

# APPENDIX II NON TECHNICAL SUMMARY

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## ENVIRONMENTAL REPORT

OF THE

## DÚN LAOGHAIRE-RATHDOWN COUNTY DEVELOPMENT PLAN 2010-2016

## STRATEGIC ENVIRONMENTAL ASSESSMENT



**for: Dún Laoghaire-Rathdown County Council**

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## Section 1 Introduction and Terms of Reference

This is the Non-Technical Summary of the Environmental Report of the Dún Laoghaire-Rathdown County Development Plan 2010-2016 Strategic Environmental Assessment (SEA). The purpose of the Environmental Report is to provide a clear understanding of the likely environmental consequences of decisions regarding the future accommodation of growth in certain areas of Dún Laoghaire-Rathdown.

### **What is an SEA?**

SEA is a systematic process of predicting and evaluating the likely environmental effects of implementing a proposed plan, or other strategic action, in order to ensure that these effects are appropriately addressed at the earliest appropriate stage of decision-making on a par with economic and social considerations.

### **Why is it needed?**

The SEA was carried out in order to comply with the provisions of the SEA Regulations and in order to improve planning and environmental management within Dún Laoghaire-Rathdown. The outputs of the process are the Environmental Report and the SEA Statement which should be read in conjunction with the County Development Plan.

### **How does it work?**

All of the main environmental issues in Dún Laoghaire-Rathdown were assembled and presented to the team who are preparing the new plan. This helped them to devise a plan that protects whatever is sensitive in the environment. It also helped to identify wherever there are environmental problems in the County - so that these won't get any worse - and ideally the plan tries to improve these.

To decide how best to make a plan that protects the environment as much as possible the planners examined alternative versions of the plan. This helps to highlight the type of plans that are least likely to harm the environment.

### **What is included in the Environmental Report which accompanies the Plan?**

The Environmental Report contains the following information:

- A description of the environment and the key environmental issues;
- A description and assessment of alternatives for the Plan;
- An assessment of Plan policies and objectives; and,
- Mitigation measures which will aid compliance with important environmental protection legislation - e.g. the Water Framework Directive, the Habitats Directive - and which will avoid/reduce the environmental effects of implementing the Plan.

### **What happens at the end of the process?**

On adoption of the Plan an SEA Statement was published which included information on how environmental considerations have been integrated into the Plan and why the preferred alternative was chosen for the Plan in light of the other alternatives - this helped to introduce accountability, credibility and transparency into the Plan-making process.

## Section 2 The County Development Plan

### 2.1 Structure and Content

The CDP consists of:

- The Written Statement;
- A volume of Appendices; and,
- Maps.

*The Written Statement* contains the following chapters:

- Chapters 1 and 2 set out the goals and overall strategy for the proper planning and sustainable development of the County.
- Chapters 3 to 15 set out detailed policies and objectives under a range of specific topic headings which the County Council seeks to achieve over the six-year life of the Plan e.g. infrastructure, conservation, renewal, community facilities, biodiversity.
- Chapter 16 sets out Development Management objectives and standards to be applied to future development proposals in the County. Their purpose is to help guide and assist the formulation of development proposals and to regulate the impact of development on the environment in pursuance of delivered policies.
- Chapter 17 identifies Specific Local Objectives which relate either to particular buildings, structures, areas or sites, or to particular development works the County Council itself is proposing
- Chapter 18 sets out a series of Land Use Zoning Objectives - and accompanying definitions - which are given graphic representation on the fourteen Development Plan Maps. The purpose of zoning is to indicate the land use objectives for all the lands within the County. Zoning aspires to promote the orderly development of the County by eliminating potential conflicts between incompatible land uses and to establish a rational and considered basis for future investment in public infrastructure and facilities.

The *Maps* give a graphic representation of the proposals of the Plan, indicating land use zoning and other control standards together with various objectives of the Council.

The *Volume of Appendices* contains supporting and background data/documents that help inform and clarify the broad context of the Written Statement.

The Appendices include:

- A. National/Regional/Local – Context and Guidance Documentation
- B. Housing Strategy 2010—2016
- C. Record Protected Structures/Record of Monuments and Places/Architectural Conservation Areas/Candidate Architectural Conservation Areas
- D. Industrial Heritage Survey
- E. Wind Energy Assessment
- F. Landscape Character Areas
- G. Rights-of-Way/Recreation Access Routes
- H. Section 49 Contributions Scheme Maps
- I. Building Heights Strategy

## 2.2 Vision and Goals

The Vision of the Plan is:

‘To plan for and facilitate appropriate levels of sustainable development in Dún Laoghaire-Rathdown based on high quality residential, employment and recreational environments allied to the delivery of enhanced sustainable transportation patterns. To create a high-quality physical environment that meets the growing needs of those living, working or visiting the County in an inclusive, balanced and integrated way to ensure communities can thrive in a socially, economically and environmentally sustainable manner – all within the parameters of the strategic framework laid down by the Regional Planning Guidelines for the Greater Dublin Area.’

The Plan is based on three fundamental goals that underpin both the overall strategy and individual policies contained within the Plan. These goals are as follows:

### Goal 1

To promote and provide for the sustainable development of Dún Laoghaire-Rathdown to enable it to fulfil its role as an important player in the wider Greater Dublin Area.

### Goal 2

To promote social inclusion and to facilitate equality of access to employment, education, transport, suitable housing and social and cultural activities, whether by direct provision (e.g. social housing) or by facilitating other agencies and stakeholders to provide the service (e.g. education and health services).

### Goal 3

To provide for a high quality natural and built environment and improved quality of life for those living and working in Dún Laoghaire-Rathdown and for those visiting the County.

## 2.3 Relationships with Other Relevant Plans and Programmes

### 2.3.1 National Development Plan 2007-2013

The National Development Plan 2007-2013 (NDP) is designed to underpin the development of a dynamic competitive economy over the period 2007 - 2013. It envisages a total investment of €184 billion over 7 years to ‘secure the further transformation of our country socially and economically within an environmentally sustainable framework’. The NDP includes a number of strategic objectives for the Southern and Eastern Regions within which Dún Laoghaire-Rathdown is located.

### 2.3.2 National Spatial Strategy 2000-2020

The National Spatial Strategy 2000-2020 (NSS) is a 20-year planning framework for the entire Country to guide policies, programmes and investment. It seeks to promote a better balance of social, economic and physical development between the Regions. In order to promote sustainable development and allow for the public transport system to function more effectively - as promoted by the NSS - it is essential to consolidate the physical growth of Dún Laoghaire-Rathdown. Within the County this can be achieved through the development of greenfield lands and vacant, derelict and underutilised lands, in particular where they are in close proximity to public transport routes.

### 2.3.3 Sustainable Development: A Strategy for Ireland 1997

Sustainable Development: A Strategy for Ireland 1997 provides a framework for the achievement of sustainable development at local level. It identifies 4 key ways Development Plans can contribute to the achievement of sustainability:

- Encourage efficient use of energy, transport and natural resources through careful selection of development locations;
- Promote the most effective use of already developed areas;
- Secure protection and enhancement of the natural environment; and,
- Accommodate new development needs in an environmentally sustainable way.

The Strategy calls on planning authorities to incorporate the principles of sustainability into Development Plans.

### **2.3.4 Regional Planning Guidelines for the Greater Dublin Area 2004-2016**

Ireland is divided into eight regional forward planning regions, Dublin, Midlands, Mid East, Mid West, South East, South West, West and Border, each with its own regional planning authority composed of Elected Members selected by the constituent local government councils. Regional planning authorities are required, under the Planning and Development (Regional Planning Guidelines) Regulations 2003 (SI No. 175 of 2003), to draw up regional planning guidelines (RPGs), long term strategic planning frameworks, for their relevant region. RPGs must have regard to the National Spatial Strategy. Dún Laoghaire-Rathdown is located within the Dublin Regional Planning Authority area for which the Regional Planning Guidelines for the Greater Dublin Area (RPGs) have been prepared.

### **2.3.5 Dublin Transport Office: A Platform for Change 2000-2016**

The Dublin Transportation Office (DTO) Strategy 'A Platform for Change', outlines an integrated transportation strategy for the Greater Dublin Area for the period 2000-2016. It was prepared to support and complement the strategic land planning framework outlined in the Regional Planning Guidelines.

### **2.3.6 Environmental Protection Objectives**

The CDP is subject to a number of high level national, international and regional environmental protection policies and objectives, including those which have been identified as Strategic Environmental Objectives. Examples of Environmental Protection Objectives include the aim of the EU Habitats Directive - which is to contribute towards ensuring bio-diversity through the conservation of natural habitats and of wild fauna and flora in the European territory of Member States - and the purpose of the Water Framework Directive - which is to establish a framework for the protection of inland surface waters, transitional waters, coastal waters and groundwater. The CDP must be consistent with these objectives and implement them at County and local level in Dún Laoghaire-Rathdown.

## Section 3 Existing Environment

### 3.1 Introduction

The environmental baseline of Dún Laoghaire-Rathdown is described in this section. This baseline together with the Strategic Environmental Objectives, which are outlined in Section 4 of the Environmental Report, is used in order to identify, describe and evaluate the likely significant environmental effects of implementing the Development Plan and in order to determine appropriate monitoring measures.

The environmental baseline is described in line with the legislative requirements, encompassing the following components – biodiversity, flora and fauna, population, human health, soil, water, air and climatic factors, material assets, cultural heritage, landscape and the interrelationship between these components. A description is also included of the likely effects upon each environmental component under a do-nothing scenario i.e. the likely evolution of the environment without the implementation of the Development Plan.

### 3.2 Biodiversity and Flora and Fauna<sup>1</sup>

#### 3.2.1 Overview of the Habitats

Dún Laoghaire-Rathdown supports a wide diversity of natural and semi-natural habitats and a wide range of plant and animal species, which have come under threat due to development pressures and increased demand for new development land.

Green space, which makes up a large part of the southern portion of the County, consists of a variety of habitats including corridors which provide for the movement of wildlife. Green space within Dún Laoghaire-Rathdown is comprised of agricultural lands, bogs and heath in the uplands, woodlands, grasslands and a number of open spaces in residential areas. There are also a number of large parks within the County including Marlay Park in Rathfarnham, Deerpark in Mount Merrion, Cabinteely Park in Cabinteely and Shanganagh Park in Shankill.

The Loughlinstown River, with tributaries such as the Shanganagh River and the Cabinteely, Ballyogan and the Glenamuck Streams, forms the largest catchment in Dún Laoghaire-Rathdown. The southernmost branch of the River, also known as Brides Glen stream, is particularly rich in biodiversity.

The upland areas around Three Rock and Two Rock Mountains are valuable for their heath habitats and their exposed rocky outcrops. Red grouse, an upland bird species thought to be in decline across the Country, occurs in this area.

Man-made habitats within the Plan area are also important biodiversity areas. Gardens provide habitats for a range of wildlife including various bird species, invertebrates, and mammals. These species move around between gardens using hedgerows and vegetated areas.

A Biodiversity Plan for Dún Laoghaire-Rathdown has been carried out. The Plan identifies areas which are important for biodiversity, threats posed to these areas and lists of targets for the County's biodiversity.

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<sup>1</sup> Text in this section is sourced from the Draft County Biodiversity Action Plan for Dún Laoghaire-Rathdown which gives an overview of the County's biodiversity [Dún Laoghaire-Rathdown (2008) *Draft County Biodiversity Action Plan for Dún Laoghaire-Rathdown* Dublin: Dún Laoghaire-Rathdown County Council].

### 3.2.2 Existing Problems

Land cover differences between the CORINE 1990 data and the data for the year 2000 indicate a cumulative loss of agricultural land to *road and rail networks* and *sport and leisure facilities*.

The Habitat Mapping Survey for the County identified that the habitats adjacent to the southern portion of the M50, west and east along the M11 and to the extreme west of the County are under greatest threat from future development, pollution events or destruction through agricultural, forestry or landfill impacts.

Generally, development in Dún Laoghaire-Rathdown is not significantly impacting upon designated ecological sites however Site Synopses for these sites identify certain threats to the conservation value of these sites.

If unmanaged increased recreational use of the County's uplands areas has the potential to result in disturbance of wildlife, erosion of pathways and fragmentation of ecological corridors which are important for the migration, dispersal and genetic exchange of flora and fauna.

Cumulative encroachment on the foothills and uplands of the Plan area could also have adverse effects on ecological connectivity and biodiversity and flora and fauna.

Aquatic flora and fauna is vulnerable to all forms of pollution such as that which can occur as a result of agricultural run-off and industrial and municipal effluents. As identified under Section 3.5, several water bodies within and surrounding the area are 'at risk' with regard to meeting legislative water quality objectives under the Water Framework Directive.

### 3.2.3 Evolution of Biodiversity and Flora and Fauna in the absence of a Development Plan

In the absence of a Development Plan for Dún Laoghaire-Rathdown, development would have no guidance as to where developments occur and planning applications would be assessed on an individual basis with flora and fauna, habitats and ecological connectivity protected under a number of strategic actions relating to biodiversity and flora and fauna protection. The evolution of biodiversity and flora and fauna would be dependent on the rate and extent of any such developments which would take place.

Development along or adjacent to the banks of rivers and along the coastline could result in a reduction in ecological connectivity within and between these and other habitats.

Pollution of water bodies as a result of any future development along river catchments or along the coastline would be likely to adversely impact aquatic biodiversity and flora and fauna including salmonid species and other species protected under Annex II of the Habitats Directive.

Beneficial effects upon biodiversity and flora and fauna which would be likely to arise out of the specific policies and objectives included in the Development Plan which are not included in the current Dún Laoghaire-Rathdown County Development Plan would not be likely without the implementation of the Plan.

In the absence of a Development Plan, any greenfield development would adversely impact upon biodiversity and flora and fauna by replacing natural or semi natural habitats with artificial surfaces. The significance of such impacts would be dependent on whether such developments would result in the loss of habitats or species of importance as well as the cumulative loss and fragmentation of habitats and species as a result of all greenfield developments.

A Development Plan for the area could contribute to the occurrence of development in an appropriate and sustainable manner.



A Development Plan provides an opportunity to integrate the ecological protection measures required by the Habitats Directive with the planning or development management of vulnerable areas, which might not be presented in the absence of a Development Plan.

In the absence of a Development Plan there would not be an integration of the ecological protection measures required by the Habitats Directive with the planning or development management of vulnerable areas. Therefore it is likely that there would be less effective protection of ecological resources in the absence of a Development Plan.

