



DRAFT COUNTY DEVELOPMENT PLAN **2016-2022**

*Non-Technical Summary of the
SEA Environmental Report*

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Section 1 Introduction and Terms of Reference

This is the Non-Technical Summary of the Environmental Report of the Draft Dún Laoghaire-Rathdown County Development Plan 2016-2022. 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 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, social and other considerations.

Why is it needed?

The SEA is being carried out in order to comply with the provisions of the SEA Regulations and in order to maintain high standards in environmental management and planning within Dún Laoghaire-Rathdown. The output of the process is an Environmental Report which should be read in conjunction with the Draft County Development Plan.

How does it work?

All of the main environmental issues in Dún Laoghaire-Rathdown are assembled and presented to the team who prepared the Draft Plan. This helps them to devise a Plan that protects whatever is sensitive in the environment. It also helps to identify wherever there are environmental problems in the area and ideally the Draft Plan tries to improve these.

To decide how best to make a Draft Plan that protects the environment as much as possible the planners examined alternative versions of the Plan. This helped to highlight the type of Plans that are least likely to harm the environment.

What is included in the Environmental Report which accompanies the Draft 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 the Plan objectives; and,
- Mitigation measures which set out to 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 the making of the Plan, a document, referred to as the SEA Statement, will be made public.

The SEA Statement will include information on how environmental considerations were integrated into the Plan and why the preferred alternative was chosen for the Plan in light of the other alternatives.

Section 2 The Draft Plan

2.1 Background to and Content of the Draft Plan

The Draft Plan sets out an overall strategy for the proper planning and sustainable development of the functional area of Dún Laoghaire-Rathdown County Council for the period 2016-2022. The Planning and Development Act 2000, as amended, requires a planning authority to prepare a Development Plan for its functional area every six years. The Draft Plan has been prepared in accordance with the requirements of section 10(2) of the Planning and Development Act 2000, as amended, by Dún Laoghaire-Rathdown County Council, and comprises of a written document with maps, and various appendices.

The Draft Plan's overall vision is to continue to facilitate appropriate levels of sustainable development predicated on the delivery of high quality community, employment and recreational environments - allied to the promotion of sustainable transportation and travel patterns - but all the while protecting Dún Laoghaire-Rathdown's unique landscape, natural heritage and physical fabric, to ensure the needs of those living and working in the County can thrive in a socially, economically and environmentally sustainable manner.

The Draft Plan has been structured into 10 main Chapters which deal with various topics as outlined below. These chapters contain different types of provisions (visions, policies, objectives and standards) which will be applied to future development proposals in the County.

1. Strategic Overview

- 1.1 Introduction and Context
- 1.2 Core Strategy
- 1.3 Development Areas and Regeneration

2. Sustainable Communities Strategy

- 2.1 Residential Development
- 2.2 Sustainable Travel and Transportation

3. Enterprise and Employment Strategy

- 3.1 Enterprise and Employment
- 3.2 Retailing and Major Town Centres

4. Green County Strategy

- 4.1 Landscape, Heritage and Biodiversity
- 4.2 Open Space and Recreation

5. Physical Infrastructure Strategy

- 5.1 Environmental Infrastructure and Management
- 5.2 Climate Change, Energy Efficiency and Flooding

6. Built Heritage Strategy

- 6.1 Archaeology and Architectural Heritage

7. Community Strategy

- 7.1 Social Infrastructure and Community Development

8. Principles of Development

- 8.1 Urban Design Strategy
- 8.2 Development Management
- 8.3 Land Use Zoning Objectives

9. Specific Local Objectives

10. Strategic Environmental Assessment (SEA) and Appropriate Assessment (AA)

The Plan contains **15 Appendices** as follows:

1. National, Regional and Local Context
2. Housing Strategy
3. Ecological Network
4. RPS/RMP/ACAs/CACAs
5. Industrial Heritage Survey
6. Wind Energy Strategy
7. Landscape Character Areas
8. ROW/RAR
9. Building Height Strategy
10. Development Management Thresholds Information
11. Rural Design Guide
12. Dún Laoghaire Urban Framework Plan
13. Strategic Flood Risk Assessment
14. Green Infrastructure Strategy
15. Sandyford Urban Framework Plan

2.2 Strategic work done by the Council to ensure contribution towards environmental protection and sustainable development

Far in advance of both the submission of the pre-Draft Plan to the Elected Members for approval and the placing of the Draft Plan (and associated SEA, AA and SFRA documents) on public display, Dún Laoghaire-Rathdown County Council undertook various works in order to inform the preparation of the Draft Plan.

The findings of this strategic work have been integrated into the Draft Plan and will be implemented when it is adopted, contributing towards both environmental protection and management and sustainable development within the County.

Strategic work done by the Council includes the preparation of the following:

- Background work in relation to the Sustainable Communities Strategy
- Background work in relation to the Enterprise and Employment Strategy
- Background work in relation to the Physical Infrastructure Strategy
- Background work in relation to the Built Heritage Strategy
- Background work in relation to the Community Strategy
- Housing Strategy
- Ecological Network
- Review of Wind Energy Strategy
- Review of Landscape Character Areas
- Green Infrastructure Strategy
- Review of DLUP
- Review of SUP
- Climate Change proofing of existing Dún Laoghaire-Rathdown County Development Plan 2010-2016

The undertaking of this SEA process as well as the undertaking of the AA and SFRA were part of this strategic work and contributed towards the integration of environmental considerations into individual Plan provisions as summarised in Section 5 of this report.

2.3 Relationship with other relevant Plans and Programmes

Introduction

The Plan sits within a hierarchy of land use forward planning strategic actions such as policies, plans and programmes. The Plan must comply with relevant higher level strategic actions and may, in turn, guide lower level strategic actions.

The National Spatial Strategy 2002-2020

The National Spatial Strategy (NSS) 2002-2020 is a twenty year National Plan that sets out a strategy for balanced Regional development across Ireland and it informs National decisions as to where development (and Government investment) should take place. The NSS, while acknowledging the Greater Dublin Area (GDA) as the driver of the National economy, seeks to promote a better balance of population, jobs and development elsewhere in the State. The NSS is now twelve years old and is currently under review by the Department of the Environment, Community, and Local Government and is likely to be replaced during the County Development Plan process.

Regional Planning Guidelines

The Regional Planning Guidelines (RPGs) for the Greater Dublin Area 2010-2022 provide an overall spatial policy framework for the GDA to 2022 and focus on the physical consolidation of the Dublin Metropolitan Area and the proper integration of land use and transportation to promote more sustainable forms of development across the Region. RPG's projections for population and housing targets, published in June 2010, suggest that the GDA will grow significantly through both natural increase and continued in-migration. Up to 118,000 new houses could be needed across the seven GDA Local Authorities by 2022 to cater for the demand generated by the combination of population increase and changing household composition. Substantial retail and commercial development and the commensurate delivery of social and community infrastructure will also be needed to cater for the scale of projected growth.

It is worth noting that these projections were prepared prior to the Census in 2011. It should also be noted that the current GDA Regional Authority will be replaced this year by a new Eastern and Midlands Regional Assembly. This will result in the existing RPGs being replaced. The timing of both the establishment of the new larger Regional Assembly and the review of the NSS presents some logistical difficulties in the preparation of a strategic County Development Plan document which should be guided by and consistent with up-to-date National and Regional guidance.

River Basin Management Plan and Programme of Measures

Local Authorities including Dún Laoghaire-Rathdown County Council have prepared a River Basin Management Plan and Programme of Measures for the Eastern River Basin District 2009-2015 which is implemented in order to help protect and improve waters in the County and wider River Basin Districts.

Catchment Flood Risk Assessment and Management Studies

A Catchment Flood Risk Assessment and Management (CFRAM) Study is being undertaken for the Eastern River Basin District by the Office of Public Works. The CFRAM Study focusing on areas known to have experienced flooding in the past and areas that may be subject to flooding in the future either due to development pressures or climate change. In 2015, draft Flood Maps will be published. The final output from the studies will be CFRAM Plans, to be published in December 2016. The Plans will define the current and future flood risk in the River Basin Districts and set out how this risk can be managed.

Smarter Travel 2009

"Smarter Travel, A Sustainable Transport Future, A New Transport Policy for Ireland 2009 - 2020" is the Government's action plan to free towns and cities from traffic congestion, substantially cut CO2 emissions, encourage car based commuters to leave their cars at home, and encourage a shift toward walking, cycling and greater public transport usage.

New Waste Management Plans

In accordance with Section 22 of the Waste Management Act, 1996 and the Waste Management (Planning) Regulations, 1997, notice was given of the intention to commence the preparation of new Regional Waste Management Plans in 2013. There will be three new Plans prepared for the following new waste management planning regions:

- Connacht-Ulster;
- Eastern-Midland (comprising local authorities: Dún Laoghaire-Rathdown, Dublin City, Fingal, Kildare, Laois, Longford, Louth, Meath, Offaly, South Dublin, Wicklow and Westmeath); and
- Southern.

Environmental Protection Objectives

The Draft Plan is subject to a number of high level environmental protection policies and objectives with which it must comply, including those which have been identified as Strategic Environmental Objectives in Section 3.13. An example of an Environmental Protection Objective is the aim of the EU Habitats Directive - which is to contribute towards ensuring biodiversity through the conservation of natural habitats and of wild fauna and flora in the European territory of Member States.

Section 3 The Environmental Baseline

3.1 Introduction

The environmental baseline, or the existing environment, in Dún Laoghaire-Rathdown is described in this section. This baseline together with the Strategic Environmental Objectives, which are identified in Section 3.13, is used in order to identify, describe and evaluate the likely significant environmental effects of implementing the 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. The lack of a centralised data source that could make all environmental baseline data for the Plan area both readily available and in a consistent format posed a challenge to the SEA process. This difficulty is one which has been encountered while undertaking SEAs at local authorities across the Country and was overcome by investing time in the collection of data from various sources and through the use of Geographical Information Systems.

3.2 Likely Evolution of the Environment in the Absence of the Plan

In the absence of a new Plan it is uncertain how permission for new development would be applied for and evaluated.

The current County Plan has contributed towards environmental protection within Dún Laoghaire-Rathdown.

If the current Plan was to expire and not be replaced by a new Plan, this would result in a deterioration of the County's planning and environmental protection framework. Although higher level environmental protection objectives – such as those of various EU Directives and transposing Irish Regulations – would still apply, the deterioration of this framework would mean that new development would be less coordinated and controlled. Such development could result in an increase in the occurrence of adverse effects on all environmental components, especially those arising cumulatively. Cumulative effects occur as a result of the addition of many small impacts to create one larger, more significant, impact.

Such adverse effects could include:

- Loss of biodiversity in designated and non-designated sites
- Spatially concentrated deterioration in human health;
- Damage to the hydrogeological and ecological function of soil;
- Adverse impacts upon water bodies, including bathing waters;
- Increase in the risk of flooding;
- Failure to provide adequate and appropriate waste water treatment;
- Failure to comply with drinking water regulations and serve new development with adequate drinking water;
- Increases in waste levels;
- Failure to contribute towards sustainable transport and associated impacts;
- Effects on archaeological heritage;
- Effects on architectural heritage; and
- Occurrence of adverse visual impacts.

3.3 Biodiversity and Flora and Fauna

Dún Laoghaire-Rathdown supports a variety 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, Deerpark, Cabinteely Park and Shanganagh Park.

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. Trout, otter, and bats occur in the river while kingfisher may be present along sections of the stream. Other rivers supporting good areas of biodiversity include the Little Dargle which rises in Three Rock Mountain and flows through Marlay Park and the Glencullen River, which drains the uplands around Glendoo and Glencullen Mountains before crossing the County boundary into County Wicklow.

The County's coastline, including areas such as South Dublin Bay and the Dalkey Coastal Zone, provides a number of habitats for a variety of species. The Shanganagh Coastline represents a long stretch of the Killiney Bay shoreline, extending from Ballybrack to Bray in Wicklow. The area is important particularly for its sedimentary cliffs, displaying clear geological time sequences through the quaternary period. The shoreline also has an example of a drowned forest, visible in the sand only at extreme low tide.

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, such as bees and butterflies and mammals, such as hedgehogs, mice, rats and foxes. These species move around between gardens using hedgerows and vegetated areas. These urban green spaces, however small, are therefore of importance as they form part of a network of green spaces across the Plan area including gardens, parks, graveyards, amenity walks, railway lines and patches of woodland and scrub within which animals and plants continue to thrive.

There are a number of areas designated within and adjacent to the Council's administrative area for ecological reasons. Two of the most important types of ecological designations are candidate Special Areas of Conservation and Special Protection Areas.

Candidate Special Areas of Conservation (cSACs) have been selected for protection under the European Council Directive on the conservation of natural habitats and of wild fauna and flora (92/43/EEC) due to their conservation value for habitats and species of importance in the European Union. The sites are *candidate* sites because they are currently under consideration by the Commission of the European Union. A total of 4 cSACs have been designated within/adjacent Dún Laoghaire-Rathdown as follow:

- South Dublin Bay cSAC;
- Ballyman Glen cSAC;
- Knocksink Wood cSAC; and
- Wicklow Uplands cSAC.

Special Protection Areas (SPAs) have been selected for protection under the 1979 European Council Directive on the Conservation of Wild Birds (79/409/EEC) - referred to as the Birds Directive - due to their conservation value for birds of importance in the European Union. A total of 3 SPAs have been designated within/adjacent Dún Laoghaire-Rathdown as follow:

- South Dublin Bay and River Tolka Estuary SPA;
- Dalkey Islands SPA; and
- Wicklow Mountains SPA.

Figure 3.1 shows the spatial distribution of the cSAC and SPA designations within and adjacent to the County. This map also shows the boundaries of surface water catchments (Water Management Units).

Appropriate Assessment (AA) Screening has been undertaken alongside the Draft Plan. The requirement for AA is provided under the EU Habitats Directive (Directive 1992/43/EEC). The AA Screening concluded that the Plan will not affect the integrity of the Natura 2000 network. The preparation of the Draft Plan, SEA and AA has taken place concurrently and the findings of the AA have informed both the Draft Plan and the SEA. Various policies and objectives have been integrated into the Draft Plan through the AA process.

