APPENDIX I NON TECHNICAL SUMMARY

ENVIRONMENTAL REPORT

OF THE

SLIGO COUNTY DEVELOPMENT PLAN 2011-2017

STRATEGIC ENVIRONMENTAL ASSESSMENT

for: **Sligo County Council**

County Hall,

Riverside,

Sligo

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Section 1 Introduction and Terms of Reference

This is the Non-Technical Summary of the Environmental Report of the Sligo County Development Plan 2011-2017 Strategic Environmental Assessment (SEA). The purpose of the Environmental Report is to provide a clear understanding of the likely environmental consequences of decisions regarding the future accommodation of growth in County Sligo.

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

Why is it needed?
The SEA was carried out in order to comply with the provisions of the SEA Regulations and in order to improve planning and environmental management within County Sligo. The output of the process is an Environmental Report and a SEA Statement, both of which should be read in conjunction with the County Development Plan.

How does it work?
All of the main environmental issues in County Sligo were assembled and presented to the team who prepared the new Plan. This helps them to devise a plan that protects whatever is sensitive in the environment. It also helped to identify wherever there are environmental problems in the area - so that these won't get any worse - and ideally the plan tries to improve these.

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

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

The Environmental Report contains the following information:

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

What happens at the end of the process?

On adoption of the Plan, an SEA Statement was prepared and made public.

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

Section 2 The County Development Plan

2.1 Structure and Content

The Sligo County Development Plan 2011-2017 has been prepared in accordance with the requirements and provisions of the Planning and Development Act 2000 as amended. It sets out an overall strategy for the proper planning and sustainable development of County Sligo over the period 2011-2017 and beyond to the horizon year of 2022.

The Plan is set out in a written statement, with accompanying maps. It comprises 13 main chapters as follows:

- Chapter 1: Introduction
- Chapter 2: SEA
- Chapter 3: Core Strategy
- Chapter 4: Economic Development
- Chapter 5: Housing
- Chapter 6: Community Facilities
- Chapter 7: Heritage
- Chapter 8: Transport
- Chapter 9: Environmental Infrastructure
- Chapter 10: Environmental Quality
- Chapter 11: Energy and Telecommunications
- Chapter 12: Development Management Standards
- Chapter 13: Mini-Plans General Policies

Also included are a number of chapters containing mini plans and a number of Appendices.

2.2 Relationships with Other Relevant Plans and Programmes

2.2.1 Introduction

A wide variety of national, regional and local government policy documents have been reviewed in preparing the Development Plan. Policy developments with a particular relevance to County Sligo and the Development Plan include:

- at ***national*** level: the *National Development Plan 2007-2013* (NDP), *National Spatial Strategy 2002-2020* (NSS), *National Climate Change Strategy 2007-2012* and various Planning Guidelines;

- at ***regional*** level: the *Border Regional Planning Guidelines 2010* (RPGs), *Connacht Waste Management Plan 2006-2011, River Basin Management Plans* (RBMPs) for the Western River Basin District (RBD), Shannon International RBD and the North-western International RBD.

- at ***local*** level: *Sligo and Environs Development Plan 2010-2016* and Sligo County Development Board's *Integrated Economic, Social and Cultural Strategy 2002-2012* and *Action Plan 2009-2012.*

2.2.2 Key Messages

Key messages from these and other relevant policy documents, to which this Plan responds, are as follows:

At ***national*** level:

1. The NDP aims to deliver a programme of prioritised and structured investment in Ireland's physical, economic and social infrastructure, in order to strengthen Ireland's competitiveness, sustain economic and employment growth, foster balanced regional development and promote social inclusion. For Sligo, the NDP represents recognition by Government that investment in critical infrastructure is necessary to sustain balanced regional development and needs to be responded to through a dynamic planning and development framework and investments prioritised and structured around a development programme.

2. The NSS represents the first national strategic planning framework and identifies Sligo as an urban centre to be developed in an accelerated manner as a Gateway City to drive the overall development of the North-West. The *Sligo and Environs Development Plan 2010-2016* has set out a framework for Sligo City and this County Development Plan responds to the call in the NSS for frameworks at the county level to achieve balanced development in areas outside of the gateways.

At ***regional*** level:

1. The Border RPGs 2010 aim to support the development of the gateways identified in the NSS within a more detailed framework that includes Hubs and other key towns outside the Gateways. The Guidelines establish a broad framework for county development plans to ensure that the development of the Gateways under the NSS moves forward in tandem with a process of strengthening other urban areas and supporting a dynamic rural community. The RPGS also set minimum population targets and related housing land requirements for counties and major urban centres in the Border Region.

2. The River Basin Management Plans will identify the specific environmental objectives to be achieved by the end of 2015 and corresponding programmes of measures (i.e. actions that will be taken to achieve the objectives). Sligo County Council is responsible for the implementation of the RBMPs. Development plan policy must have due regard for the programme of measures detailed in the Management Plans. The RBMPs are due to be published in 2010.

At ***local*** level:

1. The *Sligo and Environs Development Plan 2010-2016* sets out a detailed development framework to transform Sligo into a Gateway City, as outlined in the NSS.

2. The County Development Board has established an economic, social and cultural development strategy for Sligo with the support of key interest groups and agencies. This strategy promotes balanced spatial development, social inclusion and enhancement of the living culture of Sligo as the aims for the future.

2.2.3 Lower Tier Land Use Plans

Local Area Plans are prepared by the Council for designated Census towns with a population over 2,000 or areas which were identified for significant levels of development. They set out in greater detail the Council's requirements for new development, including such factors as density, layout and design requirements, community facilities, transportation, open space and recreational facilities. These plans must be consistent with the County Development Plan.

Local Area Plans are currently in force or are being prepared for:

- Strandhill
- Enniscrone
- Hazelwood-Ballinode
- Ballymote
- North Fringe
- Charlestown - Bellaghy
- Tubbercurry

The Sligo and Environs Development Plan 2010-2016 is in force for the Sligo City and Environs area.

2.3 Environmental Protection Objectives

The Plan is subject to a number of high level national, international and regional environmental protection policies and objectives, including those which have been developed as Strategic Environmental Objectives (see Section 3.11). Examples of Environmental Protection Objectives include 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 - and the purpose of the Water Framework Directive - which is to establish a framework for the protection of inland surface waters, transitional waters, coastal waters and groundwater which, among other things, prevents deterioration in the status of all water bodies and protects, enhances and restores all waters with the aim of achieving good status by 2015. The Plan must be consistent with these objectives and implement them at County level in Sligo.

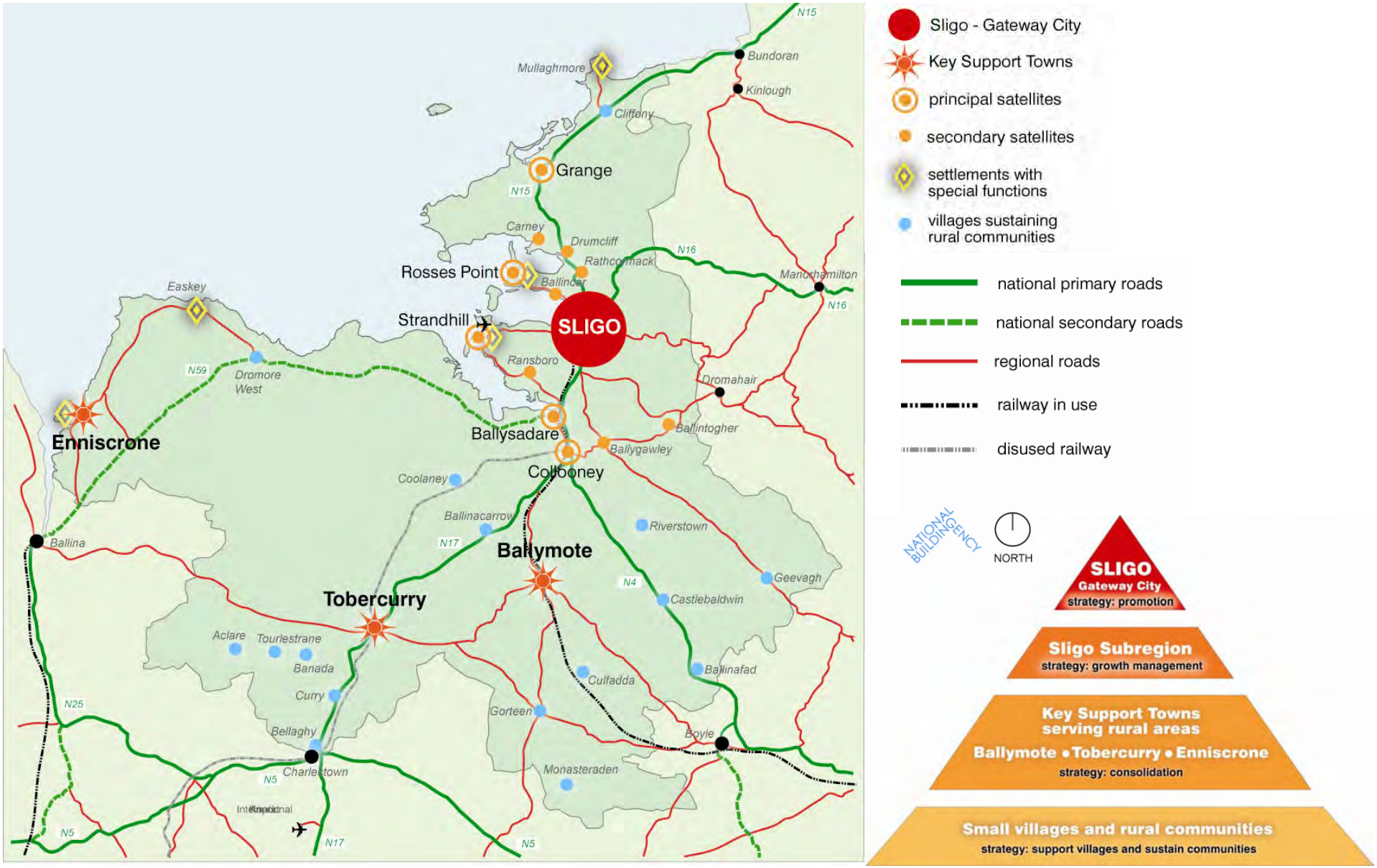


Figure 1.1 Plan Settlement Structure and Hierarchy Map & Settlement Strategy Principles

Section 3 Existing Environment

3.1 Introduction

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

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

Interrelationships between environmental components are detailed as they arise under the various environmental components. They include those which occur between:

- the provision of appropriate waste water services and water quality;
- water quality and human health and biodiversity and flora and fauna;
- the provision of appropriate drinking water services and water quantity;
- water quantity and human health and biodiversity and flora and fauna; and,
- brownfield/greenfield development and various environmental components including car dependency and greenhouse gas emissions, flood risk, biodiversity and architectural and archaeological heritage.

3.2 Biodiversity and Flora and Fauna

3.2.1 Overview of the Habitats

County Sligo has a rich and diverse range of natural habitats such as woodland, hedgerows, rivers and lakes many of which are recognised as being of local, national and EU importance, and many are designated for protection/preservation under national and/or EU legislation. The main river catchments falling within the County are the Ballysadare, Moy and Garavogue. These rivers and their associated tributaries and lakes support good areas of biodiversity. Woodlands like Slish Wood, Union Wood, Lough Gill Forest, Ben Bulben Forest, Collooney Forest and Lough Talt Forest have significant stands of deciduous trees. Candidate Special Areas of Conservation, Special Protection Areas, Natural Heritage Areas, proposed Natural Heritage Areas and Nature Reserves in the County are mapped below.

3.2.2 Existing Problems

Changes in land cover indicated by the CORINE data[1] indicate that semi natural areas within the County have been replaced by uses which generally include impermeable surfaces. These changes are also likely to result in losses of biodiversity and flora and fauna.

[1] CORINE Land Cover (CLC) is a map of the European environmental landscape based on interpretation of satellite images. Land cover is the observed physical cover, as seen from the ground or through remote sensing, including for example natural or planted vegetation, water and human constructions which cover the earth's surface. Because of the scale of the CORINE data and the method by which it was collected there are likely to be a number of inaccuracies at the local level. It is noted, however, that the land cover shown on the maps is generally accurate. The European Environment Agency, in conjunction with the European Space Agency, the European Commission and member countries is currently updating the CORINE land cover database.

Aquatic flora and fauna is vulnerable to all forms of pollution. Any existing problems with regard to surface water quality in the County are likely to be impacting upon aquatic biodiversity and flora and fauna.

With regard to terrestrial flora and fauna, all greenfield development in the area will cause an impact - the replacement of natural and semi natural habitats with artificial surfaces results in loss of flora and fauna and therefore adversely impacts upon this environmental component.

The site synopses for certain designated sites in the County identify threats to the conservation value of the protected sites. Threats, such as overgrazing, afforestation, under-grazing and threats to water quality from agricultural run-off.

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

In the absence of a Development Plan, development would have no guidance as to where to be directed and planning applications would be assessed on an individual basis with flora and fauna, habitats and ecological connectivity protected under a number of strategic actions relating to biodiversity and flora and fauna protection.

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

The evolution of biodiversity and flora and fauna would be dependent on the rate and extent of developments which would take place.

Any future development along the edges of designated ecological sites would be likely to result in a reduction in habitats and could therefore reduce ecological connectivity on the edges of these sites.

