serve CSIP	EPA, Cork County Council	Dependent on external information and information available within Cork County Council

EPO	*ENVIRONMENTAL OBJECTIVE*	*TARGET*	*MONITORING INDICATORS*	*DATA SOURCE*	*ACCESSIBILITY*
W3	To maintain and improve the quality of drinking water supplies	Maintain and improve drinking water quality in the CSIP to comply with the requirements of the European Communities (Drinking Water) Regulations and to prevent leakage in new systems	Compliance with Regulations, % leakage within system	EPA, Cork County Council	Dependent on external information and information available within Cork County Council
A1	Maintain and promote continuing improvement in air quality through the reduction of emissions and promotion of renewable energy and energy efficiency	Maintain good air quality standards	To remain within good air quality standards	EPA	Dependent on external information
CH1	Promote the protection and conservation of the cultural heritage	To protect all cultural features within the CSIP and where necessary to impact upon same to manage and record action in accordance with National Heritage Policies	Number of cultural features lost within CSIP	Cork County Council	Available from within Cork County Council

EPO	*ENVIRONMENTAL OBJECTIVE*	*TARGET*	*MONITORING INDICATORS*	*DATA SOURCE*	*ACCESSIBILITY*
L1	Protect natural and historic landscapes and features within them in a sustainable manner	Integrate natural & historic landscape features into detailed design	% of natural and historic landscape lost within CSIP, number of features within natural and historic landscape lost within CSIP	Cork County Council	Available from within Cork County Council

Notes:

Final Appropriate Assessment Screening Report
For Cork Science and Innovation Park Masterplan
Prepared by Cork County Council Planning Policy Unit
September 2012

Table of Contents

1 Introduction

1.1 Preamble

1.1.1 Cork County Council has recently prepared a Masterplan for a Science and Innovation Park to be located in the townlands of Ballinaspig More and Carrigrohane, east of Ballincollig. This area was zoned for the development of a Science, Innovation and Technology Park in the Carrigaline Electoral Area Plan, 2011. The aim of the Masterplan is to provide a framework document to guide future development in the park. The document sets out a long term vision for the development of the area, and identifies the development phases and key actions required in the immediate term to provide for the commencement of the development of the site, in accordance with a number of principles relating to proper planning and sustainability, the achievement of high standards in building design and site layout, and the maintenance of a high quality environment which is fully integrated with the existing surroundings.

1.1.2 In accordance with requirements of the European Communities (Birds and Natural Habitats) Regulations (SI 477 of 2011), the impacts of all plans, programmes or schemes, statutory or non-statutory, that establish public policy in one or more specified locations, must be assessed to determine whether these could give rise to impacts on certain sites which are designated for nature conservation (Natura 2000 sites[1]). This is to determine whether or not the implementation of the plan could have negative consequences for the habitats or plant and animal species for which these sites are designated. This assessment process is called a **Habitats Directive Assessment** (HDA) and must be carried out for all stages of the plan making process.

1.1.3 The draft Cork Science and Innovation Park Masterplan was assessed to determine whether the plan or its policies could have significant impacts on any Natura 2000 sites. The results of that assessment were contained in the Natura Impact Report for the Cork Science and Innovation Park, draft Masterplan which was published in August 2011. Potential impacts on the Cork Harbour Special Area of Conservation, and on the Great Island Channel Special Area of Conservation were considered as part of this process. In particular, the potential for activities at this site to give rise to impacts on water quality which could affect habitats or species for which these two sites are designated were considered. No potentially significant impacts on any Natura 2000 site were identified during the screening of the draft Masterplan.

1.1.4 The draft Masterplan for the Science Park was on public display between 24th August and 16th September 2011. A total of 13 submissions were made during the public consultation process which have given rise to amendments to the final Masterplan. A report was prepared by Cork County Council for Members which considered the submissions and made a number of amendments to the Masterplan arising from these submissions. The Cork Science and

[1] Natura 2000 sites include Special Areas of Conservation designated under the Habitats Directive and Special Protection Areas designated under the Birds Directive. Special Areas of Conservation are sites that are protected because they support particular habitats and/or plant and animal species that have been identified to be threatened at EU community level. Special Protection Areas are sites that are protected for the conservation of species of birds that are in danger of extinction, or are rare or vulnerable. Special Protection Areas may also be sites that are particularly important for migratory birds. Article 6 (2) of the Habitats Directive sets out the principle requirements in relation to the protection of these sites – ''*Member states shall take appropriate steps to avoid, in the special areas of conservation, the deterioration of natural habitats and the habitats of species as well as disturbance of the species for which the areas have been designated, in so far as such disturbance could be significant in relation to the objectives of the Directive''.*

Innovation Park Framework Masterplan was formally adopted by members of Cork County Council on 10th October 2011.