Natural Heritage Areas (NHAs) are designated due to their national conservation value for ecological and/or geological/geomorphological heritage. They cover nationally important semi-natural and natural habitats, landforms or geomorphological features, wildlife plant and animal species or a diversity of these natural attributes. NHAs are designated under the Wildlife (Amendment) Act 2000. Proposed NHAs were published on a non-statutory basis in 1995, but have not since been statutorily proposed or designated. **Proposed NHAs** in Dún Laoghaire-Rathdown are mapped on Figure 3.2 and include Booterstown Marsh pNHA, Ballybetagh Bog There are ten pNHA, Fitzsimon's Wood pNHA, Dingle Glen pNHA, Loughlinstown Wood pNHA and Dalkey Coastal Zone and Killiney Hill pNHA. South Dublin Bay SAC, Ballyman Glen SAC and Knocksink Wood SAC are also designated as pNHAs.

Figure 3.2 shows the spatial distribution of these pNHAs across the County.

Existing Problems

Previous developments such as residential and commercial developments, along with the provision of transportation infrastructure, have resulted in loss of biodiversity and flora and fauna across the County however legislative objectives governing biodiversity and fauna were not identified as being currently conflicted with.

Both the current 2010-2016 County Development Plan and the new Draft Plan 2016-2022 include robust measures to contribute towards the protection of biodiversity and flora and fauna.

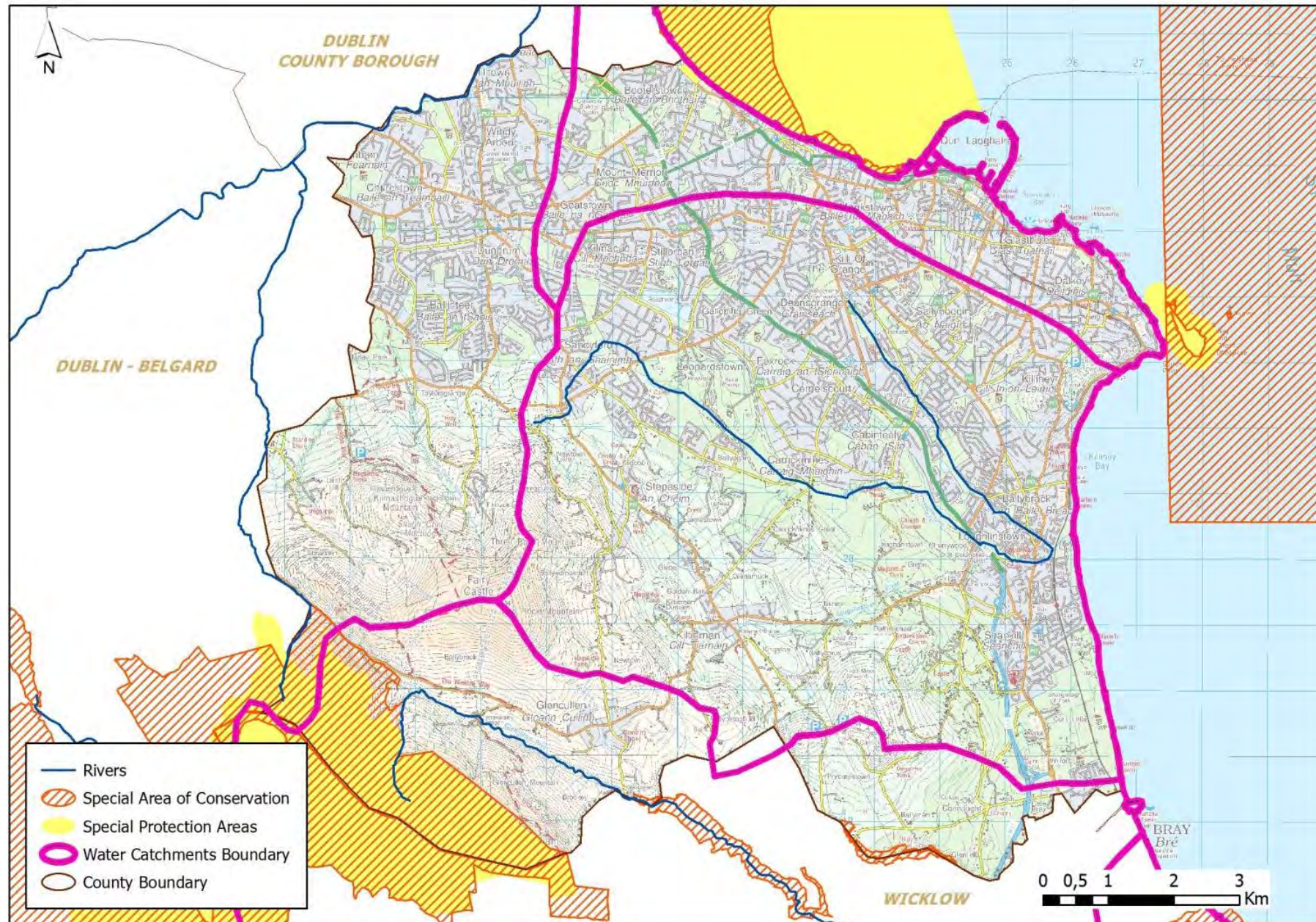


Figure 3.1 SPAs and cSACs with Water Management Units

Source: NPWS (datasets downloaded July, 2014)

CAAS for Dún Laoghaire-Rathdown County Council

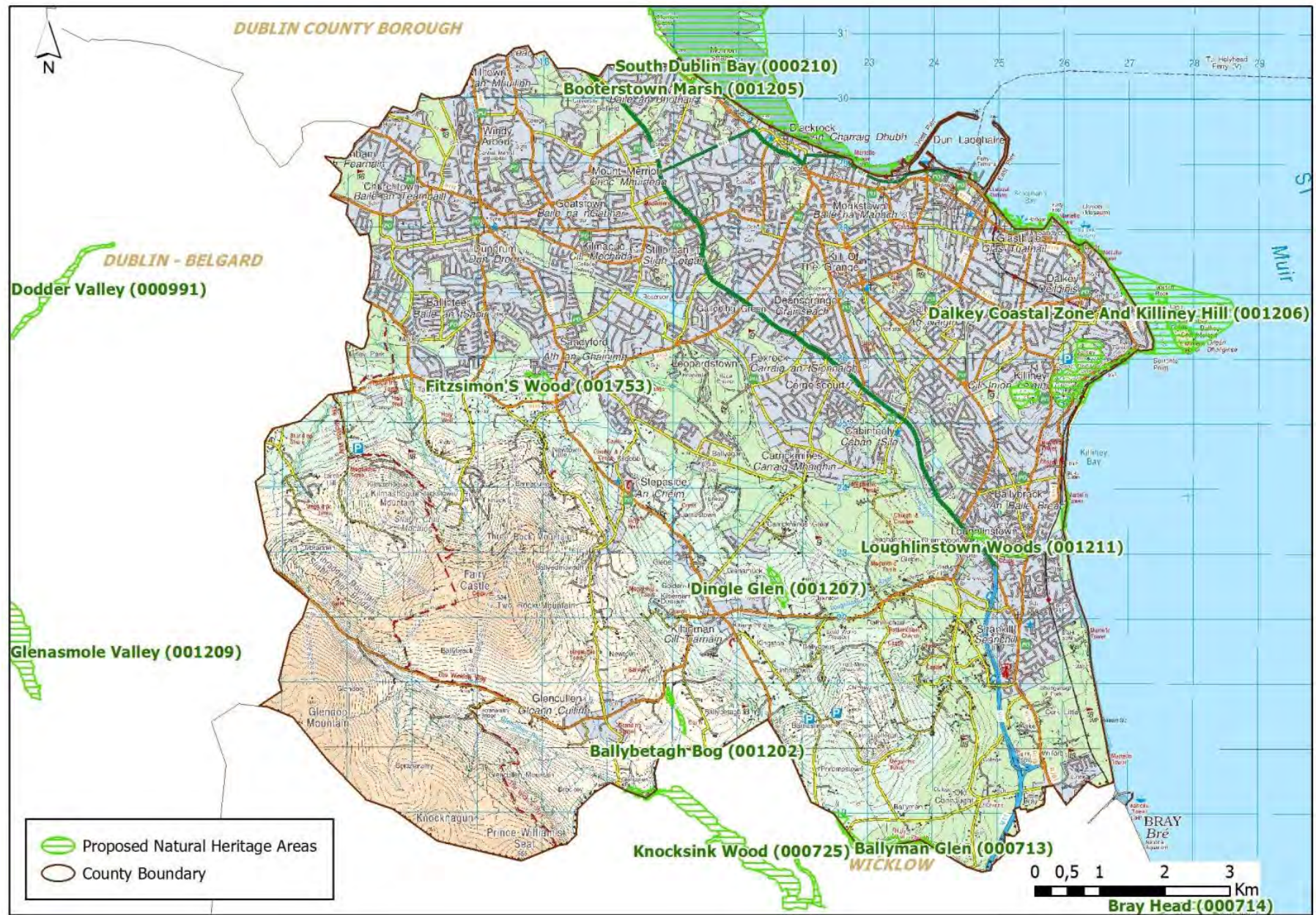


Figure 3.2 Proposed Natural Heritage Areas

Source: NPWS (datasets downloaded July 2014)

CAAS for Dún Laoghaire-Rathdown County Council

3.4 Population and Human Health

Population

Dublin has experienced strong population growth in recent years. Dublin's population increased from 1.18 million persons in 2006 to 1.27 million persons in 2011, an increase of more than 83,000 people (7%). Dún Laoghaire-Rathdown has experienced a share of this growth after a period of relatively low growth in the previous decade.

Dún Laoghaire-Rathdown has a current population of 206,261. This represents 16% of Dublin's population. The population grew by 12,223 persons or 6.3%, between 2006 and 2011, at a time when the National increase was 8.2%. This was a significant increase on the previous 10 years where the County grew by just 4,039 persons.

The 2011 Census highlighted a high percentage of 14.5% in the over 65 age category compared to the national average of 11.7%. According to the CSO, 23% of houses in the County have one occupant. In contrast, Dún Laoghaire-Rathdown has a lower percentage of population in the 0-14 age bracket of 18.2% compared to the National average of 21.3%.

A key feature of population change in the County has been the uneven distribution of growth, with some areas experiencing strong population growth and other areas experiencing stagnation or decline. The large Glencullen District Electoral Division, for example, grew by 10,661 persons or 29%¹.

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.

Human Health

Human health has the potential to be impacted upon by environmental vectors (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). Hazards or nuisances to human health can arise as a result of exposure to these vectors arising from incompatible adjacent land uses for example. These factors have been considered with regard to the description of: the baseline of each environmental component; and the identification and evaluation of the likely significant environmental effects of implementing the Draft Plan.

Existing Problems

The greatest health risk from radiation in Ireland is caused by radon. The presence of radon gas, a naturally occurring radioactive gas that originates from the decay of uranium in rocks and soils, occurs across the country. It accounts for more than half of the total radiation dose received by the Irish population. As a known carcinogen, in the same category as tobacco smoke and asbestos it is a cause of lung cancer. Exposure to radon for long periods or at high concentrations can lead to lung cancer.

Some areas within Dún Laoghaire-Rathdown are estimated as having 5-15% of homes to be above the reference level for Radon (mapping available at <http://www.epa.ie/radiation/radonmap>).

There is historic and predictive evidence of flooding in various locations across the County (see information on Strategic Flood Risk Assessment at Section 3.6). All recommendations made by the SFRA and SEA in relation to flood risk management have been integrated into the Draft Plan.

Compliance issues in relation to water services are detailed under Section 3.8.

¹ Source: CSO Census 2011

3.5 Soil

Soil Type

Soil types, as classified by Teagasc in co-operation with the Forest Service, EPA and GSI, are mapped on Figure 3.3. The biodiversity, flora and fauna described under Section 3.3 are facilitated by these soils. *Urban soils* make up the northern, most built-up section of the Plan area. The majority of the Plan area is covered by *grey brown podzols* with areas of *brown podzolics*, *peaty podzols* and *litosols* and *outcropping rock* existing as the Plan area extends to the south west.

Urban soils are soils which have been disturbed, transported or manipulated by human activity in the urban environment and are often overlain by a non-agricultural, man-made surface layer that has been produced by mixing, filling or by contamination of land surfaces in urban and suburban areas. *Urban soils* have a combination of characteristics that differ from natural soils. These characteristics are due to alterations in both physical and chemical soil properties that cause long term deviation from the natural state.

Grey brown podzolic soils are usually formed from a calcareous parent material, which counteracts the effects of leaching. Because of this, the podzolisation process is restricted and the principal materials translocated down the soil profile are the clay particles themselves. The lighter texture *grey brown podzolics* are good all-purpose soils, while the heavier textured members are highly suited to pasture production, responding well to manurial and management practices.

Brown podzolic soils are somewhat similar to the *podzols* and have been formed under the influence of the same process. They are less depleted than the *podzols* and the surface layer contains organic matter is intimately mixed with mineral matter. Because of their desirable physical characteristics, *brown podzolics* are often devoted extensively to cultivated cropping and pasture production. Their inherent low nutrient status is easily overcome by addition of lime and fertiliser.

Lithosols are skeletal stony soils, usually overlying solid or shattered bedrock. They are often associated with *podzols* at higher elevations. Generally such soil areas have bare rock outcropping at frequent intervals and many also have steep slopes. Their use-range is usually limited to rough grazing.

Geological Heritage Sites

Sites of Geological Interest within the County include: Three Rock Mountain; Ballybetagh Bog; The Scalp; Ballycorus; Killiney Hill; Dalkey Hill; Killiney Adit; White Rock, Killiney; Killiney Bay (Bray Harbour to Killiney Station); Blackrock Breccia; Dalkey Island; and Shankill.

Contaminated Soil

Given the urban nature of the County and the range of land use activities which have taken place historically, soils have been contaminated in the past. Such contamination has the potential to affect water quality, biodiversity and flora and fauna and human health. Both the existing 2010-2016 Plan and the Draft 2016-2022 Plan require that where brownfield redevelopment is proposed, adequate and appropriate investigations are carried out into the nature and extent of any soil and groundwater contamination and the risks associated with site development work.

Existing Problems

Legislative objectives governing soil were not identified as being conflicted with.