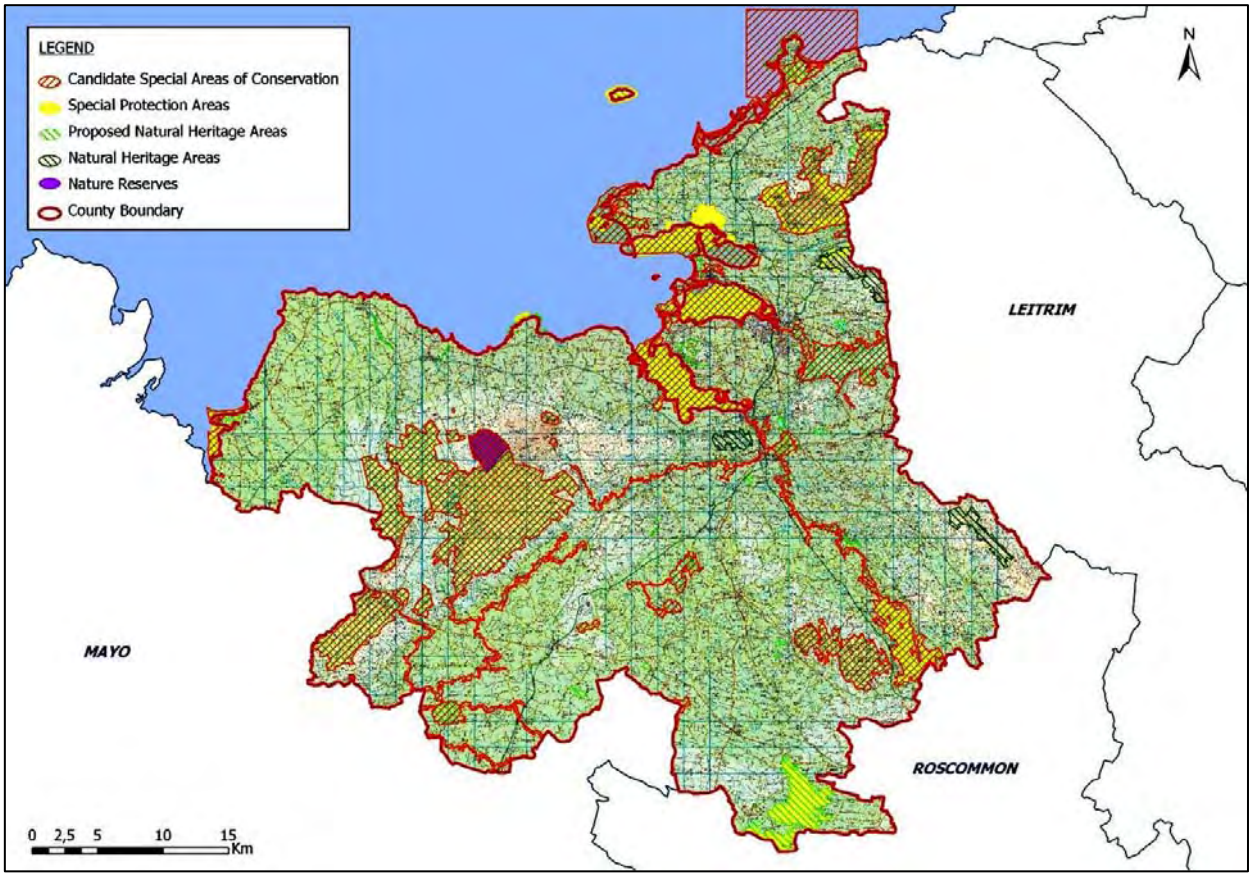
Weakly controlled development along or adjacent to the banks of rivers or on the coastline could result in a reduction in ecological connectivity within and between these and other habitats.

Pollution of water bodies as a result of any poorly planned future development would be likely to adversely impact upon aquatic biodiversity and flora and fauna including salmonid species and other species protected under Annex I of the Habitats Directive.

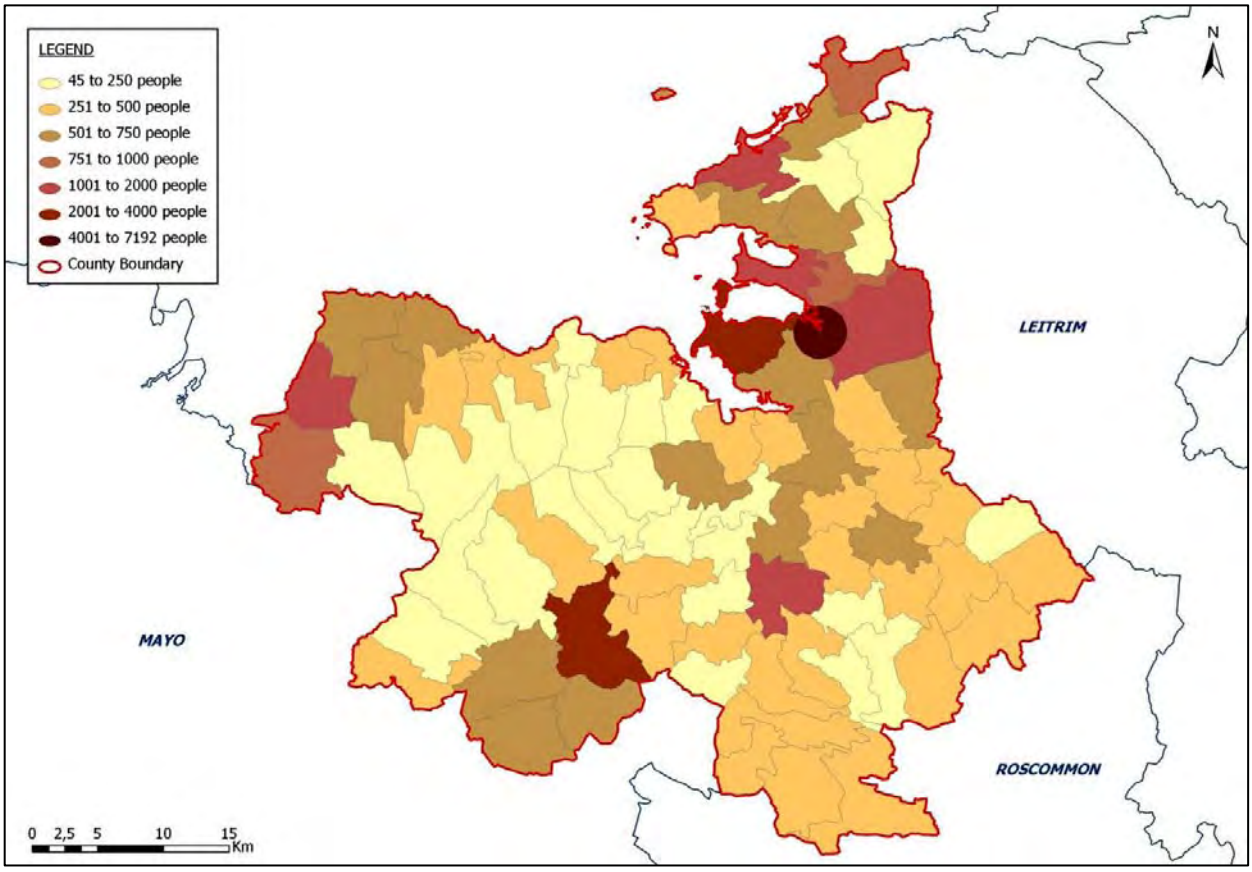
Climate change has the potential to result in the loss of habitats - including those designated as SACs and SPAs - through rising sea levels and increased levels of surface run-off. Some of the coastal habitats which are important to bird populations could eventually be inundated. Increased precipitation may disrupt the salinity gradients within estuarine systems and, coupled with likely increased sedimentation, disrupt spawning and nursery grounds as well as shellfish production and quality in such areas.

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

Pollution of water bodies as a result of any inappropriately sited or managed future developments along rivers would be likely to adversely impact aquatic biodiversity and flora and fauna including salmonid species and other species protected under the Habitats Directive.



SPAs, cSACs, NHAs and pNHAs and Nature Reserves. Source: NPWS (downloaded Feb. 2010)



Population of Sligo 2006. Source: CSO (2007)

3.3 Population and Human Health

3.3.1 Population[2]

The population of the County at the most recent (2006) Census is mapped above. Population of the County stood at 58,200 in 2002 and rose to 60,894 in 2006. Sligo City and Environs is, as expected, the most populous area. DEDs including the areas of Strandhill and Tobercurry have the next highest population. These are followed by the DEDs which included Ballymote, Enniscrone, Rosses Point and a DED east of Sligo City.

Between the 2002 and the 2006 Census, the largest decrease in population in the County occurred in Sligo City where population in two DEDs decreased by 405 and between 50 and 206 persons.

The highest increase in population for the same period was at Strandhill where population increased by 351-384 persons. This DED also saw a significant increase in population for the previous inter-censal period from 1996-2002.

Population density in Sligo City is 250-1600 persons/km^2. Strandhill and Rosses Point DEDs have densities of 60-120persons/km^2. Upland areas are the least populated with 1-7km^2 in most upland DEDs. Density in the remainder of the County is 7-60 persons/km^2.

3.3.2 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 Plan and the alternatives.

3.3.3 Existing Problems

Certain environmental vectors within the Plan area - such as air, water or soil - have the potential to transport and deposit contaminants or pollutants, which have the potential to cause harm and adversely impact upon the health of the area's population. Issues relevant to this potential in Sligo are expanded upon in the following sections.

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

Although air quality in the County meets current standards, there are traffic "hotspots" located along the main road routes especially at intersections in urban areas. These give rise to a harsh sensory environment which may impact upon human health.

3.3.4 Evolution of Population and Human Health in the absence of a Development Plan

In the absence of a Development Plan there would be no framework for the provision of infrastructure to serve existing and future development and this could delay or hinder the provision of infrastructure and result in impacts on environmental vectors to which humans are exposed. For example, a lack of

[2] CSO (various) *Census 2006 Volume 1 - Population Classified by Area; Census 2002 Volume 1 - Population Classified by Area; Census 1996 Volume 1 - Population Classified by Area* Cork: CSO.

appropriate waste water treatment infrastructure could adversely impact upon drinking water quality and subsequently upon human health.

3.4 Soil

3.4.1 Introduction

Soil is the top layer of the earth's crust. It is formed by mineral particles, organic matter, water, air and living organisms. Soil can be considered as a non-renewable natural resource because it develops over very long timescales. It is an extremely complex, variable and living medium and performs many vital functions including: food and other biomass production, storage, filtration and transformation of many substances including water, carbon, and nitrogen. Soil has a role as a habitat and gene pool, serves as a platform for human activities, landscape and heritage and acts as a provider of raw materials. Such functions of soil are worthy of protection because of their socio-economic as well as environmental importance.

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

Large expanses of blanket, cutover and fen peat occur in Sligo, particularly in the west. Certain areas of the peat are internationally important supporting a large variety of rare flora and fauna and large areas are protected by a number of ecological designations. Much of the County is also covered by till, in particular limestone, sandstone and shale and metaphoric till.

3.4.2 Existing Problems relating to Soil

Land cover differences between the CORINE 2006 data and the data for the year 1990 (see Section 3.2.2 in Environmental Report) indicate that semi natural areas within the County are being replaced by urban areas - this is likely to be resulting sealing off of soil resources.

Certain parts of the County are not within the catchment of waste water treatment networks and consequently development in these areas uses septic tanks systems to treat waste water arising - it is likely that local pollution of soil is occurring in certain areas as a result of poorly maintained systems.

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

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

Soil erosion due mainly to surface erosion resulting from construction works and agricultural / forestry operations has major potential to impact on water quality and fishery resources. Coastal erosion is also noted as a problem in the County.

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

3.4.3 Evolution of Soil in the absence of the Development Plan

In the absence of the Development Plan, the evolution of soil would be dependent on developments which take place.

The currently proposed Soil Directive suggests encouraging the rehabilitation of brownfield sites, thus reducing the depletion of greenfield sites. However, in the absence of Plan, there would be no framework for the direction of growth towards brownfield sites, where such direction is appropriate. As a result

greenfield development would be likely to occur on an increased basis and would result in the building upon and thereby sealing off of the non-renewable subsoil and soil resources.

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

3.5 Water

3.5.1 Introduction

Water within and surrounding the County has many functions: it provides drinking water to the area's population; it sustains the biodiversity and flora and fauna described above; it provides amenity; and, it is an integral part of the landscape.

3.5.2 Potential Pressures on Water Quality

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

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

3.5.3 The Water Framework Directive

Since 2000, Water Management in the EU has been directed by the Water Framework Directive 2000/60/EC (WFD). The WFD requires that all Member States implement the necessary measures to prevent deterioration of the status of all waters - surface, ground, estuarine and coastal - and protect, enhance and restore all waters with the aim of achieving good status by 2015. All public bodies 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.

3.5.4 River Basin Districts and Water Bodies

For the purpose of implementing the WFD, Ireland has been divided into eight river basin districts or areas of land that are drained by a large river or number of rivers and the adjacent estuarine / coastal areas. The management of water resources will be on these river basin districts.

Within each river basin district - for the purpose of assessment, reporting and management - water has been divided into groundwater, rivers, lakes, estuarine waters and coastal waters which are in turn divided into specific, clearly defined water bodies.

The majority of County Sligo falls within the Western River Basin District (RBD) with small areas at Geevagh and Monasteraden falling within the Shannon RBD. Part of the north of the County falls within the North Western RBD.

3.5.5 Surface Water

Surface water in the County is made up of the various lakes and rivers in the County. The main lakes in the County include Lough Arrow and Lough Gara in the south west, Lough Easky and Lough Talt in the

west and Cloonacleigha and Templehouse Loughs in the centre of the County. Rivers include the Garavogue, Moy, Owenaher, Easky, Owenboy, Unshin and Owenmore.

3.5.5.1 EPA Monitoring

Water quality within County Sligo is monitored by the EPA at a number of locations. The most recent water quality data[3] are mapped below. The majority of Q values[4] in the County are of Good (Q4) or High (Q4-5, Q5) status.

The EPA classifies lakes according to their trophic status[5]. Good status as defined by the Water Framework Directive equates to mesotrophic in the trophic classification of lakes, as set out by the EPA. Mesotrophic lakes are lakes with an intermediate level of productivity, greater than oligotrophic lakes, but less than eutrophic lakes. All lakes in the County are classified as being oligotrophic/mesotrophic. These results meet the WFD standards.

3.5.5.2 WFD Surface Water Status

The WFD defines "surface water status" as the general expression of the status of a body of surface water, determined by the poorer of its ecological status and its chemical status. Thus, to achieve "good surface water status" both the ecological status and the chemical status of a surface water body need to be at least "good".

Generally, surface water in the County is of good status. A few areas, mainly in the uplands are of high status. A stretch of the River Moy is unclassified with two of its tributaries classified as bad. The remaining rivers are classified as being moderate or poor status with one classified as "pass". Tullyvellia Loughs and Lough Talt are classified as being of good status. Templehouse Lough is classified as bad and Lough Gill is classified as moderate. All remaining lakes are identified as being of good status. These results are mapped below.

3.5.6 Groundwater

3.5.6.1 Introduction

Groundwater is stored in the void spaces in underground layers of rock, or aquifers. These aquifers are permeable, allowing both the infiltration of water from the soils above them and the yielding of water to surface and coastal waters. Groundwater is the part of the subsurface water that is in the saturated zone - the zone below the water table, the uppermost level of saturation in an aquifer at which the pressure is atmospheric, in which all pores and fissures are full of water.

