Ireland 2040 Our Plan

NATIONAL PLANNING FRAMEWORK

Strategic Environmental Assessment

Environmental Report

Ireland 2040 – Our Plan

Draft National Planning Framework

RPS

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INTRODUCTION

This environmental report has been prepared by RPS as part of the Strategic Environmental Assessment (SEA) of *Ireland 2040: The National Planning Framework* (hereafter referred to as the "NPF"), in accordance with the requirements of EU and national legislation on the assessment of the effects of certain plans and programmes on the environment. The Department of Housing, Planning and Local Government (DHPLG), as competent authority, have developed the draft NPF to set a new strategic planning and development context for Ireland and all of its regions in the period between now and 2040. It sets a high level framework for the co-ordination of a range of national, regional and local authority policies and activities, planning and investment.

The purpose of this environmental report is to:

- Inform the development of the draft NPF;
- Identify describe and evaluate the likely significant effects of the draft NPF and its reasonable alternatives; and
- Provide an early opportunity for the statutory authorities and the public to offer views on any aspect of this environmental report and accompanying NPF documentation, through consultation.

This Environmental Report complies with the requirements of the Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment (the SEA Directive) as implemented in Ireland through the European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations (S.I. No. 435 of 2004) and the Planning and Development (Strategic Environmental Assessment) Regulations 2004 (S.I. No. 436 of 2004), as amended.

CONTENTS AND MAIN OBJECTIVES OF THE PLAN

In 2002, the Government launched the National Spatial Strategy (NSS) as a spatial plan to underpin balanced regional development. Fifteen years on, some of the key ambitions of the NSS have not been realised, with development-driven planning and sprawl continuing to be prevalent. The reality of the NSS has led to unanticipated consequences in terms of population growth and regional development with as much growth in settlements outside those that were designated as NSS gateways and hubs. In most cases the rapid growth trajectory of the fastest growing towns in Ireland over the past twenty years had commenced prior to 2002, but publication of the NSS did not alter this. Many of these trends were identified in a review of the NSS undertaken in 2010[1] and it is now considered time to revisit national spatial planning based on lessons learned from the past.

The purpose of the draft NPF therefore is to provide a focal point for spatial plans throughout the planning hierarchy, and is a long-term strategy for the next 20 years which will set the groundwork for the spatial development of Ireland. The starting point for the strategy is to lay the groundwork for a better quality of life for all and a basis for sustainable economic growth. It is intended that the

[1] Department of Environment, Community and Local Government (October 2010) Implementing the National Spatial Strategy: 2010 Update and Outlook Harnessing Potential, Delivering Competitiveness, Achieving Sustainability.

draft NPF will both provide a strong focus to guide and inform spatial planning and set the framework for integrated investment decisions. It will also provide a framework for the development of the new Regional Spatial and Economic Strategies (RSES's) by the three new Regional Assemblies, and the associated enhancement of the economic development focus of local authorities, as per the Local Government Reform Act 2014. The NPF will co-ordinate the strategic planning of urban and rural areas in a regional development context to secure overall proper planning and development as well as co-ordination of the RSES's and city/ county development plans, in addition to local economic and community plans as well as local area plans.

The NPF development will address both opportunities and challenges to deliver policy directions across a broad spectrum. The policy areas to be considered include the following broad headings:

- A New Way Forward;
- Making Stronger Urban Places;
- Planning for Diverse Rural Places;
- People, Homes and Communities;
- Realising our Island and Marine Potential;
- Working with our Neighbours;
- Realising our Sustainable Future;
- Investing in Ireland 2040 - Implementation; and
- Assessing Environmental Impact.

The NPF process is being led by the DHPLG and overseen by a High Level Cross Departmental Steering (CDS) Group, chaired by the Minister for Housing Planning and Local Government and consisting of senior personnel across government departments. An advisory group is also in place to facilitate the participation of a range of interests under the broad umbrellas of economic, environment, social and knowledge sectors. An environmental steering group has also been established to oversee the integration of environmental requirements in the preparation of the NPF e.g. SEA, Appropriate Assessment (AA) and Strategic Flood Risk Assessment (SFRA).