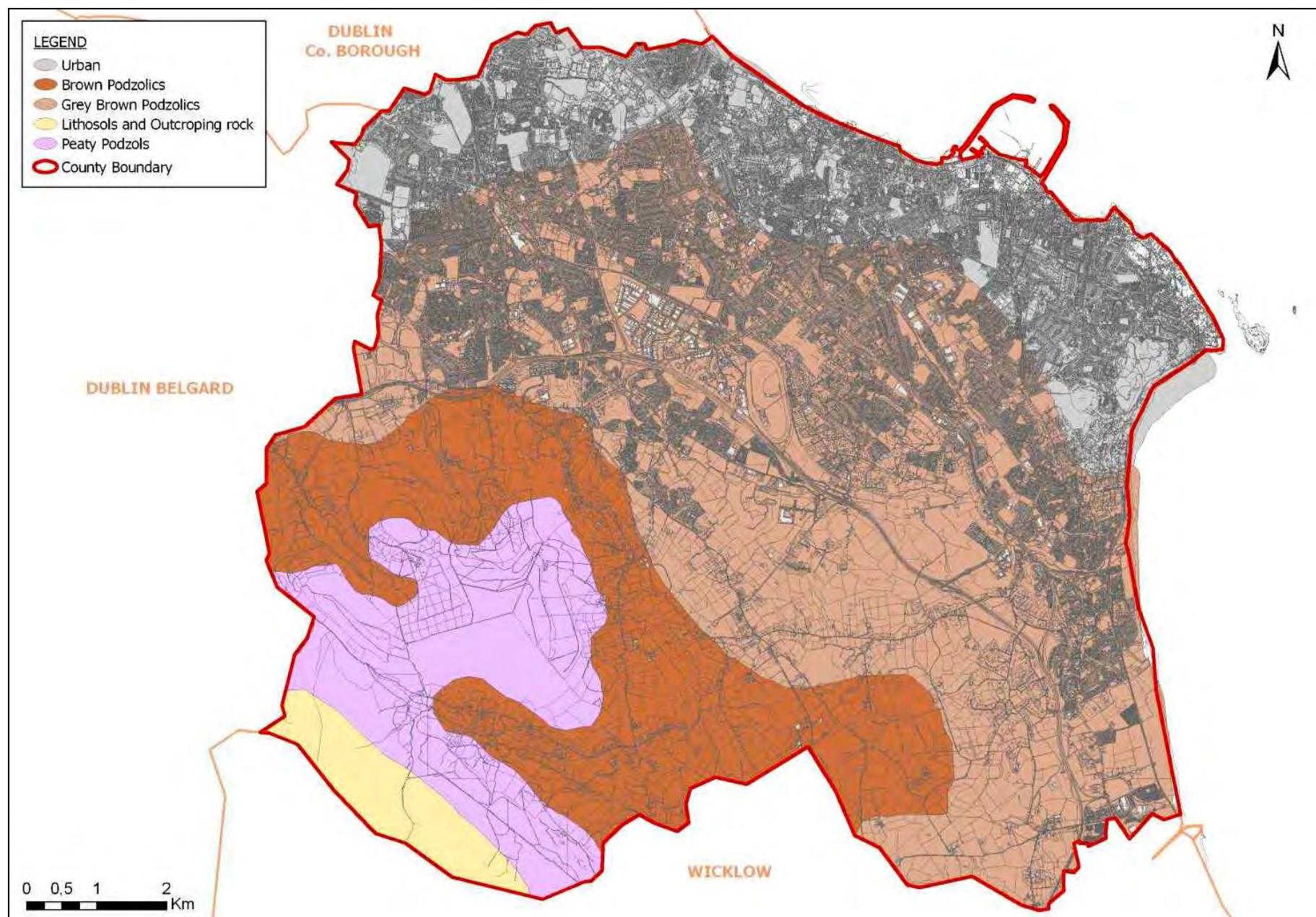


Figure 3.3 Soil Types

Source: Teagasc, GSI, Forest Service & EPA (2006) *Soil Type*

3.6 Water

Potential Pressures on Water Quality and the Water Framework Directive

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. 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 are 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. 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. Dún Laoghaire-Rathdown falls within the Eastern River Basin District for which a Management Plan and associated Programme of Measures is being implemented.

WFD Surface Water Status

Figure 3.4 illustrates currently available from the EPA² on the status of rivers within and surrounding Dún Laoghaire-Rathdown. These status classifications are contributed towards by the morphological pressures (pressures associated with the shape of the river's channel overtime) found along these often urban waterbodies such as culverts, river straightening and bed/bank reinforcement. The River Dodder is identified as being of *poor* status along the northern boundary of the Plan area. The Glencullen River is identified as being of *good* status in the south of the Plan area. The Carrickmines Stream is identified as being of *moderate* status before it joins the Loughlinstown (or Shanganagh) River at Loughlinstown. The Loughlinstown River is identified as being of *good* status upstream of Loughlinstown and of *poor* status downstream of Loughlinstown, after it joins with the Carrickmines Stream.

Figure 3.5 illustrates currently available from the EPA on the status of coastal waters within and surrounding the Plan area. Coastal waters are generally of *moderate* status to the north of Sorrento Point and *high* status to the south of Sorrento Point. The *moderate* status to the north of Sorrento Point is contributed towards by the morphological pressures (pressures associated with the shape of the coastline and sea bed overtime) found along this urban coastline including built structures, port tonnage and coastal defences. An area to the east of Sorrento Point is not monitored.

WFD Groundwater Status

For groundwater bodies, the approach to classification is different from that for surface water. For each body of groundwater, both the chemical status and the quantitative must be determined. Both have to be classed as either *good* or *poor*. The WFD sets out a series of criteria that must be met for a body to be classed as good chemical and quantitative status. All of the County's groundwater is *good* status, meeting the requirements of the WFD (see Figure 3.6).

Flooding

Flooding is an environmental phenomenon which, as well have causing economic and social impacts, could in certain circumstances pose a risk to human health. In 2009 the Department of the Environment, Heritage and Local Government published *The Planning System and Flood Risk Management* Guidelines for Planning Authorities. These are aimed at ensuring a more consistent, rigorous and systematic approach which will fully incorporate flood risk assessment and management into the planning system. Planning authorities are required to undertake flood risk identification, assessment and management processes as appropriate when preparing Development Plans and other plans and in the consideration of applications for planning permission. In compliance with the aforementioned Guidelines, a Strategic Flood Risk Assessment (SFRA) has been undertaken alongside the preparation of the new County Plan.

² Dataset downloaded November 2013.

The existence of flood risk within the County is illustrated by the mapping of locations of the most significant recent flooding events - accessible from the Office of Public Works (OPW) National Flood Hazard Mapping website - which is provided at Figure 3.7 (the draft Catchment Flood Risk Assessment and Management Study maps are not yet in the public domain, Dec 2014).

Existing Problems

Subject to exemptions provided for by Article 4 of the WFD³, based on available water data, certain surface water bodies within the County will need improvement in order to comply with the objectives of the WFD:

- The River Dodder is identified as being of *poor* status along the northern boundary of the Plan area.
- The Carrickmines Stream is identified as being of *moderate* status before it joins the Loughlinstown (or Shanganagh) River at Loughlinstown.
- The Loughlinstown River is identified as being of *good* status upstream of Loughlinstown and of *poor* status downstream of Loughlinstown, after it joins with the Carrickmines Stream.

Note that these classifications in the County are contributed towards by the morphological pressures (pressures associated with the shape of the river's channel overtime) found along these often urban waterbodies such as culverts, river straightening and bed/bank reinforcement.

- Coastal waters are generally of *moderate* status to the north of Sorrento Point.

Note that this *moderate* status classification is contributed towards by the morphological pressures (pressures associated with the shape of the coastline and sea bed overtime) found along this urban coastline including built structures, port tonnage and coastal defences.

The Eastern River Basin District Management Plan and associated Programme of Measures include provisions to help ensure that these water bodies meet the objectives of the WFD. The Draft Plan will contribute towards the achievement of the objectives of this Management Plan.

There is historic and predictive evidence of flooding in various locations across the County. All recommendations made by the SEA and SFRA in relation to flooding risk management have been integrated into the Draft Plan.

³ Article 4 of the WFD sets out various exemptions for deterioration in status caused as a result of certain physical modifications to water bodies. This is provided: all practicable mitigation measures are taken; there are reasons of overriding public interest or the benefits to human health, safety or sustainable development outweigh the benefits in achieving the WFD objective; there are no better alternatives; and the reasons for the physical modification are explained in the relevant river basin management plan.

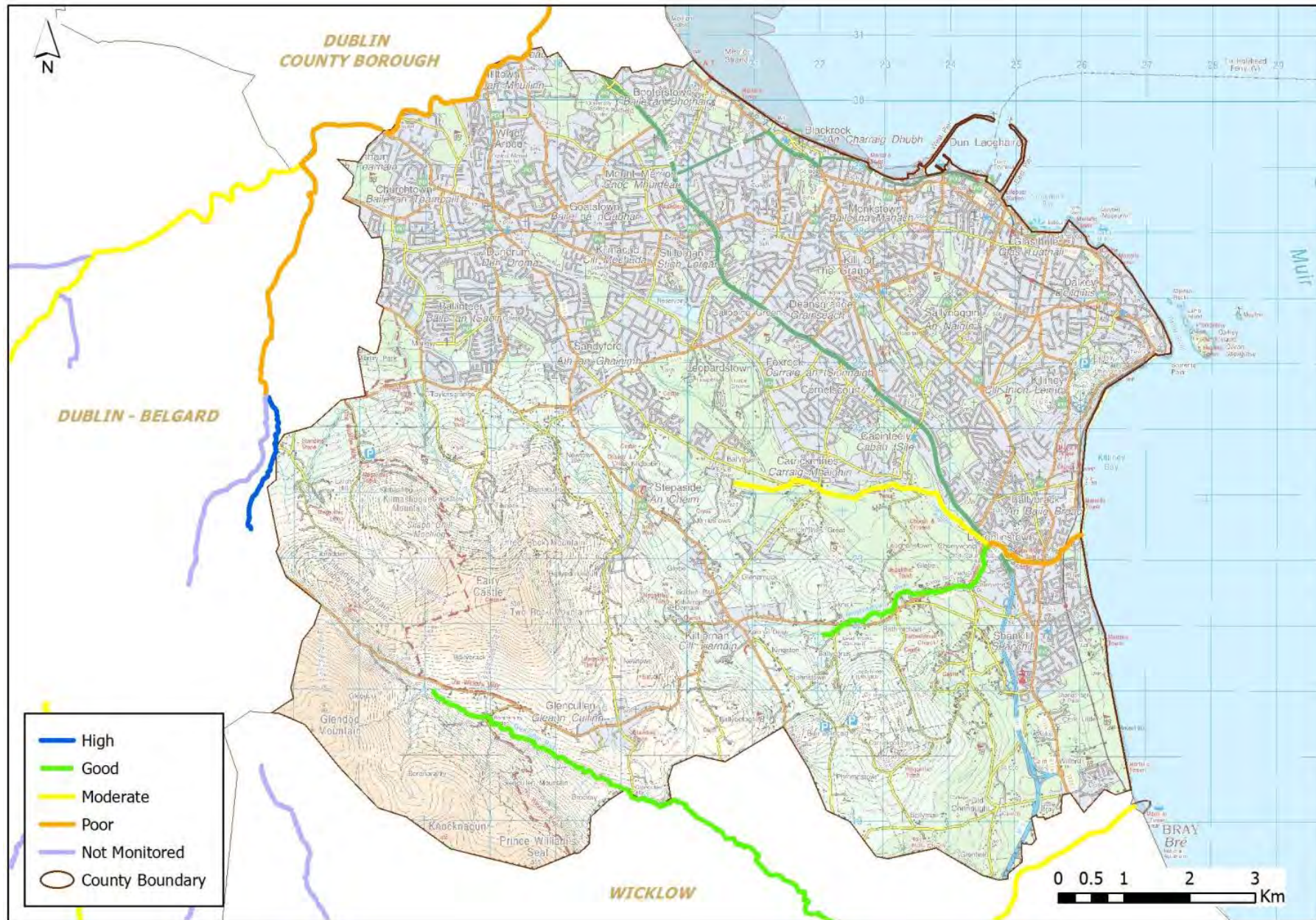


Figure 3.4 WFD Status of Rivers

Source: EPA (2011)

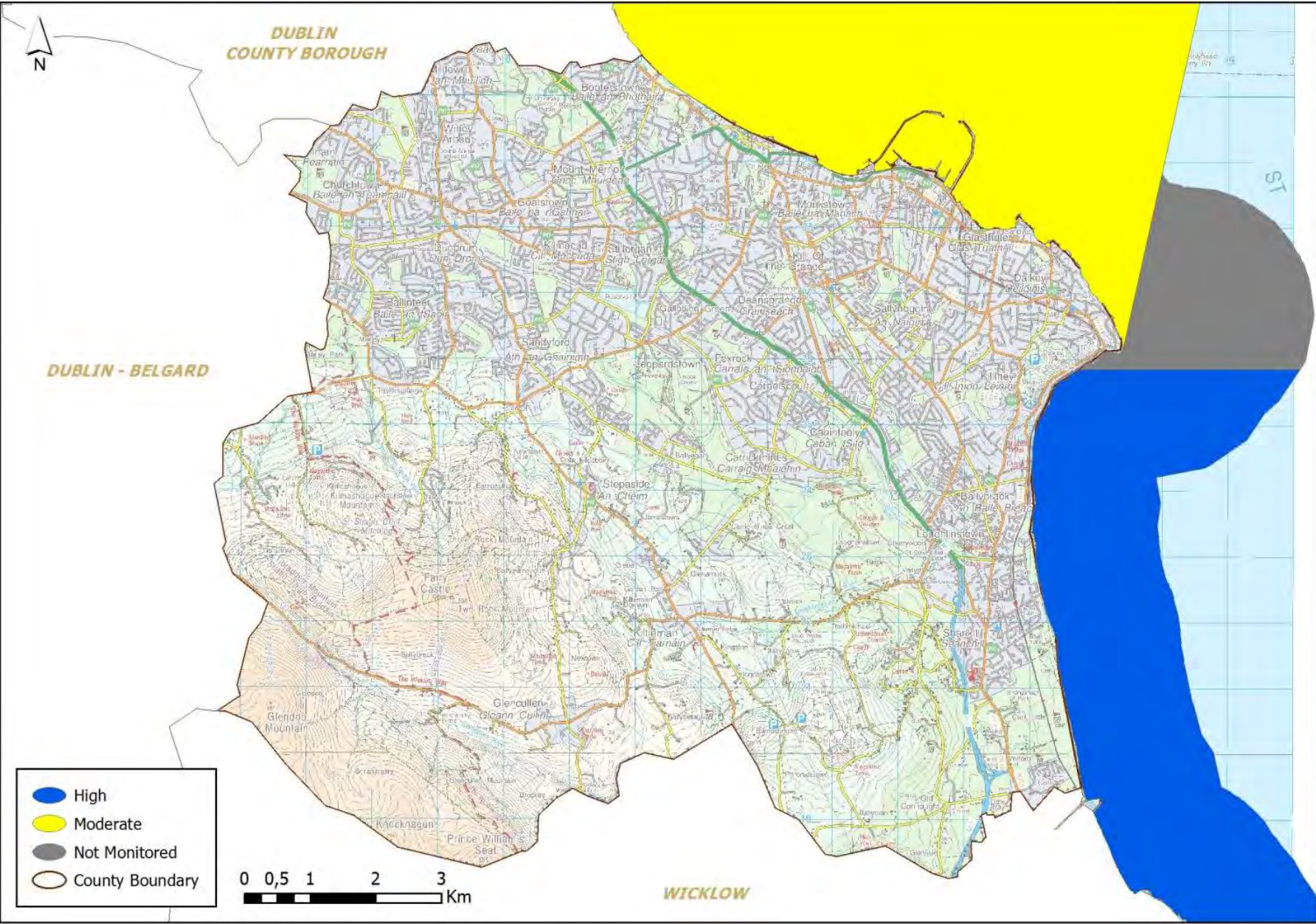


Figure 3.5 WFD Status of Coastal Waters
Source: EPA (2011)