3.5.6.2 EPA Monitoring

The EPA national groundwater-monitoring network includes sampling at some locations that are used for the abstraction of drinking water. Groundwater is monitored at 7 locations throughout the County. These locations are mapped below along with the WFD groundwater status.

3.5.6.3 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

[3] EPA (various) *Water Quality in Ireland* Wexford: EPA

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

[5] Nutrient enrichment, resulting in eutrophication, is the principal pressure on lake quality in Ireland. Nutrient inputs result in plant growth in lakes whose presence is quantified by a measure of the algal pigment chlorophyll. Lake trophic status, or the extent to which a lake is nutrient enriched, is determined by a consideration of the annual maximum chlorophyll values. Trophic Status ranges from Oligotrophic/Mesotrophic to Moderately Eutrophic to Highly/Strongly Eutrophic to Hypertrophic.

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.

Just over half the groundwater in the County is classified as being of Good Status. This is mapped along with the EPAs groundwater quality results below. It should be noted that this dataset is in draft form, a finalised dataset is due to be released from the EPA in the coming months.

3.5.6.4 Groundwater Protection Schemes

Groundwater Protection Schemes are county-based projects that are undertaken jointly between the GSI and the respective Local Authority.

Groundwater sources, particularly public, group scheme and industrial supplies, are of critical importance in many regions. Consequently, the objective of source protection zones is to provide protection by placing tighter controls on activities within all or part of the zone of contribution (ZOC) of the source.

All groundwater in the County is required to be protected under the River Basin Management Plans.

3.5.6.5 Aquifer Vulnerability

The Geological Survey of Ireland (GSI) rates aquifers according to their vulnerability to pollution. Aquifer vulnerability refers to the ease with which pollutants of various kinds can enter underground water.

For the majority of the County, only an interim study has taken place and so the vulnerability is classified as *High to Low*. Areas around Lough Gill, particularly to the south of the lake rated as *Extreme (Karst/Surface Rock)* along with other localised areas throughout the County. Areas of *Extreme* vulnerability mainly occur along the south-east County boundary and along the coast from Corbally to Bealtra.

3.5.6.6 Aquifer Productivity

The GSI rates aquifers based on the hydrogeological characteristics and on the value of the groundwater resource. Ireland’s entire land surface is divided into nine aquifer categories, seven of which occur in County Sligo.

The main types occurring in the County are:

- *Regionally Important Karstified Aquifers* which are found throughout the County.
- A band of *Poor Bedrock Aquifers*, which are generally unproductive, stretches across the County from Ballintoger to Aclare. This classification also occurs in the east and south-east of the County.

The remainder of the County is made up of *Locally Important Aquifers*. These types of aquifers are capable of yielding enough water to boreholes or springs to supply domestic, commercial and industrial uses, depending on the nature and scale of the development.

3.5.7 Bathing Water

3.5.7.1 Introduction

EU Mandatory and Guide levels are set out for bathing waters in the 1976 Bathing Water Directive (Directive 76/160/EEC) as implemented in Ireland by the Quality of Bathing Water Regulations, 1992, (SI No. 155 of 1992). The purpose of the Bathing Water Regulations is the protection of human health, local authorities.

Mandatory Values are values which must be observed if the bathing area is to be deemed compliant with the Directive. Compliance with guide values exceeds compliance with mandatory values and can be regarded as a quality objective which bathing sites should endeavour to achieve.

Bathing waters which comply with Guide and Mandatory values are deemed to be of a *good* water quality. Bathing waters which comply with Mandatory values but not with Guide values are deemed to be of a *sufficient* water quality. Bathing waters which do not comply with either Guide or Mandatory values are deemed to be of a *poor* water quality.

3.5.7.2 EPA Bathing Water Quality

The EPA monitors three bathing locations in the County, all of which are located on the coast.

The most recently published figures (EPA, 2009)[6] show that:

- Water quality at Enniscrone and Mullaghmore was identified as being of a *good* water quality, complying with both Guide and Mandatory values.
- Water quality at Rosses Point was identified as being of a *sufficient* water quality, complying only with Mandatory values. The same level of compliance was achieved in 2007 whereas this location complied with Guide values from 2003-2006.

3.5.8 Coastal, Estuarine and Transitional Water

Coastal water is that area of surface water on the landward side of a line, every point of which is at a distance of one nautical mile on the seaward side from the nearest point of the baseline from which the breadth of territorial waters is measured, extending where appropriate up to the outer limit of transitional waters.

Estuarine and transitional waters are bodies of surface water in the vicinity of river mouths which are partly saline in character as a result of their proximity to coastal waters but which are substantially influenced by freshwater flows.

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

Waters at Sligo Bay, Ballysadare Bay, Sligo Harbour and Killala Bay are unpolluted and have remained so since 1995. The Garavogue Estuary is classified as intermediate.

Intermediate waterbodies are those which do not fall into the Eutrophic or Potentially Eutrophic classes but in which breaches one or two of the criteria occur; Unpolluted waterbodies are those which do not breach any of the criteria.

3.5.8.1 WFD Transitional and Coastal Water Status

For the purposes of the Water Framework Directive, transitional (estuaries and lagoons) and coastal waters are included as surface waters.

Of the transitional waters in the County, inner Ballysadare Bay is of moderate status, Sligo Harbour is of good status and Drumcliff is of high status.

WFD status of all coastal waters in the County is high, apart from outer Ballysadare Bay which is classified as good.

WFD status of Transitional and Coastal Waters is mapped below.

[6] Environmental Protection Agency (2009) *Bathing Water Quality in Ireland 2008* Wexford: Environmental Protection Agency

3.5.9 Register of Protected Areas

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

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

In Ireland, waters intended for human consumption are protected under the Drinking Water Regulations (S.I. 439/2000). The actual protected areas for drinking water are not outlined within these Regulations, so the protected area for drinking waters is represented by the water body from which the water is abstracted, be it groundwater, river or lake. All groundwater underlying the County is listed on the RPA for Drinking Water Groundwater.

The RPA for Water Dependent Habitats includes habitats that are dependent on water: this includes areas already listed by the National Parks and Wildlife Service as Special Areas of Conservation and Special Protection Areas. Rivers on which certain habitats are dependant are also listed on the RPA. The SPAs and SACs identified on Table 3.1 in the Environmental Report are listed on the RPAs for *Water Dependent Habitats (SPA)* and *Water Dependent Habitats (SAC)*.

Shellfish Production areas (as listed in the Irish Shellfish Regulations S.I.200/1994) are protected by virtue of their status as an area designated for the production of economically significant aquatic species. Areas within the County are mapped below, it is noted that these areas are currently under review.

Recreational waters (bathing waters) are included in this Register, and contains all the areas listed in the Bathing Water Regulations (SI 155/1992). These lines show the length of beach that is associated with each monitoring point, as verified by the relevant Local Authorities. Rosses Point is listed on the RPA for beaches.

3.5.10 Flooding

3.5.10.1 Introduction

Flooding is an environmental phenomenon which, as well have causing economic and social impacts, could in certain circumstances pose a risk to human health. County Sligo is vulnerable to adverse effects which are exacerbated by changes in the occurrence of severe rainfall events and associated flooding of the County's rivers.

3.5.10.2 EU Floods Directive

European Directive 2007/60/EC on the assessment and management of flood risks requires Member States to carry out a preliminary assessment by 2011 in order to identify the river basins and associated coastal areas at risk of flooding. For such zones, flood risk maps are required to be drawn up by 2013. Flood risk management plans focused on prevention, protection and preparedness must be established by 2015. The OPW is currently involved in a research project to develop maps with national coverage indicating areas that might be prone to flooding from rivers and streams. Further work is underway to refine the method and outputs, which, if successful, may enable this information to be made available in the coming months.

3.5.10.3 DEHLG Flood Risk Management Guidelines

In November 2009 the DEHLG 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 or varying development plans and local area plans and in consideration of applications for planning permission.

A Strategic Flood Risk Assessment was undertaken for the Plan which informed the SEA and which resulted in the integration of a number of policies and objectives into the Plan, in particular some of those in Chapter 4: Environmental Quality. Flood events in the County are mapped below.

3.5.11 Existing Problems

The above descriptions identify a number of sensitivities with regard to the status of water bodies within County Sligo. There are environmental problems in Sligo with regard to water quality which have the potential for significant adverse impact upon human health, drinking water supplies, biodiversity and flora and fauna.

Water quality data identifies multiple points on rivers throughout County Sligo as being of Moderate, Poor or Bad Status.

Flooding has occurred at various locations within the County.

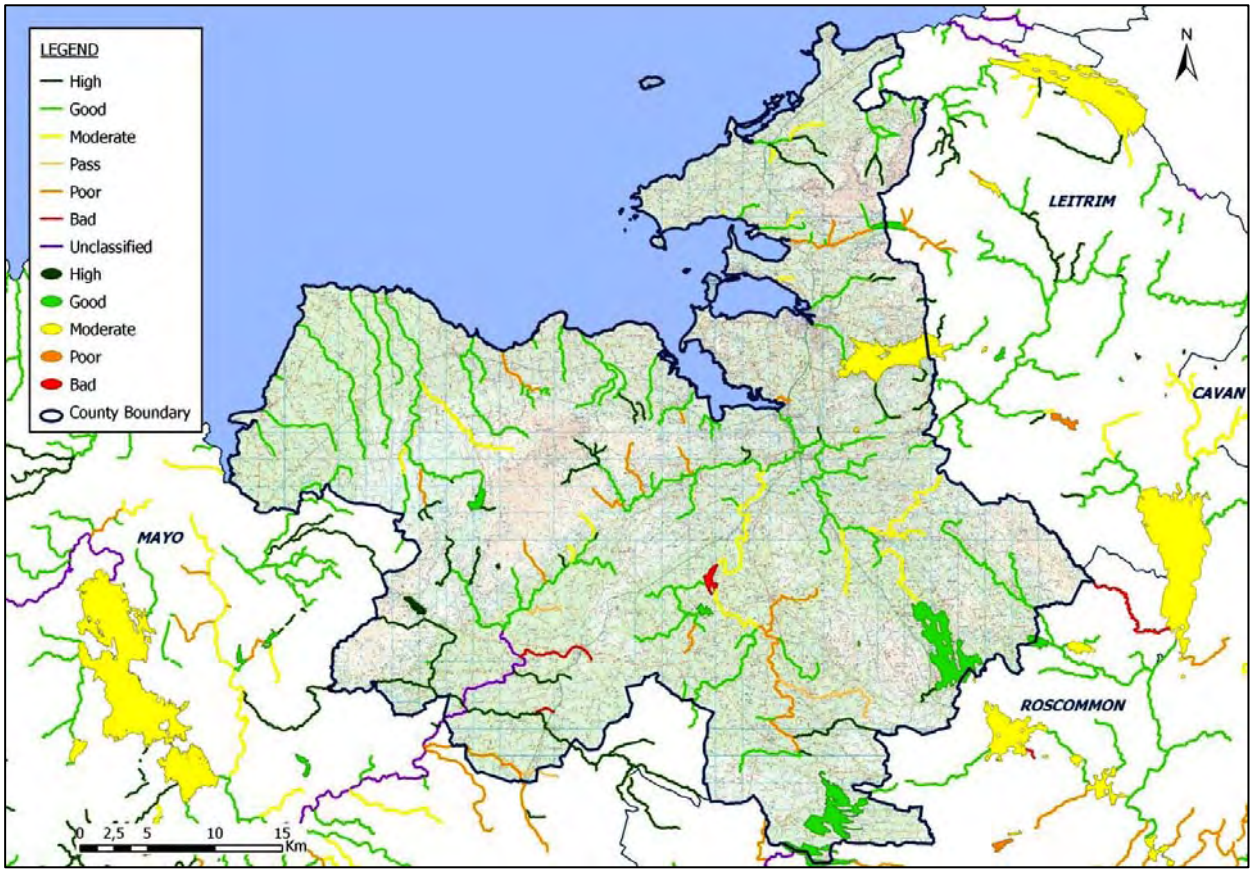
3.5.12 Evolution of Water in the absence of a Development Plan

Based on the status data, certain surface and ground water bodies are at a status less than good, which is the standard required by 2015.

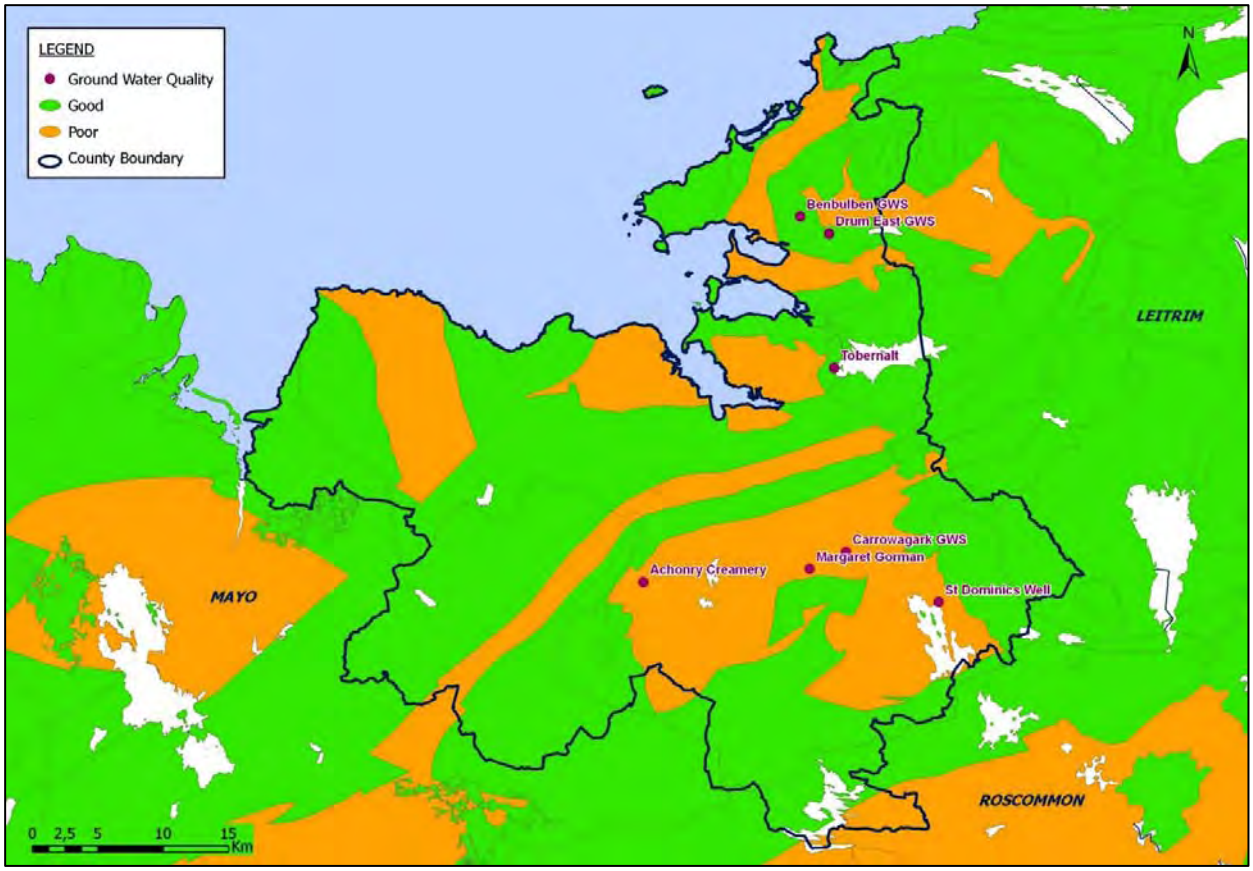
If growth is not accompanied by appropriate waste water infrastructure/capacity then it is likely that:

- Certain river and ground water bodies would fail to meet the objectives of the WFD by 2015; and,
- Significant adverse impacts upon the biodiversity and flora and fauna of the County could potentially arise.