In developing the NPF and the future RSES's it has been important to establish a strong empirical evidence base to support policy formulation and implementation. Key aspects have included the development of economic and demographic projections based on past trends and the generation of a range of future spatial development scenarios. The ESRI have undertaken the key modelling inputs with oversight from a Demographic and Econometric Steering Group. This work will also help to inform the forthcoming RSES's. The All Island Research Observatory (AIRO) has, as part of the development of the NPF conducted spatial mapping to underpin spatial trends and options regarding future growth.

SEA METHODOLOGY

The SEA Directive requires that certain plans and programmes, which are likely to have a significant impact on the environment, be subject to the SEA process. The SEA process is broadly comprised of the following steps, as outlined in **Table 1**.

Table 1 – SEA Stages

SEA Step / Stage	Purpose	Status
Screening	The purpose of this stage of the process was to reach a decision, on whether or not an SEA of the draft NPF was required.	The Department undertook SEA Screening in 2016 and determined that SEA of the NPF would be required.
Scoping and statutory consultation	The purpose of this stage of the process was to clarify the scope and level of detail to be considered in the environmental assessment. This was done in consultation with the defined statutory bodies for SEA in Ireland and other stakeholders. Consultation was also undertaken with the authorities in Northern Ireland.	This stage was completed in Q1 2017.
Environmental assessment and consultation	The purpose of this stage of the process was to assess the likely significant impacts on the environment as a result of implementation of the draft NPF and consideration of reasonable alternatives. The output from this stage of the process is an SEA Environmental Report which records this assessment. Consultation on the draft NPF and Environmental Report are also part of this stage.	This stage was completed in Q3 2017 and is the subject of this report.
SEA Statement	The purpose of this stage of the process is to identify how environmental considerations and consultations have been integrated into the final plan culminating in the production of an SEA Statement.	To be published with final NPF in 2018.

Integration of the SEA and draft NPF was achieved through close involvement of relevant team members in all stages of the project including: SEA Scoping; review of the existing situation; and public consultation. The SEA and plan team also worked closely on developing: the SEA assessment methodology; alternatives to be considered in the SEA; SEA objectives, targets and indicators; and mitigation measures and monitoring strategies.

Consultation as part of SEA Scoping was carried out with the statutory consultees for SEA in Ireland and included the development of a Scoping Report. In addition to the statutory consultees, members of the environmental steering group were provided a copy of the scoping report for review and comment. Taking into consideration feedback from consultees, a broad assessment of the potential for the plan to influence the environment was carried out. All of the environmental topics listed in the SEA Directive were scoped in for the assessment of the plan. These are:

- Biodiversity, Flora and Fauna;
- Population;
- Human Health;
- Soil;
- Water;
- Landscape;
- Air;

- Climatic Factors;
- Material Assets; and
- Cultural, Architectural and Archaeological Heritage.

In addition, a workshop was undertaken with a wide group of stakeholders following the publication of the Department's *Issues and Choices Paper* and the SEA Scoping Report, which was provided to the statutory consultees in January 2017. The workshop was held on 5th May 2017 at Custom House, County Dublin, and focussed on the issues relative to development of the NPF. Stakeholders such as utility providers, agriculture representatives, universities, transport authorities, marine bodies and regional assemblies were invited to attend the workshop. Regard to the comments raised during the workshop has been taken into account in the development of this Environmental Report.

The NPF is a national framework and as such the assessment has been focussed at the national level. The plan will cover the period up to 2040 and in line with the SEA Directive, short, medium and long-term impacts have been considered during the assessment. Based on the requirements of the legislation and guidance, the information provided in the Environmental Report is outlined in **Table 2**.