Figure 3.6 WFD Status of Groundwater

Source: EPA (2011)

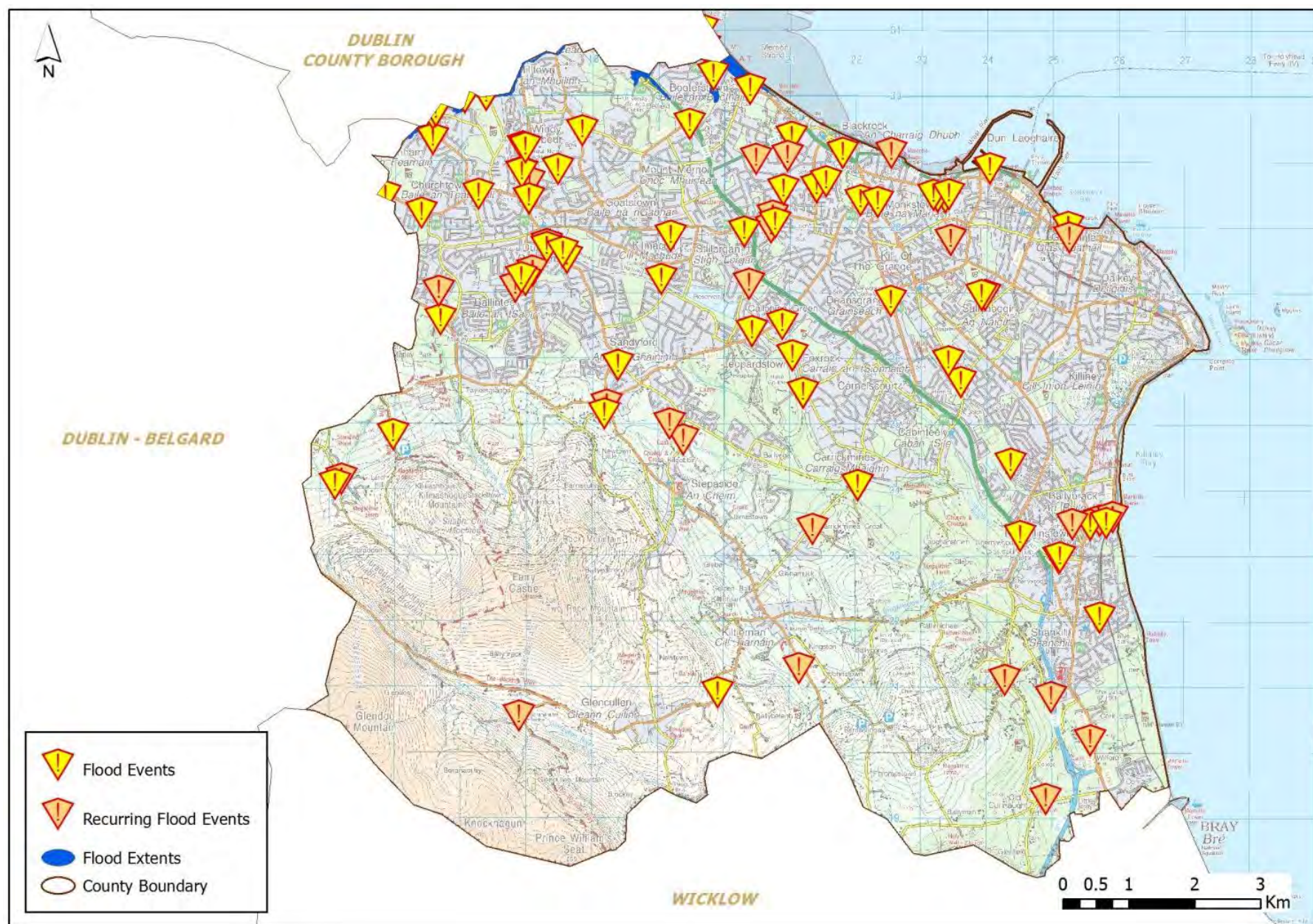


Figure 3.7 OPW Flood Events

Source: OPW (various)

3.7 Air and Climatic Factors

Ambient Air Quality

In order to protect human health, vegetation and ecosystems, EU Directives set down air quality standards in Ireland and the other Member States for a wide variety of pollutants. These pollutants are generated through fuel combustion, in space heating, traffic, electricity generation and industry and, in sufficient amounts, could affect the well-being of the areas inhabitants. The EU Directives include details regarding how ambient air quality should be monitored, assessed and managed.

In order to comply with air quality standards 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). Dún Laoghaire-Rathdown falls into zone A. Current air quality in Zone A is "good". The EPA's (EPA, 2013) *Air Quality in Ireland 2012* identifies that air quality in Ireland continues to be good, with no exceedances for the pollutants measured in 2012.

Noise - The Environmental Noise Directive

Noise is unwanted sound. The Environmental Noise Regulations (SI No. 140 of 2006) transpose into Irish law the EU Directive 2002/49/EC relating to the assessment and management of environmental noise, which is commonly referred to as the Environmental Noise Directive or END. The END defines a common approach intended to avoid, prevent or reduce on a prioritised basis the harmful effects, including annoyance, due to exposure to environmental noise. The END does not set any limit value, nor does it prescribe the measures to be used in the action plans, which remain at the discretion of the competent authorities. Limit values are left to each member state. At this point in time, Ireland does not have any statutory limit values.

Climatic Factors

The key issue involving the assessment of the effects of implementing the plan on climatic factors relates to greenhouse gas emissions arising from transport. It is noted that the Draft Plan contains a number of actions which respond to potential threats to environmental components arising from a changing climate. Flooding - see Section 3.6 - is influenced by climatic factors and the implications of climate change with regard to flood risk have been integrated into the recommendations which have been integrated into the Draft Plan. There are emerging objectives relating to climate adaptation and that there is likely to be future Guidance for climate change proofing of land use plan provisions as is flagged in the National Climate Change Adaptation Framework (DECLG, 2012). Some of these objectives might relate to green infrastructure which can achieve synergies with regard to the following:

- Provision of open space amenities;
- Sustainable management of water;
- Protection and management of biodiversity;
- Protection of cultural heritage; and
- Protection of protected landscape sensitivities.

In 2009, Ireland's greenhouse gas emissions decreased across all sectors due to the effects of the economic downturn with a decline in total emissions of 7.9 per cent. In 2010, Ireland's emissions fell by a further 0.7 per cent. Ireland's emissions profile has changed considerably since 1990, with the contribution from transport more than doubling and the share from agriculture reducing since 1998.

Ireland's emissions profile has changed considerably since 1990, with the contribution from transport more than doubling and the share from agriculture reducing since 1998. Travel is a source of:

1. Noise;
2. Air emissions; and
3. Energy use (39% of Total Final Energy Consumption in Ireland in 2012 was taken up by transport, the largest take up of any sector)⁴.

⁴ Sustainable Energy Ireland (2014) *Energy in Ireland 1990 – 2012*

Land-use planning contributes to what number and what extent of journeys occur. By addressing journey time through land use planning and providing more sustainable modes and levels of mobility, noise and other emissions to air and energy use can be minimised. Furthermore, by concentrating populations, greenfield development - and its associated impacts - can be minimised and the cost of service provision can be reduced.

Between 2008 and 2011, Ireland's greenhouse gas emissions decreased across all sectors due to the effects of the economic downturn with emissions falling by 15.2% between 2008 and 2011. However, 2012 saw emissions rise by 1.2% when compared with 2011⁵.

Maximising sustainable mobility will help Ireland meet its emission target for greenhouse gases under the 2020 EU Effort Sharing target which commits Ireland to reducing emissions from those sectors that are not covered by the Emissions Trading Scheme (e.g. transport, agriculture, residential) to 20% below 2005 levels.

Existing Problems

Legislative objectives governing air and climatic factors in Dún Laoghaire-Rathdown were not identified as being conflicted with.

3.8 Material Assets

Introduction

Since January 2014 Dún Laoghaire-Rathdown County Council no longer has any direct control in relation to the provision of water or waste water services. The delivery, integration and implementation of strategic water and waste water projects and infrastructural improvements are now the responsibility of the newly established State body 'Irish Water'. The Council commit to working closely with Irish Water to ensure that the Plan continues to align with both the National Spatial Strategy and the Regional Planning Guidelines and that the provision of water/waste water services will not be a limiting factor in terms of forecasted growth.

Waste Water

The Shanganagh Waste Water Treatment Plant is the only treatment plant in the County's administrative area. It provides full secondary treatment for waste water from Shanganagh and Bray. Waste water performance information published by the EPA identified that the Shanganagh waste water treatment plant passed all mandatory Waste Water Treatment Directive related requirements during 2012.

The Dublin City Council operated Ringsend waste water treatment plant provides secondary and tertiary treatment. The waste water treatment plant in Ringsend failed to meet mandatory Waste Water Treatment Directive related quality standards for phosphorus and nitrogen set in the Directive during 2012. It also failed to meet the optional limits for suspended solids⁶.

Drinking Water

Compliance with the drinking water requirements is determined by comparing the results of analyses submitted by water suppliers to the standard for 48 parameters specified in the European Communities (Drinking Water) Regulations (No. 2), 2007. To ensure that these standards are met, each water supply must be monitored on a regular basis.

⁵ EPA (2014) Ireland's Greenhouse Gas Emissions in 2012

⁶ EPA (2014) *Focus on Urban Waste Water Treatment in 2012*

The EPA's 'The Provision and Quality of Drinking Water in Ireland' (EPA, 2012) Reports identify that microbiological compliance levels in Public Water Supplies in Dún Laoghaire-Rathdown were 100% in both 2011 and 2012. Chemical compliance levels decreased from 100% in 2011 to 99.7% in 2012.

Under Section 58 of the Environmental Protection Agency Act 1992 the EPA is required to collect and verify monitoring results for all water supplies in Ireland covered by the European Communities (Drinking Water) Regulations, 2000. The EPA publishes their results in annual reports which are supported by Remedial Action Lists (RALs). The RAL identifies water supplies which are not in compliance with the Regulations mentioned above.

The most recent EPA Remedial Action List (Q3 of 2014) identified three water supplies within the County (Church Road, Roundwood, Stillorgan) in need of improvement with respect to treatment and management issues. The Remedial Action List identifies Interim Measures and an Action Programme for solving these issues.

Waste

The total collected and brought household waste in Dún Laoghaire-Rathdown in 2012 amounted to 66,453(t). This is a reduction on 2011 figures where 66,707 (t) was collected and brought⁷.

Transport

In terms of trips to work, school and college, walking travel mode share in Dún Laoghaire-Rathdown is below the Greater Dublin Area (GDA) average, cycling is higher than the GDA average, while overall public transport usage is also above the GDA average. The car, however, remains the dominant mode of transport with 54% of trips being undertaken by this mode (including car passengers).

Existing Problems

There are a number of challenges with respect to water services which are outlined above. The provisions of the new Plan 2016-2022 will contribute towards protection of the environment with regard to impacts arising from material assets.

3.9 Cultural Heritage

Archaeological Heritage

Dún Laoghaire-Rathdown's archaeological heritage is protected under the National Monuments Acts (1930-2004), Natural Cultural Institutions Act 1997 and the Planning Acts. The Record of Monuments and Places (RMP) is an inventory, established under Section 12 of the National Monuments (Amendment) Act 1994, of sites and areas of archaeological significance, numbered and mapped. The RMP includes all known monuments and sites of archaeological importance dating to before 1700 AD, and some sites which date from after 1700 AD.

In Dún Laoghaire-Rathdown, there are approximately 400 items on the RMP, with a Zone of Archaeological Potential identified around each monument. There are more entries to the RMP 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. Figure 3.8 shows the spatial distribution of entries to the RMP.

Architectural Heritage

The term architectural heritage is defined in the Architectural Heritage (National Inventory) and Historic Monuments Act 1999 as meaning all: structures and buildings together with their settings and attendant grounds, fixtures and fittings; groups of structures and buildings; and, sites which are of technical, historical, archaeological, artistic, cultural, scientific, social, or technical interest.

The Record of Protected Structures (RPS) is legislated for under the Planning and Development Acts 2000-2010. Protected Structures are defined as structures, or parts of structures that are of special

⁷ EPA (2014) National Waste Report 2012

interest from an architectural, historical, archaeological, artistic, cultural, scientific, social or technical point of view.

There are currently in excess of 2,000 Protected Structures within the County. These structures include harbours, piers, boat slips, bridges, quarries, Martello Towers, Victorian terraces, Georgian houses, public buildings, street furniture, churches, castles, schools, yacht clubs and a range of domestic architecture. Current entries to the RPS are mapped on Figure 3.9.