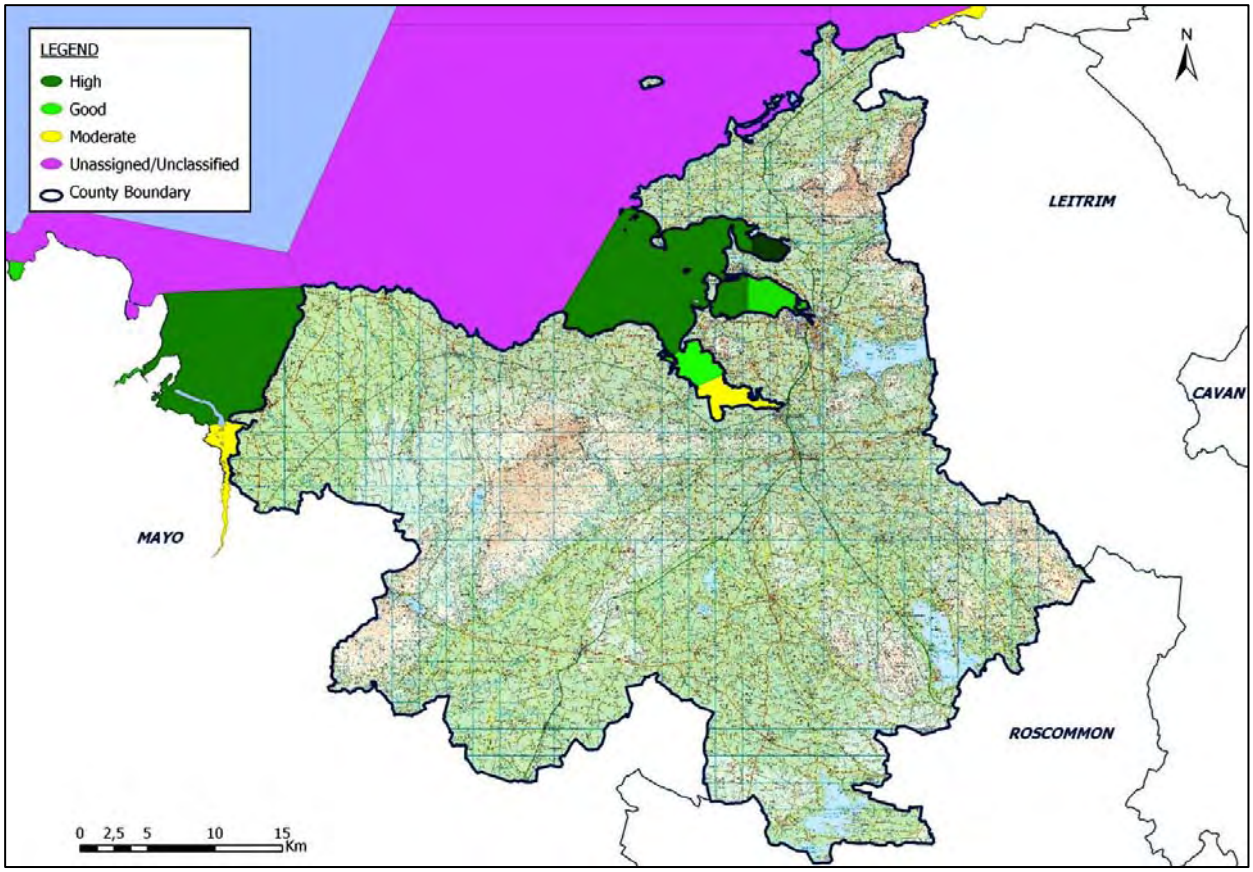
Q-Values (Biotic Index Ratings) at Points on Rivers. Source: EPA (Various)



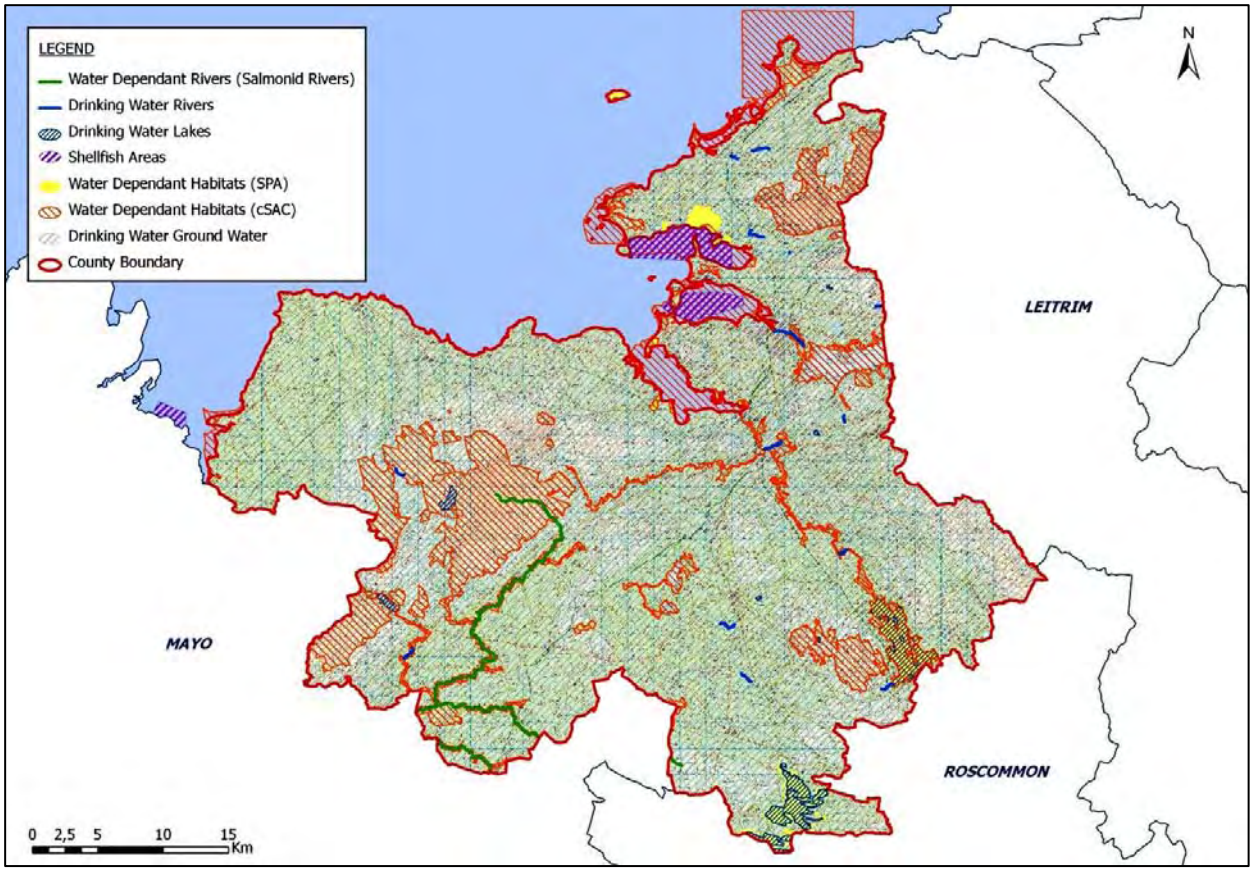
WFD Status of Surface Waters in the County. Source: EPA (2010)



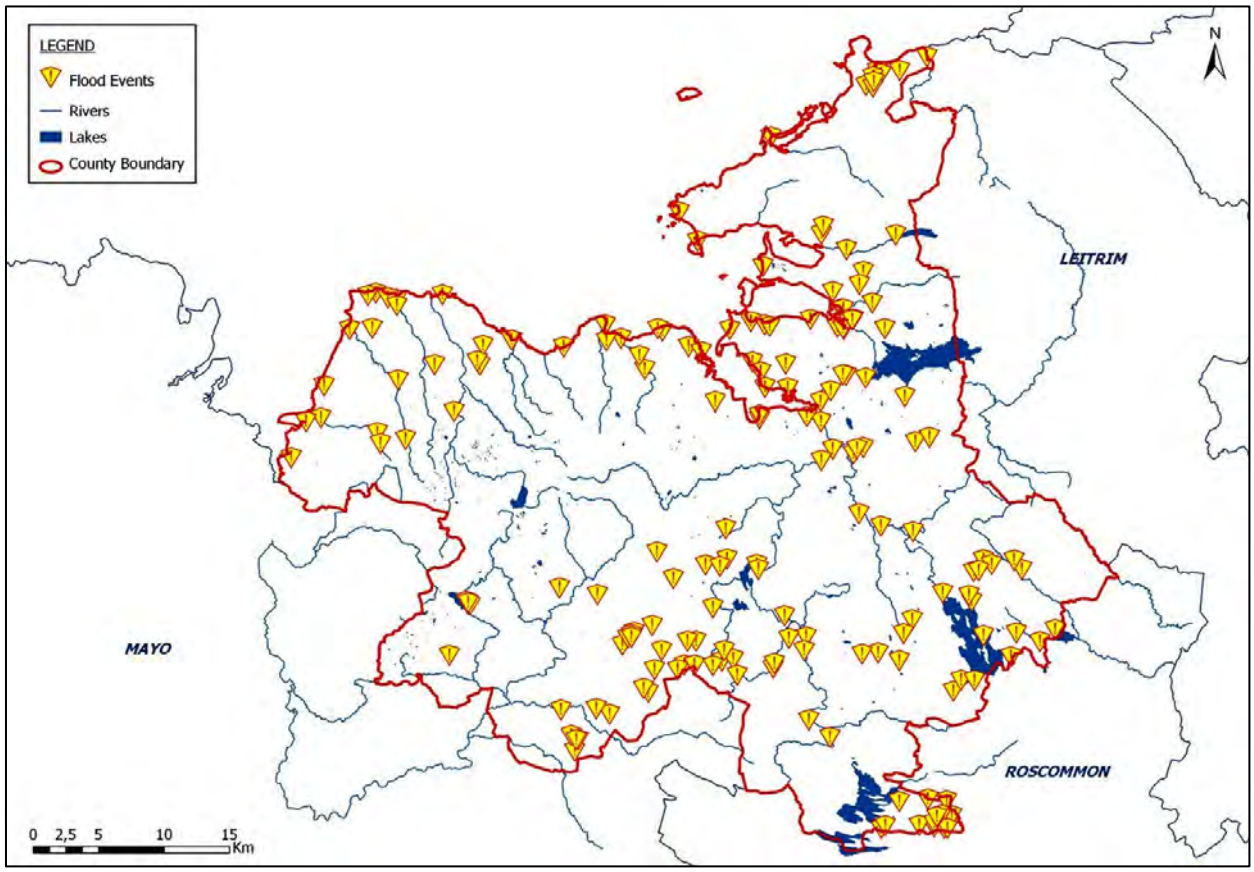
Groundwater Quality and WFD Status of Groundwater. Source: EPA (2009), EPA (2010)



WFD Status of Transitional and Coastal Waters. Source: EPA (2008), EPA (2005)



WFD Register of Protected Areas. Source: EPA (2009)



Rivers, Lakes and Flood Events in the County. Source: OPW (Various)

3.6 Material Assets

3.6.1 Waste Water

3.6.1.1 Relevant Legislation

The treatment of wastewater is governed by the Urban Waste Water Treatment Directive (91/271/EEC) (amended by Directive 98/15/EEC) transposed into Irish law by the Urban Waste Water Treatment Regulations 2001 (SI 254 of 2001). The Directive aims to protect the environment from the adverse effects of the wastewater discharges by ensuring that wastewater is appropriately treated before it is discharged to the environment. The Regulations stipulate that sewage treatment facilities are in place in all towns by 2005. The treatment of wastewater is also relevant to the Water Framework Directive which requires all public bodies, including Sligo County Council, to coordinate their policies and operations so as to maintain the good status of water bodies which are currently unpolluted and bring polluted water bodies up to good status by 2015 (see Section 3.5 *Water*).

3.6.1.2 Current Capacity and Demand and Future Upgrades

Relevant available information on waste water infrastructure capacity and demand has been collated for each of the designated settlements within the County and is provided in this section.

A table showing available information on waste water treatment capacity and demand at waste water treatment plants in the tiered settlements of the County is included in the Environmental Report. The table shows that the Gateway City of Sligo has a spare capacity of 19,800PE (Population Equivalent)[7] while the Key Support Towns of Ballymore and Enniscrone have spare capacities of 447PE and 1,205PE respectively. Tubbercurry, the final Key Support Town is operating over capacity along with all Principal Satellite Towns except Ballisodare. Ballymote and Tobbercurry and the four Principal Satellite Villages which are operating over-capacity are listed for upgrades on the DEHLGs Water Services Investment Programme (WSIP) 2010-2012.

Of the eight Secondary Satellite Villages included in the Plan, half of them have no waste water treatment plant. Of the remaining Villages, three of them have extra capacity but Ballintogher is operating over capacity although a new 500PE plant is proposed to be constructed in 2011-2012. Waste water from the Ballincar area, is to be connected to the Sligo Main Drainage Waste Water Treatment Plant.