1.1.5 This is the Appropriate Assessment Screening Statement for the Cork Science and Innovation Park Masterplan as adopted by Cork County Council on 10th October 2011. It contains an analysis of the amendments which were made to the plan and it also contains the **AA Screening Conclusion Statement** which finds that the development of the Science Park will not give rise to significant impacts to any Natura 2000 site or their dependant habitats and species. Accordingly, it is determined that there is no requirement to complete an Appropriate Assessment in relation to this Masterplan. This report should be read in conjunction with the Cork Science and Innovation Park Masterplan.

1.2 Habitats Directive Assessment

1.2.1 Habitats Directive Assessment, also referred to as Appropriate Assessment, is a process which involves evaluation of the potential impacts of all land use plans on Natura 2000 sites and the habitats and species that they support and, where necessary, the revision of those plans to avoid any such impacts. It is an iterative process which runs parallel to and informs the plan making process, involving analysis and review of draft policies, or amendments/variations, as they emerge during each stage of plan making. Within this process, regard must also be had to the potential for plans, to contribute to impacts which on their own may be acceptable, but which could be significant when considered in combination with the impacts arising from the implementation of other plans or policies.

1.2.2 Articles 6(3) of the Directive sets out the requirement for the assessment of plans and projects affecting Natura 2000 sites as follows:

> 6(3) *Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site and subject to the provision of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public.*

1.2.3 Article 6(4) of the Directive deals with derogation procedures, where it is considered necessary to proceed with a plan/project despite a finding that negative impacts are likely.

> *6(4) If, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of social or economic nature, the Member State shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted.*
>
> *Where the site concerned hosts a priority natural habitat type and/or a priority species, the only considerations which may be raised are those relating to human health or public safety, to beneficial consequences of primary importance to the environment, or further*

to an opinion from the Commission, to other imperative reasons of overriding public interest.

1.2.4 In relation to plan making, the process of assessment may result in the modification or removal of policies proposed to the plan or in the adoption of new policies, or, if significant impacts arise which cannot be avoided, a recommendation not to proceed with a particular policy or the entire plan.

1.2.5 The European Union has provided guidance as to how to complete a Habitats Directive Assessment for land use plans which identifies four main stages in the process as follows:

Stage One: Screening
The process which identifies what might be likely impacts arising from a plan on Natura 2000 sites, either alone or in combination with other projects or plans, and considers whether these impacts are likely to be significant. If the effects are deemed to be significant, potentially significant, or uncertain, then the process must proceed to Stage Two.

Stage Two: Appropriate assessment
Where the possibility of significant impacts has not been discounted by the screening process, a more detailed assessment is required. This is called an appropriate assessment and involves the consideration of the impact of the plan on the integrity of the Natura 2000 site, either alone or in combination with other projects or plans, having regard to the site's ecological structure and function, and its conservation objectives. Additionally, where there are adverse impacts, it involves an assessment of the potential mitigation of those impacts.

Stage Three: Assessment of alternative solutions
Should the conclusion of the appropriate assessment be that there are likely to be impacts which will affect the overall integrity of Natura 2000 site, then it is required to examine alternative ways of achieving the objectives of the plan that avoids such adverse impacts. Stage three of a Habitats Directive Assessment involves the assessment of alternative solutions or options that could enable the plan or project to proceed without adverse effects on the integrity of a Natura 2000 sites. The process must return to stage two as alternatives will require appropriate assessment in order to proceed. Demonstrating that all reasonable alternatives have been considered and assessed, and that the least damaging option has been selected, is necessary to progress to Stage four. Alternatives must be compared with respect to the significance of their likely effects on the integrity of the site/sites. Other assessment criteria, such as economic criteria cannot be seen as overruling ecological criteria.

Stage Four: Assessment where no alternative solutions exist and where adverse impacts remain.
This is the main derogation process of Article 6(4) which examines whether there are imperative reasons of overriding public interest (IROPI) for allowing a plan that will have adverse effects on the integrity of a Natura 2000 site to proceed in cases where it has been established that no less damaging alternative solution exists. Such a plan may only proceed if compensatory measures have been put in place to offset the impacts to be

incurred and these compensatory measures must be assessed as part of the AA process. The EU Commission must be informed of the compensatory measures and these must be approved by the Minister. Compensatory measures are a last resort attempt to maintain the integrity of the Natura 2000 network and they must be practical, implementable, likely to succeed, proportionate and enforceable.

The Habitats Directive Assessment process may stop at any of the above stages if significant impacts on Natura 2000 sites can be ruled out.

1.2.6 The requirement to screen and, where required, complete Appropriate Assessment, on non-statutory plans, including framework masterplans, is set out in Part 5 of the European Communities (Birds and Natural Habitats) Regulations 2011. Where it is determined through the screening process that an Appropriate Assessment is required for such a plan, the Planning Authority must prepare a Natura Impact Statement and submit this to the Minister for Arts, Heritage and the Gaeltacht at least six weeks before it proposes to adopt the plan. Such plans may only be adopted, if it has been demonstrated that impacts on the integrity of any Natura 2000 sites which could be affected by the plan have been ruled out. Where such impacts have not been ruled out, the plan may only proceed where it has been demonstrated that there are no reasonable alternative solutions, that there are imperative reasons of overriding public interest to proceed with the plan, and that compensatory measures have been designed, assessed, approved by the Minister, and have been put in place in advance of the adoption of the plan. In every case in which a local authority envisages approving or proceeding with a plan or project on the grounds of overriding public interest, the Minister must be consulted.