The Planning and Development Acts 2000-2010 provide the legislative basis for the protection of areas known as Architectural Conservation Areas (ACAs). An ACA is a place, area or group of structures or townscape which is of special architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest or value, or contributes to the appreciation of protected structures, whose character it is an objective to preserve in a development plan.

Dún Laoghaire-Rathdown has 26 designated ACAs which range from groups of artisan and estate workers cottages, planned residential Victorian squares to large areas of residential suburbs and villages. The ACAs include:

- Ballally Cottages
- Castle Cottages
- Dalkey
- Dún Laoghaire Central
- Foxrock
- Haigh Terrace to Park Road
- Killiney
- Monkstown
- Montpelier Place, Temple Hill
- Moss Cottages
- Newtown Villas
- Pembroke Estate Cottages
- Sandycove
- Silchester Road
- Vico Road

Existing Problems

The context of archaeological and architectural heritage has changed over time within Dún Laoghaire-Rathdown however no existing conflicts with legislative objectives governing archaeological and architectural heritage have been identified.

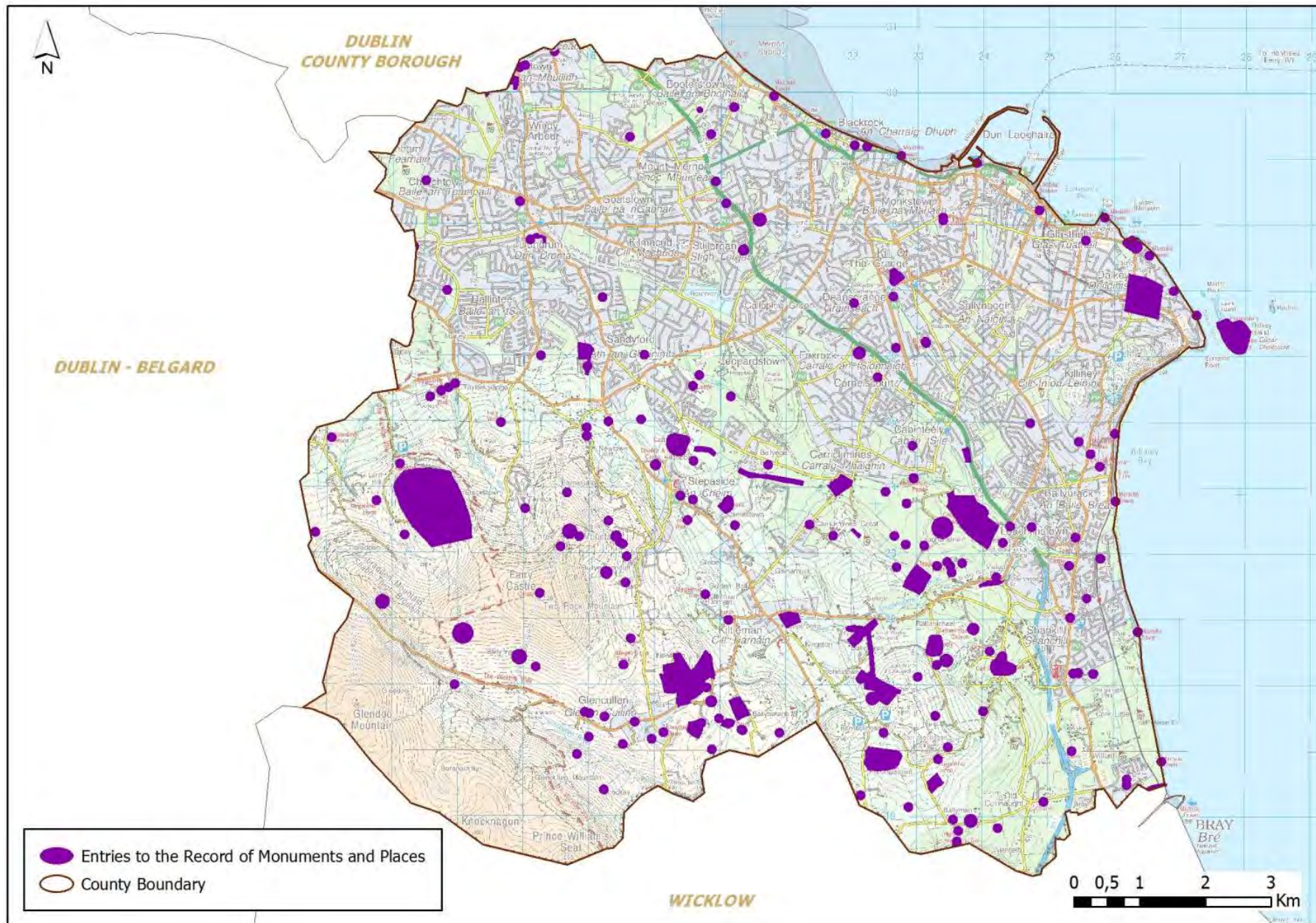


Figure 3.8 Archaeological Heritage - Record of Monuments and Places

Source: Dún Laoghaire-Rathdown County Council (Unknown)

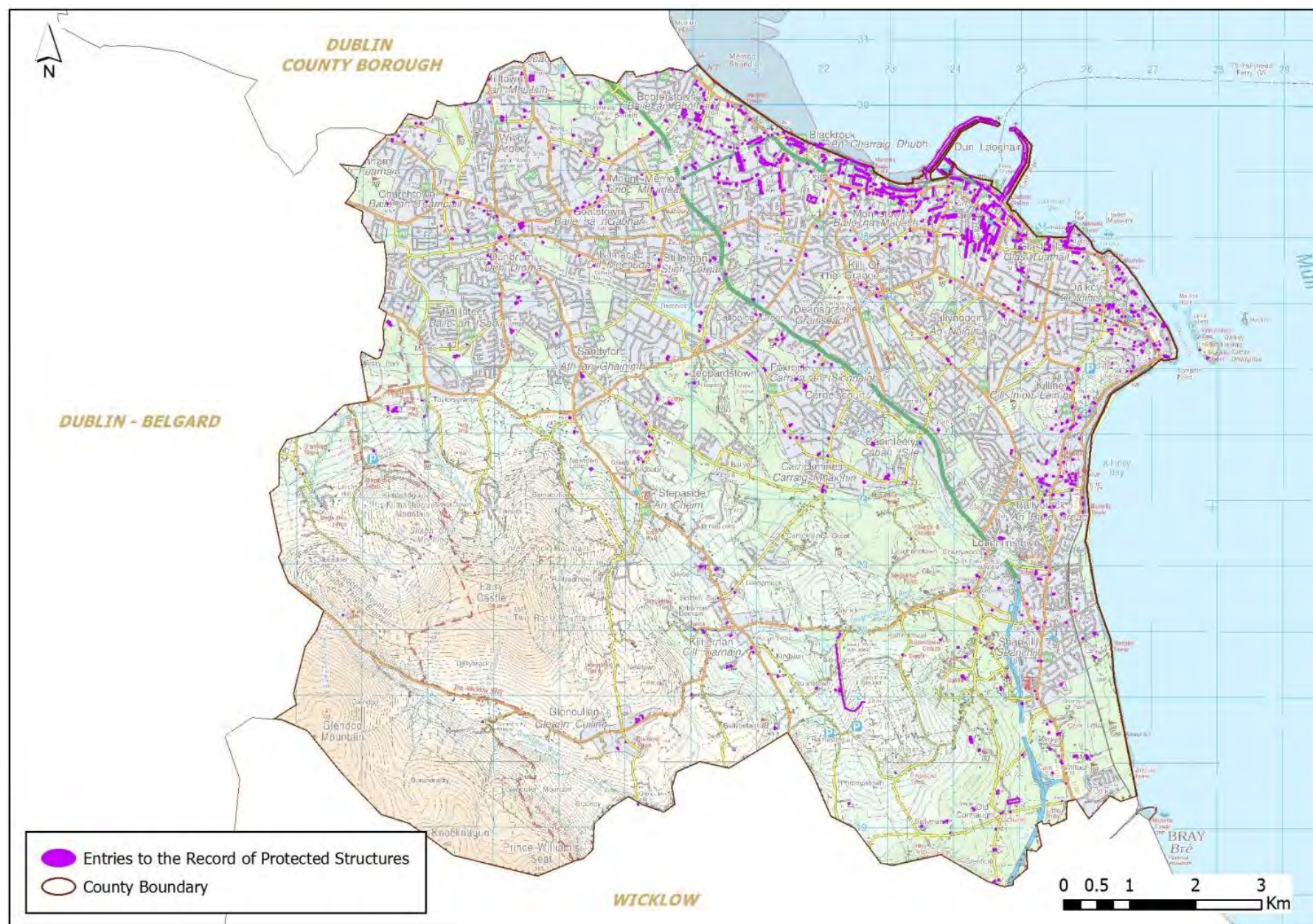


Figure 3.9 Architectural Heritage - Record of Protected Structures and Areas of Architectural Conservation

Source: Dún Laoghaire-Rathdown County Council (2010)

3.10 Landscape

Introduction

Landscapes are areas which are perceived by people and are made up of a number of layers: landform, which results from geological and geomorphological history; landcover, which includes vegetation, water, human settlements, and; human values which are a result of historical, cultural, religious and other understandings and interactions with landform and landcover.

The importance of landscape and visual amenity and the role of its protection are recognised in the Planning and Development Act 2000 as amended, which requires that Development Plans include objectives for the preservation of the landscape, views and the amenities of places and features of natural beauty.

Landscape Character Assessment

Landscape Character Assessment attempts to describe landscapes in terms of their character in an objective way. This can be used to inform decision making in relation to the protection of the environment, natural resources and heritage; it can be used to monitor change and can be used to guide development.

In accordance with the DEHLG's Landscape and Landscape Assessment Guidelines (2000), the Council has identified 14 Landscape Character Areas which are listed below and mapped on Figure 3.10:

1. Kilmashogue Valley
2. Western Half of Kellystown Road
3. Ticknock Road
4. Marlay Park
5. Kilternan Plain
6. Ballycorus
7. Glencullen Valley
8. Glendoo Valley
9. Barnacullia
10. Rathmichael
11. Ballyman
12. Shanganagh
13. Carrickmines
14. Cherrywood Rathmichael

There is a commitment given in the Draft Plan 2016-2022 to review the Landscape Character Areas when new National guidance is issue.

High Amenity Zones

The current County Development Plan and the draft Plan designate High Amenity Zones in the southern portion of the County. These areas consist of landscapes of special value where inappropriate development would contribute to a significant diminution of the landscape setting of the County. It is the policy of the Council to conserve and enhance existing High Amenity Zones and to seek to manage these and other areas to absorb further recreational uses and activity without damaging the amenities that affords them their special character.

Areas covered by the High Amenity Zoning 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.

High Amenity Zones are mapped on Figure 3.11.

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. Specific Views and Prospects for protection have been identified in the Plan and are considered when assessing planning applications. These Views and Prospects are mapped on Figure 3.12.

Existing Problems

New developments have resulted in changes to the visual appearance of lands within the County however legislative objectives governing landscape and visual appearance were not identified as being conflicted with.

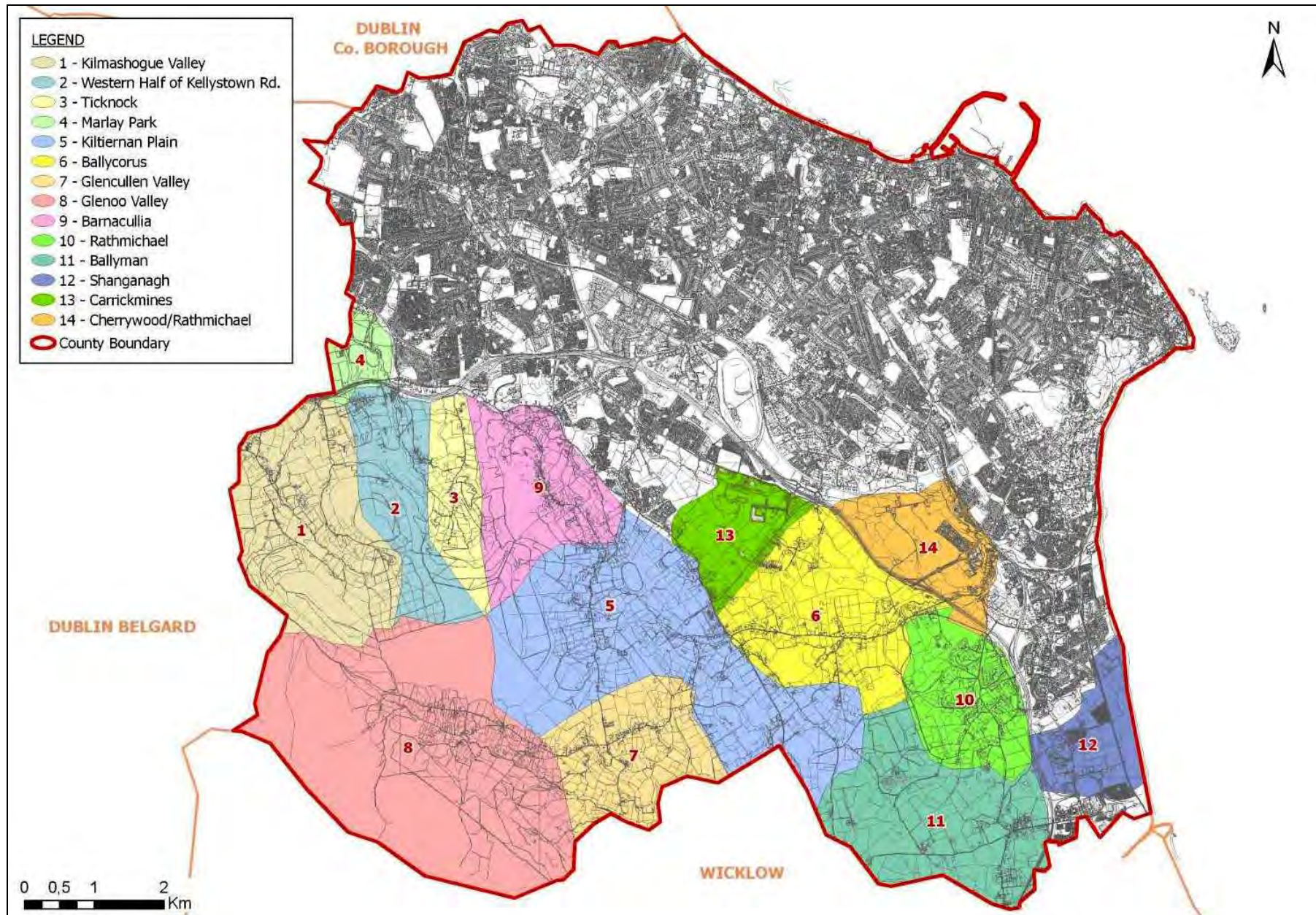


Figure 3.10 Landscape Character Areas

Source: Dún Laoghaire-Rathdown County Council (2010)