The Plan identifies 19 Villages Sustaining Rural Communities. The plants at Ballinacarrow, Bunnanadden, Castlebaldwin, Cliffony, Easky and Mullaghmore are operating at or over capacity. Three of these plants have planned upgrades. Easky, which is operating at capacity and Castlebaldwin, which is operating over capacity by 10PE have no upgrades planned. Waste water from Bellaghy is treated in Charlestown, County Mayo. There are no waste water treatment plants in Banada or Tourlestrane.

Spare capacity at a waste water treatment plant indicates that plant is likely to be in conformance with the Urban Waste Water Treatment Directive at present. Plants operating over capacity suggest that they are unlikely to be in conformance with the Urban Waste Water Treatment Directive. However, it is noted that there are many upgrades planned throughout the County. Once complete, these upgrades will help to ensure that waste water is treated to an appropriate standard and assist in meeting the requirements of the Water Framework Directive.

[7] Population equivalent (in waste-water monitoring and treatment) refers to the amount of oxygen-demanding substances whose oxygen consumption during biodegradation equals the average oxygen demand of the waste water produced by one person. PE figures include waste waters from industrial sources, hotels, etc as well as domestic output.

3.6.2 Drinking Water

3.6.2.1 Drinking Water Quality[8]

Drinking water must be clean and wholesome. That means it must meet the relevant water quality standards and must not contain any other substance or micro-organism in concentrations or numbers that constitute a potential danger to human health.

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.

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 include Remedial Action Lists (RALs). The RAL identifies water supplies which are not in compliance with the Regulations mentioned above. There are currently six public water supplies in Sligo on the Remedial Action List (RAL71) of public water supplies.

Sligo County Council carried out 6,523 individual tests on drinking water during 2007. The overall rate of compliance in Co. Sligo, 96.9%, was slightly below the national average but did rise from 96.5% in 2006. There were 2 incidents of E. coli[9] contamination in the Kilsellagh (Direct) and Kilsellagh (Farancardy) supply zones due to the detection of a single E. coli organism.

3.6.2.2 Status of Water Supply in Sligo

Relevant available information on drinking water infrastructure supply and demand was collated for each of the designated settlements within the County and is provided in this section. It is noted that this information is imperfect but is the best available at this time.

The Sligo & Environs Water Supply Scheme incorporates Carns Hill Water Treatment Works (WTW), Foxes Den WTW & Kilsellagh WTW. Capacity at these plants stands at 5,450m^3/day, 11,000m^3/day and 4,500m^3/day giving a total of 20,950m^3/day. Drinking water demand for these three plants stands at 19,500m^3/day leaving a shortfall of 1,450m^3/day.

Carns Hill, which sources it water from ground water and Lough Gill, also serves the Principal Satellite Villages of Ballysadare, Colloney and Strandhill and the Secondary Satellite Villages of Ballintogher, Ballygawley and Ransboro. The recently upgraded Kilsellagh WTW supplies water to the Principal Satellite Village of Rosses Point and the Secondary Satellite Village of Ballincar.

The plant at Foxes Den may undergo an upgrade from 11,000m^3/day to 16,500m^3/day depending on future growth in Sligo City.

Water treatment works at Lough Easky, Lough Talt, South Sligo and Riverstown are operating at or below capacity.

The types of treatments drinking water is subject to include clarification, microstraining, ozonization and dissolved air flotation.

[8] Text in this section is sourced from EPA (2009) *The Provision and Quality of Drinking Water in Ireland: A Report for the Years 2007-2008,* Wexford: EPA

[9] The E. coli bacteria is present in very high numbers in human or animal faeces and is rarely found in the absence of faecal pollution. As such, its presence in drinking water is a good indication that either the source of the water has become contaminated or that the treatment process at the water treatment plant is not operating adequately.

3.6.3 Waste

There are no landfills currently in use in Sligo. The refuse service is privatised and as such, the decision as to where waste arising in the County is sent is up to the individual Waste Collection Company. At present, refuse goes to Cavan, Mayo, Galway and to the landfill at Ballaghdereen Co. Roscommon.

Waste collected is currently transferred to Dublin from the Integrated Waste Management Facility at Silliot Hill, Kilcullen for baling prior to disposal at Arthurstown Landfill Site.

3.6.4 Vehicular Circulation

The County is served by the Dublin/Sligo railway line. Mayor roadways in the County include the N4, N15, N17 and N59. A number of bus services are also in operation with Bus Eireann providing Expressway Services, Local/Rural/Commuter and City/Town Services in the County.

3.6.5 Existing Problems

The Councils' ability to meet their commitments under the Water Framework Directive (see Section 3.5.3) could be compromised due to the shortfall in waste water treatment capacity. Eighteen of the County's thirty-six waste water treatment plants are operating at or over capacity.

The EPA publication *Urban Waste Water Discharges in Ireland for Population Equivalents Greater than 500 Persons - A Report for the Years 2006 and 2007* (EPA, 2009) identifies the Tubbercurry River as one of thirteen seriously Polluted Rivers Impacted by Municipal Waste Water at the end of the Reporting Period 2006/2007.

Certain parts of the County are not within the catchment of the waste water treatment network and consequently development in these areas use septic tanks to treat waste water arising. This has the potential to be a problem for other environmental components where the systems are not properly maintained.

The Western River Basin Management Plan has identified "Unsewered Areas" as one of the main reasons for poor water quality in areas including Ballygawley Village and Ballymote.

The EPA identified[10] six public water supplies on their remedial action list. All bar one of the water supply schemes are overstretched.

Measures have been integrated into the draft Plan which contribute towards solving the problems above relating to waste water treatment and water supply - these measures are identified in Sections 9.4.7 and 9.4.8 of the Environmental Report.

3.6.6 Evolution of Material Assets in the absence of a Development Plan

In the absence of a Development Plan, there would be no framework to provide the infrastructure which is necessary across Sligo to serve existing and proposed development such as waste water treatment plants and networks, water supply infrastructure, transport infrastructure and powerlines etc.

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

[10] EPA (2007) *The Provision and Quality of Drinking Water in Ireland: A Report for the Years 2006-2007* Wexford: Environmental Protection Agency

3.7 Air and Climatic Factors

3.7.1 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.

The principles to this European approach are set out under the Air Quality Framework Directive 1996 as transposed into Irish law under the Environmental Protection Agency Act 1992 (Ambient Air Quality Assessment and Management) Regulations 1999 (SI No. 33 of 1999).

Four daughter Directives lay down limits or thresholds for specific pollutants. The first two of these directives cover: sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter and lead; and, carbon monoxide and benzene. Two more daughter directives deal with: ozone; and polyaromatic hydrocarbons, arsenic, nickel, cadmium and mercury in ambient air.

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

- Zone A: Dublin Conurbation.
- Zone B: Cork Conurbation.
- Zone C: 21 Other cities and large towns comprising Galway, Limerick, Waterford, Clonmel, Kilkenny, Sligo, Drogheda, Wexford, Athlone, Ennis, Bray, Naas, Carlow, Tralee, Dundalk, Navan, Letterkenny, Celbridge, Newbridge, Mullingar and Balbriggan.
- Zone D: Rural Ireland, i.e. the remainder of the State - small towns and rural areas of the country - excluding Zones A, B and C.

The Plan area comprises of Zones C and D. The Sligo site was located in the car park in front of the Regional Hospital overlooking the Town. Monitoring was done by a mobile unit containing continuous monitors for sulphur dioxide, nitrogen oxides, carbon monoxide and benzene. Continuous samples were also taken for particulates (PM10) and lead. Hourly averages were produced for the gases while the particulate and lead samples were taken away for laboratory analysis every three weeks. Results were collected from 21/01/2003 to 02/10/2003. The air quality measurements made at this site were used in the assessment of Zone C monitoring needs.

3.7.2 Potential Point Sources of Emissions to Air

3.7.2.1 IPPC Licensed Facilities

The EPA has been licensing certain large-scale industrial and agriculture activities since 1994. Originally the licensing system was known as Integrated Pollution Control (IPC) licensing, governed by the Environmental Protection Agency Act, 1992. The Act was amended in 2003 by the Protection of the Environment Act, 2003 which gave effect to the Integrated Pollution Prevention Control (IPPC) Directive. Detailed procedures concerning the IPPC licensing process are set out in the EPA Acts 1992 to 2007 and the associated licensing regulations.

IPPC licences aim to prevent or reduce emissions to air, water and land, reduce waste and use energy/resources efficiently. An IPPC license is a single integrated license which covers all emissions from the facility and its environmental management. All related operations that the license holder carries in connection with the activity are controlled by this license. Before a license is granted, the EPA must be

satisfied that emissions from the activity do not cause a significant adverse environmental impact. There are seven IPPC licensed facilities distributed throughout the County.

3.7.3 Noise

Noise is unwanted sound. It can seriously harm human health and interfere with daily activities at school, at work, at home and during leisure time. Areas within the County which are commonly affected by noise are urban areas and areas along roadsides.

Generally, the main noise source in the County is from traffic. Streets in low lying areas that have high traffic counts as well as enclosing taller buildings are likely to have harsh sensory environments with regard to noise levels with regard to this source. As mentioned below, traffic hotspots, such as intersections, are likely to have higher noise levels.

Traffic noise alone is harming today the health of almost every third European[11]. *Traffic hotspots* within some of the County's towns are likely to have elevated levels of air pollution and noise due to traffic congestion compared to surrounding rural areas. These hotspots are located along the main road routes - especially at intersections - and provide for a harsh sensory environment which may impact upon human health.

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

3.7.4 Climatic Factors

3.7.4.1 Climate Change

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

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

3.7.5 Existing Problems

Traffic hotspots within the County area are likely to have elevated levels of air pollution and noise due to traffic congestion.

Localised air pollution incidences with regard to PM10 and PM2.5 and noise pollution are both likely to occur when demolition/construction takes place - especially in relation to PM10 if suppression techniques are not introduced - and when traffic is queuing for long periods of time.

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

[11] World Health Organization Regional Office for Europe (2003) T*echnical meeting on exposure-response relationships of noise on health 19-21 September 2002* Bonn, Germany Bonn: WHO

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

3.7.6 Evolution of Air and Climatic Factors in the absence of a Development Plan

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

If new dispersed development occurs in the County, adverse impacts upon air quality and noise levels, and resultant impacts upon human health, would be likely to arise if unmitigated.

In the absence of the Plan, the realisation of objectives relating to energy efficiency, renewable energy and a reduction in local transport related emissions to air contained within the Plan would be missed.

In the absence of the Plan, the realisation of objectives relating to energy efficiency, renewable energy and a reduction in local transport related emissions to air contained within the Plan would be dependent upon the objectives contained in lower tier development and local area plans - which are required to provide for proper planning and sustainable development.

The Plan inter alia grants an opportunity to provide for the regeneration of certain urban and inner suburban areas within the County, which are close to existing and proposed high quality public transport linkages. This regeneration would provide for an increased population which would be less dependent upon private modes for local transportation and would therefore be likely to generate less local transport related greenhouse gas emissions than populations located further away from the urban areas.

3.8 Cultural Heritage

3.8.1 Introduction

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

Human interaction with the land is evident from the earliest of times up to the present in County Sligo, from agricultural landscapes to archaeological remains to growing urban centres.

County Sligo, with over 6,500 known archaeological sites and monuments, has one of the highest archaeological densities in the Country.

3.8.1.1 Record of Monuments and Places

Sligo'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, put on a statutory basis by amendment to the National Monuments Act 1994, of sites and areas of archaeological significance, numbered and mapped.

The term 'monument' includes all man-made structures of whatever form or date except buildings habitually used for ecclesiastical purposes. All monuments in existence before 1700 A.D. are automatically considered to be historic monuments within the meaning of the Acts.

There is a large number of entries to the Record of Monuments and Places within the County which are mapped below. Associated with each Recorded Monument is a Zone of Archaeological Potential (ZAP) which in some cases may be quite extensive. Its associated ZAP indicates where archaeology is known to be present.

Sligo has a number of significant archaeological and historical landscapes, the most notable being the Cuil Irra Peninsula (which includes Knocknarea, Carrowmore and Carns Hill), Carrowkeel and Inishmurray.

3.8.1.2 Record of Protected Structures

The Record of Protected Structures (RPS) is legislated for under Section 51 of the Planning and Development Act 2000.

Protected Structures are defined as structures, or parts of structures that are of special interest from an architectural, historical, archaeological, artistic, cultural, scientific, social or technical point of view.

In relation to a protected structure or proposed protected structure, the following are encompassed:

- the interior of the structure;
- the land lying within the curtilage[12] of the structure;
- any other structures lying within that curtilage and their interiors; and,
- all fixtures and features which form part of the interior or exterior of any structure or structures referred to in subparagraph (i) or (iii).

Structures listed on the Record of Protected structures are mapped below along with additions under the Sligo CDP 2011-2017.

3.8.1.3 National Inventory of Architectural Heritage

The National Inventory of Architectural Heritage (NIAH) is a state initiative under the administration of the Department of the Environment, Heritage and Local Government and established on a statutory basis under the provisions of the Architectural Heritage (National Inventory) and Historic Monuments (Miscellaneous Provisions) Act 1999.

The purpose of the NIAH is to identify, record, and evaluate the post-1700 architectural heritage of Ireland, uniformly and consistently as an aid in the protection and conservation of the built heritage. NIAH surveys provide the basis for the recommendations of the Minister for the Environment, Heritage and Local Government to the planning authorities for the inclusion of particular structures in their Record of Protected Structures (RPS).

Clusters of entries to the NIAH occur at Sligo City, Collooney, Ballysadare, Ballymote, Riverstown and Tobercurry.

3.8.2 Existing Environmental Problems

Threats to cultural heritage might include the cumulative accommodation of large scale development in the County, development which involves material alteration or additions to protected structures, brownfield development and development on sites adjoining protected monuments, places or structures.