Table 2 – Requirements of the SEA Directive and Relevant Section in Environmental Report

Requirement of SEA Directive (Article 5(1) Annex I)	Chapter of Environmental Report
An outline of the contents and main objectives of the plan or programme, or modification to a plan or programme, and relationship with other relevant plans or programmes.	Chapter 2: Content and Main Objectives of the Plan Chapter 4: Review of Relevant Plan, Policies and Programmes
The relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the plan or programme, or modification to a plan or programme.	Chapter 5: Relevant Aspects of the Current State of the Environment (Baseline)
The environmental characteristics of areas likely to be significantly affected.	Chapter 5: Relevant Aspects of the Current State of the Environment (Baseline)
Any existing environmental problems which are relevant to the plan or programme, or modification to a plan or programme, including, in particular, those relating to any areas of a particular environmental importance, such as areas designated pursuant to the Birds Directive or the Habitats Directive.	Chapter 5: Relevant Aspects of the Current State of the Environment (Baseline)
The environmental protection objectives, established at international, European Union or national level, which are relevant to the plan or programme, or modification to a plan or programme, and the way those objectives and any environmental considerations have been taken into account during its preparation.	Chapter 4: Review of Relevant Plan, Policies and Programmes
The likely significant effects on the environment, including on issues such as biodiversity, population, human health, fauna, flora, soil, water, air, climatic factors, material assets, cultural heritage including architectural and archaeological heritage, landscape and the interrelationship between the above factors.	Chapter 8: Assessment of Preferred Scenario
The measures envisaged to prevent, reduce and as fully as possible offset any significant adverse effects on the environment of implementing the plan or programme, or modification to a plan or programme.	Chapter 9: Mitigation and Monitoring

Requirement of SEA Directive (Article 5(1) Annex I)	Chapter of Environmental Report
An outline of the reasons for selecting the alternatives dealt with, and a description of how the assessment was undertaken including any difficulties (such as technical deficiencies or lack of know-how) encountered in compiling the required information	Chapter 7: Alternatives
A description of the measures envisaged concerning monitoring of the significant environmental effects of implementation of the plan or programme, or modification to a plan or programme	Chapter 9: Mitigation and Monitoring
A non-technical summary of the information provided under the above headings	Non-technical Summary

In addition to this SEA, there is a requirement under the EU Habitats Directive (92/43/EC) to assess whether the plan has the potential to impact negatively on a European site. These sites include areas designated for the protection and conservation of habitats and of wild flora and fauna and include Special Protection Areas (SPAs) and Special Areas of Conservation (SACs). In parallel to the SEA, an Appropriate Assessment (AA) is being carried out to inform decisions surrounding this issue. Screening for Appropriate Assessment was carried out by the Department in August 2017 and a decision was made to carry out a full AA on the draft NPF, which is presented as a Natura Impact Statement (NIS).

Alongside the development of the NPF and the accompanying SEA and AA, a Strategic Flood Risk Assessment (SFRA) has been undertaken. It has been prepared in accordance with the requirements of The Planning System and Flood Risk Assessment Guidelines for Planning Authorities (2009) and Circular PL02/2014 (August 2014).[2] The findings of the SFRA and the AA processes have directly fed into SEA Environmental Report and all three documents will be placed on public display alongside the draft NPF.

REVIEW OF RELEVANT PLANS, POLICIES AND PROGRAMMES

This section of the report has taken into consideration the plan, policy and programme framework within which the draft NPF has been developed. The NPF is a national plan and therefore the review has focused on relevant national, European and international frameworks. It is not intended to be an exhaustive list but rather is focused on those considered key to the draft NPF and takes on board comments made by statutory consultees during the SEA scoping stage.