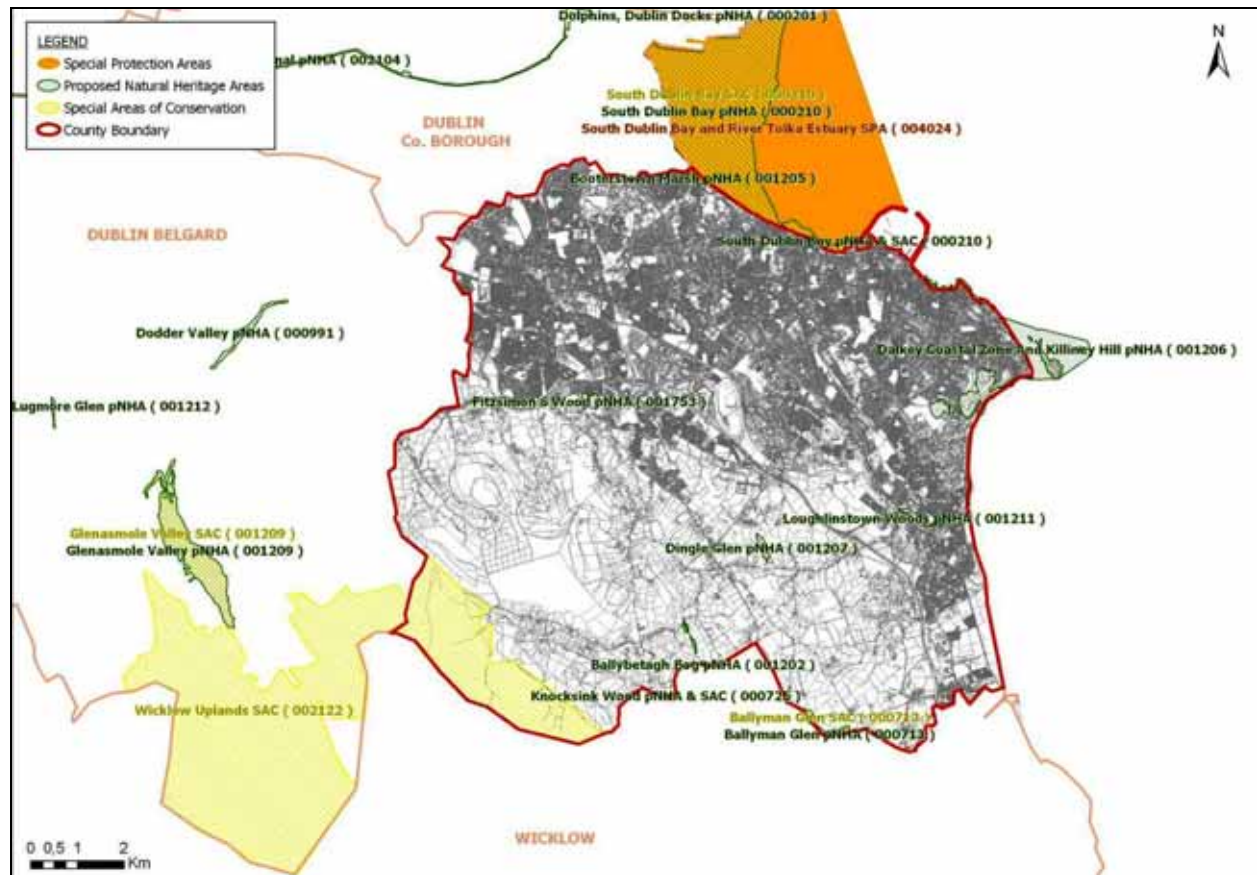


Figure 1 Designated sites within and surrounding the Plan area

### 3.3 Population and Human Health

#### 3.3.1 Population<sup>2</sup>

The Greater Dublin Area has experienced strong population growth in recent years and it is forecast to grow in population from 1.6 million persons to 2 million persons by 2016. It is anticipated that Dún Laoghaire-Rathdown will accommodate a share of this growth, in accordance with Regional Planning Guidelines.

The County's population stands at c.194,038 or 16% of Dublin's population. The 2006 Census revealed a continued trend of relatively low population growth. The population grew by 2,250 persons or 1.2%, between 2002 and 2006, at a time when the national increase was 8.2%. In the last 10 years the County has grown by just 4,039 persons, a growth rate of 2%. The low population growth rate can be explained as a consequence of the relatively low level of housing output and an ageing population.

<sup>2</sup> CSO (various) *Census 2006 Volume 1 - Population Classified by Area; Census 2002 Volume 1 - Population Classified by Area; Census 1996 Volume 1 - Population Classified by Area* Cork: CSO.

Housing densities in the Plan area are high in the urban regions and comparatively low in the rural Uplands. Spatial distribution of the population in the Uplands is generally one-off housing, linear in parts. The majority of the population located in the lower-lying north west, north, eastern and central parts of the Plan area.

### **3.3.2 Existing Problems**

Certain environmental vectors within the Plan area - such as air, water or soil - have the potential to transport and deposit contaminants or pollutants, which have the potential to cause harm and adversely impact upon the health of the area's population.

IPPC licensed facilities could be potential polluters to the Plan area if the facilities do not comply with their licenses.

Dún Laoghaire-Rathdown is vulnerable to adverse effects from small changes in sea level combined with changes in the occurrence of severe rainfall events and associated flooding of the rivers and streams in the Plan area. Flooding is an environmental phenomenon which in certain circumstances could pose a risk to human health.

Although air quality in Dún Laoghaire-Rathdown meets current standards, there are traffic 'hotspots' that give rise to a harsh sensory environment which may impact upon human health.

### **3.3.3 Evolution of Population and Human Health in the absence of a Development Plan**

The occurrence of growth in areas not identified as having environments which are compatible to resultant land uses can result in significant adverse impacts on the environment.

In the absence of a Development Plan for the area there would be no framework for the provision of infrastructure to serve existing and future development and this would be likely to delay or hinder the provision of infrastructure which would have the potential to result in impacts on environmental vectors to which humans are exposed e.g. a lack of appropriate waste water treatment infrastructure could adversely impact upon drinking water quality and subsequently upon human health.

## **3.4 Soil**

### **3.4.1 Introduction**

Soils in any area are the result of the interaction of various factors, such as parent material, climate, vegetation and human action.

To date, there is no legislation which is specific to the protection of soil resources. However, there is currently an EU Thematic Strategy on the protection of soil which includes a proposal for a Soil Framework Directive which proposes common principles for protecting soils across the EU.

### **3.4.2 Existing Problems relating to Soil**

Greenfield development involves the building upon and thereby sealing off of soil thus representing an environmental problem.

Soil has the potential to be polluted and contaminated as a result of pollution from development which is not serviced by appropriate waste water infrastructure and from agricultural sources.

Soil erosion due mainly to surface erosion resulting from construction works and agricultural / forestry operations has major potential to impact on water quality and fishery resources.

In addition to water quality and fishery impacts, these can impact on infrastructure and can have health and safety implication.

### **3.4.3 Evolution of Soil in the absence of the Development Plan**

In the absence of a Development Plan for Dún Laoghaire-Rathdown, the evolution of soil would be dependent on developments which take place.

The currently proposed Soil Directive suggests encouraging the rehabilitation of brownfield sites, thus reducing the depletion of greenfield sites. However, in the absence of a Development Plan there would be no framework for the direction of growth towards brownfield sites in Dún Laoghaire-Rathdown, where such direction is appropriate. As a result greenfield development would be likely to occur on an increased basis - both within and outside of the Plan area - and would result in the building upon and thereby sealing off of the non-renewable subsoil and soil resources.

In the absence of a Development Plan, there would be no framework for the provision of infrastructure - such as that relating to waste water treatment - to serve existing and future development and therefore soil would have the potential to be polluted and contaminated as a result of pollution from development which is not serviced by appropriate waste water infrastructure.

## **3.5 Water**

### **3.5.1 Introduction**

Water within and surrounding Dún Laoghaire-Rathdown has many functions: it provides drinking water to the area's population; it sustains the biodiversity and flora and fauna described under Section 3.2; and it is an integral part of the landscape.

### **3.5.2 Potential Pressures on Water Quality**

Human activities, if not properly managed, can cause deterioration in water quality. Pressures exerted by human activities include the following:

- sewage and other effluents discharged to waters from point sources, e.g. pipes from treatment plants;
- discharges arising from diffuse or dispersed activities on land;
- abstractions from waters; and
- structural alterations to water bodies.

### **3.5.3 The Water Framework Directive**

Since 2000, Water Management in the EU has been directed by the Water Framework Directive 2000/60/EC (WFD). The WFD requires that all Member States implement the necessary measures to prevent deterioration of the status of all waters - surface, ground, estuarine and coastal - and protect, enhance and restore all waters with the aim of achieving good status by 2015. All public bodies, including Dún Laoghaire-Rathdown County Council, are also required to coordinate their policies and operations so as to maintain the good status of water bodies which are currently unpolluted and improve polluted water bodies to good status by 2015.

For the purpose of implementing the WFD, Ireland has been divided into eight river basin districts or areas of land that are drained by a large river or number of rivers and the adjacent estuarine / coastal

areas. The management of water resources will be on these river basin districts. The Plan area is located in the Eastern River Basin District (ERBD).

### 3.5.4 WFD Risk Assessments

In order to achieve the objectives of the WFD it is necessary:

- to assess the risk that water bodies may not achieve good quality status;
- to identify the pressures from human activities causing this risk; and,
- to develop strategies and management plans to minimise the risk.

Risk assessment procedures were developed at national level and applied across all River Basin Districts in order to analyse the impact of the pressures referred to under Section 3.5.2. The risk assessments were predictive, i.e. they examined each pressure and predicted the magnitude which would be likely to have a negative impact.

Each water body has been assessed, on the basis of human activity, whether it is at risk or not at risk of failing to achieve the WFD's objectives by 2015. The classifications used for reporting this assessment are:

- (1a) At Significant Risk - water body is at risk of failing to meet good status in 2015;
- (1b) Probably at Significant Risk - water body is thought to be at risk of failing to meet good status in 2015 pending further investigation;
- (2a) Probably Not at Significant Risk - the water body is expected to meet good status in 2015; and,
- (2b) Not at Significant Risk - water body is expected to meet good status in 2015, pending further investigation.

### 3.5.5 WFD Registers of Protected Areas

In addition to these assessments, the WFD requires that Registers of Protected Areas (RPAs) are compiled for a number of water bodies or part of water bodies which must have extra controls on their quality by virtue of how their waters are used by people and by wildlife.

The WFD requires that these RPAs contain: areas from which waters are taken for public or private water supply schemes; designated shellfish production areas; bathing waters; areas which are affected by high levels of substances most commonly found in fertilizers, animal and human wastes - these areas are considered nutrient sensitive; areas designated for the protection of habitats or species e.g. salmonid areas; Special Areas of Conservation (SACs); and, Special Protection Areas (SPAs).

The waters listed on the RPA are listed on Table 1 and are mapped on Figure 10.

Qualifying Value	Water Body
RPA Species SPA	Sandymount Strand/Tolka Estuary
RPA Habitat Rivers	Dargle (River)
RPA Drinking Water Rivers	Loughlinstown (River)
RPA Beaches	Seapoint
RPA Beaches	Killiney
RPA Beaches	Sandymount Strand
RPA Beaches	Merrion Strand
RPA Drinking Water Ground Water	All underlying GW

**Table 1 Waters listed on the RPA**

### 3.5.5.1 River Basin Management Plan

The twelve Local Authorities located in the ERBD, including Dún Laoghaire-Rathdown County Council, have prepared a draft River Basin Management Plan which will be adopted in 2010 and implemented thereafter in order to help protect and improve all waters in the ERBD. The Management Plan will provide objectives for river basins in order to implement the requirements of the WFD.

### 3.5.6 Water Quality

#### 3.5.6.1 Rivers

The most recent river water quality data<sup>3</sup> identifies the Dodder River as being of Poor Status (Q2-3, Q3)<sup>4</sup>. The water quality status of the Loughlinstown River changes from Good Status (Q4) at Carrickmines to Moderate (Q3-4) to Poor Status (Q2-3, Q3) as it flows through urban areas to the sea. These values are mapped on Figure 2.

#### 3.5.6.2 Transitional Waters

The Assessment of Trophic Status of Estuaries and Bays in Ireland (ATSEBI) System is used by the EPA in order to classify the quality status of transitional waters. Categories of criteria for nutrient enrichment, accelerated growth, and undesirable disturbance are used by the ATSEBI in order to classify the estuarine and coastal waters. There are four classifications:

- **Eutrophic waterbodies** are those in which each of the criteria are breached, i.e. where elevated nutrient concentrations, accelerated growth of plants and undesirable water quality disturbance occur simultaneously.
- **Potentially Eutrophic waterbodies** are those in which two of the criteria are breached and a third falls within 15 per cent of the relevant threshold value/values.
- **Intermediate waterbodies** are those which do not fall into the Eutrophic or Potentially Eutrophic classes but in which breaches one or two of the criteria occur;
- **Unpolluted waterbodies** are those which do not breach any of the criteria.

Figure 5 maps the classification of Dublin Bay which is the only transitional water body to be rated in proximity to the Plan area. Dublin Bay has been classified as being "*Unpolluted*".

#### 3.5.6.3 Bathing Waters

In Ireland, monitoring of water quality at designated bathing areas is undertaken by Local Authorities in accordance with Bathing Water Regulations (S.I. 155 of 1992). The EPA reports the compliance results of these 131 sites annually.

There are three compliance categories:

- **Non compliant** sites fail to meet the necessary quality criteria;
- Sites compliant with **Mandatory Values** meet the minimum quality criteria and are considered to be of acceptable quality; and,

<sup>3</sup> EPA (2006) *Water Quality in Ireland 2005* Wexford: EPA

<sup>4</sup> The Biotic Index Values, or Q values, are assigned to rivers in accordance with biological monitoring of surface waters - low Q ratings, as low as Q1, are indicative of low biodiversity and polluted waters, and high Q ratings, as high as Q5, are indicative of high biodiversity and unpolluted waters. Good status as defined by the Water Framework Directive equates to approximately Q4 in the national scheme of biological classification of rivers as set out by the EPA.

- Sites compliant with **Guide Values** meet all the recommended quality criteria and are considered to be of good quality.

Water Quality at Merrion Strand and Bray (in adjacent County Wicklow) has decreased from complying with the Guide Values (good quality) in 2006 to only complying with Mandatory Values (acceptable quality) in 2007. Water Quality at Seapoint and Killiney has complied with Guide Values (good quality) for the past 7 years. These sites are mapped on Figure 7.

### 3.5.7 Risk Assessment

#### 3.5.7.1 Rivers

Figure 4 shows the current risk assessment for the Loughlinstown River, the Glencullen River and the River Dodder (which follows the boundary between the administrative areas of Dún Laoghaire-Rathdown County Council and Dublin City Council). In terms of achieving the WFD's objectives by 2015, all of these rivers are currently classified as being *(1a) at significant risk* of failing to achieve the WFD's objectives by 2015.

Reasons for the Loughlinstown River classification include diffuse source pressures such as the EPA's diffuse sources model, EPA Biological Q rating and morphological pressures including intensive landuse.

Reasons for the Glencullen River classification include diffuse source pressures such as the EPA's diffuse sources model and forestry sources – acidification and point source pressures such as Section 4 (Local Authority licensed discharges) and Water treatment plants and other pressures.

Reasons for the River Dodder classification include abstraction pressures such as river water balance, diffuse pressures such as the EPA diffuse sources model, morphological pressures including intensive landuse and point Source Combined sewer and treatment plant overflows.

Figure 4 maps the current risk assessment for the catchments which drain into the Loughlinstown, Glencullen River and Dodder rivers. The majority of the catchments are classified as being *(1a) at significant risk* of failing to achieve the WFD's objectives by 2015. A small area at the western boundary is classified as being *(1b) probably at significant risk*. The remainder of the Plan area is unclassified. Even where groundwater beneath a river catchment is not at risk, the catchment can be classified as being at risk due to the implications which landuses within the catchment have on other water bodies such as rivers.

#### 3.5.7.2 Coastal Waters

Figure 6 shows the WFD risk assessment for the coastal waters located off Dún Laoghaire-Rathdown. The waters of Dublin Bay which extend down to Dalkey Island are classified as being *(1a) at significant risk of not achieving good status* by 2015.