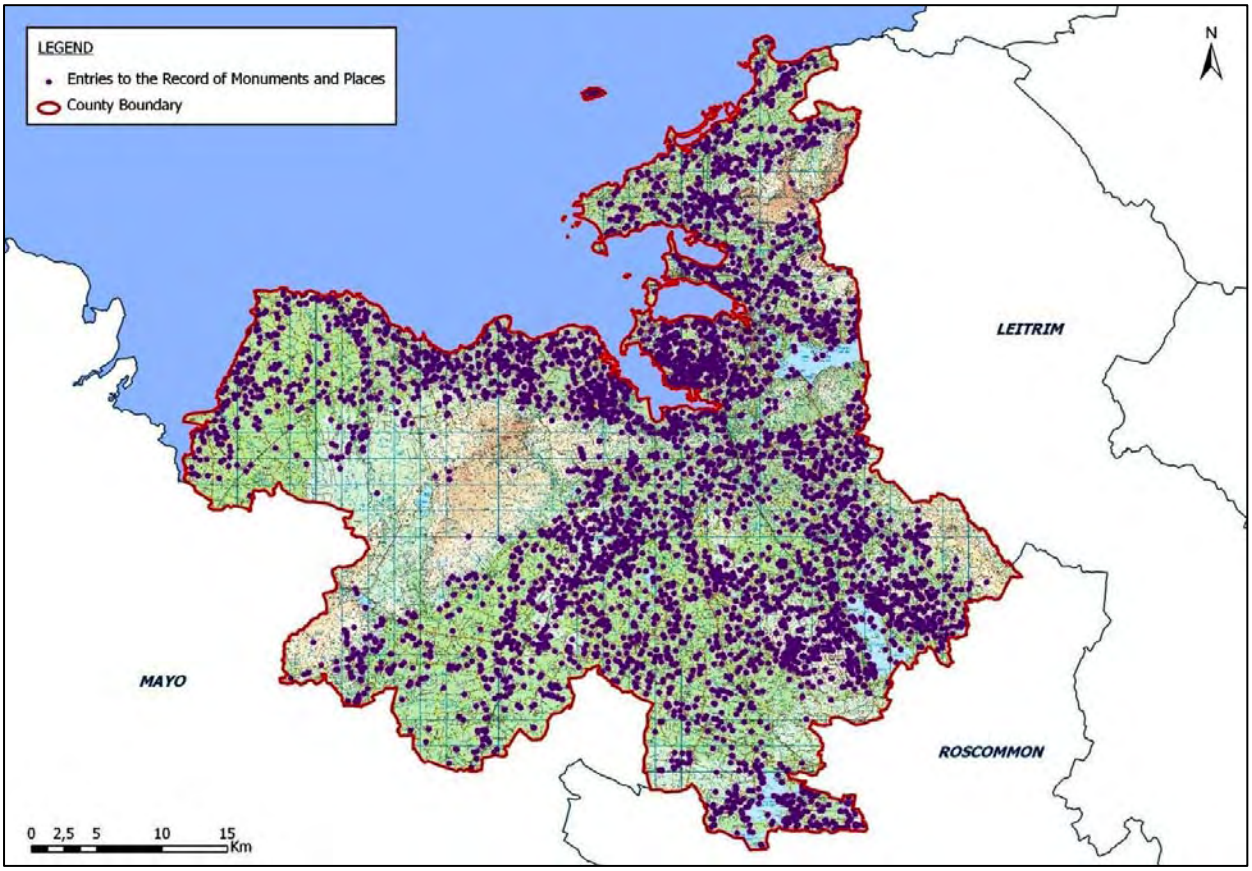
[12] Curtilage is normally taken to be the parcel of ground immediately associated with the Protected Structure, or in use for the purposes of the structure. Protection extends to the buildings and land lying within the curtilage. While the curtilage sometimes coincides with the present property boundary, it can originally have included lands, features or even buildings now in separate ownership, e.g. the lodge of a former country house, or the garden features located in land subsequently sold off. Such lands are described as being attendant grounds, and the protection extends to them just as if they were still within the curtilage of the Protected Structure.

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

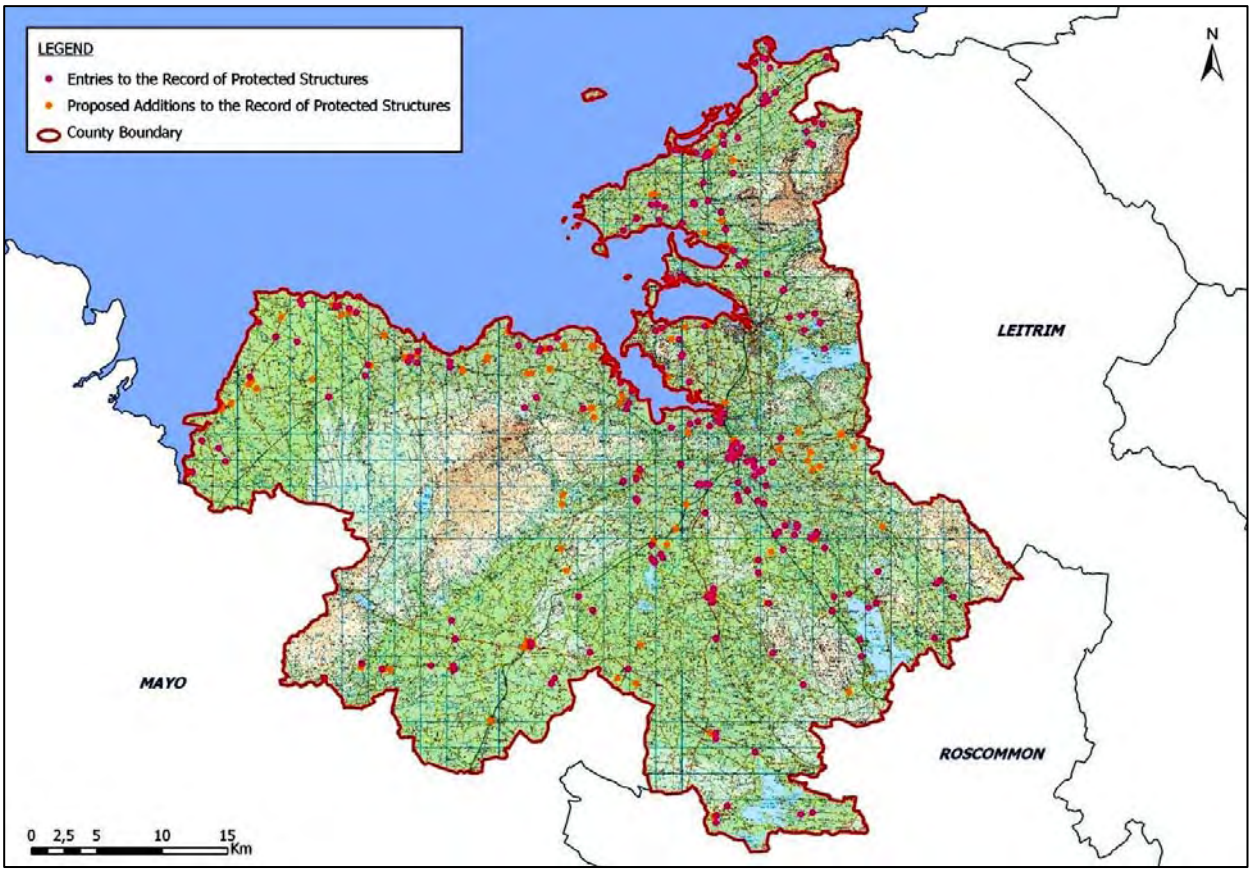
In the absence of the Plan, the evolution of cultural heritage would be dependent on developments which take place.

Such development would have no guidance as to where to be directed and planning applications would be assessed on an individual basis with cultural heritage protected under a number of strategic actions relating to archaeological and architectural protection.

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



Entries to the Record of Monuments and Places. Source: SCC (Unknown)



Entries to the Record of Protected Structures. Source: SCC CDP (2011-2017)

3.9 Landscape

3.9.1 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;
- land cover, which includes vegetation, water, human settlements;
- human values which are a result of historical, cultural, religious and other understandings and interactions with landform and land cover.

Mountains of note in the County include Benbulben (526m), Truskmore (645m), Knocknaera and the Ox Mountains.

3.9.2 Scenic Evaluation Study

CAAS, on behalf of Sligo County Council, prepared a Scenic Evaluation Study for the County in 1997. The objective of the report was to map the areas of County Sligo according to their capacity to absorb new development without disproportionately changing the distinctiveness and character of the overall landscape. This resulted in a Development Control Policy Map, which formed part of the current Sligo County Development Plan 2005-2011.

The County Development Plan designates the following landscape classifications which are mapped below:

1. Normal Rural Landscapes
2. Sensitive Rural Landscapes
3. Visually Vulnerable Areas
4. Scenic Routes

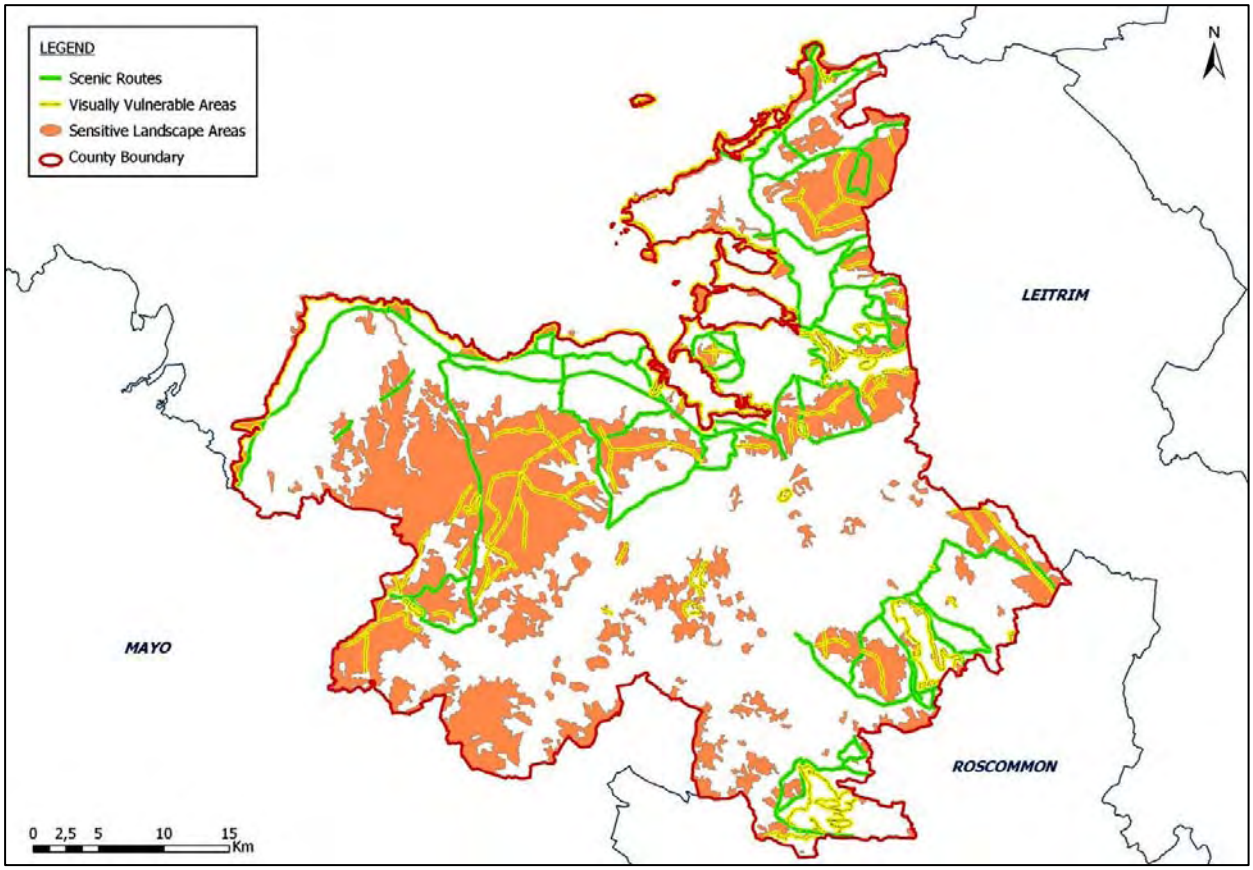
3.9.3 Existing Landscape Problems

Generalised landscape problems include the cumulative visual impact resulting from developments such as one off houses. Such developments, which individually often do not have significant adverse impacts, have the potential to cumulatively and adversely significantly impact upon sensitive landscapes.

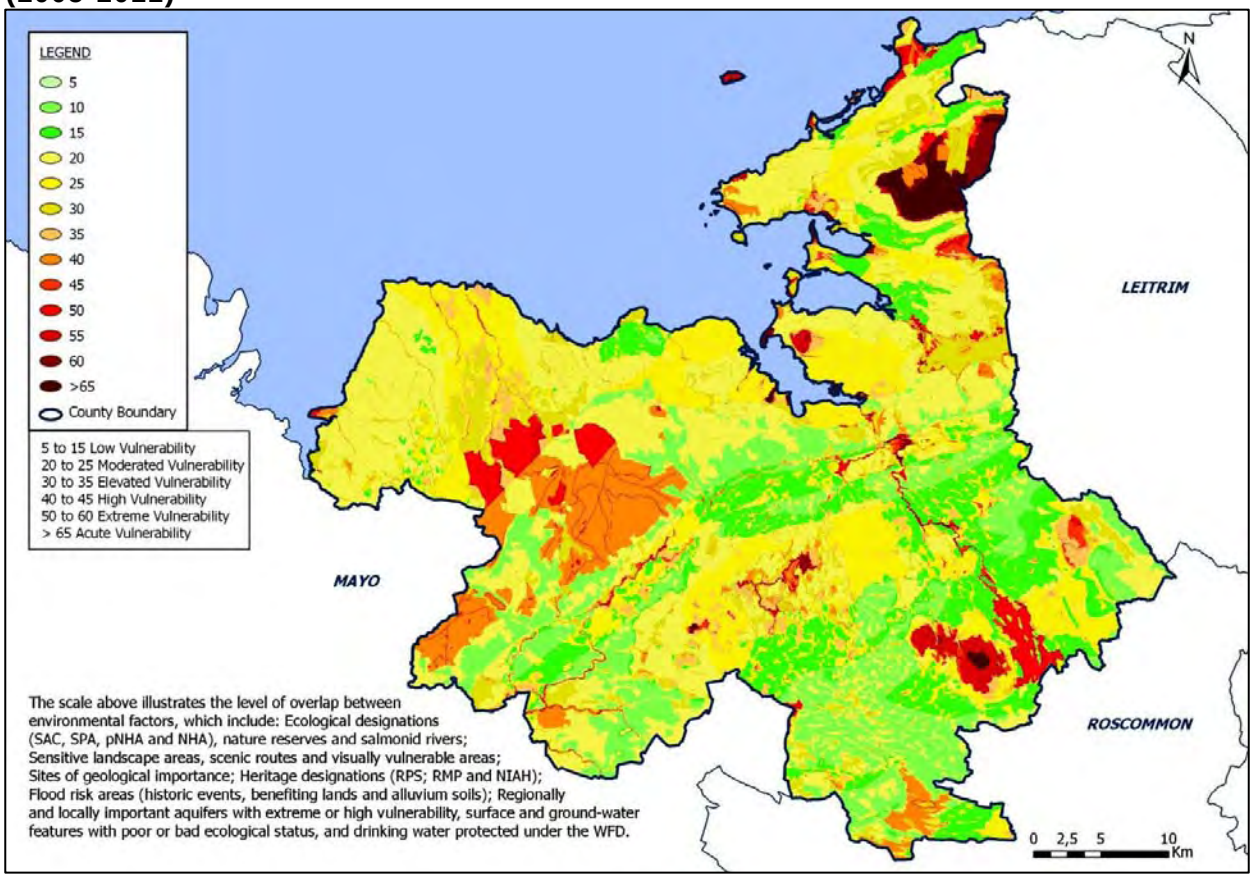
This problem becomes acute in areas such as the coastline or around Lough Gill where lands with views across water-bodies are much sought after and experience intense pressure for development, in order to enjoy the views of water.