2 Methodology

2.1 Data Sources

2.1.1 The screening of potential impacts arising from the Masterplan on Natura 2000 sites is based on a desktop review of information relating to these sites and to the habitats and species that they support, and personal knowledge of the sites. References and data used are cited in the back of this report.

2.2 Approach

2.2.1 The approach taken in the making of this assessment follows *European Communities, Assessment of plans and projects significantly affecting Natura 2000 sites, Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC, 2002*, and on *Local Government and Appropriate Assessment of Plans and Projects in Ireland, Guidance for Planning Authorities, 2009*.

3 Screening of Proposed Amendments and Final Plan

3.1 Natura 2000 sites within the potential impact zone of the plan.

3.1.1 The proposed Science and Innovation Park is not located within or adjacent to any Natura 2000 sites. Two Natura 2000 sites occur within the catchment of and downstream from this proposed development. Both of these are associated with Cork Harbour. They are the Great Island Channel Special Area of Conservation (15 km overland, over 25 km downstream from the proposed development site), and the Cork Harbour Special Protection Area (8 km

overland, 20 km downstream from the proposed development site). The habitats and species for which these sites are designated are listed in Table 1 below, as are the principle threats which could affect these. The threats listed have been identified through consultation with the NPWS and from written sources including the Status of EU Protected Habitats and Species in Ireland, NPWS (2008), Ireland's Wetlands and their Waterbirds: Status and Distribution, 2005, the NPWS produced Natura 2000 Site Synopses and from personal knowledge of sites.

3.1.2 Potential impacts on habitats and on protected species including Otter, bats and fisheries within the proposed development site are dealt with in the Strategic Environmental Assessment Statement which is available for consultation from the Planning Policy Unit.

Table 1 Natura 2000 sites within the potential impact zone of the Science and Innovation Park

Cork Harbour Special Protection Area (site code 4030)	
Description	The Cork Harbour Special Protection Area is a large sheltered bay system with several river estuaries – principally those of the Rivers Lee, Douglas and Owenacurra. The SPA comprises most of the main intertidal areas of Cork Harbour, including all of the North Channel, the Douglas Estuary, Owenboy Estuary, Inner Lough Mahon, Lough Beg, Whitegate Bay and the Rostellan Inlet. Mudflat and other habitats within the SPA support very high numbers of wintering waterfowl, which feed on macroinvertebrates. The Harbour regularly supports in excess of 20,000 wintering birds, making it an internationally important site and the fifth most important wintering waterfowl site in the country. The boundary of the proposed Science and Technology Park lies approx. 7.5 km overland from Lough Mahon and the Douglas Estuary within the Cork Harbour SPA. The Park is within the catchment of the Curragheen River which flows north into the Lee and flows into Cork Harbour via the Lee Estuary. The Douglas River Estuary is situated in the northwest corner of Cork Harbour, and is separated from the Lee Estuary by Blackrock promontory. This estuary, formed from fine silts consists of extensive mudflats, and stretches from Blackrock to Passage West. Damp grassland occurs on part of the southern shoreline, extending to some low islands which are inundated in extreme tides. The Douglas Estuary supports significant proportions of Golden Plover, Bar-tailed Godwit and Black-headed Gull (>50% of the harbour population) and moderately high proportions of Wigeon, Teal, Lapwing, Dunlin, black-tailed Godwit and Curlew (20-50% of the harbour population).
Qualifying Interests (species for which this site is designated as a Special Protection Area).	Cormorant, Shelduck, Oystercatcher, Golden Plover, Lapwing, Dunlin, Black-tailed Godwit, Curlew, Redshank, Common Tern, 20,000 wintering waterbirds.
Other species of special conservation concern.	Little Grebe, Great-crested Grebe, Grey Heron, Wigeon, Teal, Pintail, Shoveler, Red-breasted Merganser, Grey Plover, Black-headed Gull, Common Gull, Lesser Black-backed Gull, wetland and water birds.
Conservation Objectives	1 To avoid deterioration of the habitats of the qualifying species and species of special conservation interest, or significant disturbance to these species, thus ensuring that the integrity of the site is maintained. 2 To ensure for the qualifying species and species of special conservation interest