Reasons for this classification include morphological pressures such as built structures - port tonnage and an urban or industrial shoreline and coastal defences have lead to this classification and point sources such as combined sewer and treatment plant overflows and waste water treatment plants.

An area of water surrounding Dalkey Island is classified as *(2b) not at significant risk* of meeting the WFD objectives by 2015. Coastal waters to the south at Killiney Bay of this are *(1a) at significant risk of not achieving good status* by 2015. Reasons including morphological pressures such as built structures - port tonnage and an urban or industrial shoreline and coastal defences have lead to this classification.

#### 3.5.7.3 Ground Waters

Figure 8 maps the current risk assessment for groundwater in the Dún Laoghaire-Rathdown area. Groundwater underlying the northern half of the Plan area is classified as being *(1a) at significant risk* of not achieving good status. Groundwater underlying the southern half of the Plan area is *(2b) not at significant risk*. An area of land in south eastern corner of the Plan area near to Bray is classified as *(1b)*

*probably at significant risk.* Reasons for this include diffuse pressures including clustered onsite systems and leaking urban sewerage systems and point source pressures such as contaminated land.

### **3.5.8 Groundwater Vulnerability**

The Geological Survey of Ireland (GSI) rates aquifers according to their vulnerability to pollution. Aquifer vulnerability refers to the ease with which pollutants of various kinds can enter underground water. Only an interim study has taken place for most of the Plan area. There is no ongoing or requested work being undertaken by GSI in that area at present. Some patches of the area, particularly in the uplands are rated as Extreme, with areas of Extreme (rock near surface or Karst) identified within these regions.

The groundwater contained in aquifers rated as Extreme in the south of the County is classified under the WFD Risk Assessment as being *(2b) not at significant risk.* This suggests that land uses over these aquifers are currently not compromising their ability to achieve the objectives of the Water Framework.

### **3.5.9 Flooding**

Dún Laoghaire-Rathdown is vulnerable to adverse effects from changes in the occurrence of severe rainfall events and associated flooding of the County's rivers combined with small changes in sea level. Much of the flooding in the County occurs during adverse weather conditions whereby heavy rainfall causes high river flows. Local conditions within the County including bridges and culverts - which restrict high flows -, debris - which cause blockages - and land use changes can also increase the risk of flooding.

### **3.5.10 Existing Problems**

A number of sensitivities have been identified with regard to the status of water bodies within the Dún Laoghaire-Rathdown Plan area. By virtue of how they are used by people and by wildlife, a number of beaches, rivers, all underlying groundwater and an SPA are all listed on the Registers of Protected Areas under the Water Framework Directive.

The vast majority of surface waters and coastal waters and half of the ground waters underlying the Plan area are at significant risk of failing to achieve the WFD's objectives of good status by 2015. The pressures which have been identified by the ERBD in the characterisation of the water bodies within and surrounding the Plan area include:

- Diffuse source pressures such as the EPA's diffuse sources model;
- Morphological pressures including intensive landuse, coastal defences, built structures - port tonnage and an urban or industrial shoreline; and
- Point sources such as combined sewer and treatment plant overflows and waste water treatment plants.

### **3.5.11 Evolution of Water in the absence of a Development Plan**

Based on the current risk assessments the identified surface and ground water bodies are either at significant risk or probably at significant risk of failing to meet the objectives of the Water Framework Directive by 2015.

If new development was not accompanied by appropriate waste water infrastructure /capacity then it is likely that certain river, ground and coastal water bodies would fail to meet the objectives of the WFD by 2015 and significant adverse impacts upon the biodiversity and flora and fauna of Dún Laoghaire-Rathdown area could potentially arise. The replacing of semi-natural land cover types with artificial, more impervious surfaces is likely to lead to cumulative increases in run-off and peak flow conditions in the County's river bodies. These cumulative increases have the potential to - especially in combination with the occurrence of severe rainfall events - result in flooding.