3.9.4 Evolution of Landscape in the absence of the Development Plan

In the absence of a Development Plan, development would be likely to occur on a one-off, dispersed basis. As outlined above, this could have cumulative impacts on the landscape. However, Development Management would continue to safeguard the landscape resources that have been highlighted above.



Scenic Routes, Visually Vulnerable Areas and Sensitive Landscape Areas. Source: SCC CDP (2005-2011)



Overlay of Environmental Sensitivities. Source: CAAS (2010)

3.10 Overlay Mapping of Environmental Sensitivities

3.10.1 Introduction and Methodology

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. The overlay of environmental sensitivities in County Sligo can be seen above.

Environmental sensitivities are indicated by colours which range from acute vulnerability (brown) extreme vulnerability (red) to high vulnerability (dark orange) to elevated vulnerability (light orange) to moderate vulnerability (yellow) to low vulnerability (green). Where the mapping shows a concentration of environmental sensitivities there is an increased likelihood that development will conflict with these sensitivities and cause environmental deterioration.

A weighting system applied through Geographical Information System (GIS) software was used in order to calculate the vulnerability of all areas in the County. Equal value is given to all environmental components (landscape, water, biodiversity etc.) with the following environmental sensitivity factors each attributed weighting of 5 points:

- Ecological designations (candidate Special Areas of Conservation, Special Protection Areas, Natural Heritage Areas) Nature Reserves and Salmonid Rivers;
- Heritage designations (entries to Records of Protected Structures, entries to the Record of Monuments and Places and entries to the National Inventory of Architectural Heritage);
- Sites of geological importance;
- Sensitive landscape areas, scenic routes and visually vulnerable areas;
- Entries to the Register of Protected Areas;
- Areas at risk of flooding (historic events, benefitting lands and alluvium soils);
- Surface and ground waters with poor or bad WFD status; and,
- Regionally and locally important aquifers which are highly or extremely vulnerable to pollution.

The scale of sensitivity for each area of the County corresponds to the sensitivity factors: 5 points corresponds to one sensitivity factor; 10 points corresponds to two sensitivity factors; 20 points corresponds to four sensitivity factors and so on.

Although there are limitations and elements of subjectivity to the overlaying of sensitivities the overlay mapping was used in order to speedily identify the areas where conflicts between development within the Plan area and environmental sensitivities would be likely to occur if unmitigated.

3.10.2 Conclusions

The main and largest area of acute vulnerability occurs in the north of the County in the vicinity of Ben Bulben. This can be attributed to designated sites, landscape vulnerability, geological heritage sites and waters listed on the RPA.

Areas between Kesh and Lough Arrow in the south east of the County is also of acute vulnerability due to the presence of Carrowkeel Megalithic Cemetery, waters listed on the RPA for SACs and SPAs, a number of sites of geological importance, sensitive landscape areas and aquifers of extreme vulnerability.

Geological heritage sites, designations, landscape vulnerabilities and waters listed on the Register of Protected Areas contribute towards the high and extreme sensitivity of areas such as Ballinafad, Tobercurry, Achrony, Ballygawley and in areas around the Ox Mountains.

Some of the County's bays are of moderate vulnerability due to their ecological designation.

3.11 Strategic Environmental Objectives

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

SEO Topic	**SEO**
Biodiversity and Flora and Fauna	To ensure compliance with the Habitats Directive with regard to the protection of Natura 2000 Sites and habitats and species listed under Annexes I and II of the Directive
Biodiversity and Flora and Fauna	To ensure compliance with Article 10 of the Habitats Directive with regard to the protection of macro-corridors and contiguous areas of habitat which are important on a County level for wild fauna and flora and essential for the migration, dispersal and genetic exchange of wild species
Biodiversity and Flora and Fauna/ People	To sustain existing rural management practices - and the communities who support them - to ensure the continuation of long established managed landscapes and the flora and fauna that they contain
Spatial Distribution of Population	Maximise the sustainable re-use of brownfield lands, and maximise the use of the existing built environment rather than developing greenfield lands
Human Health	To protect human health from hazards or nuisances arising from exposure to incompatible landuses
Soil Quality	To prevent pollution and/or contamination of soil
Surface Water Status	To maintain and improve, where possible, the status of surface waters
Ground Water Status	To prevent pollution and contamination of ground water
Flood Risk	To manage areas that are currently at risk of flooding or are likely to pose a significant flood risk in the future
Waste Water Treatment	To serve new development with appropriate waste water treatment
Drinking Water Provision	To serve growth areas with drinking water that is both wholesome and clean
Transport related Emissions	To reduce travel related greenhouse emissions to air
Transport Mode	To encourage modal change from car to more sustainable forms of transport
Archaeological Heritage	To protect the archaeological heritage of the County including entries to the Record of Monuments and Places and/or their context
Architectural Heritage	To preserve and protect the special interest and character of the County's architectural heritage
Landscape	To avoid significant adverse impacts on the landscape, especially with regard to landscapes which are most valuable and most sensitive to change – including seascapes and coastscapes - and protected views and routes

Section 4 Alternative Plan Scenarios

4.1 Description of the Alternative Plan Scenarios

One of the critical roles of the SEA is to facilitate an evaluation of the likely environmental consequences of a range of alternative strategies for accommodating future development in County Sligo. The environmental consequences of 3 scenarios for the Plan were examined.

4.1.1 Alternative Scenario 1: *Recent Trends - demand led growth*

Overzoning, developer-led growth and an increase in the number of one-off rural housing have been the main features of recent years in County Sligo.

According to 2006 Census data, just one year after the adoption of the CDP 2005-2011 growth in the satellite villages had already attained levels beyond what was envisaged in the Settlement Strategy and sustainable in terms of Gateway promotion. Furthermore, the zoning of much more land than what was realistically needed in certain settlements has now resulted in a large number of vacant dwellings. Some of the Key Satellites of Sligo, but also other villages located in majority in the Sligo Sub-region, have been affected by these trends.

At the same time, there has been a small but steady growth in rural one-off houses, not just in the rural areas in need of regeneration, but also in the rural areas under strong urban influence. This growth did not appear to be hindered by the rural housing policies, which were nonetheless drawn up in accordance with the Sustainable Rural Housing Guidelines.

It should be emphasised that the type of development outlined in this scenario has occurred not in the absence of a Plan, but during the life and within the framework provided by the Sligo County Development Plan 2005-2011. This was possible partly because the bulk of planning permissions which led to excess housing provision in the "wrong" locations were granted before the adoption of the Plan, and partly because of overzoning in the mini-plans, without regard to the settlement strategy and recommended population levels. It is noted that overzoning has also occurred as part of preparing the LAPs, which were all adopted before the County Development Plan 2005-2011.

Alternative Scenario 1 (see Figure 4.1) provides for the continuation of the above parallel trends into the period 2011-2017, which would result in the undermining of population growth in the Gateway City and in the Key Support Towns with subsequent loss of economies of scale and synergies capable of fostering sustainable urban growth. More descriptively, the Scenario would result in:

- The occurrence of population growth predominantly in a few settlements where overzoning and consequent substantial housing development have taken place;
- The Gateway would continue to stagnate and even to lose population to the satellites and smaller villages in the Sub-region where there is an excess of housing and further zoned land; and,
- Growth in Key Support Towns and consolidation of smaller villages would be hindered by the lack of new residents, as newly-formed households are drawn into overgrown satellites of Sligo or choose to settle in rural locations outside of towns and villages, particularly in Rural Areas in Need of Regeneration.

4.1.2 Alternative Scenario 2: *Spreading out development - small village catch up*

There are many settlements in County Sligo where very little or no development has taken place during the construction boom, primarily because no tax incentives were available for house construction at those locations.

It could be argued that these and other similar settlements also *"deserve"* their *"fair"* share of future growth, alongside the towns and villages that have already seen a substantial amount of development in recent years.

Alternative Scenario 2 (see Figure 1.2) provides for sufficient land to be zoned and serviced in those Sligo villages that were *"left behind"* and advocates adequate infrastructure to be put in place in order to cater for population and employment growth in these locations.

This scenario would result in:

- A degree of population growth in the more attractive and better serviced villages as a result of residential zoning and additional infrastructural commitments;
- Continued stagnation or loss of the Gateway's population to the satellites and smaller villages in the Sub-region where there is an excess of housing; and,
- The hindrance of growth in Key Support Towns, as newly-formed households occupy vacant houses in Gateway satellites or prefer to settle in smaller villages or outside settlements, in rural areas, particularly in "rural areas in need of regeneration".

4.1.3 Alternative Scenario 3: *Focused growth - Gateway focus + key town consolidation*

The development of the Gateway as envisaged in the National Spatial Strategy and the consolidation of a number of key towns that provide services to rural areas are the main elements of Alternative Scenario 3 (see Figure 1.3).

In order to channel growth into these selected locations, development in other, non-strategic locations would be confined to levels that would not undermine the potential of the Gateway and Key Support Towns.

No additional residential development would take place in the majority of the satellites, where housing is already in excess supply. This would be achieved through the introduction of a moratorium on the construction of multiple-housing schemes, which would be reviewed in 2013, two years after the next Census.

The Key Support Towns would see a limited amount of growth, in a reasonable proportion to their existing population, and only small-scale residential development would be facilitated in small villages that need new residents in order to retain and support local services.

Under this scenario:

- The loss of Gateway population could be halted and possibly reversed;
- Key Support Towns would develop in proportion to their strategic role and size;
- There would be small-scale population growth in smaller villages; and,
- The further growth of satellites would be curtailed.

It is acknowledged that some of the satellites and other villages have new wastewater treatment plants with a capacity much higher than their existing and envisaged population. However, wastewater treatment capacity is only one in an array of planning issues that must be taken into consideration when determining the optimal population level in a particular settlement for the period of a development plan.