	that the following are maintained in the long-term. o the population of the species as a viable component of the site; o the distribution and extent of habitats supporting the species; o the structure, function and supporting processes of habitats supporting the species;
Potential Threats	Activities which could cause disturbance to birds; construction of paths or track etc; land reclamation and habitat removal; activities which could cause pollution affecting water quality or could give rise to impacts on mudflats.
Great Island Channel Special Area of Conservation (site code 1043)	
Description	The Great Island Channel Special Area of Conservation comprises of the north channel of Cork Harbour between Little Island to Midleton. It is an integral part of Cork Harbour which contains several other sites of conservation interest. Within the site is the estuary of the Owennacurra and Dungourney Rivers. These rivers, which flow through Midleton, provide the main source of freshwater to the North Channel. The Great Island Channel is approx. 25km downstream from the proposed Science and Technology Park. The main habitats of conservation interest are the sheltered tidal sand and mudflats and Atlantic salt meadows, both habitats listed on Annex I of the EU Habitats Directive. Owing to the sheltered conditions, the intertidal flats are composed mainly of soft muds. These muds support a range of macro-invertebrates. Cordgrass (*Spartina* spp.) has colonised the intertidal flats in places, especially at Rossleague and Belvelly. The salt marshes are scattered through the site and are all of the estuarine type on mud substrate. While the main land use within the site is aquaculture (Oyster farming), the greatest threats to its conservation significance come from road works, infilling, sewage outflows and possible marina developments. The site is of major importance for the two habitats listed on the EU Habitats Directive that it contains, as well as for its important numbers of wintering waders and wildfowl. It also supports a good invertebrate fauna.
Qualifying Interests	Mudflats and sandflats not covered by seawater at low tide; Atlantic saltmeadows (Glauco-Puccinellietalia maritimae).
Other Notable Features	Important numbers of wintering waterfowl and good diversity of invertebrate fauna.
Conservation Objectives	1. To maintain the Annex I habitats for which the cSAC has been selected at favourable conservation status[2]: Mudflats and sandflats not covered by seawater at low tide; Atlantic salt meadows (Glauco-Puccinellietalia maritimae). 2. To maintain the extent, species richness and biodiversity of the entire site. 3. To establish effective liaison and co-operation with landowners, legal users and relevant authorities.

[2] Favourable conservation status of a habitat can be described as being achieved when its natural range, and the area it covers within that range, is stable or increasing, and the ecological factors that are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and the conservation status of its typical species is favourable. The favourable conservation status of a species can be described as being achieved when 'population data on the species concerned indicate that it is maintaining itself, and the natural range of the species is neither being reduced or likely to be reduced for the foreseeable future, and there is and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis'.

Potential Threats	Aquaculture, fishing, bait digging, removal of fauna, land reclamation, coastal protection works, spread of invasive species; coastal development, water pollution.

3.2 Masterplan Details

3.1.1 The Masterplan sets out a framework to guide future development of a Science and Technology Park at Carrigrohane and Ballinaspig More. Three main development phases are planned, and the key targets for these are set out in the document, as are development guidelines for six separate precinct areas within the site. It is envisaged that the site will provide for incubator spaces/suites, research, training and conference facilities, as well as for business support, leisure, restaurant and accommodation facilities. Development will be phased on the basis of delivery of road infrastructure and public transport capacity, as well as demand for and occupation of units.

3.1.2 The Masterplan also sets the infrastructural requirements which must be met for the site relating to roads and access, water supply and waste water treatment, the management of flood risk and the treatment of surface water as well as telecommunications and energy supply. Emphasis is placed on the provision of public transport as well as pedestrian and cycleways to get to and around the site in favour of provision for private vehicle access and parking. It is envisaged that water supply will be provided from the Harbour and City Trunk Main via the Bishopstown distribution watermain. A foul sewer will be provided to remove wastewater which will be pumped to the Carrigrennan Waste Water Treatment Plant at Little Island. This plant provides for the treatment of all waste water from the city and environs.

3.1.3 The site identified for the Cork Science and Technology Park is located in the green belt area which separates the City suburbs and Ballincollig. It comprises mainly agricultural land with hedgerows and scrub. It is bisected by the Curragheen River which flows through the site in a north easterly direction, meeting the River Lee approximately 5km north east of the proposed development area. The Twopot River flows along the eastern most boundary of the site and connects to the Curragheen River just outside the site. Parts of the site along the Curragheen River corridor have been identified as being susceptible to flooding, the Masterplan identifies that this area has the potential for the enhancement of biodiversity, most of which is proposed to be developed as a waterbody for aesthetic purposes, and to function as a surface/stormwater attenuation area for the Park. It is stated aim of the Masterplan to retain existing hedgerows and treelines within the site and to enhance and develop green infrastructure within the site where possible.

3.3 Analysis of Amendments to Masterplan and Final Masterplan

3.3.1 A total of 13 submissions were made during the public consultation process which have given rise to amendments to the final Masterplan. A report was prepared by Cork County Council for Members which considered the submissions and made a number of amendments to the Masterplan arising from these submissions.