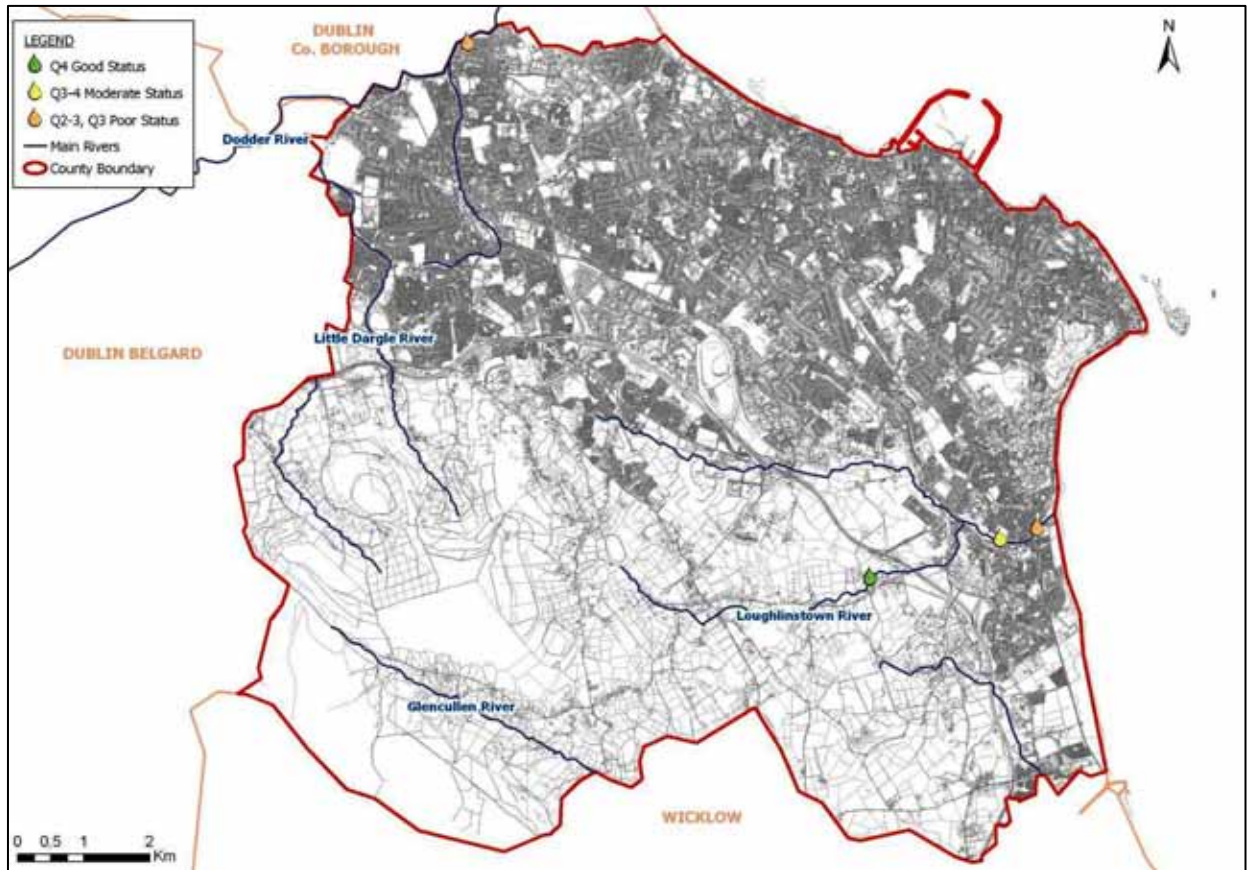


Figure 2 River Water Quality

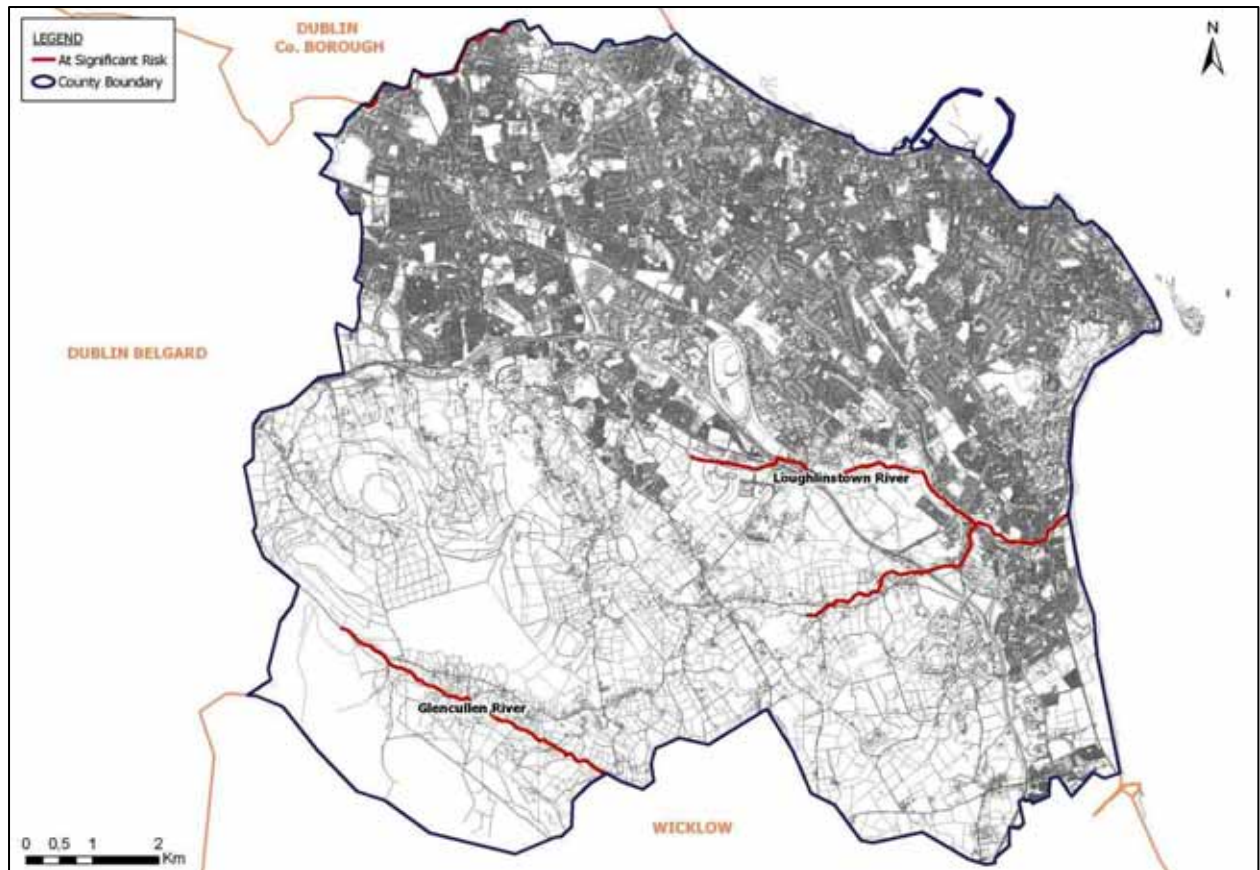


Figure 3 Risk Assessment of Rivers



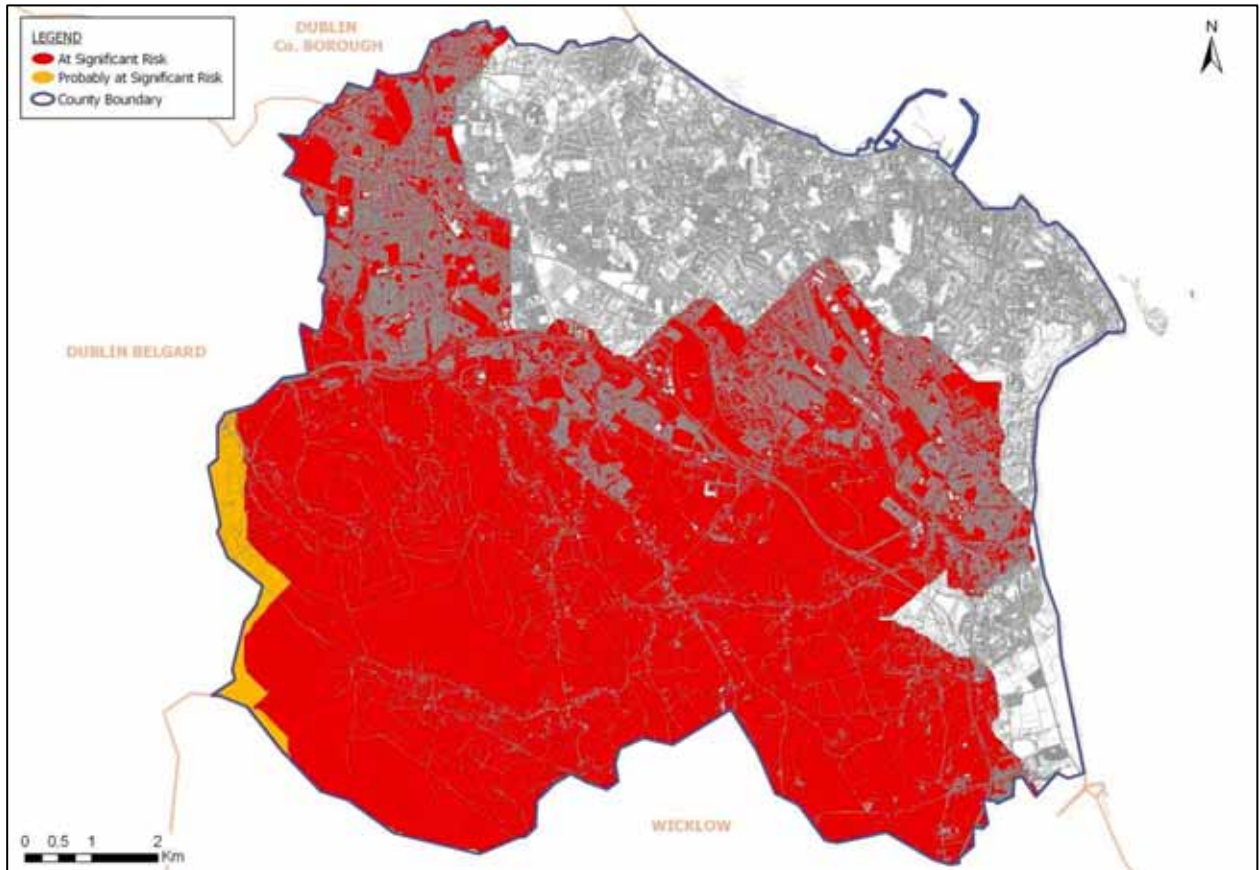


Figure 4 Surface Water Risk Assessment

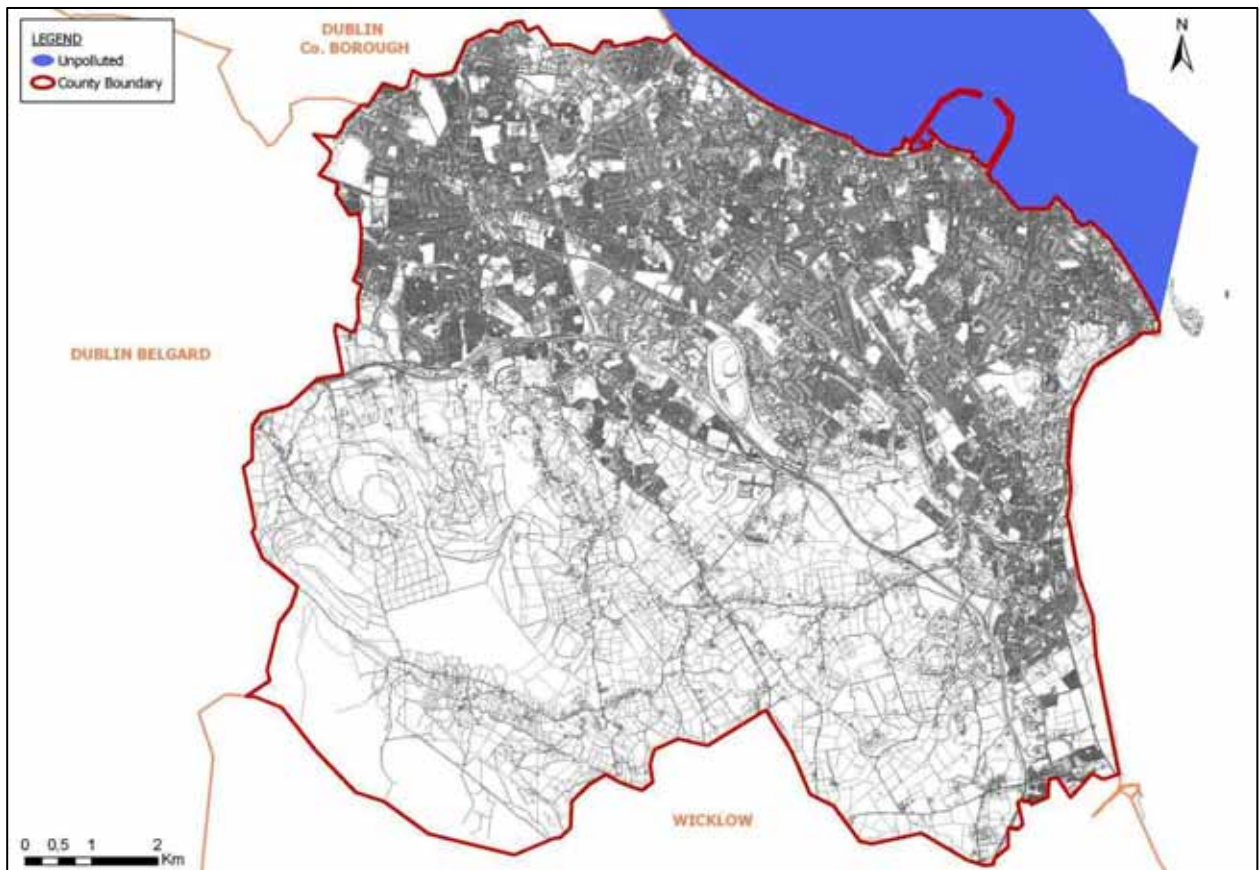


Figure 5 ASTEBI Water Quality of Dublin Bay

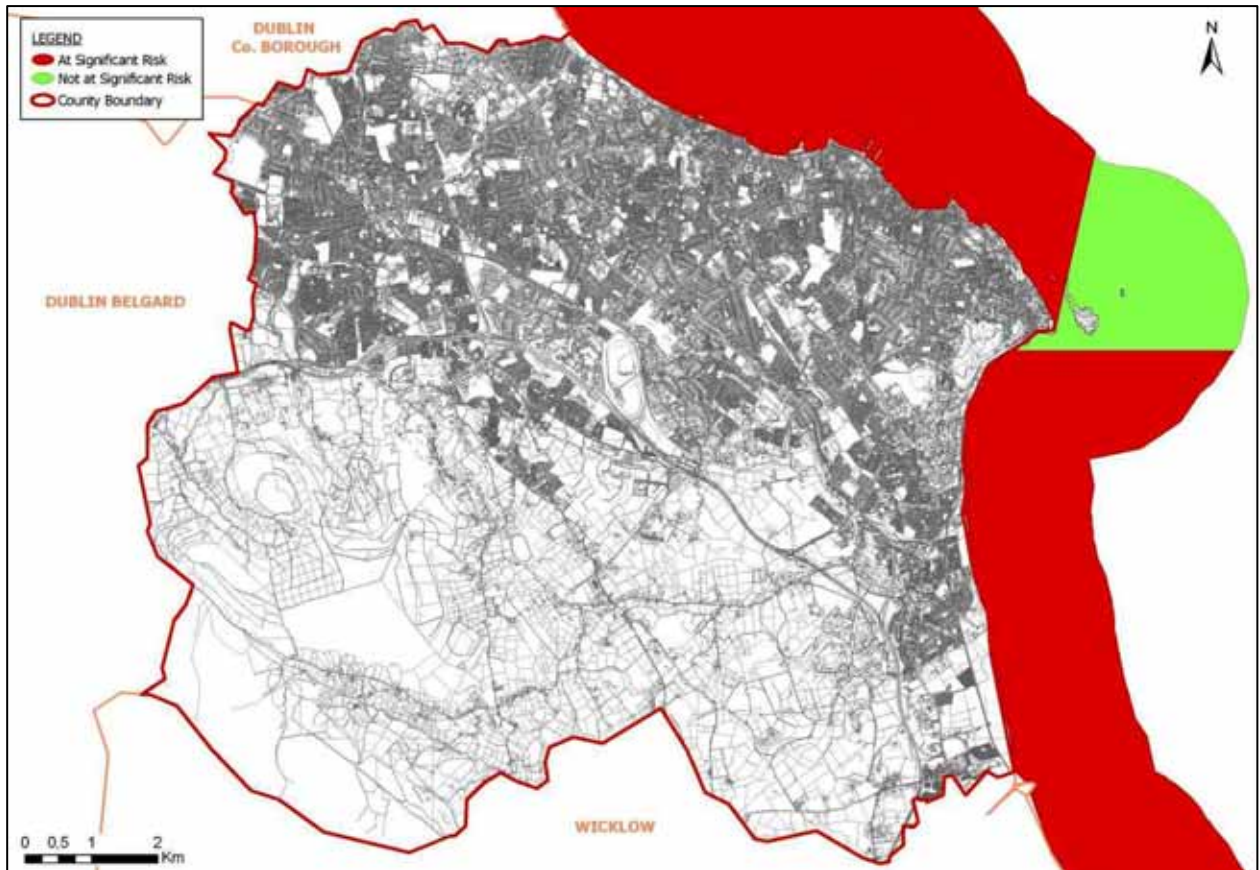


Figure 6 Coastal Water Risk Assessment

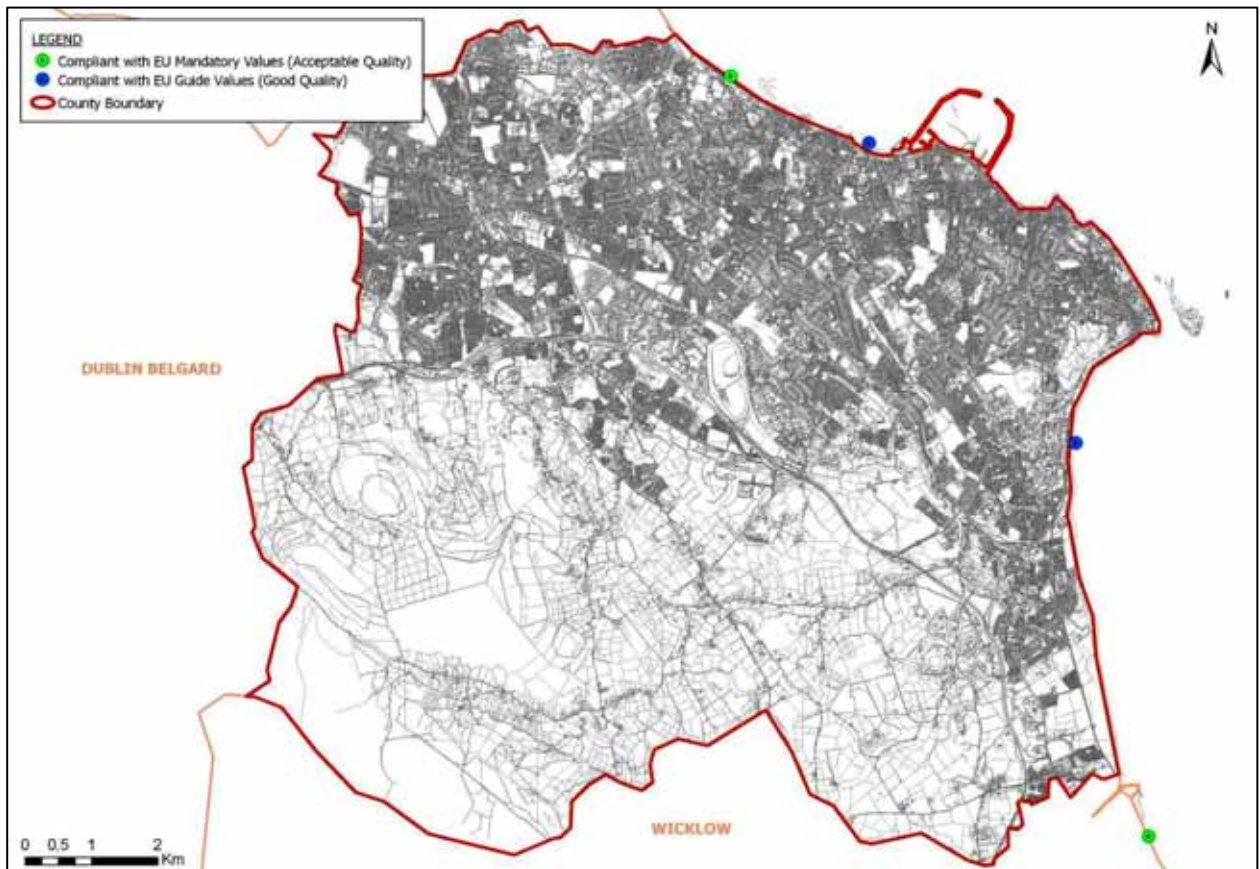


Figure 7 Bathing Water Quality

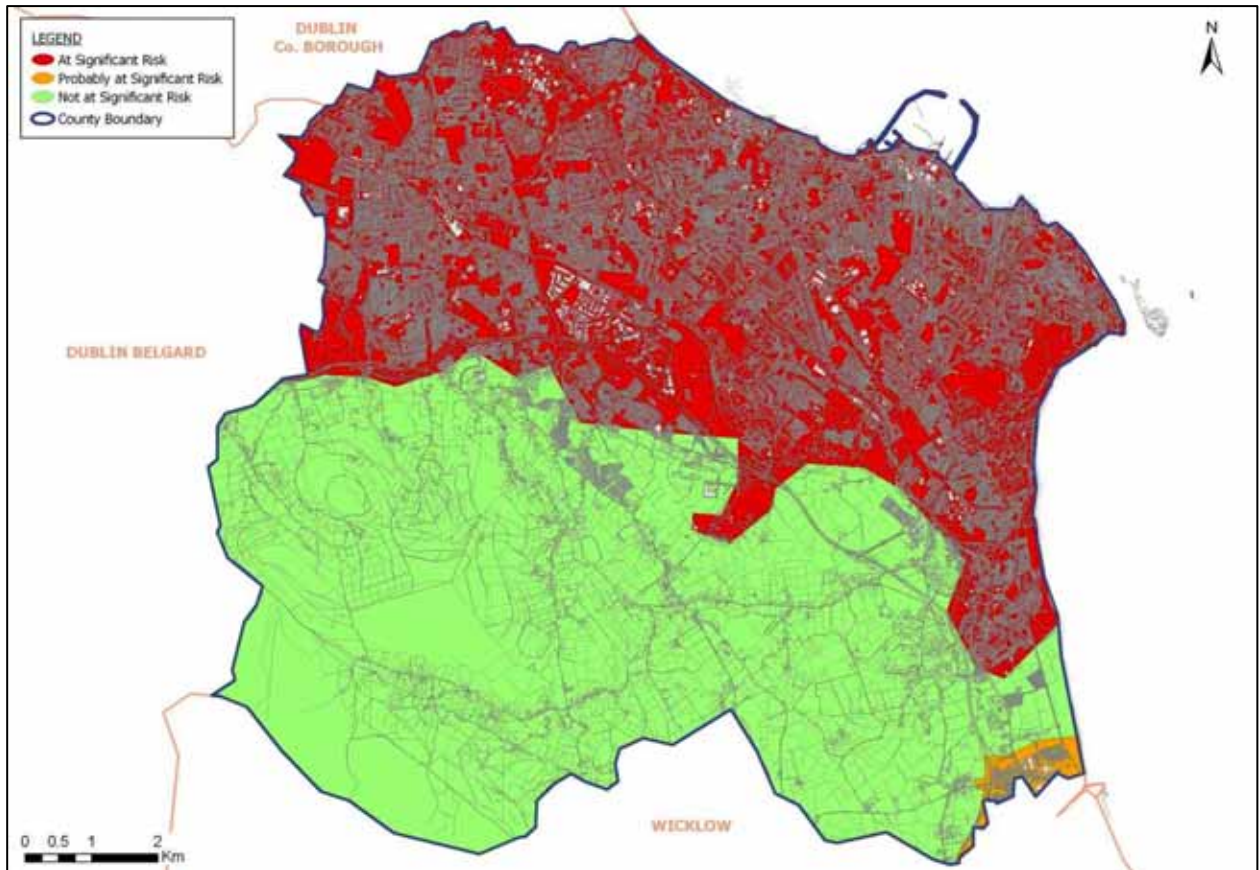


Figure 8 Ground Water Risk Assessment

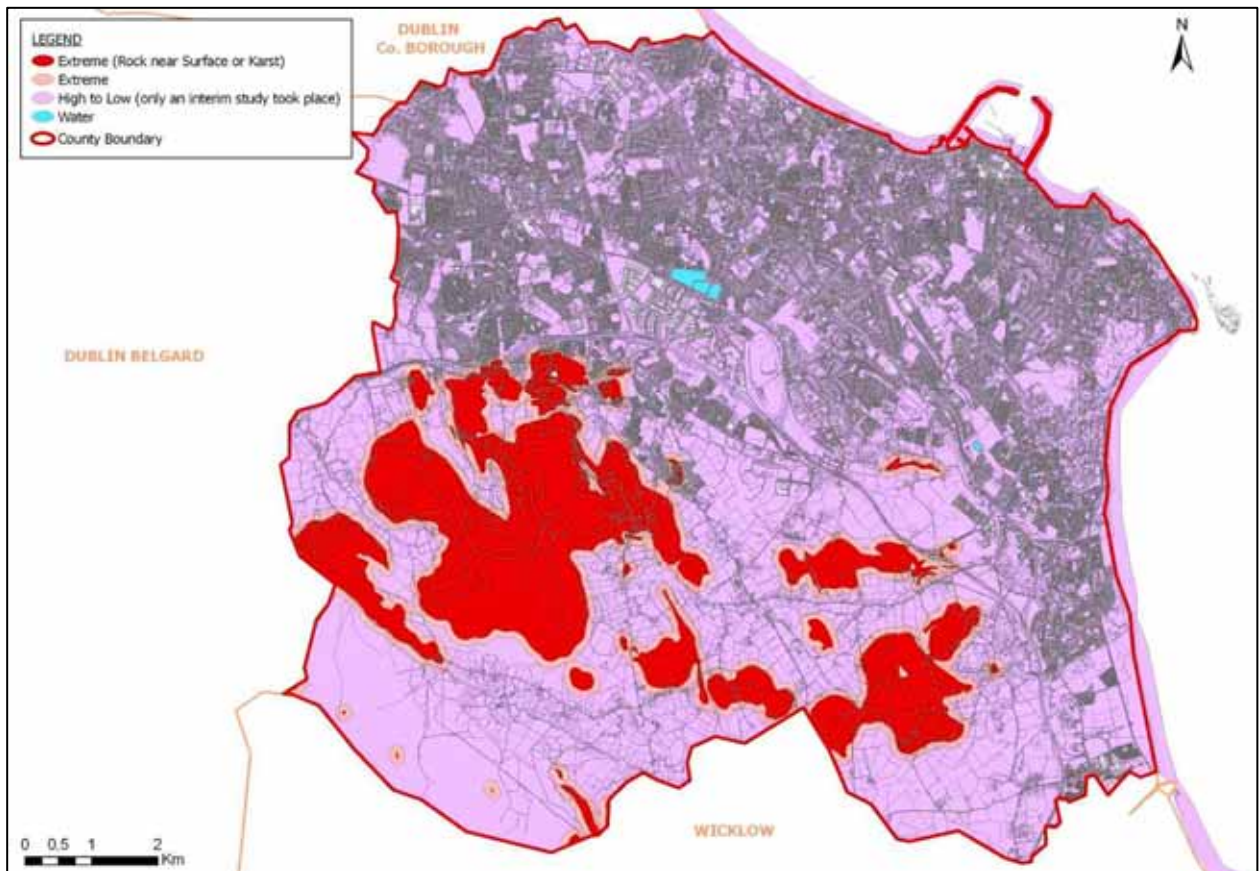


Figure 9 Ground Water Vulnerability

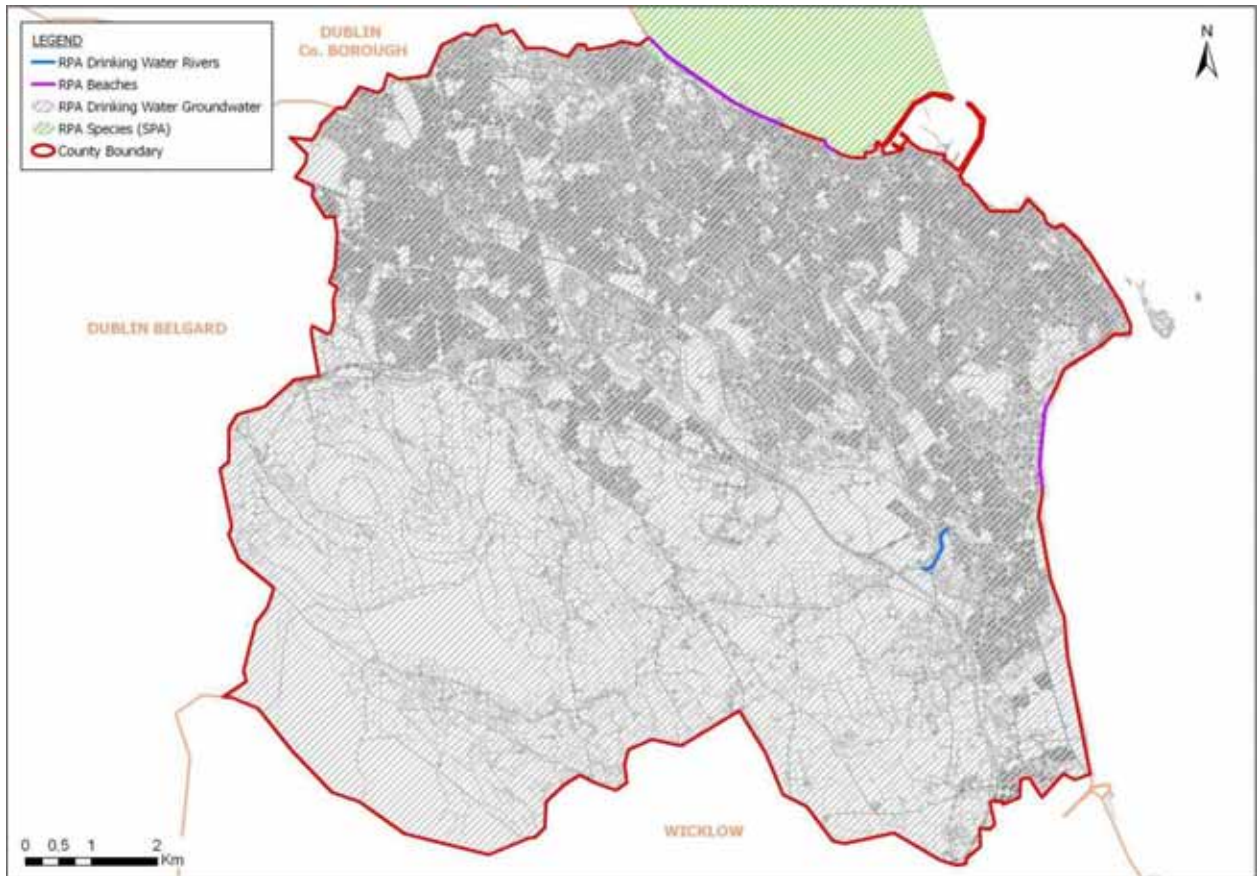


Figure 10 Entries to the WFD Register of Protected Areas

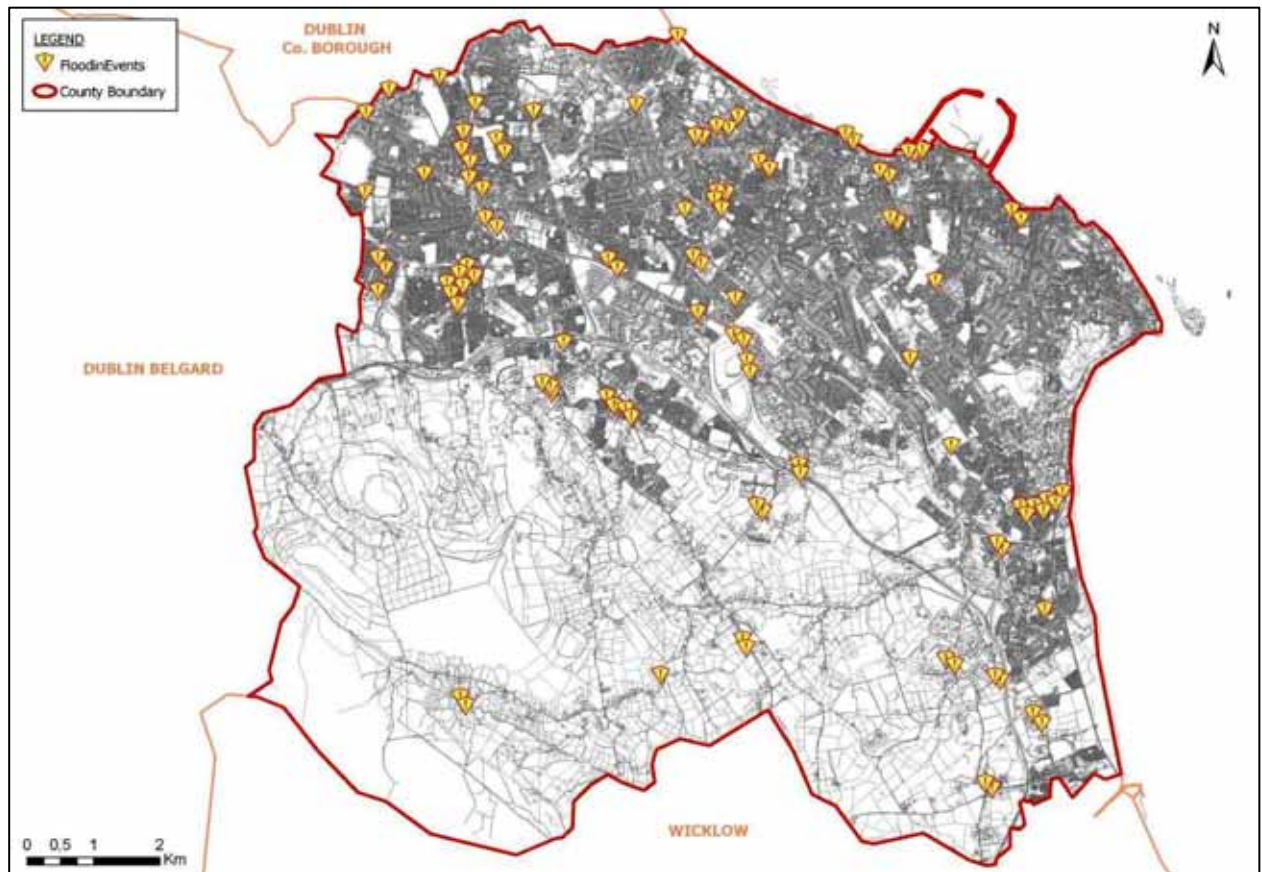


Figure 11 Flood Events in the Plan area

## 3.6 Air and Climatic Factors

### 3.6.1 Ambient Air Quality

To comply with relevant EU Air Quality Directives, the EPA measures the levels of a number of atmospheric pollutants. For the purposes of monitoring in Ireland, four zones are defined in the Air Quality Standards Regulations 2002 (SI No. 271 of 2002). The main areas defined in each zone are:

- Zone A: Dublin Conurbation.
- Zone B: Cork Conurbation.
- Zone C: Other cities and large towns comprising Galway, Limerick, Waterford, Clonmel, Kilkenny, Sligo, Drogheda, Wexford, Athlone, Ennis, Dún Laoghaire-Rathdown, Naas, Carlow, Tralee and Dúndalk.
- Zone D: Rural Ireland, i.e. the remainder of the State - small towns and rural areas of the country - excluding Zones A, B and C.

Dún Laoghaire-Rathdown falls into zone A. Current air quality in Zone A is "good". The index is calculated based on the latest available measurements of PM10, sulphur dioxide, nitrogen dioxide and ozone in Zone A.

Dún Laoghaire-Rathdown County Council recently adopted '*The Air Quality Management Plan for the Dublin Region, 2008-2012*' under the provisions of the Air Pollution Act 1987.

### 3.6.2 Noise

Noise is unwanted sound. It can seriously harm human health and interfere with daily activities at school, at work, at home and during leisure time.

Traffic noise alone is harming today the health of almost every third European<sup>5</sup>.

The main health risks of noise identified by the WHO include: pain and hearing fatigue; hearing impairment; annoyance; interferences with social behaviour; interference with speech communication; sleep disturbance and all its consequences; and performance at work and school.

The over-riding noise source in Dún Laoghaire-Rathdown is from traffic. Streets in low lying areas that have high traffic counts as well as enclosing taller buildings are likely to have harsh sensory environments with regard to noise levels with regard to this source. As mentioned below, traffic hotspots, such as intersections, are likely to have higher noise levels.

In addition, there are localised noise sources which include air conditioning equipment, marine traffic, port activities, train movements and night clubs.

In accordance with the requirements of EU Directive 2002/49/EC the Council, in collaboration with the three other Dublin Local Authorities, recently produced an Action Plan relating to the '*Assessment of Environmental Noise for the Dublin Agglomeration 2008-2013*'.

*Traffic hotspots* within some of the County's towns are likely to have elevated levels of air pollution and noise due to traffic congestion. These hotspots are located along the main road routes - especially at intersections - and provide for a harsh sensory environment which may impact upon human health. Streets in low lying areas that have high traffic counts as well as enclosing taller buildings are likely to have harsh sensory environments with regard to noise levels.

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<sup>5</sup> World Health Organization Regional Office for Europe (2003) *Technical meeting on exposure-response relationships of noise on health 19-21 September 2002* Bonn, Germany Bonn: WHO

Localised noise pollution is likely to occur when demolition/construction takes place and when traffic is queuing for long periods of time. In addition, there are localised noise sources which include air conditioning equipment, marine traffic, port activities and train movements.