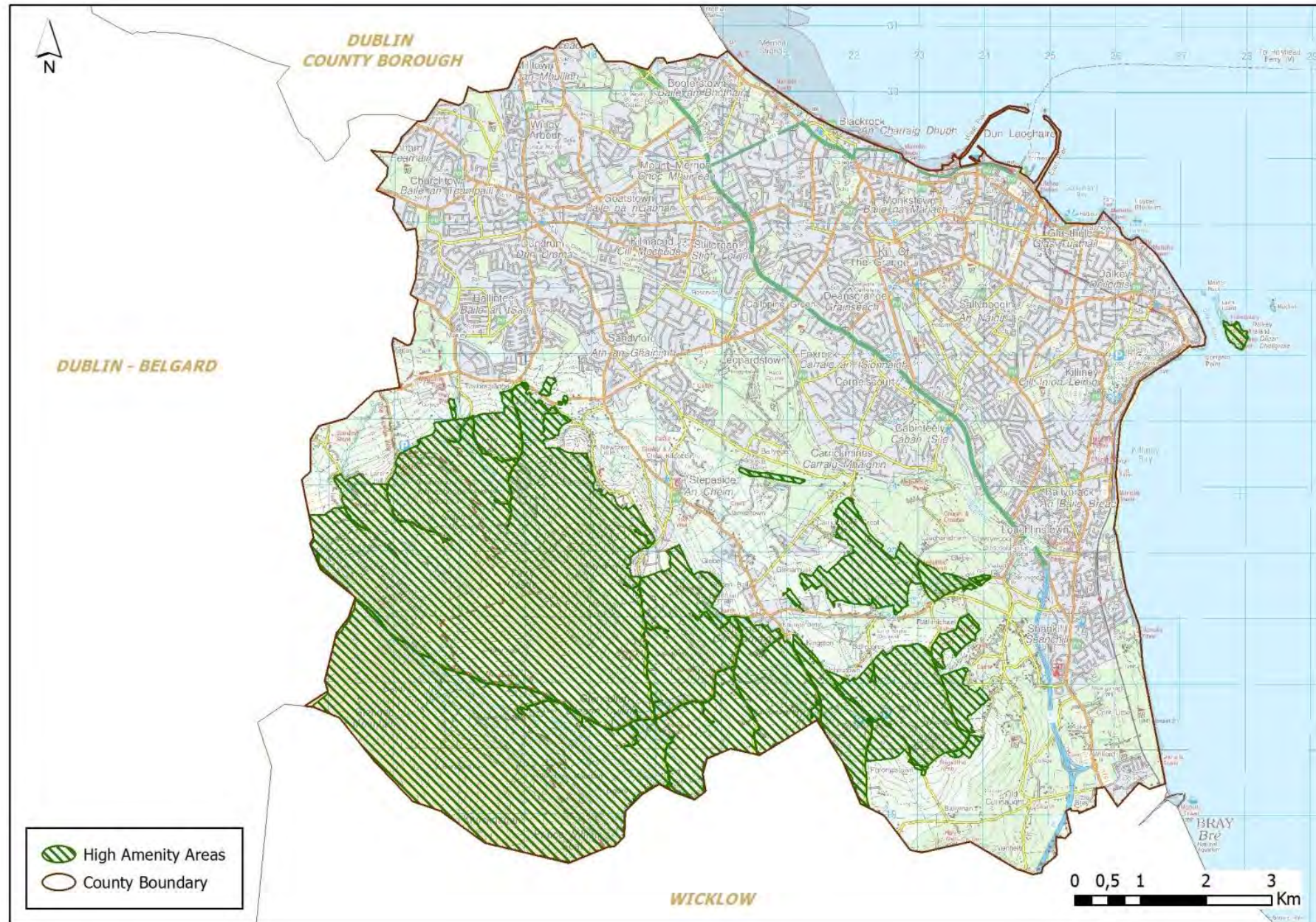


Figure 3.11 High Amenity Area Zoning

Source: Dún Laoghaire-Rathdown County Council (2014)

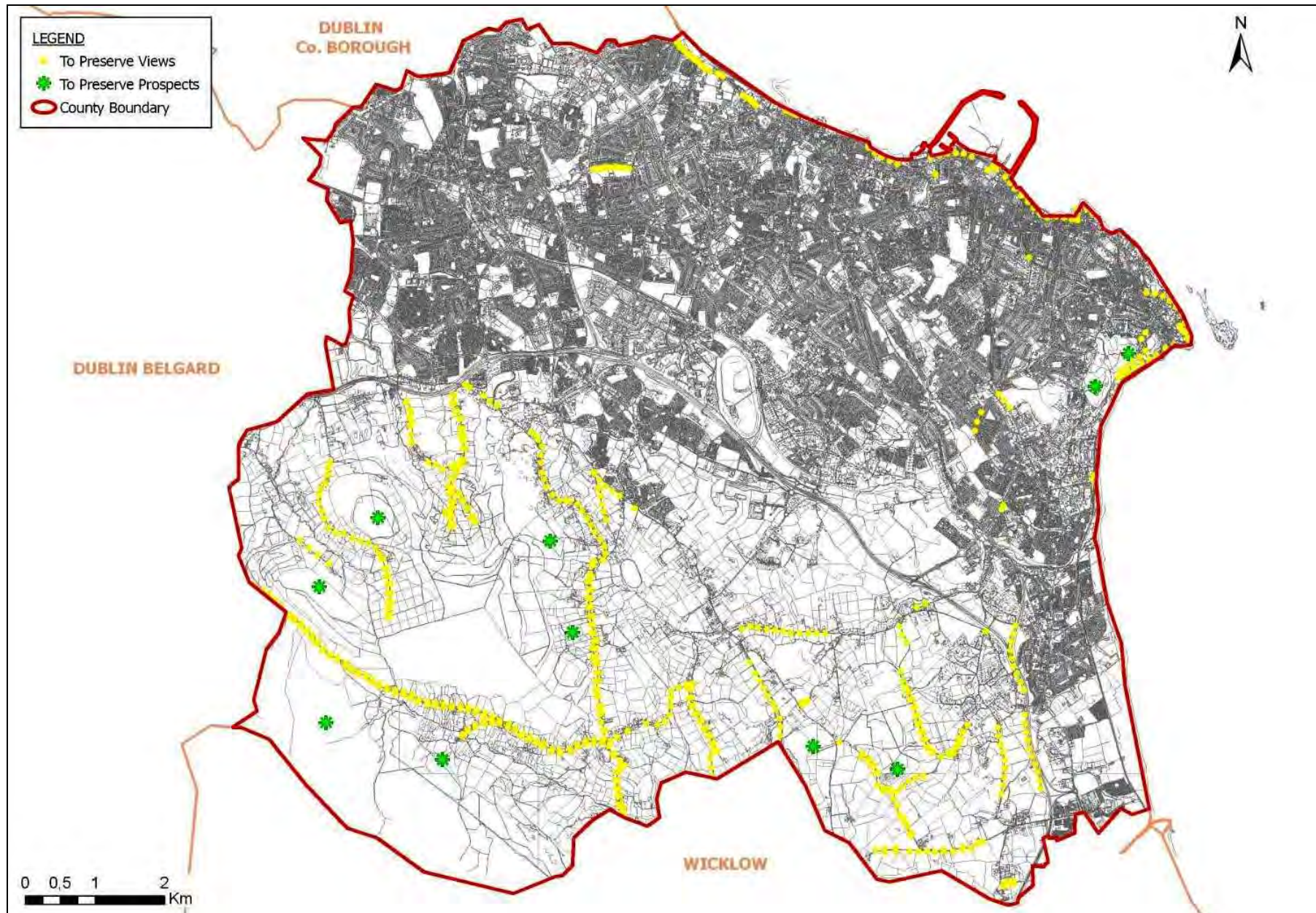


Figure 3.12 Protected Views and Prospects

Source: Dún Laoghaire-Rathdown County Council (2010)

3.11 Overlay of Environmental Sensitivities

In order to identify where most sensitivities within the County occur, a number of the environmental sensitivities described above were weighted and mapped overlapping each other. Figure 3.13 provides an overlay of environmental sensitivities for the County.

The overlay mapping shows that environmental sensitivities are not evenly distributed throughout the County.

It is emphasised that the occurrence of environmental sensitivities does not preclude development; rather it flags at a strategic level that the mitigation measures - which have already been integrated into the County Development Plan - will need to be complied with in order to ensure that the implementation of the Plan contributes towards environmental protection.

The overlay mapping shows that environmental sensitivities are not evenly distributed throughout the County.

Most of the County is of a low to moderate sensitivity due to the low level of environmental sensitivities occurring.

Higher levels of environmental sensitivities are found:

- In the south western uplands of the County due to ecological designations, water sensitivities and landscape designations; and
- In/adjacent to the east of the County's coastal areas (due to ecological designations and water sensitivities).

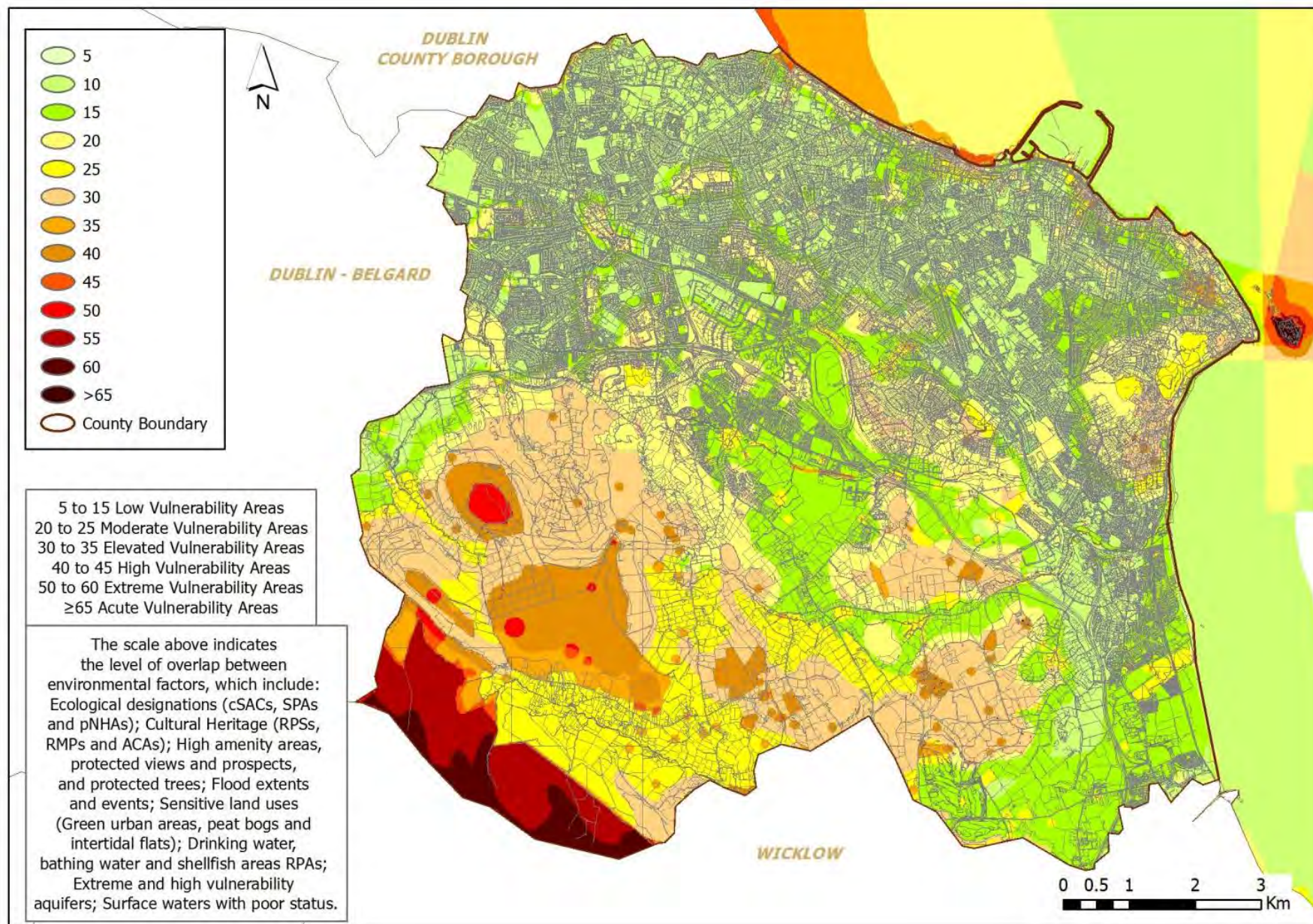


Figure 3.13 Overlay Mapping of Environmental Sensitivities

Source: CAAS (2014)

3.12 Appropriate Assessment and Strategic Flood Risk Assessment

Appropriate Assessment (AA) Screening and a Strategic Flood Risk Assessment (SFRA) have both been undertaken alongside the Draft Plan.

The requirement for AA is provided under the EU Habitats Directive (Directive 1992/43/EEC). AA is a focused and detailed impact assessment of the implications of a strategic action or project, alone and in combination with other strategic actions and projects, on the integrity of a Natura 2000 site in view of its objectives for conservation. The AA Screening concluded that the Plan will not affect the integrity of the Natura 2000 network.

The requirement for SFRA is provided under 'The Planning System and Flood Risk Management Guidelines for Planning Authorities' (DECLG, 2009). The purpose of the SFRA is to provide sufficient information to allow sound planning decisions to be made on sites at risk of flooding over the lifetime of the next County Development Plan 2016-2022 and also to ensure that Elected Members have the necessary information in coming to decisions on the Draft Plan with respect to flood risk and its management.

Various policies and objectives have been integrated into the Draft Plan through the SEA, SFRA and AA processes. The preparation of the Draft Plan, SEA, AA and SFRA has taken place concurrently and the findings of the AA and SFRA have informed both the Draft Plan and the SEA.