3.3.2 All of the proposed amendments have been reviewed as part of the Habitats Directive screening process. Consideration was given to direct and indirect impacts which could arise from the changes that have been made to the plan, or which could be encouraged by the revision of the plan. The potential for the following impacts was considered:

- whether the amendments would promote development within a Natura 2000 site;
- whether the amendments could give rise to disturbance of species for which the Cork Harbour SPA is designated.
- whether the amendments relate to an increase in the scale of development, and whether therefore they could increase demand for water and/or requirements for treatment of wastewater which could affect any Natura 2000 site;
- whether the amendments could give rise to any new risk of impacts on water quality or contamination of estuarine habitats, arising from construction or other activities, in Natura 2000 sites.

3.3.3 Amendments which were made to the plan are set out in **Table 2** below. A statement as to whether the amendments could have the potential to give rise or contribute to impacts on any Natura 2000 site which could be significant is included in column three.

Table 2: Amendments made to final Masterplan

Amend-ment No.	Amendment Text	Potential Impacts on Natura 2000 Sites
1	p. vi **Include new text:** 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.	None identified.
2	p.vii **Include new text:** • 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	None identified.
3	p.viii **Include new text:** • 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	None identified.
4	p.xiii **Include new text:** 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	None identified.

<table>
<tr><th>Amend-ment No.</th><th>Amendment Text</th><th>Potential Impacts on Natura 2000 Sites</th></tr>
<tr><td></td><td>‘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.</td><td></td></tr>
<tr><td>5</td><td>p.xvi Include new text:

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.</td><td>None identified.</td></tr>
<tr><td>6</td><td>p.xvii Include new text:

• To build upon the existing public transport services and promote pedestrian and cycling accessibility to create sustainable integration with the wider metropolitan area</td><td>None identified.</td></tr>
<tr><td>7</td><td>p.xvii Include new text:

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.</td><td>None identified.</td></tr>
<tr><td>8</td><td>p.xvii Include new text:

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.</td><td>None identified.</td></tr>
<tr><td>9</td><td>p.xviii Revise Table 1:

Table I: Target Development Floor Areas:
<table>
<tr><th>CSIP Phase</th><th>Vehicle Access Capacity</th><th>Works Required</th><th>Total Development Floor Area</th></tr>
<tr><td>Phase 1</td><td>600</td><td>Minor improvements to N25 junction, provision of additional walking. cycling access</td><td>42,240m²</td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td>Phase 2</td><td>1,350</td><td>Increased vehicle access capacity to CSIP & increased modal shift to public transport</td><td>144,000m²</td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td>Phase</td><td>2,850</td><td>Increased vehicle access</td><td>363,350m²</td></tr>
</table></td><td>None identified.</td></tr>
</table>

<table>
<tr><th>Amend-ment No.</th><th>Amendment Text</th><th>Potential Impacts on Natura 2000 Sites</th></tr>
<tr><td></td><td>
<table>
<tr><td>3</td><td></td><td>capacity to CSIP & modal shift to public transport in line with Smarter Travel targets</td><td></td></tr>
</table>
</td><td></td></tr>
<tr><td>10</td><td>p.xviii Revise Table 2:

Table II: Employment Phasing
<table>
<tr><th>CSIP Phase</th><th>Park Users</th></tr>
<tr><td>Phase 1</td><td>1,320 employees/students</td></tr>
<tr><td></td><td></td></tr>
<tr><td>Phase 2</td><td>4,500 employees/students</td></tr>
<tr><td></td><td></td></tr>
<tr><td>Phase 3</td><td>11,354 employees/students</td></tr>
</table>
</td><td>None identified.</td></tr>
<tr><td>11</td><td>p.xix Include new text:

• High quality connectivity for pedestrians and cyclist, while minimising the use of the private car</td><td>None identified.</td></tr>
<tr><td>12</td><td>p. xxii Revise Table 3:

Table III: Quantitative Allocations:
<table>
<tr><th colspan="3">Quantitative Allocations*</th></tr>
<tr><th>Phase</th><th>CSIP Total</th><th>By Precinct</th></tr>
<tr><td></td><td></td><td></td></tr>
<tr><td>Phase 1</td><td>42,240m²</td><td>Precinct 1- 10,189m²**
Precinct 2- 12,460m²
Precinct 3- 5,914m²
Precinct 4- 4,806m²
Precinct 5- 8,870m²</td></tr>
<tr><td></td><td></td><td></td></tr>
<tr><td>Phase 2</td><td>144,000m²</td><td>Precinct 1- 17,000m²
Precinct 2- 42,500m²
Precinct 3- 20,200m²
Precinct 4- 34,200m²
Precinct 5- 30,100m²</td></tr>
<tr><td></td><td></td><td></td></tr>
<tr><td>Phase 3</td><td>363,320 m²</td><td>Precinct 1- 43,000m²
Precinct 2- 107,350m²
Precinct 3- 51,150m²
Precinct 4- 86,100m²
Precinct 5- 75,750m²</td></tr>
</table>
*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.</td><td>None identified.</td></tr>
<tr><td>13</td><td>p.14 Insert new text:

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</td><td>None identified.</td></tr>
<tr><td>14</td><td>p.14 Insert new text:

To safeguard institutional and capital investment in the project by ensuring a long term and phased strategic approach</td><td>None identified.</td></tr>
</table>

Amend-ment No.	Amendment Text	Potential Impacts on Natura 2000 Sites
15	p.14 **Insert new text:** To develop a self-sustaining governance regime to manage, monitor and review the principles of the CSIP	None identified.
16	p.15 **Insert new text:** 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	None identified.
17	p.18 & 19 **Insert new text:** *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	None identified.