### 3.6.3 Climatic Factors

#### 3.6.3.1 Greenhouse Gases

In order to reduce greenhouse gas emissions the internationally agreed Kyoto Protocol established emissions reduction targets for developing countries. Ireland's emission target for greenhouse gases is to limit the increase in their combined emissions during the five-year period 2008-2012 to 13 per cent above 1990 levels.

Based on the latest inventory figures<sup>6</sup>, the EPA estimates that Ireland's emissions in 2006 were 25.5 per cent higher than the baseline estimate that underlies Ireland's allowable emissions for the period 2008-2012, as agreed in the peer review of Ireland's 2006 submission to the United Nations Framework Convention on Climate Change.

With regard to overall emissions, *Agriculture* is the single largest contributor, at 27.7% of the total, followed by *Energy* (power generation & oil refining) at 22.3% and *Transport* at 19.7%. The remaining 30% is made up by the Residential sector at 10.4%, *Industry and Commercial* at 17.2%, and *Waste* at 2.6%.

Transport continues to be the dominant growth sector with emissions at 682,000 tonnes higher in 2006 than in 2005. This represents a 5.2% increase on 2005 levels and 165% increase on the 1990 transport emissions. Road transport accounts for 97% of the transport sector emissions. The increase in the GHG emissions from the transport sector reflects sustained increases in fuel consumption with petrol usage up 3.4% and diesel consumption up 7.9% from the previous year.

#### 3.6.3.2 Climate Change

Climate change refers to any change in climate over time, whether due to natural variability or as a result of human activity.

The release of greenhouse gases into the atmosphere as a result of human activities adds to natural climate variability by increasing the naturally occurring greenhouse effect. This greenhouse effect occurs in the atmosphere and is caused by greenhouse gases which exist naturally in the atmosphere. The greenhouse gases retain the radiation which is released from the earth as a result of heating by the sun. This retention maintains a global temperature which is suitable for ecosystems and life.

Climate change is not limited to changes in temperatures or weather - it can also mean changes in the occurrence of extreme and unstable weather conditions, storms and floods, droughts and coastal erosion.

### 3.6.4 Existing Problems

There are two current air quality monitoring sites in Dún Laoghaire-Rathdown. The site on the Glenegeary Road in Dún Laoghaire measures oxides of nitrogen. This site is operated by Fingal County Council on behalf of Dún Laoghaire-Rathdown County Council. Monitoring is done using continuous monitors for nitrogen oxides. Emissions from traffic are the main source of nitrogen oxides in Ireland along with electricity generating stations and industry. Levels in Ireland are moderate but have increased due to the growth in traffic numbers.

The site at the EPA Inspectorate, Richview, Clonskeagh monitors ozone levels. Monitoring is carried out using a continuous monitor for ozone. Ozone is a natural component of the atmosphere. Most ozone

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<sup>6</sup> EPA (2008) *Provisional figures for Ireland's 2006 Greenhouse Gas Emissions for the period 1990-2006* Wexford: EPA

is found in the stratosphere, between 12km and 50km above sea level, and in the troposphere, just above the surface of the Earth. Levels of ozone in Ireland are moderate.

Localised air pollution incidences with regard to PM<sub>10</sub> and PM<sub>2.5</sub> and noise pollution are both likely to occur when demolition/construction takes place - especially in relation to PM<sub>10</sub> if suppression techniques are not introduced - and when traffic is queuing for long periods of time.

Ireland's current emissions are exceeding targets agreed in the peer review of Ireland's 2006 submission to the United Nations Framework Convention on Climate Change. It is unlikely that Ireland will meet these targets and it is likely therefore that financial penalties will be incurred. Transport related emissions continue to be the dominant growth sector.

Changes in sea level and/or changes in the occurrence of severe rainfall events as a result of climate change could adversely impact upon the County's human beings, its biodiversity and its economy.