3.13 Strategic Environmental Objectives

Strategic Environmental Objectives (SEOs) are methodological measures against which the environmental effects of the Plan can be tested. If complied with in full, SEOs would result in an environmentally neutral impact from implementation of the Plan. The SEOs are set out under a range of topics and are used as standards against which the provisions of the Plan can be evaluated in order to help identify areas in which potential adverse impacts may occur. SEOs are distinct from the objectives of the Plan and are developed from international and national policies which generally govern environmental protection objectives. SEOs used in the assessment are as follows:

- *SEO B1: To ensure compliance with the Habitats and Birds Directives with regard to the protection of Natura 2000 Sites and Annexed habitats and species*
- *SEO B2: To ensure compliance with Article 10 of the Habitats Directive with regard to the management of features of the landscape which - by virtue of their linear and continuous structure or their function act as stepping stones (designated or not) - are of major importance for wild fauna and flora and essential for the migration, dispersal and genetic exchange of wild species*
- *SEO B3: To avoid significant impacts on relevant habitats, species, environmental features or other sustaining resources in designated sites including Wildlife Sites and to ensure compliance with the Wildlife Acts 1976-2010 with regard to the protection of listed species*
- *SEO PHH1: To protect populations and human health from exposure to incompatible landuses*
- *SEO S1: To avoid damage to the hydrogeological and ecological function of the soil resource*
- *SEO W1: To maintain and improve, where possible, the quality and status of surface waters*
- *SEO W2: To prevent pollution and contamination of ground water*
- *SEO W3: To comply as appropriate with the provisions of the Planning System and Flood Risk Management: Guidelines for Planning Authorities (DEHLG, 2009)*
- *SEO M1: To serve new development with adequate and appropriate waste water treatment*
- *SEO M2: To serve new development with adequate drinking water that is both wholesome and clean*
- *SEO M3: To reduce waste volumes, minimise waste to landfill and increase recycling and reuse*
- *SEO C1: To reduce travel related emissions to air and to encourage modal change from car to more sustainable forms of transport*
- *SEO CH1: To protect archaeological heritage including entries to the Record of Monuments and Places and/or their context*
- *SEO CH2: To protect architectural heritage including entries to the Record of Protected Structures and Architectural Conservation Areas and their context*
- *SEO L1: To minimise significant adverse visual impacts within and adjacent to the Plan area - especially having regard to the Plan Policies LHB1 to 5 which provide for the protection and management of Landscape Character Areas, the Seascape, High Amenity Zones, Historic Landscape Character Areas and Views and Prospects.*

Section 4 Effects of Alternative Scenarios and the Draft Plan

4.1 Alternative Scenarios

3 different alternative scenarios for the overall development plan approach were considered during the preparation of the Draft Plan. The scenarios were identified early in the Plan-preparation/SEA process and developed further with various iterations passing to and from the Planning and SEA teams.

The alternatives provide the basis for the comparative evaluation of the likely environmental effects of each plan (summarised in Section 4.2), which in turn serves the purpose of identifying which features of plans and policies are likely to be sensitive or robust over the widest range of circumstances. For the purpose of this assessment no particular alternative is preferred over the other, indeed the chosen strategy combines elements from each alternative considered.

Scenario A: Restructuring the Current Housing Pattern

Scenario A includes some 'densification' by restructuring the utilisation of current housing stock as well as the provision of new higher density units on extensive and smaller 'pocket' greenfield sites. This aims to make the current housing stock use land and services more efficiently by increasing the occupancy of units. The approach seeks to influence and manage population densities in existing units through incentives to increase household occupancy in the County therefore reducing the need for housing growth. According to the 2011 census, 23% of the current housing stock is occupied by one inhabitant; often these units have the capacity to facilitate a greater number of inhabitants. The Housing Agency forecast that by 2018 in the Dublin Region that 57% of all households are likely to be for one and two person households.

Scenario A would facilitate opportunities to rehouse the population within the planned higher density areas of the County [such as Cherrywood] as well as by using incentives e.g. such as encouraging small apartment buildings within or near mature residential enclaves, or more suitable types of 'empty-nester' developments, thus freeing up other existing underutilised housing stock with the capacity for higher population density. The policy would aim to achieve one quarter of new housing through incentives to facilitate densification of existing areas combined with achieving the remainder in greenfield areas such as Cherrywood.

The scenario would focus on urban hubs within the County and along existing or planned public transport corridors. Priorities would be placed on protecting the residential amenity and character of established residential areas by providing opportunities to rehouse the current population in the same community. This would ensure a sustainable mix of population and employment and increase the critical mass of activity required to sustain an integrated public transport network for the County. The method also facilitates a more sustainable approach to the current housing pattern by using the existing housing stock and associated existing social and physical services more efficiently.

Scenario B: Demographic Alternative - Phased Zoning

Scenario B seeks to focus development on demographic growth within the County over the lifetime of the Plan. Using this approach, additional lands would be prioritised and zoned on a phased basis over the lifetime of the Development Plan using demographic alternatives based on high, medium and low growth. The development would also take into account factors including demand, economic growth and availability of funding and priorities for infrastructure and service provision.

There is an emerging pattern where the population are increasingly choosing to live within the M50 in areas like Dún Laoghaire-Rathdown that have a high amenity and recreational value. However, the

development of additional lands increases the risk to amenities and environmental sensitivities. By employing the method of phased zoning, Dún Laoghaire-Rathdown County Council will be able to incrementally facilitate different levels of demographic growth while ensuring the protection of environmental sensitivities - including green corridors and areas of high amenity and recreational value.

The scenario would ensure that areas currently zoned and serviced by foul water and water supply schemes are prioritised and developed/redeveloped initially - including Cherrywood which is designated as a 'Strategic Development Zone' and smaller sites throughout the County that are presently available and serviced with infrastructure, followed by zoned areas south of the County that are waiting for funding to be made available for provision of foul drainage or water supply.

By selecting zones on a phased basis for development/redevelopment to accommodate growth as it occurs, this scenario allows for a greater degree of coordination of development through a plan-led approach in sync with the relevant planning strategies. This scenario needs to be viewed as requiring alternative scenarios of phasing/sequencing to take account of the reality that implementation will be determined by the priorities and budgets of external factors such as Irish Water.

Scenario C: Market-Led Growth

Alternative Scenario C facilitates an evaluation of the consequences of allowing the location and nature of development to respond to likely market demand or land availability with applications being evaluated on a case by case basis – especially where developments are proposed on green belt/sports areas or rural areas.

For evaluation purposes, it assumes that the areas proposed for development would occur on lands at the edge of currently developed areas – which have poor public transport links, and little or no current infrastructure capacity – such a water supply or foul drainage.

A pattern of opportunistic, but potential non-conforming, applications – of this type – are an historically persistent feature of development during periods of economic recovery or expansion and, as such, constitute a realistic alternative that needs to be assessed. This is particularly relevant during a period of rapidly changing demand – such as is currently emerging – where developments for specialist residential accommodation – such as units for single persons, student housing and housing for 'down-sizing, empty-nesters' may give rise to un-met needs that have not been adequately anticipated by current housing policies.

This scenario needs to be given equal evaluation to determine whether – notwithstanding potential non-conformity with national and regional planning policies – it could produce options that are environmentally advantageous.

4.2 Evaluation of Alternative Scenarios

The table overleaf summarises the evaluation of environmental effects of the alternative scenarios that is provided in the SEA Environmental Report.

The provisions of the alternatives are evaluated using compatibility criteria in order to determine how they would be likely to affect the status of the SEOs (these are all detailed under Section 3.13). The SEOs and the alternatives are arrayed against each other to identify which interactions - if any - would cause effects on specific components of the environment. Where the appraisal identifies a conflict with the status of an SEO the relevant SEO code is entered into the conflict column - e.g. B1 which stands for the SEO likely to be affected - in this instance 'to ensure compliance with the Habitats Directive with regard to the protection of Natura 2000 Sites and Annexed habitats and species'.

The interactions identified are reflective of likely significant environmental effects⁸;

- Interactions that would be likely to improve the status of a particular SEO would be likely to result in a significant positive effect on the environmental component to which the SEO relates.
- Interactions that would potentially conflict with the status of an SEO and would be likely to be mitigated would be likely to result in potential significant negative effects however these effects could be mitigated (for the chosen alternative these effects will be mitigated by measures which have been integrated into the Draft Plan).

⁸ These effects include secondary, cumulative, synergistic, short, medium and long-term permanent and temporary, positive and negative effects.

Table 4.1 Evaluation of Alternative Scenarios against SEOs

	Likely to Improve status of SEOs	Probable Conflict with status of SEOs- unlikely to be mitigated	Potential Conflict with status of SEOs- likely to be mitigated
Scenario A: Restructuring the Current Housing Pattern	<p>By planning higher density areas, providing incentives to facilitate densification of existing areas and providing development along existing or planned public transport corridors, Scenario A would:</p> <ul style="list-style-type: none"> Avoid the need for unnecessary greenfield development in certain locations thereby contributing towards the protection of many environmental components SEOs B1 B2 B3 PHH1 S1 W1 W2 W3 M1 M2 M3 CH1 CH2 L1 Help to maximise the uptake in smarter, more sustainable modes of transport and minimise transport related emissions. SEOs C1 PHH1 Enable development to be served by existing water services and drainage infrastructure, subject to capacity being provided. SEOs M1 M2 W1 W2 W3 B1 B2 B3 S1 PHH1 		<p>By providing for infill within existing developed areas, this scenario would potentially result in a localised intensification of effects upon the protection of cultural heritage, protection of biodiversity and flood risk (cumulative loss of storage) in urban areas. SEOs CH1 CH2 B1 B2 B3 W3</p> <p>Potential adverse environmental effects arising would be present during the implementation of this scenario however it would be possible to mitigate them and residual adverse effects would be likely to be non-significant. SEOs B1 B2 B3 PHH1 S1 W1 W2 W3 M1 M2 M3 C1 CH1 CH2 L1</p>
Scenario B: Demographic Alternative - Phased Zoning	<p>By providing for phasing, Scenario B would:</p> <ul style="list-style-type: none"> Delay the piecemeal replacement of non-artificial surfaces with artificial surfaces in areas which are not prioritised for development thereby delaying potential effects and contributing towards the protection of many environmental components SEOs B1 B2 B3 PHH1 S1 W1 W2 W3 M1 M2 M3 CH1 CH2 L1 Help to maximise the uptake in smarter, more sustainable modes of transport and minimise transport related emissions by concentrating in development in specific, considered locations already served by public transport SEOs C1 PHH1 Enable development to be served by existing water services and drainage infrastructure, subject to capacity being provided SEOs M1 M2 W1 W2 W3 B1 B2 B3 S1 PHH1 		<p>The phasing of zoning provided for by the Plan would facilitate the development of the Plan area and therefore would potentially conflict with a number of environmental components. It would be possible to mitigate potential adverse effects arising and residual adverse effects would be likely to be non-significant. SEOs B1 B2 B3 PHH1 S1 W1 W2 W3 M1 M2 M3 C1 CH1 CH2 L1</p>
Scenario C: Market-Led Growth	<p>Under this scenario, infilling of existing developed areas would be significantly less likely to occur. Consequently, in urban areas, there would be potential for beneficial effects to occur with regard to the protection of cultural heritage, biodiversity and flood risk in urban areas. SEOs CH1 CH2 B1 B2 B3 W3</p>	<p>Because the areas proposed for development would occur on lands at the edge of currently developed areas - which have poor public transport links, have little or no current infrastructure capacity, such a water supply or foul drainage, and have low levels of development or are previously undeveloped, it would be difficult to mitigate potential adverse effects. It is likely that implementation of a Plan which evolves from this scenario would result in significant residual adverse effects on various environmental component SEOs B1 B2 B3 PHH1 S1 W1 W2 W3 M1 M2 M3 C1 CH1 CH2 L1</p>	

4.3 The Selected Alternative Scenario for the Draft Plan

The alternative scenario for the Draft County Development Plan which has emerged from the planning/SEA process is a mixture of Scenarios A and B (see evaluations provided above). The evaluation of the combination of Scenarios A and B against the SEOs is provided on Table 4.2 below.

Elements of Scenario A which have been integrated into the Draft Plan include:

- planned higher density areas
- incentives to facilitate densification of existing areas
- focus on urban hubs
- development along existing or planned public transport corridors
- protecting the residential amenity and character
- a sustainable mix of population and employment

Elements of Scenario B which have been integrated into the Draft Plan include:

- taking into account factors including demand, economic growth and availability of funding
- ensuring the protection of environmental sensitivities
- ensuring that areas currently zoned and serviced by foul water and water supply schemes are prioritised

The Draft Plan has been developed by the Planning Team and placed on public display as the Draft Plan by the Elected Members having regard to both:

1. The environmental effects which are summarised in this section; and
2. Planning - including social and economic - effects which also considered by the Council.

By complying with appropriate mitigation measures - including those which have been integrated into the Draft Plan - potential adverse environmental effects which could arise as a result of implementing this scenario would be likely to be avoided, reduced or offset. Section 5 of this report summarises how the Draft Plan was informed by environmental considerations.

Table 4.2 Evaluation of Selected Alternative Scenario against SEOs

	Likely to Improve status of SEOs	Potential Conflict with status of SEOs-likely to be mitigated
The Selected Alternative Scenario	<p>By planning higher density areas, providing incentives to facilitate densification of existing areas and providing development along existing or planned public transport corridors in a manner which is generally phased, the Draft Plan would:</p> <ul style="list-style-type: none"> • Avoid the need for unnecessary greenfield development in certain locations thereby contributing towards the protection of many environmental components SEOs B1 B2 B3 PHH1 S1 W1 W2 W3 M1 M2 M3 CH1 CH2 L1 • Help to maximise the uptake in smarter, more sustainable modes of transport and minimise transport related emissions. SEOs C1 PHH1 • Enable development to be served by existing water services and drainage infrastructure, subject to capacity being provided. SEOs M1 M2 W1 W2 W3 B1 B2 B3 S1 PHH1 	<p>By providing for infill within existing developed areas, this scenario would potentially result in a localised intensification of effects upon the protection of cultural heritage, protection of biodiversity and flood risk (cumulative loss of storage) in urban areas. SEOs CH1 CH2 B1 B2 B3 W3</p> <p>Potential adverse environmental effects arising would be present during the implementation of this scenario however it would be possible to mitigate them and residual adverse effects would be likely to be non-significant. SEOs B1 B2 B3 PHH1 S1 W1 W2 W3 M1 M2 M3 C1 CH1 CH2 L1</p>

4.4 Evaluation of Individual Draft Plan Provisions

The **overall findings** (in addition to those detailed in preceding sections) are that:

- The Council have integrated all recommendations arising from the SEA and AA processes into the Draft Plan (these are summarised in Section 5 of this report);
- Some Draft Plan provisions would be likely to result in significant positive effects upon all of the environmental components; and
- Some provisions would have the potential to result in significant negative environmental effects (these are described below) however these effects will be mitigated by the mitigation measures which have been integrated into the Plan (these are summarised in Section 5 of this report).