Amend-ment No.	Amendment Text	Potential Impacts on Natura 2000 Sites
	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.	
18	p.22 **Insert new text:** Have good road and multi modal choice; cycling, walking and public transport accessibility	None identified.
19	p.27 **Insert new text:** 10. Governance, Monitoring & Masterplan Delivery Strategy	None identified.
20	p.28 **Insert new text:** A critical feature of this approach is its concurrent delivery and monitoring methodology	None identified.
21	p.29 **Insert new text:** 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.	None identified.
22	p.31 **Insert new text:** 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.	None identified.
23	p.32 **Insert new text:** 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.	None identified.
24	p.32 **Insert new text:** (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).	None identified.
25	p.32 **Insert new text:** Additional development in excess of the volumes identified for Phase 1 but below	None identified.

<table>
<tr><th>Amend-ment No.</th><th>Amendment Text</th><th>Potential Impacts on Natura 2000 Sites</th></tr>
<tr><td></td><td>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.</td><td></td></tr>
<tr><td>26</td><td>p.33 Revise Table 11.2

Table 11.2: Potential Access Capacity Upgrade Options:
<table><tr><th>Option No.</th><th>Potential Access Capacity Upgrade*</th></tr><tr><td></td><td></td></tr><tr><td>1</td><td>Upgrade Works to N25 Curraheen Junction</td></tr><tr><td></td><td></td></tr><tr><td>2</td><td>Upgrade of existing access from north</td></tr><tr><td></td><td></td></tr><tr><td>3</td><td>New road access onto Curraheen Road east of N25 Junction</td></tr><tr><td></td><td></td></tr><tr><td>4</td><td>Possible auxiliary lanes on N25 between Bandon Road and Curraheen Junctions.</td></tr><tr><td></td><td></td></tr></table>*In association with CSIP Mobility Management Plan and demand management</td><td>None identified.</td></tr>
<tr><td>27</td><td>p.33 Insert new text:

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.</td><td>None identified.</td></tr>
<tr><td>28</td><td>p.33/34 Insert new text:

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.</td><td>None identified.</td></tr>
<tr><td>29</td><td>p.34 Insert new text:

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.</td><td>None identified.</td></tr>
<tr><td>30</td><td>p.35 Insert new text:</td><td>None identified.</td></tr>
</table>

Amend-ment No.	Amendment Text	Potential Impacts on Natura 2000 Sites
	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.	
31	p.38 **Insert new text:** 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	None identified.

<table>
<tr><th>Amend-ment No.</th><th>Amendment Text</th><th>Potential Impacts on Natura 2000 Sites</th></tr>
<tr><td></td><td>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.</td><td></td></tr>
<tr><td>32</td><td>p.39 Insert new text:

• To build upon the existing public transport services and promote pedestrian and cycling accessibility to create sustainable integration with the wider metropolitan area.</td><td>None identified.</td></tr>
<tr><td>33</td><td>p.40/41 Insert new text:
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:
<table>
<tr><th>CSIP Phase</th><th>Vehicle Access Capacity</th><th>Works Required</th><th>Total Development Floor Area</th></tr>
<tr><td>Phase 1</td><td>600</td><td>Minor improvements to N25 junction, provision of additional walking. cycling access</td><td>42,240m²</td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td>Phase 2</td><td>1,350</td><td>Increased vehicle access capacity to CSIP & increased modal shift to public transport</td><td>144,000m²</td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td>Phase 3</td><td>2,850</td><td>Increased vehicle access capacity to CSIP & modal shift to public transport in line with Smarter</td><td>363,350m²</td></tr>
</table></td><td>None identified.</td></tr>
</table>

<table>
<tr><th>Amend-ment No.</th><th>Amendment Text</th><th>Potential Impacts on Natura 2000 Sites</th></tr>
<tr><td></td><td>
<table>
<tr><td></td><td></td><td>Travel targets</td><td></td></tr>
</table>
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.</td><td></td></tr>
<tr><td>34</td><td>p.41 Insert new text