### **3.6.5 Evolution of Air and Climatic Factors in the absence of a Development Plan**

Increases in the use of catalytic converters, cleaner fuels, better engine technology and maintenance is generally reducing the pollution omitted per motor vehicle however this reduction is probably being offset by the increase in the number of cars as well as the increase in the volume and incidences of traffic congestion. Increases in the number of cars as well as the increase in the volume and incidences of traffic congestion may lead to increases in air and noise pollution in the future.

If new development or an intensification of existing land uses were to occur in the Plan area adverse impacts upon air quality and noise levels, and resultant impacts upon human health, would be likely to arise if unmitigated.

In the absence of a Development Plan, the realisation of objectives relating to energy efficiency, renewable energy and a reduction in transport related emissions contained within the Development Plan would be made more difficult.

The Development Plan provides an opportunity to provide for the regeneration of certain urban and inner suburban areas within Dún Laoghaire-Rathdown which are close to existing and proposed high quality public transport linkages. This regeneration would provide for an increased population which would be less dependent upon private modes for transportation and would therefore be likely to generate less transport related greenhouse gas emissions than populations located further away from the urban areas. In the absence of a Development Plan regeneration of the areas provided under the Development Plan would not be achieved and an opportunity to prevent the generation of future transport related greenhouse gas emissions would be missed.

## **3.7 Material Assets**

### **3.7.1 Waste Water**

Waste water arising from Dún Laoghaire-Rathdown is collected by the waste water collection network and pumped to the waste water treatment plant at Shanganagh where it undergoes preliminary treatment. The primary discharge point is at the end of a 1.7km long sea outfall which discharges into Killiney Bay.

The other catchments in the Plan area - West Pier West, Dodder Valley, UCD and West Pier East - flow to the West Pier pumping station and on to Ringsend Waste Water Treatment Plant - the remainder of the County (with the exception of the small Corke Abbey Catchment north of Bray - which flows to Bray) is unserved and utilises septic tank treatment.

Current (2002) loading at the Shanganagh Waste Water Treatment Plant is 106,930 population equivalent (PE)<sup>7</sup>. The expected future loading is 180,000 PE and the ultimate loading is 240,000 PE.

It is predicted that the future Shanganagh Wastewater Treatment Works will reach capacity in approximately 2018 (subject to the rate of development). Provision has been made in the layout to further extend the plant if and when necessary.

### **3.7.2 Drinking Water**

Over 98% of water distributed in Dún Laoghaire-Rathdown is purchased from Dublin City Council. This water is sourced from catchments outside DLRCC, primarily Blessington Lakes, the Vartry River and Bohernabreena.

There are two small surface water (river / stream) abstraction points in Kiltarnan and Ballyedmonduff serving c. 500 households in total and a small groundwater source in Glencullen serving c. 200 households.

Total daily demand in August 2008 averaged 56 MI/d (Megalitres per day). Water production capacity in the Dublin region is barely adequate and is currently unable to meet demand in the event of adverse weather cycles or significant system failure.

Regionally, some minor water production capacity enhancement is underway. However, this will be inadequate to supply increased demand in the region unless a major new water source is in place by 2015.

### **3.7.3 Existing Problems**

Certain regions of the Plan area are not within the catchment of the waste water treatment network and consequently development in these areas use septic tanks to treat waste water arising.

Waste water arising in the Shanganagh catchment undergoes preliminary treatment before being discharged into Killiney Bay. The level of treatment is insufficient and needs to be improved as the majority of coastal waters in the Plan area are at significant of failing to meet the objectives of the Water Framework Directive by 2015. The proposed upgrades to wastewater infrastructure should alleviate this problem.

### **3.7.4 Evolution of Material Assets in the absence of a Development Plan**

In the absence of an Development Plan, it is likely that dispersed development would occur. This would make it more difficult to provide the necessary infrastructure such as waste water treatment plants and networks, water supply infrastructure, transport infrastructure and powerlines etc.

Failure to provide sufficient infrastructure for development would be likely to result in significant adverse impacts. For example, failure to upgrade and provide new waste water infrastructure would be likely to adversely impact upon water quality and indirectly significantly adversely impact upon biodiversity and flora and fauna, drinking water supplies and human health.

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<sup>7</sup> Population equivalent (in waste-water monitoring and treatment) refers to the amount of oxygen-demanding substances whose oxygen consumption during biodegradation equals the average oxygen demand of the waste water produced by one person.



## **3.8 Cultural Heritage**

### **3.8.1 Introduction**

Heritage, by definition, means inherited properties, inherited characteristics and anything transmitted by past ages and ancestors. It covers everything, from objects and buildings to the environment. Cultural heritage includes physical buildings, structures and objects, complete or in part, which have been left on the landscape by previous and indeed current generations.

#### **3.8.1.1 Record of Monuments and Places**

In Dún Laoghaire-Rathdown, there are 400 items on the Record of Monuments and Places (RMP), with a Zone of Archaeological Potential shown around each monument (see Figure 12). There are more entries to the Record of Monuments and Places in the rural, south eastern parts of the Plan area though clusters exist at Dalkey Island and at Dalkey. Clusters also exist west of Loughlinstown and at Glencullen and also at Kilmashogue Mountain in the west of the Plan area.

#### **3.8.1.2 Industrial Heritage**

The industrial heritage of Dún Laoghaire-Rathdown includes some very important sites such as the Dublin and Kingstown Railway, the Atmospheric Railway, the chimney flue at Ballycorus lead mines and Dún Laoghaire-Rathdown Harbour.

The industrial heritage of Dún Laoghaire-Rathdown also contains a wide range of elements, including transportation systems, such as, railway infrastructure, engineering structures such as bridges and viaducts, and small local items such as milestones and post boxes.

#### **3.8.1.3 Zone of Archaeological Potential**

Dalkey has been designated by the Department of the Environment, Heritage and Local Government as a Zone of Archaeological Potential, and is an area where intense archaeology is present. The historic core of Dalkey has also been designated as an Architectural Conservation Area, with specific policy recommendations formulated to protect its special character and guide its future development.

#### **3.8.1.4 Record of protected Structures**

There are currently in excess of 2,000 Protected Structures within the County (see Figure 13).

#### **3.8.1.5 Architectural Conservation Areas**

Architectural Conservation Areas include regions at Foxrock, Dalky and Killiney. Since 2004 the Council has formally adopted eleven of the forty-six ACAs.

### **3.8.2 Existing Environmental Problems**

The cumulative accommodation of large scale development in Dún Laoghaire-Rathdown has the potential to cumulatively impact upon cultural heritage of the Plan area.

Archaeology can be previously unknown but can be damaged through development causing ground disturbance.

Development which involves material alteration or additions to protected structures can detract from the special character of the structure and its setting, and have the potential to result in the loss of features of architectural or historic interest and the historic form and structural integrity of the structure are retained. Development on sites adjoining protected monuments, places or structures can also impact upon the setting of these cultural heritage items.

Encouraging and facilitating the accommodation of growth on brownfield sites will contribute to mitigating a number of the adverse impacts associated with greenfield development, however, brownfield

development has the potential to significantly adversely impact upon cultural heritage - both archaeological and architectural - if unmitigated against.

### **3.8.3 Evolution of Cultural Heritage in the absence of a Development Plan**

In the absence of Development Plan, the evolution of cultural heritage would be dependent on developments which take place. Such development would have no guidance as to where to be directed and planning applications would be assessed on an individual basis with cultural heritage protected under a number of strategic actions relating to archaeological and architectural protection.

Beneficial impacts upon the protection of cultural heritage which would be likely to arise as a result of the Plan provisions would not necessarily occur.

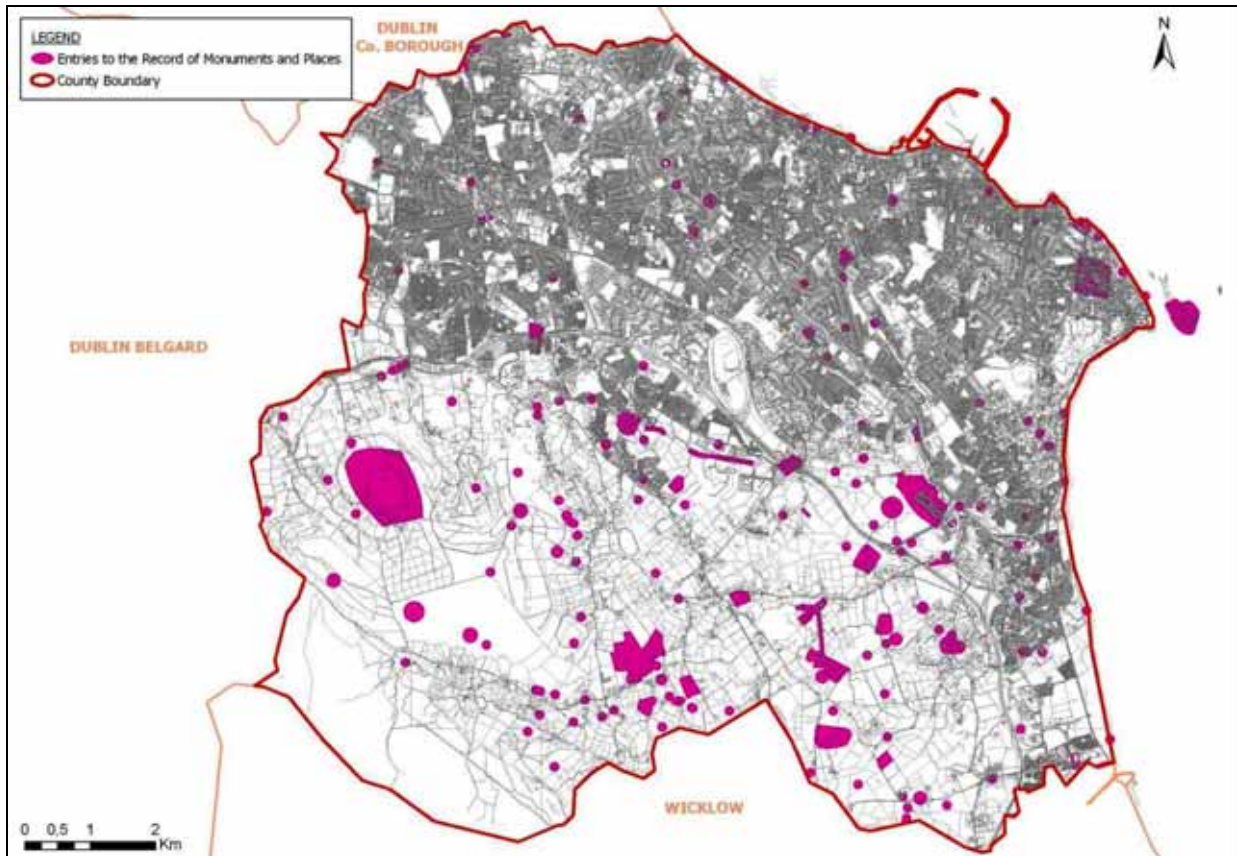


Figure 12 Entries to the Record of Monuments and Places

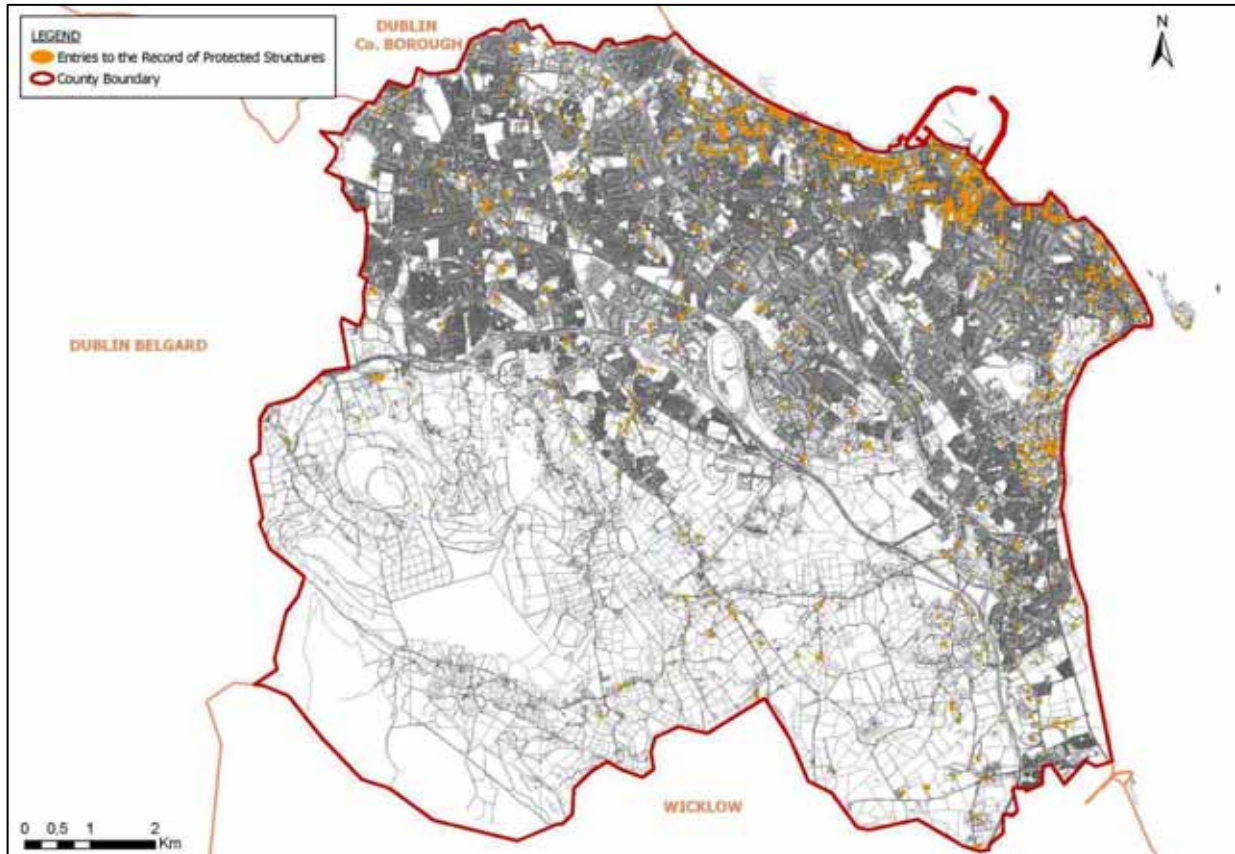


Figure 13 Entries to the Record of Protected Structures

## 3.9 Landscape

### 3.9.1 Landscape Character Assessment

In accordance with the DoEHLG's Landscape and Landscape Assessment Guidelines (2000), Dún Laoghaire-Rathdown County Council prepared a Landscape Classification Assessment for the County in 2002, during the preparation of the 2004-2010 County Development Plan. The LCA focuses on the primarily rural areas of the County which lie in the south west. The LCA classifies the different landscapes of the County in relation to their different characteristics and values and their degree of sensitivity to various kinds of development.

This Landscape Character Assessment identified 14 Landscape Character Areas and recommended a strategy for each area.

### 3.9.2 High Amenity Zones

These areas consist of landscapes of special value where inappropriate development would contribute to a significant diminution of the landscape setting of the County. These areas include the Glencullen Valley, Glendoo Valley and Kilmashogue Valley. The areas adjacent to the High Amenity areas are also sensitive landscapes as development in these areas may affect directly or indirectly the quality of the High Amenity areas.