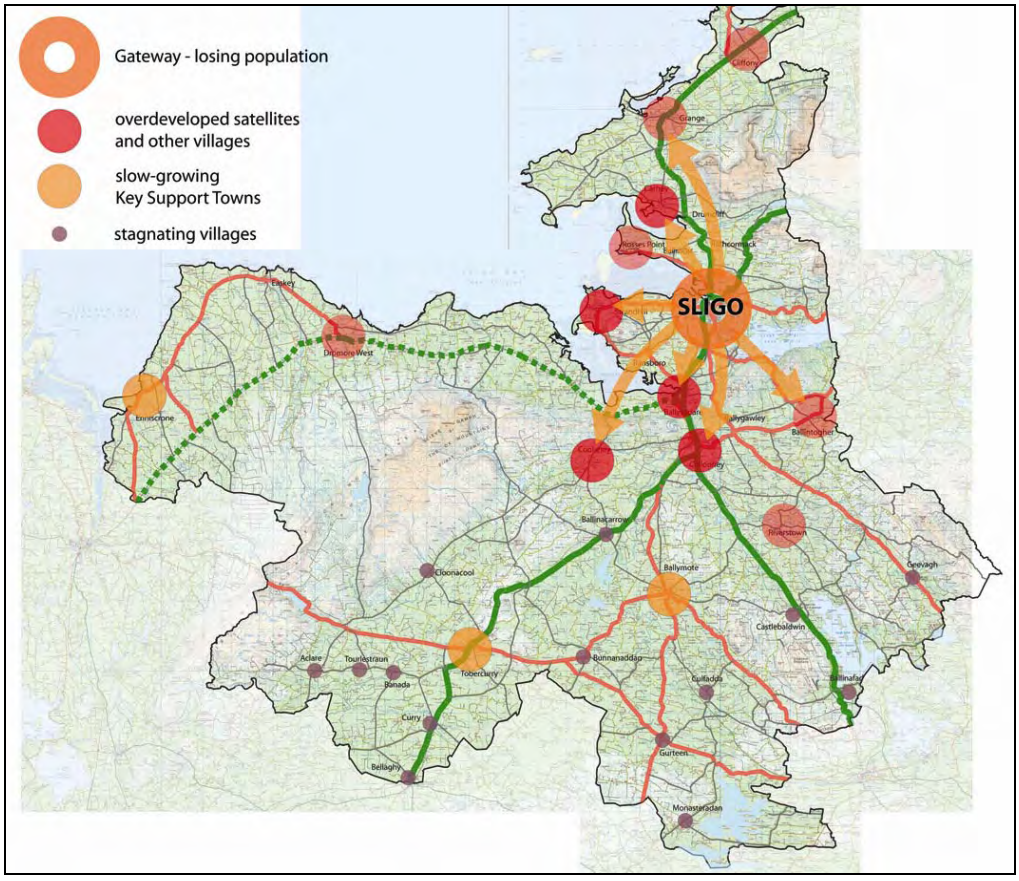


Figure 4.1 Scenario 1: ***Recent Trends - demand led growth***

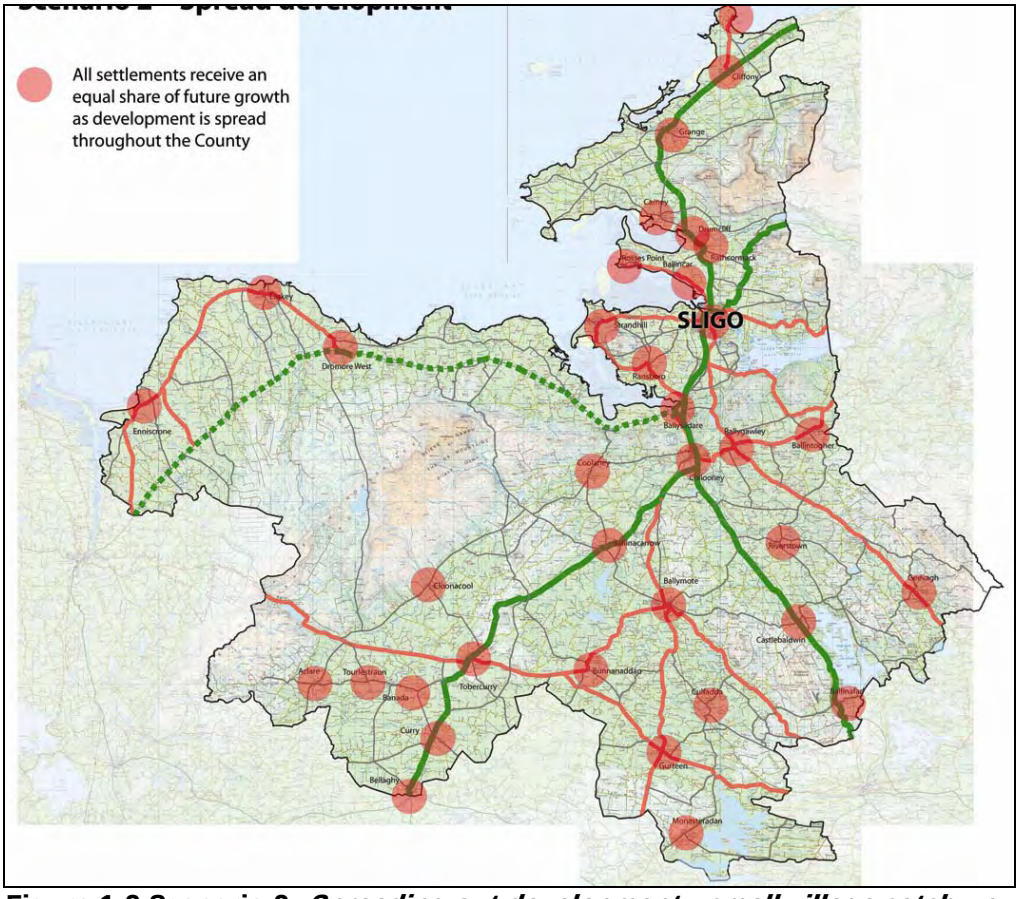


Figure 1.2 Scenario 2: ***Spreading out development - small village catch up***

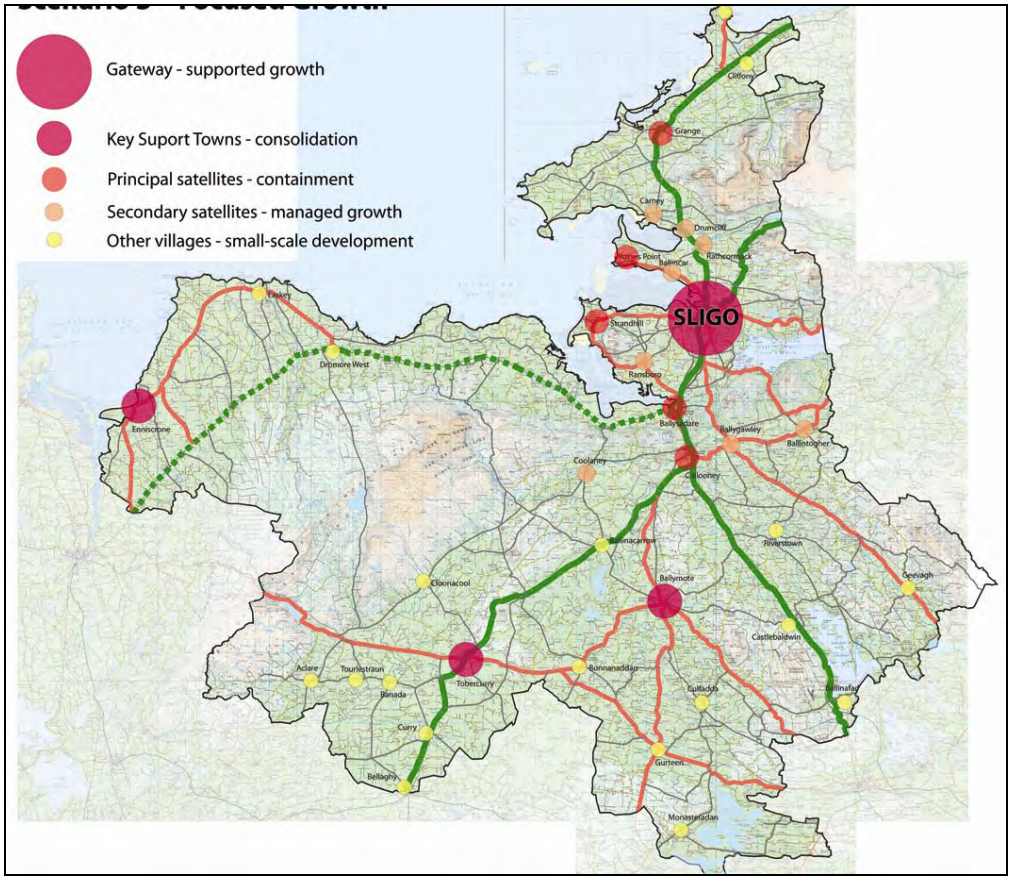


Figure 1.3 Scenario 3: *Focused growth - Gateway focus + key town consolidation*

4.2 Evaluation of the Alternative Scenarios

4.2.1 Methodology

This section summarises the evaluation of the Alternative Scenarios which is found in Section 7 of the Environmental Report. Scenarios are evaluated in a succinct and focused way for both planning and environmental impacts against both the existing environment and the Strategic Environmental Objectives (both of which are summarised within Section 3).

4.2.2 Alternative Scenario 1: *Recent Trends - demand led growth*

4.2.2.1 Environmental Effects

Adverse
Continued growth in the 11 overdeveloped satellites and other villages (Cliffony, Grange, Carney, Rosses Point, Strandhill, Ballisodare, Collooney, Dromore West, Coolaney, Riverstown and Ballintogher), 6 of which (Cliffony, Grange, Rosses Point, Strandhill, Collooney and Ballintogher) have current loadings that exceed current waste water treatment capacity, would have a negative effect by increasing in pressure on surface, groundwater and estuarine water quality – particularly in the north-east of the county.

Dispersed development on the outskirts of overdeveloped satellites and other villages would give rise to continued cumulative pressure – particularly in the north-east of the county – on:

- Groundwater and surface water quality;
- Archaeological and architectural heritage;
- The landscape and visual amenity; and,
- The continuity and integrity of extensive habitats – such as hedges and streams.

The dispersed pattern of general settlement would lead to increased levels of those environmental effects associated with additional commuting which include:

- Increased energy consumption;
- Increased emissions to air; and,
- Increased emissions of noise.

Increased levels of cumulative effects due to the provision and maintenance of extensive and more heavily trafficked roads – including effects on water quality, bio-diversity, landscape and cultural heritage – would be likely to occur.

There would be lower levels of efficiency and higher levels of operating costs with regard to the supply of environmental services to a dispersed population.

Beneficial
Growth would be concentrated away from Sligo and its immediate environs which is the area with the highest concentration of environmental [water and ecology] sensitivities within the County.

4.2.2.2 Planning Effects

- Oversized dormitory settlements would not be properly served in terms of commercial, social, community and recreational facilities, which were not developed in tandem with new housing and most of the residents of these settlements would have to commute to Sligo to work or school;
- Undermining of population growth in the Gateway City and in the Key Support Towns would result in losses to economies of scale - the cost of maintaining roads and providing environmental infrastructure (essentially water and wastewater treatment facilities) to more locations in the County would increase - and synergies capable of fostering sustainable urban growth;
- Undermining of population growth in the Gateway City and in the Key Support Towns would be at odds with higher level land use policy; and,
- There would be a potential reduction in vacancy in settlements such as Ballysadare or Collooney, combined with a parallel decrease in the demand for one-off houses.

4.2.3 Alternative Scenario 2: *Spreading out development - small village catch up*

4.2.3.1 Environmental Effects

Adverse
Continued growth in the vicinity of all settlements – many of which appear to have current loadings that exceed current waste water treatment capacity - will have a negative effect by increasing in pressure on surface, groundwater and estuarine water quality – over a wide area – throughout the County.

Dispersed development on the outskirts of all settlements would give rise to continued cumulative pressure on:

- Groundwater and surface water quality;
- Archaeological and architectural heritage;
- The landscape and visual amenity; and,
- The continuity and integrity of extensive habitats – such as hedges and streams.

The dispersed pattern of general settlement would lead to increased levels of those environmental effects associated with additional commuting which include:

- Increased energy consumption;
- Increased emissions to air; and,
- Increased emissions of noise.

Increased levels of cumulative effects due to the provision and maintenance of extensive and more heavily trafficked roads – including effects on water quality, bio-diversity, landscape and cultural heritage – would be likely to occur.

There would be lower levels of efficiency and higher levels of operating costs with regard to the supply of environmental services to a dispersed population.

Beneficial
Growth would be concentrated away from Sligo and its immediate environs which is the area with the highest concentration of environmental [water and ecology] sensitivities within the County.

4.2.3.2 Planning Effects

- Commuting would increase, with negative environmental effects and infrastructural cost impacts;
- Although this scenario might be seen as *"fair"* or *"equitable"* to all settlements, the spreading out of limited resources for transport and environmental infrastructure would result in significant losses to economies of scale and inevitably lead to insufficient or deficient provision of such services, effectively hindering growth in settlements and/or negatively impacting on the environment;
- Weakening the Gateway City and in the Key Support Towns would be at odds with higher level land use policy; and,
- Vacancy rates in settlements with excess housing supply - especially the overgrown satellites - would continue to remain high.

4.2.4 Alternative Scenario 3: *Focused growth - Gateway focus + key town consolidation*

4.2.4.1 Environmental Effects

Adverse
Growth would concentrate on Sligo and its immediate environs which is the area with the highest concentration of environmental (water and ecology) sensitivities within the County. Appropriate water services infrastructure with sufficient capacity would need to be provided to development within the Gateway in order to mitigate effects on the estuarine water quality, water dependent habitats and human health.

Although limiting growth in other settlements across the County, this scenario does allow for a certain amount of growth these settlements. Such growth would potentially conflict with various aspects of the environment (protecting biodiversity and flora and fauna, human health, water resources, landscape and visual amenity and cultural heritage - architectural and archaeological -; reducing flood risk; providing appropriate water services infrastructure and capacity to new populations; minimising increases in travel related greenhouse emissions to air and reducing car dependency; and, minimising greenfield development) however, such conflicts would be mitigated by adherence to environmental management and protection measures integrated into the scenario.

Beneficial
The curtailment of growth in four Principal Satellite Towns (Rosses Point, Collooney, Strandhill and Ballysadare) - three of which appear to have current loadings that exceed current waste water treatment capacity - and the limiting of growth in various other settlements across the County would reduce increases in pressures on surface, groundwater and estuarine water quality, ecology, landscape and cultural heritage – over the wider County area, outside of the Gateway.

Because of the concentrated nature of development provided for by this scenario, there would be a lower extent of environmental effects associated with less commuting - energy consumption and air and noise emissions - and there would be a more efficient use of installed and planned environmental infrastructure.

4.2.4.2 Planning Effects

- There would be benefits for retail, business and general economic competitiveness arising from the halting and possible reversing of Gateway population loss;
- Local retail and employment consolidation would be facilitated by the development of Key Support Towns in proportion to their strategic role and size;
- Services in smaller villages would be retained and supported as an effect of small-scale population growth in these villages;
- The further growth of satellites to the detriment of the Gateway would be curtailed, while vacancy rates would fall faster;
- Commuting would decrease as more people would live closer to their places of work or study;
- Environmental infrastructure could be provided in a more efficient, cost-effective manner;
- Well-serviced towns and villages could become more attractive to some of those who would otherwise settle in rural areas further decreasing commuting and improving economies of scale in the provision of environmental infrastructure; and,
- Overall, it is considered that the Focused Growth Scenario is in accordance with the NSS principle of promoting growth in the Gateways while supporting the role of smaller towns and villages at local level.

4.2.5 Notes on Waste Water and Drinking Water

Waste Water
The avoidance of significant impacts upon the County's water resources and upon aquatic biodiversity and flora and fauna and human health is dependent on compliance of new developments with Plan provisions which require development in designated settlements to be accompanied by waste water treatment infrastructure with adequate capacity that would enable compliance with the Urban Waste Water Treatment Directive, Water Framework Directive, Habitats Directive and Birds Directive.

Drinking Water
With regard to the treatment and disposal of waste water, limitations in the assimilative capacity of water bodies can be dealt with by engineering solutions. However, the capacity of water bodies to allow abstractions of water for human use without compromising the ability of the water bodies to meet legislative requirements - such as the Water Framework Directive - is limited and cannot be overcome by engineering solutions. Measures which recognise this limitation have been integrated into the Plan.

4.2.6 The Selected Alternative Development Scenario

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

The Alternative Scenario for the County Development Plan which emerged from the Plan preparation process is Scenario 3 (*Focused growth - Gateway focus + key town consolidation*) – this Scenario achieves a good balance between potential environmental impact and conformance with relevant National and Regional planning objectives. The Settlement Hierarchy Map from the Plan is shown on Figure 1.1 in Section 2 of this report.

With the integration of appropriate mitigation measures (including those referred to in Section 5 of this report) potential adverse environmental effects which could arise as a result of implementing this scenario would be likely to be avoided, reduced or offset.

Alternative Scenario 3 was chosen to be developed for the Development Plan by the plan-making team and put on public display by the Elected Members having regard to both:

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

Section 5 Mitigation and Monitoring Measures

5.1 Mitigation

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

The likely significant environmental effects of implementing the County Development Plan have been mitigated through:

- The early consideration of environmental sensitivities during the preparation of the Plan;
- The consideration of alternative scenarios and the selection of the alternative scenario for the Plan;
- The integration of policies and objectives into the Plan; and
- The augmentation of certain policies and objectives in the Plan.

Mitigating policies and objectives which have been integrated into the Plan include those for the following topics:

- Biodiversity and Flora and Fauna
- Human Health
- Soil
- Quarries (environmental risks)
- Water
- Flooding
- Water Services (Waste Water and Drinking Water)
- Waste Management
- Air and Noise
- Energy and Greenhouse Gas Emissions
- Archaeological & Architectural Heritage
- Landscape

5.2 Monitoring

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

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