Key policy areas such as maritime and land use spatial planning, climate change, renewable energy, flooding, agriculture, water and wastewater services, waste, and conservation have been explored. In exploring the relationships between the draft NPF and key plans/ programmes the following two questions have framed the review:

- Does the NPF contribute to the fulfilment of environmental protection objectives set in other Plans/ Programmes/ Policy/ Legislation; and
- To what degree are the environmental protection objectives set in these other Plans/ Programmes/ Policy/ Legislation impacted by the NPF?

[2] The Planning System and Flood Risk Assessment Guidelines for Planning Authorities (2009) and Circular PL02/2014 (August 2014) hereafter will be referred to as 'the Guidelines'

For national spatial planning the NPF will be given full statutory effect under the Planning and Development (Amendment) Bill 2016 creating a legislative process not only for its preparation but also its monitoring and cyclical review into the future. The Local Government Reform Act 2014 established three Regional Assemblies, covering the East and Midlands, the South, and the North-West of the country. Alongside the NPF, the Regional Assemblies will each develop, finalise and adopt a Regional Spatial and Economic Strategy (RSES) to outline in more detail how the NPF will be implemented in each Regional Assembly area and in the local authority areas that make up each assembly.

Other key influencing plans and programmes include: the Irish Water Investment Programme up to 2021 and beyond; the National Clean Air Strategy [in prep]; the National Climate Change Mitigation Plan; the National Renewable Energy Action Plan; Smarter Travel 'A New Transport Policy for Ireland' 2009-2020 and Food Wise 2025. The NPF will have to align itself with planning in the maritime environment and the Marine Strategy Framework Programme of Measures 2016, as well as the forthcoming Maritime Spatial Plans (in prep and due in 2021) which are of key significance.

RELEVANT ASPECTS OF THE CURRENT STATE OF THE ENVIRONMENT (BASELINE)

This section of the Environmental Report examines the relevant significant issues of the current state of the environment in relation to Biodiversity, Flora and Fauna, Population, Human Health, Water, Soil and Geology, Air Quality, Climatic Factors, Material Assets, Cultural Heritage, Landscape and the interrelationship between these factors. The baseline has been compiled using available datasets and indicators developed through scoping and review of relevant supporting documentation. It is noted that the NPF is a national plan and as such the assessment is focussed at a national strategic level and this is mirrored in the level of detail presented for the baseline description in the main Environmental Report.

The baseline description is focussed in the first instance on the Republic of Ireland however given that Ireland shares a land boundary with Northern Ireland, there is potential for environmental impact on air quality, water quality and biodiversity which are transboundary. As such (and in recognition of the scoping comments received by the Northern Ireland Department of Agriculture, Environment and Rural Affairs) the baseline chapter includes reference, where relevant, to baseline conditions and pressures in Northern Ireland.

Ireland's natural environment, although under increasing pressure, generally remains of good quality and represents one of the country's most essential national assets, however pressures have increased significantly (EPA, 2008, 2012 and 2016) and it is acknowledged that problems and challenges still remain. In their sixth and most recent state of the environment review, the EPA has reiterated the four priority challenges for the environment, which, if addressed successfully, should benefit the present and future quality of Ireland's environment. These comprise:

- Valuing and Protecting our Natural Environment;
- Building a Resource-Efficient, Low Carbon Economy;
- Implementing Environmental Legislation; and
- Putting the Environment at the Centre of Our Decision Making.

These challenges are summarised below in **Table 3**.