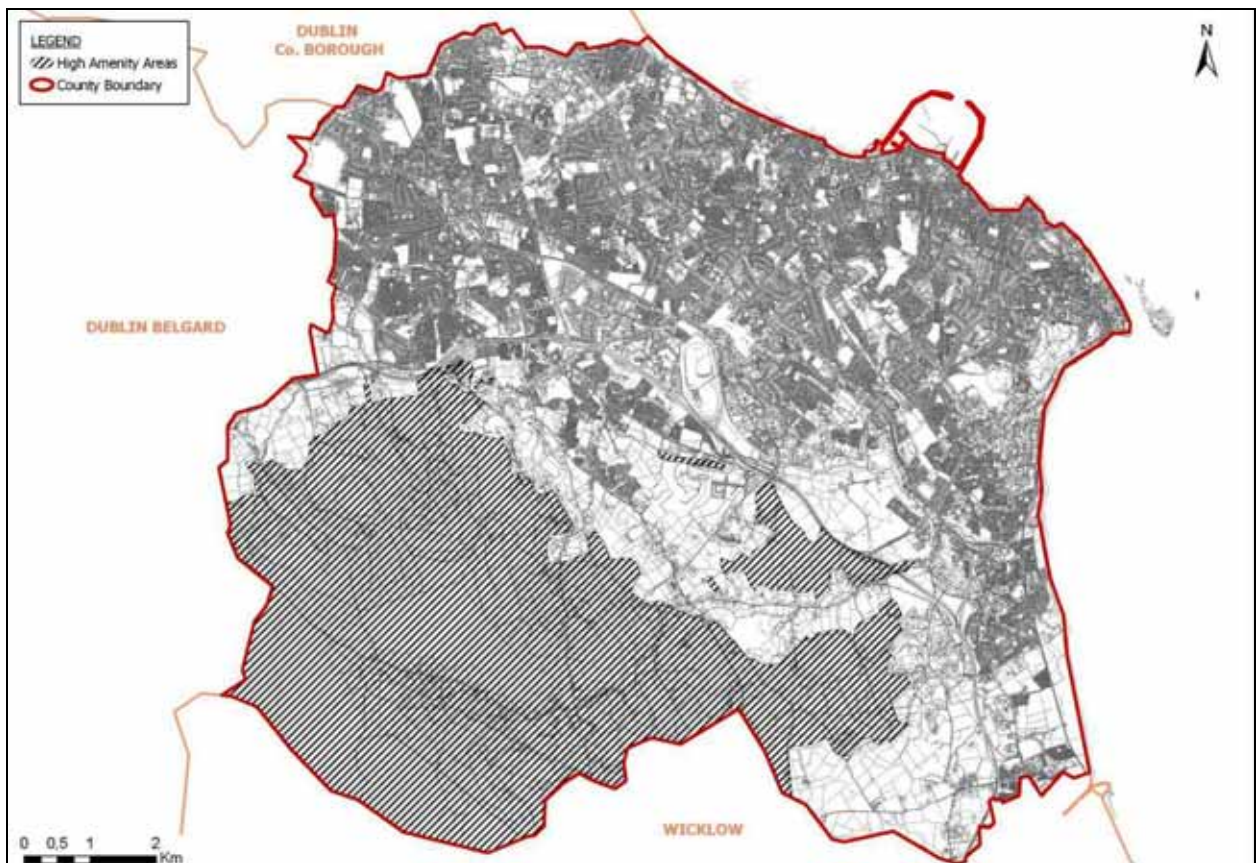


Figure 14 High Amenity Area Zoning

### 3.9.3 Historic Landscape Character Areas

Six HLCAs have been carried out in the County at Barnacullia, Kilternan, Glencullen, Ballycorus and Rathmichael and Old Connaught. These HLCA's cover areas generally on the urban-rural fringe and are thus most likely to come under development pressure during the course of the Plan.

### 3.9.4 Views and Prospects

The County contains many sites, areas and vantage points from which views over areas of great natural beauty, local landmarks, historic landscapes, adjoining Counties and the City of Dublin may be obtained. In addition to scenic views, the County also contains important prospects i.e. prominent landscapes or areas of special amenity value or special interest which are visible from the surrounding area.

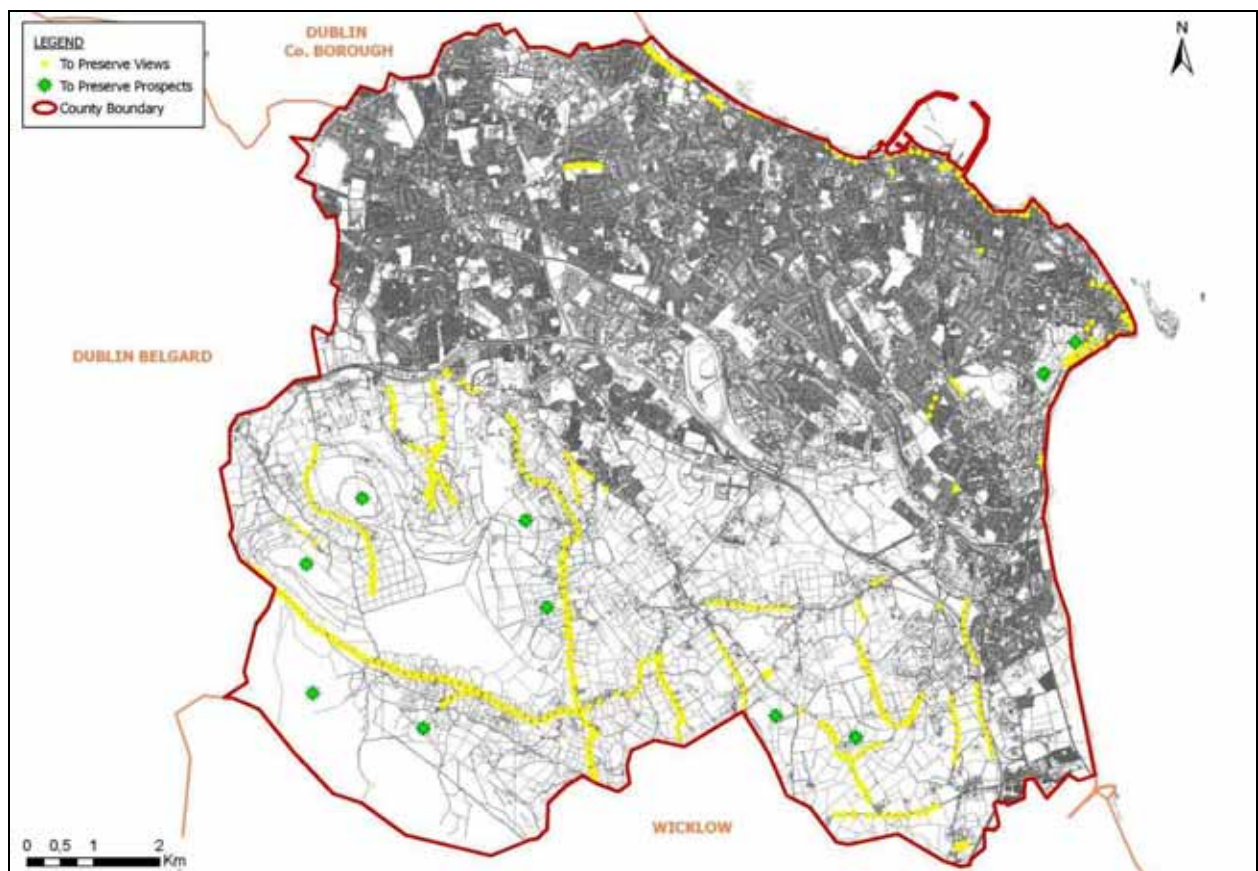


Figure 15 Protected Views and Prospects

### 3.9.5 Existing Environmental Problems

A problem with regard to the environmental component of landscape is the cumulative visual impact which occurs as a result of developments such as one off houses. Such developments, which individually often do not have significant adverse impacts, have the potential to cumulatively and adversely significantly impact upon sensitive landscapes. This is particularly applicable to the uplands in the south east of the Plan area.

### 3.9.6 Evolution of Landscape in the absence of a Development Plan

In the absence of a Development Plan, development would be likely to occur on a one-off, dispersed basis. As outlined above, this would have cumulative impacts on the landscape.

### 3.10 Strategic Environmental Objectives

Based on an understanding of the existing environment a number of Strategic Environmental Objectives (SEOs) were developed in order to facilitate the evaluation of the Plan and its alternatives and Plan provisions. SEOs are distinct from the objectives of the CDP - although they will often overlap - and are developed from international, national and regional policies which generally govern environmental protection objectives. Such policies include those of various European Directives which have been transposed into Irish law, all of which are intended to be implemented at county level in Dún Laoghaire-Rathdown and integrated into any plan for the County. The SEOs which were used in the assessment are identified on the table below.

SEO Code	SEO
<b>B1</b>	To avoid loss of relevant habitats, geological features, species or their sustaining resources in designated ecological sites
<b>B2</b>	To avoid significant adverse impacts, including direct, cumulative and indirect impacts, to relevant habitats, geological features, species or their sustaining resources in designated ecological sites by development within or adjacent to these sites
<b>B3</b>	To sustain, enhance or - where relevant - prevent the loss of ecological networks or parts thereof which provide significant connectivity between areas of local biodiversity
<b>HH1</b>	To protect human health from hazards or nuisances arising from exposure to incompatible landuses
<b>S1</b>	Maximise the sustainable re-use of brownfield lands, and maximise the use of the existing built environment rather than developing greenfield lands
<b>W1</b>	To maintain and improve, where possible, the quality of rivers
<b>W2</b>	To maintain and improve, where possible, the quality of transitional and coastal waters and to prevent pollution and contamination of bathing water
<b>W3</b>	To prevent pollution and contamination of ground water
<b>W4</b>	To prevent development on lands which pose - or are likely to pose in the future - a significant flood risk
<b>C1</b>	To minimise increases in travel related greenhouse emissions to air
<b>C2</b>	To reduce car dependency within the County by way of, inter alia, encouraging modal change from car to more sustainable forms of public transport and encouraging development which will not be dependent on private transport
<b>M1</b>	To serve new development with appropriate waste water treatment
<b>CH1</b>	To protect the archaeological heritage of Dún Laoghaire-Rathdown with regard to entries to the Record of Monuments and Places - including Zones of Archaeological Potential - and the context of the above within the surrounding landscape where relevant
<b>CH2</b>	To preserve and protect the special interest and character of Dún Laoghaire-Rathdown's architectural heritage with regard to entries to the Record of Protected Structures and their context within the surrounding landscape where relevant
<b>L1</b>	To avoid significant adverse impacts on the landscape - especially with regard to the County's landscapes attributed with a High Amenity zoning objective and protected views and prospects.

## Section 4 Alternative Plan Scenarios

### 4.1 Introduction

One of the critical roles of the SEA is to facilitate an evaluation of the likely environmental consequences of a range of alternative strategies for accommodating future development in Dún Laoghaire-Rathdown.

In order to identify the extent to which environmental sensitivities are likely to be impacted upon by implementation of the two mapped alternatives (Alternative Scenarios 1 and 2), overlay mapping (which weighs environmental sensitivities and maps them overlapping each other).

The environmental consequences of 3 scenarios for the Plan were examined.

**Scenario 1 Market-led Growth**

**Scenario 2 Selective Concentration along Public Transport Corridors**

**Scenario 3 Minimalist Approach**

***Scenario 1 Market-led Growth*** involves allowing growth to follow the demands of the development industry as expressed through rezoning submissions to the Development Plan Review process, regardless of conformity with planning guidelines, infrastructure capacity or environmental constraints.

The location and nature of development would be completely dependent upon market demand and applications would be evaluated on a case by- case basis by the Council. The demand for rezonings has focussed largely on areas that are presently unserved, with no provision for foul drainage or water supply and are relatively remote from existing or planned public transport.

***Scenario 2 Selective Concentration along Public Transport Corridors***; the four components of sustainable development – economic development, social well-being, environmental protection and enhancement, and resource conservation are integrated in the Plan.

This scenario also responds to the relevant national/regional planning strategies including the National Spatial Strategy and the Regional Planning Guidelines and follows on from a number of strategies carried out within the County including the Housing Strategy, Retail Strategy and Land Availability studies.

***Scenario 3 Minimalist Approach*** is considered to generally reflect the present Development Plan Map.

This scenario would involve the adoption of planning policies which seek to maintain the status quo as far as possible and limit the development potential of growth areas and brownfield sites to reflect the established pattern and character of development in the County.