Table 13.2: Projected Park User Volumes:
<table>
<tr><th>CSIP Phase</th><th>Park Users</th></tr>
<tr><td>Phase 1</td><td>1,320 employees/students</td></tr>
<tr><td></td><td></td></tr>
<tr><td>Phase 2</td><td>4,500 employees/students</td></tr>
<tr><td></td><td></td></tr>
<tr><td>Phase 3</td><td>11,354 employees/students</td></tr>
</table>
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.</td><td>None identified.</td></tr>
<tr><td>35</td><td>Insert new table:

Table 13.3: Modal Shift Targets:
<table>
<tr><th>CSIP Phase</th><th>Modal Shift</th></tr>
<tr><td>Phase 1</td><td>20%</td></tr>
<tr><td></td><td></td></tr>
<tr><td>Phase 2</td><td>40%</td></tr>
<tr><td></td><td></td></tr>
<tr><td>Phase 3</td><td>50%</td></tr>
</table>
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%.</td><td>None identified.</td></tr>
<tr><td>36</td><td>p.42 Insert new table:

<table>
<tr><th>Phase</th><th>Precinct Floor Area</th><th>Precinct Parking Spaces</th></tr>
<tr><td></td><td></td><td></td></tr>
<tr><td>Phase 1</td><td>Precinct 1- 10,189m²
Precinct 2- 12,460m²
Precinct 3- 5,914m²
Precinct 4- 4,806m²
Precinct 5- 8,870m²</td><td>Precinct 1- 212
Precinct 2- 260
Precinct 3- 123
Precinct 4- 100
Precinct 5- 185</td></tr>
</table></td><td>None identified.</td></tr>
</table>

Amend-ment No.	Amendment Text	Potential Impacts on Natura 2000 Sites
	Note: Based on 20% modal shift and 1 employees per 32m² and 1.2 persons per car journey.	
37	p.42 **Insert new text:** 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	None identified.
38	p.43 **Insert new text:** 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. However 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.	None identified.
39	p.45 **Insert new text:** 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.	None identified.
40	p.48 **Insert new text:** The Lee CFRAM study indicates flooding potential within the site from the Curragheen and Twopot Rivers and a detailed flood risk assessment study has been	None identified.

Amend-ment No.	Amendment Text	Potential Impacts on Natura 2000 Sites
	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.	
41	p.52 **Insert new text:** 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.	None identified.
42	p.53 **Insert new text:** 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.	None identified.
43	p.55 **Insert new text:** • Ensure promotion of smarter travel by promotion of public transport and high quality connectivity for pedestrians and cyclist	None identified.
44	p.61 **Insert new text:** 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.	None identified.
45	p.64 **Insert new text:** 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:	None identified.

Amend-ment No.	Amendment Text	Potential Impacts on Natura 2000 Sites
	● 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	
46	p.65 **Insert new text:** 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.	None identified.
47	p.66 **Insert new text:** 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).	None identified.
48	p.69 **Insert new text:** At planning approval stage, the following will be required prior to consent being granted for individual structures within Precinct 4 - see also Planning Consent	None identified.

Amend-ment No.	Amendment Text	Potential Impacts on Natura 2000 Sites
	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).	
49	p.72 **Insert new text:** 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.	None identified.
50	p.75 **Insert new text:** *Transport and Roads:* Specifically with regard to traffic management and demand management, Cork County Council has commissioned a Transportation Masterplan and Mobility	None identified.

Amend-ment No.	Amendment Text	Potential Impacts on Natura 2000 Sites
	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.	
51	p.83 **Insert new text:** 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.	None identified.
52	p.87 **Insert new text:** 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.	None identified.
53	p.88 **Insert new text:** *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.	None identified.

Amend-ment No.	Amendment Text	Potential Impacts on Natura 2000 Sites
54	p.90 **Insert new text:** • *Establish monitoring, assessment & review of the CSIP Masterplan targets across a range of issues including mobility management, environmental management and economic indicators.*	None identified.
55	p.91 **Insert new text:** 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	None identified.
56	p.92 **Insert new text:** Green Infrastructure Principle 9: To include potential impacts arising from climate change into assessment of Precinct Plans and future Masterplan reviews.	None identified.
57	p.94 **Insert new text:** Principle 8: Identification of measures to avoid or minimise impacts on air quality. • Disposal of waste outputs in a manner that ensures that no environmental impacts arise	None identified.
58	p.98 **Insert new text:** 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.	None identified.
59	p.99 **Insert new text:** 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.	None identified.
60	p.105 **Insert new text:** *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.	None identified.

Amend-ment No.	Amendment Text	Potential Impacts on Natura 2000 Sites
	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.	
61	p.107 **Insert new text:** It is important that water quality within the site is protected during the construction phases and in the longer term. 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.	None identified.
62	p.110 **Insert new text:** 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?	None identified.
63	p.111 **Insert new text:** 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.	None identified.
64	p.113 **Insert new text:** 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	None identified.

Amend-ment No.	Amendment Text	Potential Impacts on Natura 2000 Sites
	and management alien/noxious species and noxious weeds? 14.3 How has soil management informed the design and layout of the proposed development?	
65	p.114 **Insert new text:** *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.*	None identified.
66	p.115 **Insert new text:** • 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.'	None identified.