Environmental impacts which occur, if any, will be determined by the nature and extent of multiple or individual projects and site specific environmental factors. The **potentially significant adverse environmental effects** arising from implementation of the Draft Plan are summarised on Table 4.3 below. Avoidance of conflict with SEOs and the environment is dependent upon compliance with the mitigation measures which have emerged through the SEA, AA and SFRA processes and which have been integrated into the Draft Plan. Section 5.1 summarises the measures that will mitigate the potential effects that are likely to arise as a result of implementing the Plan.

Table 4.3 Potentially Significant Adverse Environmental Effects arising from Draft Plan

Environmental Component	Potential Effect
Biodiversity and Flora and Fauna	<ul style="list-style-type: none"> ○ Loss of biodiversity with regard to Natura 2000 Sites and Annexed habitats and species ○ Loss of biodiversity with regard to ecological connectivity and stepping stones ○ Loss of biodiversity with regard to designated sites including Wildlife Sites and listed species
Population and Human Health	<ul style="list-style-type: none"> ○ Spatially concentrated deterioration in human health
Soil	<ul style="list-style-type: none"> ○ Damage to the hydrogeological and ecological function of the soil resource
Water	<ul style="list-style-type: none"> ○ Adverse impacts upon the status and quality of water bodies, including bathing waters ○ Increase in the risk of flooding
Material Assets	<ul style="list-style-type: none"> ○ Failure to provide adequate and appropriate waste water treatment (water services infrastructure and capacity would be needed to ensure the mitigation of potential conflicts) ○ Failure to comply with drinking water regulations and serve new development with adequate drinking water that is both wholesome and clean (water services infrastructure and capacity would be needed to ensure the mitigation of potential conflicts) ○ Increases in waste levels
Air and Climatic Factors	<ul style="list-style-type: none"> ○ Failure to contribute towards sustainable transport and associated impacts
Cultural Heritage	<ul style="list-style-type: none"> ○ Effects on entries to the Record of Monuments and Places and other archaeological heritage ○ Effects on entries to the Records of Protected Structures and other architectural heritage
Landscape	<ul style="list-style-type: none"> ○ Occurrence of adverse visual impacts

Residual adverse effects likely to occur - considering the extent of detail provided by the Draft Plan and assuming that all mitigation measures are complied with by development - are identified for each of the environmental components on Table 4.4 below.

Table 4.4 Residual Adverse Environmental Effects arising from Draft Plan

Environmental Component	Residual Adverse Effects
Biodiversity and Flora and Fauna	Loss of an extent of non-protected habitats arising from the replacement of semi-natural land covers with artificial surfaces
Population and Human Health	None
Soil	Loss of an extent of soil function arising from the replacement of semi-natural land covers with artificial surfaces
Water	Flood related risks remain due to uncertainty with regard to extreme weather events
Air and Climatic Factors	None
Material Assets	Residual wastes to be disposed of in line with higher level waste management policies
Architectural Heritage	Potential alteration to the context and setting of architectural heritage (Protected Structures) however these will occur in compliance with legislation
Archaeological Heritage	Potential alteration to the context and setting of archaeological heritage (Recorded Monuments) however this will occur in compliance with legislation Potential loss of unknown archaeology however this loss will be mitigated by measures integrated into the Draft Plan
Landscape Designations ⁹	None

⁹ The Draft Plan contributes towards the protection of landscape designations. The county's landscapes will change overtime as a result of natural changes in vegetation cover combined with new developments.

Section 5 Mitigation and Monitoring Measures

5.1 Mitigation

Mitigation measures are measures envisaged to prevent, reduce and, as fully as possible, offset any significant adverse impacts on the environment of implementing the Plan.

Various environmental sensitivities and issues have been communicated to the Council through the SEA, Appropriate Assessment (AA) and Strategic Flood Risk Assessment (SFRA) processes. By integrating all related recommendations into the Plan, the Council have ensured that both the beneficial environmental effects of implementing the Plan have been and will be maximised and that potential adverse effects have been and will be avoided, reduced or offset.

Far in advance of both the submission of the pre-Draft Plan to the Elected Members for approval and the placing of the Draft Plan (and associated SEA, AA and SFRA documents) on public display, Dún Laoghaire-Rathdown County Council undertook various works in order to inform the preparation of the Draft Plan.

The findings of this strategic work have been integrated into the Draft Plan and will be implemented when it is adopted, contributing towards both environmental protection and management and sustainable development within the County.

Strategic work done by the Council includes the preparation of the following:

- Background work in relation to the Sustainable Communities Strategy
- Background work in relation to the Enterprise and Employment Strategy
- Background work in relation to the Physical Infrastructure Strategy
- Background work in relation to the Built Heritage Strategy
- Background work in relation to the Community Strategy
- Housing Strategy
- Ecological Network
- Review of Wind Energy Strategy
- Review of Landscape Character Areas
- Green Infrastructure Strategy
- Review of DLUFP
- Review of SUFP
- Climate Change proofing of existing Dún Laoghaire-Rathdown County Development Plan 2010-2016

The undertaking of this SEA process as well as the undertaking of the AA and SFRA were part of this strategic work and contributed towards the integration of environmental considerations into individual Plan provisions.

Table 5.1 links key mitigation measure(s) - which have been integrated into the Draft Plan - to the likely significant effects of implementing the Plan, if unmitigated, as well as showing monitoring measures. The integration of these measures into the Draft Plan occurred over a number of iterations and was informed by, inter alia, various communications through the SEA, AA and SFRA processes.

The measures generally benefit multiple environmental components i.e. a measure providing for the protection of biodiversity, flora and fauna could beneficially impact upon the minimisation of flood risk and the protection of human health, for example.

The reference codes are those which accompany the relevant measures in Section 8 of the main Environmental Report and in the Draft Plan.

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.

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 or from an internal monitoring of the environmental effects of grants of permission in the Council.

A stand-alone Monitoring Report on the significant environmental effects of implementing the Plan will be prepared before in advance of beginning the review of the Plan. This report will address the indicators that are set out on Table 5.1.

Table 5.1 SEA Summary Table: Likely Significant Effects (if unmitigated), Mitigation Measures and Indicators for Monitoring

Likely Significant Effect, if unmitigated	Mitigation Measure Reference(s) from the Draft Plan	Primary Indicator(s) for Monitoring
Loss of biodiversity with regard to Natura 2000 Sites and Annexed habitats and species & Loss of biodiversity with regard to designated sites including Wildlife Sites and listed species	Policy LHB16: Protection of Natural Heritage and the Environment* Policy LHB17: Habitats Directive* Policy LHB19: Designated Sites* Policy LHB24: Geological Sites Development Management 8.2.2 (v) Appropriate Assessment Development Management 8.2.9.4 Appropriate Assessment Development Management 8.2.7.1 Biodiversity Policy LHB13: National Park* Appropriate Assessment & Coastal Cycling Infrastructure Objective Policy EI1: Water Supply & Appropriate Assessment Policy EI2: Wastewater Treatment & Appropriate Assessment* Policy EI3: Surface Water Drainage & Appropriate Assessment* Policy EI4: Groundwater Protection & Appropriate Assessment	B1: Conservation status of habitats and species as assessed under Article 17 of the Habitats Directive B3i: Number of significant impacts on relevant habitats, species, environmental features or other sustaining resources in designated sites including Wildlife Sites resulting from development provided for by the Plan B3ii: Number of significant impacts on the protection of listed species
Loss of biodiversity with regard to ecological connectivity and stepping stones	Policy LHB20: Non-Designated Areas of Biodiversity Importance* Policy LHB 21: County-Wide Ecological Network* Policy LHB22 Rivers and Waterways* Policy LHB23: Hedgerows* Policy LHB26: Invasive Species	B2: Percentage loss of functional connectivity without remediation resulting from development provided for by the Plan
Spatially concentrated deterioration in human health	Radon Gas Policy CC11 Policy EI25: Major Accidents Policy EI20: Air and Noise Pollution Also see measures related to soil, water quality, flooding, waste water treatment and drinking water supply and quality.	PHH1: Occurrence (any) of a spatially concentrated deterioration in human health arising from environmental factors resulting from development provided for by the Plan, as identified by the Health Service Executive and Environmental Protection Agency
Damage to the hydrogeological and ecological function of the soil resource	Development Management 8.2.9.7 New Developments–Environmental Impacts Also see measures related to water quality and waste water treatment.	S1: Soil extent and hydraulic connectivity
Adverse impacts upon the status and quality of water bodies, including bathing waters	Policy EI22: Water Pollution Policy EI23: Rathmichael Ground and Surface Water Protection Policy EI3: Surface Water Drainage & Appropriate Assessment* Policy EI4: Groundwater Protection & Appropriate Assessment Policy EI6: Integrated Water Management Plans* Policy EI7: Water Quality Management Plans Policy EI8: Sustainable Drainage Systems* Policy EI10: Storm Overflows of Sewage to Watercourses* Policy LHB9: Beaches Also see measures related to water quality and waste water treatment.	W1i: Classification of Overall Status (comprised of ecological and chemical status) under the European Communities Environmental Objectives (Surface Waters) Regulations 2009 (SI No. 272 of 2009) W1ii: Mandatory and Guide values as set by the EU Bathing Water Directive and transposing Bathing Water Quality Regulations (SI No. 79 of 2008) W2: Groundwater Quality Standards and Threshold Values under Directive 2006/118/EC

Likely Significant Effect, if unmitigated	Mitigation Measure Reference(s) from the Draft Plan	Primary Indicator(s) for Monitoring
Increase in the risk of flooding	Policy CC13: Catchment Flood Risk and Management (CFRAM)*. Policy CC14: Flood Risk Management*. Policy CC15: Coastal Defence*. Policy EI8: Sustainable Drainage Systems* Policy EI9: Stormwater Impact Assessments* Policy LHB22 Rivers and Waterways*	W3: Number of incompatible developments granted permission on lands which pose - or are likely to pose in the future - a significant flood risk
Failure to provide adequate and appropriate waste water treatment & Failure to comply with drinking water regulations and serve new development with adequate drinking water that is both wholesome and clean	Policy EI5: Water Supply and Wastewater* Policy EI11: Water Services Investment Programme* Development Management 8.2.9.3 Environmental Impact Assessment	M1: Number of new developments granted permission which can be adequately and appropriately served with waste water treatment over the lifetime of the Plan M2: Number of non-compliances with the 48 parameters identified in the European Communities (Drinking Water) Regulations (No. 2) 2007 which present a potential danger to human health as a result of implementing the Plan
Failure to contribute towards sustainable transport and associated impacts	See Sustainable Communities Strategy in Section 2 of the Plan. Also: Policy CC1: National Climate Change Adaptation Framework.* Policy CC2: Development of National Climate Change Policy and Legislation.* Policy CC3: Development of National Energy Policy and Legislation.* Policy CC4: Sustainable Energy Action Plan* Policy CC5: Limiting Emissions of Greenhouse Gases.*	C1: Percentage of population travelling to work, school or college by public transport or non-mechanical means
Increases in waste levels	Policy EI12: Waste Management Strategy* Policy EI13: Waste Plans Policy EI14: Private Waste Companies Policy EI15: Waste Prevention and Reduction* Policy EI16: Waste Re-use and Recycling* Policy EI17: Refuse Disposal* Policy EI18: Hazardous Waste Policy EI19: Rehabilitation of the Former Ballyogan Landfill	M3i: Total collected and brought household waste M3ii: Packaging recovered (t) by self-complying packagers
Effects on entries to the Record of Monuments and Places and other archaeological heritage	Policy AH1: Protection of Archaeological Heritage Policy AH2: Protection of Archaeological Material in Situ Policy AH3: Protection of Historic Towns Policy AH4: Carrickmines Castle Site Policy AH5: Historic Burial Grounds Policy AH6: Underwater Archaeology	CH1: Percentage of 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) - protected from significant adverse effects arising from new development granted permission under the Plan

Likely Significant Effect, if unmitigated	Mitigation Measure Reference(s) from the Draft Plan	Primary Indicator(s) for Monitoring
Effects on entries to the Records of Protected Structures, Architectural Conservation Areas and other architectural heritage	Policy AR1: Record of Protected Structures Policy AR2: Protected Structures Applications and Documentation Policy AR3: Protected Structures and Building Regulations Policy AR4: National Inventory of Architectural Heritage (NIAH) Policy AR5: Buildings of Heritage Interest Policy AR6: Protection of Buildings in Council Ownership Policy AR7: Energy Efficiency of Protected Structures Policy AR8: Nineteenth and Twentieth Century Buildings, Estates and Features Policy AR9: Protection of Historic Street Furniture Policy AR10: Protection of Coastline Heritage Policy AR11: Industrial Heritage Policy AR12: Architectural Conservation Areas Policy AR13: Demolition within an ACA Policy AR14: Shopfronts within an ACA Policy AR15: Public Realm and Public Utility works within an ACA Policy AR16: Candidate Architectural Conservation Areas (cACA) Policy AR17: Development within a cACA	CH2: Percentage of entries to the Record of Protected Structures and Architectural Conservation Areas and their context protected from significant adverse effects arising from new development granted permission under the Plan
Occurrence of adverse visual impacts	Policy LHB1: Preservation of Landscape Character Areas* Policy LHB2: Seascape Policy LHB3: High Amenity Zones* Policy LHB4: Historic Landscape Character Areas Policy LHB5: Views and Prospects Policy LHB6: Coastal Zone Management and Dublin Bay* Policy EI21: Light Pollution	L1: Implementation of Plan Policies LHB1 to LHB5 which provide for the protection and management of Landscape Character Areas, the Seascape, High Amenity Zones, Historic Landscape Character Areas and Views and Prospects