Table 3 – EPA Key Challenges and Relevance to the National Planning Framework

Challenge	Relationship to the National Planning Framework
Challenge 1: Valuing and Protecting our Natural Environment	As the draft NPF is focussed on long-term, sustainable, consolidated spatial planning across Ireland. However, development associated with housing, infrastructure and services provision has the potential to impact on the natural environment. In this regard, the draft NPF has been developed to ensure that the national policy objectives associated with spatial planning and related activities are carried out in compliance with all existing EU and national objectives, policies and legislation which also seek to protect the natural environment.
Challenge 2: Building a Resource-Efficient, Low Carbon Economy	The National Policy Position on climate action and low carbon development sets a fundamental national objective to achieve transition to a competitive, low-carbon, climate-resilient and environmentally sustainable economy by 2050. The draft NPF is being prepared with consideration given to this objective and the supporting legislation. It will aim to maximise coordination of land use planning in a sustainable way which will have positive implications for increasing resourcefulness and helping to tackle climate change by increasing efficiencies at multiple levels within the planning hierarchy.
Challenge 3: Implementing Environmental Legislation	The draft NPF is undergoing SEA, AA and SFRA in line with existing EU and national legislation. Plans, measures and projects arising from the NPF in many cases will require further environmental assessment (SEA, EIA, SFRA, EPA licensing). Where development is below the thresholds of this legislation and regulation, this Environmental Report will make recommendations to protect the environment.
Challenge 4: Putting the Environment at the Centre of Our Decision Making	The Department's Issues and Choices Paper recognises that sustainable development must happen with regard to Ireland's unique environment. As noted previously, the draft NPF is undergoing SEA, AA and SFRA in line with existing EU and national legislation. This is ensuring that the broader environmental consequences are taken into account as part of the framework's development. Both processes are helping to shape the evolution of the draft NPF.

State of the Environment Overview – Ireland

Following on from the four key challenges, seven key actions for Ireland on the state of the environment have also been listed, and comprise the following:

- **Environment, health and wellbeing:** recognise that a good quality environment brings benefits to health and wellbeing.
- **Climate change:** the response to climate change needs to be accelerated - we need to act quickly, transform our energy systems and a shift to a more sustainable transport system.
- **Implementation of legislation:** there needs to be an improvement in tracking plans and policies, as well as compliance with several directives and continued targeting of non-compliances by environmental enforcement bodies.
- **Restore and protect water quality:** measures should continue to be implemented to achieve at least Good Status in all water bodies, while also acknowledging that while Ireland's marine waters are relatively unpolluted, pressures continue to increase.
- **Nature and wild places:** habitat and biodiversity loss continue - initiatives need to be developed which incorporate nature protection at the core of decision-making.

- **Sustainable economic activities:** the economy can be competitive, but in a sustainable way having regard to finite resources. Issues include the increase in exported residual waste, the need to phase out subsidies and exemptions which encourage unsustainable activities/emissions as well as the challenge of intensifying agricultural output in a sustainable way.
- **Community engagement:** a strong evidence-base and good communication strategies are key for keeping stakeholders and citizens reliably informed - sustainable growth requires changes to the way all consumers act.

The quality of Ireland's environment is generally good though it has been under increasing pressure over the last decade as a result of economic changes, population growth and urbanisation, and changing consumer patterns. In Ireland the main changes in land use since 2012 have been an increase in the amount of forested lands, semi-natural areas and artificial areas, and a decrease in the total amount of agricultural land and peatland. The main land use type in Ireland is agriculture, while forestry cover remains very low compared to other European countries although forestry policy is to increase current cover. The main policy drivers of land use change over the coming decade will include such areas as the agricultural policy of Food Wise 2025, afforestation policies associated of the Forestry Programme 2014-2020 and bioenergy policy associated with the National Bioenergy Plan. The main challenges for these policies will be to increase primary production in a way that is sustainable and does not adversely impact the environment. This challenge is even greater when considered in the context of climate change which may increase the intensity of impacts unless adaptation and mitigation strategies are built into such policies. For example, diffuse loss of nutrients to water remains a major environmental pressure but this could be exacerbated into the future in areas experiencing low flows for longer periods as a result of climate change.

There is no single national-scale baseline dataset of land use or land cover for Ireland. The CORINE dataset is the nearest proxy, but has resolution issues (the smallest unit of mapping is 25 hectares), however more detailed sectoral mapping is available for agriculture and forestry. According to the latest CORINE dataset (2012), artificial and built surfaces nationally account for approximately 2.46% of Ireland's land cover. The actual figure is likely to be higher given that built surfaces less than 25ha in area (including one-off housing), sections of the road/rail network, and smaller quarrying sites are not captured at this resolution.