3.3.4 Having regard to the distance of the park from the SAC and the SPA, it is concluded that none of the proposed amendments will give rise to direct impacts causing loss of habitat within either the Great Island Channel SAC, or on the Cork Harbour SPA, and that no issues relating to disturbance to species arise.

3.3.5 The implementation of the masterplan will not give rise to any intensification of use, or increase in demand for water resources, nor is it likely to put additional pressure on the waste water treatment facility to which the site will be connected, beyond that which was stated in the draft plan.

3.3.6 It is concluded that none of the amendments which have been made are likely to give rise to any impact on water quality, or risk of contamination of estuarine habitats.

3.3.7 It is noted that all of the recommendations made for changes to the draft Masterplan arising out of the initial screening process were accepted in full by Cork County Council at their meeting of 10th October 2011, and have been fully integrated into the final Masterplan.

4 Finding of No Significant Impacts, Screening Conclusion Statement

Plan Name	**Cork Science and Innovation Park Framework Masterplan**
Name and Location of Natura 2000 sites subject to screening for appropriate assessment.	**Special Areas of Conservation:** Great Island Channel SAC 1058 **Special Protection Areas:** Cork Harbour SPA 4030
Description of the plan	The Masterplan sets out a framework to guide future development of a Science and Technology Park at Carrigrohane and Ballinaspig More. The plan seeks to deliver a science and innovation park as part of the national employment strategy. Three main development phases are planned, and the key targets for these are set out in the document, as are development guidelines for six separate precinct areas within the site. It is envisaged that the site will provide for incubator spaces/suites, research, training and conference facilities, as well as for business support, leisure, restaurant and accommodation facilities.
Is the proposed variation directly connected with or necessary to the management of the Natura 2000 sites identified above	No
Are there other projects or plans that together with the plan being assessed could affect the site (provide details)	Other plans which could contribute to cumulative impacts on Natura 2000 sites include the Cork City Development Plan 2009-2015, the Carrigaline Electoral Area Local Area Plan 2011, Macroom Electoral Area Local Area Plan 2011, Blarney Electoral Area Local Area Plan (2011) and Midleton Electoral Area Local Area Plan, 2011.
Assessment of Significant Effects	
Describe how the plan (alone or in combination is likely to affect Natura 2000 sites)	The proposed site for this Park is within the potential impact zone of two Natura 2000 sites listed above. The protection of water quality is the key issue which is considered to be of importance in maintaining the integrity of these sites, and which could be affected by the implementation of this plan.
Explain why these effects are not considered significant	The potential for the implementation of this plan to give rise to impacts on either the Cork Harbour SPA or on the Great Island SAC have been screened out for the following reasons: • All works on the site will be required to implement best practise in relation to the protection of water quality during construction; • It is requirement of the Masterplan that a Sustainable Urban Drainage System Plan will be produced for each precinct within the site; • Developments will only proceed in accordance with Flood Risk

	Guidelines; • Both Natura2000 sites which were identified to be within the potential impact zone are over 20km downstream from this proposed development. • None of the amendments which have been made to the plan arising from the public consultation process alter the scale of the development, or give rise to any increased risk of impact on water quality in Cork Harbour. Having regard to all of the above, it is considered that the proposed Masterplan as adopted on 10th October 2011 will not have a significant impact on these sites.
List of agencies consulted:	The draft Masterplan, and AA Screening Report for the draft Masterplan were made available for public consultation and were referred to statutory authorities including the EPA and to the Minister for Arts, Heritage, Gaeltacht and the Islands during the public consultation process.
Response to consultation	No submissions were received regarding the AA screening report, or relating to potential impacts on any Natura 2000 Site.

Data Collected To Carry Out The Assessment	
Who carried out the assessment	Planning Policy Unit, Cork County Council
Sources of data	National Parks and Wildlife Service Site Synopses and other data relating to Natura 2000 sites.
Level of assessment completed	Screening
Where can the full results of the assessment be accessed and viewed	This report
Date Assessment Complted	September 2012

5. References and Data Used

Crowe, Olivia. 2005. Ireland's Wetlands and their Waterbirds: Status and Distribution. BirdWatch Ireland.

Environment, Heritage and Local Government, National Parks and Wildlife Service. 2008. The Status of EU Protected Habitats and Species in Ireland.

Environment, Heritage and Local Government, National Parks and Wildlife Service. Various Years. Natura 2000 Site Synopses.

Environment, Heritage and Local Government. 2009. Appropriate Assessment of Plans and Projects in Ireland. Guidance for Planning Authorities.

European Communities. 2000. Managing Natura 2000 sites. The provisions of Article 6 of the Habitats Directive 92/43/EEC. Luxemburg.

European Communities. 2002. Assessment of plans and projects significantly affecting Natura 2000 sites. Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC. Luxemburg.