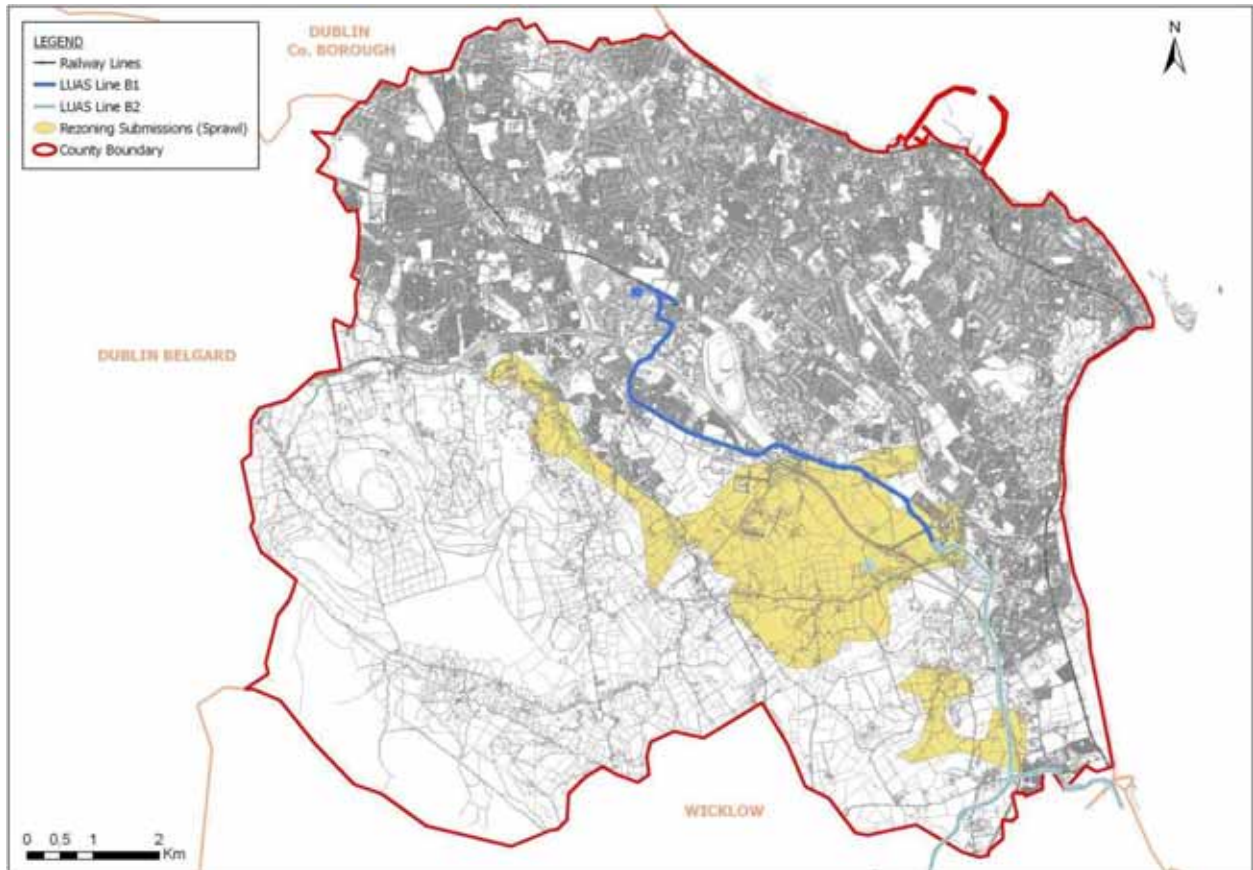


Figure 16 Alternative Scenario 1 - *Market-Led Growth*

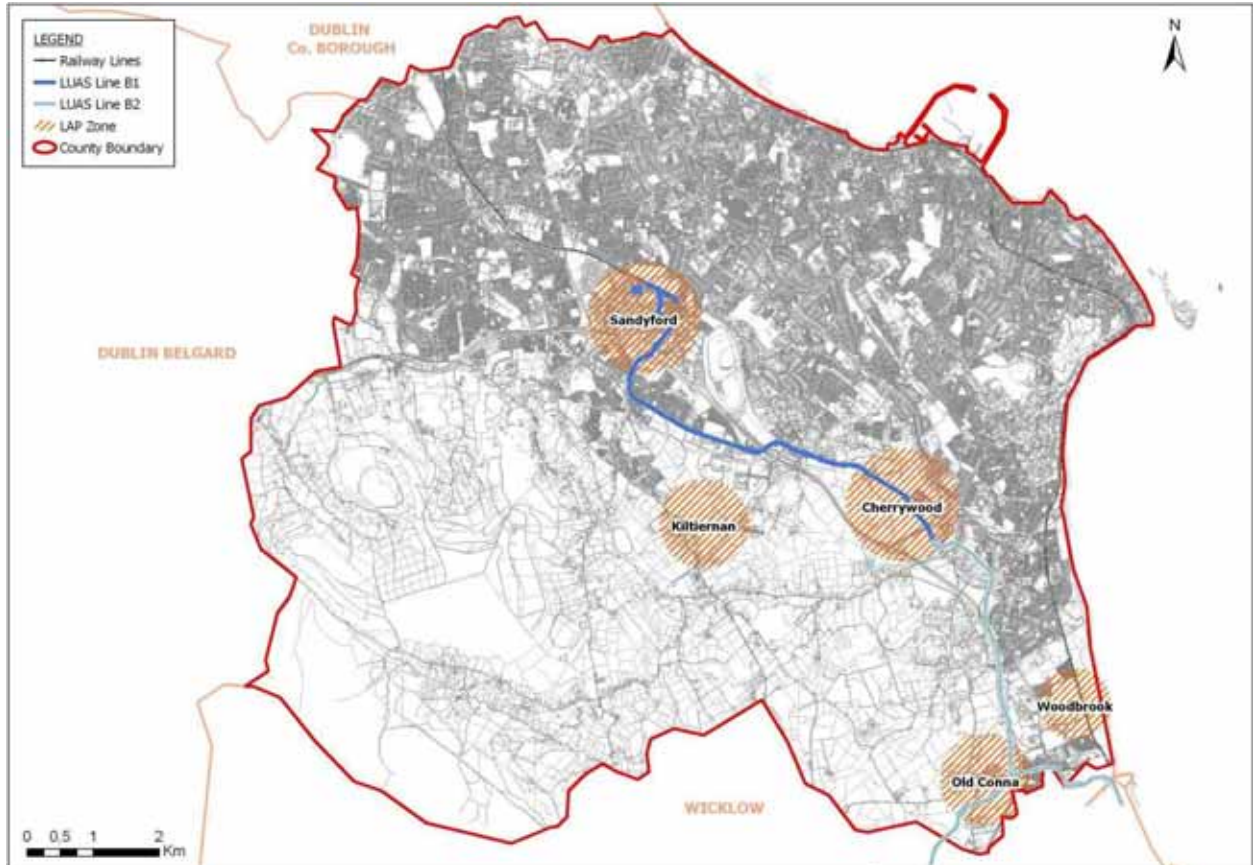


Figure 17 Alternative Scenario 2 - *Selective Concentrations along Public Transport Corridors*



## 4.2 Evaluation of the Alternative Scenarios

### 4.2.1 Alternative Scenario 1: *Market-Led Growth*

#### 4.2.1.1 Planning Effects

Development would be less concentrated and spread over wider areas than would be the case in either Scenario 2 or 3. This scenario would not allow for the co-ordination and consolidation of employment, public infrastructure, amenities, community facilities, schools, public transport etc.

The relative remoteness of much of the proposed development land from existing or planned public transport would result in an unsustainable pattern of excessive private car use. Unsustainable transport patterns would escalate with associated patterns of increasing atmospheric emissions and energy consumption<sup>8</sup>. The National Routes would be compromised by becoming increasingly congested. The cumulative impact of development would impact adversely on the natural environment.

Ad hoc dispersed mixed-use development would be likely to draw population away from the designated and serviced Local Area Plan locations. This could result in the inability of these designated areas to grow and develop and build up the necessary population base that would generate viable service provision and economic opportunities. The likely outcome is the uncoordinated development of key new residential communities in the County, which could have serious implications for both the quality of life for residents of these areas and the natural environment.

#### 4.2.1.2 Environmental Effects

##### A. Water

This scenario poses particular challenges for water quality.

- The majority of the area comprises the catchment of the Loughlinstown River which is noted as being at 'significant risk' of not attaining 'good water status by 2015' – as required by the provisions of the Water Framework Directive.
- Furthermore much of the lands likely to be developed lie over areas with groundwater and surface water vulnerabilities.
- Finally the unplanned and dispersed nature of the development will make it very difficult to ensure that all aspects of the supply, interception and treatment of waters within these areas will be dealt with adequately.

##### B. Ecology

This scenario will concentrate developments into two ecologically sensitive zones within the county. It will give rise to un-coordinated development that occurs across the two *Major Ecological Corridors* within the County. It will give rise to development across the principal transition between the developed lowland habitats of the north-east and little or less developed upland habitats of the south-west of the County.

##### C. Landscape

This scenario will give rise specific and localised change of the appearance and character of the areas, especially between Kiltiernan, Cherrywood and Old Conna. Much of this land is substantially undeveloped and elevated which means that developments are likely to be visually contrasting and highly conspicuous over a wide area. This will give rise to changes in the appearance and character of the landscape that are likely to be perceived as being significant and adverse over a wide area that contains the largest concentration of protected views in the County.

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<sup>8</sup> SEOs C1 and C2

#### **D. Cultural Heritage**

It is likely that the concentration of poorly co-ordinated development into the environs of protected structures – such as Old Conna - is likely to result in localised, effects on the contexts of protected structures.

### **4.2.2 Alternative Scenario 2: *Selective Concentrations along Public Transport Corridors***

#### **4.2.2.1 Planning Effects**

The likely plan impacts of a mixed approach are to create a balanced development pattern in Dún Laoghaire-Rathdown. This approach will provide for existing levels of growth plus projected increases. The provision of physical and social infrastructure will be in accordance with projected population and housing horizons. The rural environment will be protected as a resource, while the rural economy will be supported through diversification.

This scenario has regard to the strategic potential of different parts of the County and the realisation of this potential in a sustainable manner. It acknowledges the role of existing settlements and gives market certainty with regard to the focus of new investment on infrastructure. Of the three scenarios presented, it would appear to fit best with the NSS concept.

#### **4.2.2.2 Environmental Effects**

##### **A. Water**

This has a positive effect on water in the following ways:-

- Development is concentrated into areas that will be fully serviced with appropriately scaled infrastructure.
- The majority of development occurs in areas with lower groundwater vulnerability.
- The majority of development takes place outside the catchment of the Loughlinstown River – which is already stressed.

##### **B. Ecology**

This scenario has a number of positive effects on ecology.

- The majority of developments [with the exception of Woodbrook and Old Conna] avoid the destruction or disturbance – either by development or proximity – of the most sensitive ecological resources of the County.
- The development of such areas – on the basis of LAPs – will provide the opportunity to avoid local direct or indirect impacts on ecological sensitivities [especially in Woodbrook and Old Conna] – through the mitigation measures incorporated into such plans. Such land will also offer the opportunities to provide specific enhancement of ecological features – such as the reinforcement of major ecological corridors in the detail of LAPs for Cherrywood, Kiltiernan, Old Conna and Woodbrook.

##### **C. Landscape**

This scenario will, generally, have low impacts on the appearance and character of the area because most resultant development will be seen in the context of areas with significantly man-altered character.

There will be specific and localised change of the appearance and character of the Woodbrook, Kiltiernan, and Old Conna with the latter having the potential wider areas on account of their elevated location.

##### **D. Traffic and associated effects**

Having regard to the concentrated settlement pattern that are likely to result from this scenario there are likely to be commensurately lower levels of movements of private cars and other transport. This will give rise to reduced volumes of traffic with associated reductions in congestion and economic losses as well as direct reductions in emissions [air, noise and water runoff], energy uses and avoidance or reduction of

indirect effects due to the need for new or improved road capacity - resulting in fewer impacts on ecology, landscape, cultural heritage and infrastructure.

### **E. Cultural Heritage**

Notwithstanding the relatively high concentrations of protected structures and monuments within the County, this scenario is likely to have relatively low levels of effect for two reasons;-

- The development of such areas – on the basis of LAPs – will provide the opportunity to avoid local direct or indirect impacts on cultural resources through the adoption of appropriate guidelines and standards in the LAPs.
- The concentration of development into a small number of areas greatly dilutes or diverts pressure on other resources and their contexts elsewhere in the County.

Nonetheless it is likely that the concentration of development into the environs of Old Conna is likely to result in localised, residual effects on the contexts of protected structures.

## **4.2.3 Evaluation of Alternative Scenario 3: *Minimalist Approach***

### **4.2.3.1 Planning Effects**

The economic and social implications of this scenario would be negative. The positive regeneration benefits for the County which would be released by the development of Key Development Areas (particularly Cherrywood) for more intensive urban development could be compromised and in the longer-term problems of sustained population decline could result.

Under this scenario, the County would be unable to hold on to its natural increase in population and the population targets set out in the Regional Planning Guidelines for the Greater Dublin Area would be unattainable. Such a consequence would most likely see further development pushed out into the Mid-East Region beyond the Metropolitan core with all of the negative consequences associated with long-distance commuting and population dispersal<sup>9</sup>.

The sustained population decline that could be a consequence of this scenario could entail a significant social cost in the form of a loss of essential local services and a decline in public transport usage<sup>10</sup>.

### **4.2.3.2 Environmental Effects**

#### **A. Water**

This scenario has two sets of opposing effects. On the one hand a cessation or significant slowing of development will reduce the generation of effects that are likely to reach waters – which is a direct localised benefit.

On the other hand such a contraction is likely to slow or stop the capitalization new or upgraded sanitary services. This is likely to retard the attainment of satisfactory discharge levels for existing effluent from a wide area – making it more difficult to comply with the water quality objectives of the Water Framework Directive. This is likely to give rise to significant, extensive, indirect adverse effects on water quality.

#### **B. Ecology**

A cessation or significant slowing of development will reduce the extent, magnitude and intensity of effects on species, habitats and many ecological resources [with the important exception of water quality, as mentioned above] which is a direct widespread benefit.

#### **C. Landscape**

A cessation or significant slowing of development will reduce the extent, magnitude and intensity of landscape and visual effects which is a direct widespread benefit.

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<sup>9</sup> SEOs W1, W3, M1, C1 and C2

<sup>10</sup> SEOs C1 and C2

#### **D. Traffic and associated effects**

This scenario has two sets of opposing effects. On the one hand a cessation or significant slowing of development will reduce the generation of traffic and associated effects - a direct benefit of this scenario.

On the other hand such a contraction is likely to slow or stop the capitalization new or upgraded traffic infrastructure and public transport services. This is likely to retard the attainment of satisfactory services levels and make it more difficult to attain the improved modal splits required for sustainable mobility patterns – with associated effects on air emissions, energy utilisation and noise. This is likely to give rise to extensive, indirect adverse effects on traffic.

#### **E. Cultural Heritage**

A cessation or significant slowing of development will reduce the extent, magnitude and intensity of direct, indirect and incremental effects on cultural heritage resources which is a direct widespread benefit.

### **4.2.4 Summary; the Alternative Scenario for the Plan**

The Alternatives that were examined were produced and evaluated at an earlier - more embryonic - stage to facilitate the evaluation and selection of a plan - having regard, *inter alia* to environmental consequences.

The Draft County Development Plan that emerged from the Plan preparation process and which was adopted has a close correlation to Scenario 2 - *Selective Concentrations along Public Transport Corridors*.

In summary, Scenario 2 represents a pragmatic recognition of the need to continue to accommodate and control growth in Dún Laoghaire-Rathdown. Unlike the minimalist approach [Scenario 3], Scenario 2 does not give rise to the least level of direct, short-term beneficial environmental effects. However, in the medium to long-term Scenario 2 is more likely to bring about better environmental outcomes because of its ability to bring about both controlled growth and the necessary growth to capitalise important environmental mitigation measures.

With the integration of appropriate mitigation measures (including those identified in Section 9 of the Environmental Report) potential adverse environmental effects which could arise as a result of implementing this scenario would be likely to be avoided, reduced or offset.

Alternative Scenario 2 was chosen to be developed for the Draft Development Plan by the plan-making team and was adopted by the Elected Members having regard to both:

1. The environmental effects which were identified by the Strategic Environmental Assessment; and,
2. Planning - including social and economic - effects.

## Section 5 Mitigation and Monitoring Measures

### 5.1 Mitigation

#### 5.1.1 Introduction

Mitigation measures are measures envisaged to prevent, reduce and, as fully as possible, offset any significant adverse impacts on the environment of implementing the Development Plan. Mitigation involves ameliorating significant negative effects. Where there are significant negative effects, consideration is given in the first instance to preventing such effects or, where this is not possible for stated reasons, to lessening or offsetting those effects. Mitigation measures can be roughly divided into those that: *avoid* effects; *reduce* the magnitude or extent, probability and/or severity of effects; *repair* effects after they have occurred, and; *compensate* for effects, balancing out negative impacts with other positive ones.

The mitigation measures may be incorporated into the briefing of design teams as well as the subsequent design, specification and development management of the landuses to be accommodated within the Plan area.

#### 5.1.2 Mitigation Measure Topics

Mitigation measures were recommended for the following topics and integrated into the Plan through Policy LHB27:

- Biodiversity and Flora and Fauna
- Water Protection
- Bathing Water
- Waste Water
- Drinking Water
- Flooding
- Soil and Contamination
- Cultural Heritage
- Landscape
- Air and Noise
- Transportation
- Waste Management

### 5.2 Monitoring

The SEA Directive requires that the significant environmental effects of the implementation of plans and programmes are monitored. The Environmental Report contains proposals for monitoring the Plan which are adopted alongside the Plan. Monitoring enables, at an early stage, the identification of unforeseen adverse effects and the undertaking of appropriate remedial action. In addition to this, monitoring can also play an important role in assessing whether the Development Plan is achieving its environmental objectives and targets - measures which the Development Plan can help work towards - whether these need to be re-examined and whether the proposed mitigation measures are being implemented.

The Environmental Report identifies indicators - which allow quantitative measures of trends and progress in the environment over time. Measurements for indicators generally come from existing monitoring sources. A preliminary monitoring evaluation report on the effects of implementing the Development Plan will be prepared within two years of the making of the plan. The Council is responsible for collating existing relevant monitored data, the preparation of a monitoring report, the publication of this report and, if necessary, the carrying out of corrective action.