The majority of Ireland's most important habitats are reported to be of inadequate or bad conservation status; most species are considered to be stable however a number of key species are declining. Aquatic species such as freshwater pearl mussel and bees are reported to be most at risk. Pressures from changes in land use, intensification of agriculture, pollution and climate change, as well as the impacts of a growing economy, are likely to bring additional pressures on a number of species and habitats in Ireland in the coming years. In addition, the spread of invasive alien species also poses a threat to native biodiversity. Species such as the zebra mussel for example was recorded in 70 lakes, which is an increase of 20 lakes from the known populations in the previous report.

While air quality in Ireland is of a good standard compared to other EU member states, monitoring shows that local levels of some pollutants (e.g. nitrogen dioxide) are at concentrations that may impact on health and trends in others such as polycyclic aromatic hydrocarbons (PAH), particulate matter (PM_{10} and $PM_{2.5}$) are a concern. A 2015 EEA report indicates that around 1,200 deaths in Ireland in 2012 were directly linked to air pollution. Irish per capita greenhouse gas (GHG) emissions remain among the highest in Europe, with agriculture the largest source accounting for 33.3% of total national emissions. Sectors such as energy are showing decreases in GHGs due to increased use

of renewables and improving standards. In 2016, Ireland is just over halfway to meeting its Renewable Energy Directive target and the new Climate Action and Low Carbon Development Act will also help transition to a low carbon economy.

Current water quality trends nationally in both monitored river water bodies and lakes indicate that those at satisfactory ecological status (high or good) appear to have declined overall by 3% since 2007-2009. However, whilst the national figure of 3% suggests only a slight decline; this doesn't reflect a significant number of improvements and dis-improvements across monitored river water bodies and lakes since 2009. The main pressures including eutrophication, urban waste water, diffuse agricultural sources and impacts to the marine environment (e.g. overfishing, by-catch, pressures from aquaculture) persist. Measures to improve water quality are being implemented through the River Basin Management Plans. However there has been little overall improvement since the last river basin management cycle; in the latest water quality assessment period (2013-2015) there has been a decline in the number of high status sites.

State of the Environment Overview – Northern Ireland

The second State of the Environment Report for Northern Ireland (2013) is titled "From Evidence to Opportunity" and provides a five year update and commentary on forty-four indicators across eight themes to provide an evidence-based assessment of the state of the environment. The Northern Ireland Environmental Statistics Report (2017) provides an annual update to the figures and provides commentary around the trends outlined in the State of the Environment Report. The current state is mixed. Air quality continues to improve, water quality is benefitting from improved effluent controls and there are increases in municipal waste recycling rates. However some declines in quality have been recorded for biodiversity, freshwaters, landscapes, habitats and heritage. Like Ireland, Northern Ireland has experienced the effects of recession in recent years which has in turn reduced some of the pressure on the environment but this has been replaced by new pressures and challenges associated with trying to stimulate an economy and reliance on natural resources.

The overall status of water bodies in Northern Ireland has not significantly changed from that recorded in 2009 but improvements have been identified in water utility discharges and drinking water quality. In 2015, 32.7% of the river waterbodies were classified as 'high' or 'good' quality. There has been an increase in the number of water incidents reports but substantiated incidents have fallen. The key challenges for the water bodies relate to diffuse nutrient pollution, chemical status of the water environment and measures to address physical modifications of beds, banks and shore of surface waters. For the second cycle of River Basin Management Planning in Northern Ireland there are 496 surface water bodies including 450 rivers, 21 lakes and 25 transitional and coastal waters.

Despite continued action many key elements of biodiversity continues to decline, however the wild bird population has increased by 62% between 1994 and 2015, but not all the underlying bird populations are increasing, such as the thrush and skylark having seen a decline of 50% over the same period. In particular since 2000 grassland habitats have shown the most declines, but in contrast woodland habitats have increased. The key pressures identified relate to land-use changes through agriculture and development with additional pressures such as pollution, invasive species and fisheries practices. The Northern Ireland Environmental Statistics Report 2017 reported that as of 31st March 2016, a total of 387 sites had been declared as Areas of Special Scientific Interest (ASSI), 57 sites as SACs, 17 sites as SPAs and 21 sites as Ramsar sites (areas of wetland and waterfowl conservation). There are now 59 SACs and 18 SPAs (including candidate/ newly proposed sites) as of March 2017.

Interrelationships

In accordance with the SEA Directive, the interrelationship between the SEA environmental topics must be taken into account (**Table 4**). The key interrelationships identified in this SEA are set out below.

Table 4 – Interrelationships between SEA Topics

Population & Human Health	✓							
Soil	✓	✓						
Water	✓	✓	✓					
Air Quality	✓	✓	x	✓				
Climatic Factors	✓	✓	✓	✓	✓			
Material Assets	✓	✓	✓	✓	✓	✓		
Cultural Heritage	x	✓	✓	✓	x	✓	✓	
Landscape	✓	✓	✓	✓	x	✓	✓	✓
	Biodiversity Flora, Fauna	**Population & Human Health**	**Soil**	**Water**	**Air Quality**	**Climatic Factors**	**Material Assets**	**Cultural Heritage**

Evolution of the Baseline in the Absence of the NPF

The SEA legislation requires that consideration is given to the likely evolution of the current baseline where implementation of the NPF does not take place. Initiatives such as the Irish Water Investment Programme, Food Wise 2025, urban/ suburban development and sprawl, and the hollowing-out of rural settlements are still likely to occur even without the NPF. **Table 5** summarises the key issues.

Table 5 – Likely Evolution in the Absence of the NPF

Key Issue	Likely Evolution in the Absence of the draft Ireland 2040 - NPF
Biodiversity, flora and fauna	Without the draft NPF, the pressure on aquatic and terrestrial flora, fauna and habitats is likely to continue with key drivers from development and land-use changes in addition to intensification of agriculture through initiatives such as Food Wise 2025. This is likely to lead to habitat loss and/or fragmentation. In addition, there are changes expected to occur through climate change that may alter species and habitat ranges, with potential for range expansion of some invasive alien species which are an increasing concern. In the absence of the draft NPF, measures to address these pressures may not be coordinated or focussed in relation to the most sensitive habitats and species leading to permanent loss of key species.
Population and Human Health	The population of Ireland has been predicted to grow by up to 4.7 and 5.3 million over the period 2016-2026, an annual average population growth rate of between of up to 1%. The draft NPF projects that Ireland will be home to an additional one million people by 2040. These projected population increases will increase pressure on land use, water/ wastewater and transport services. In the absence of the draft NPF, this increased pressure will not be accounted for in terms of integration with evolving policy giving rise

Key Issue	Likely Evolution in the Absence of the draft Ireland 2040 - NPF
	to pressure on existing infrastructure and inadequate provision for future changes.
Soils	In the absence of the draft NPF the soils, geology and hydrogeology would continue to exist in much the same pattern. There is currently little or no legislation relating directly to soils and soil protection.
Water	The eleven existing directives outlined under Article 11 of the WFD would continue to be implemented and enforced for the second cycle of the River Basin Management Plan (RBMP) running from 2017-2021, also taking account of the most recent status of water bodies, the outputs of the risk characterisation process as well as the lessons learned from the implementation of the first cycle. The Irish Water Investment Programme would take place independently of the draft NPF with the expected investment in the period to 2021 resulting in upgrades to in the order of 105 waste water treatment plants leading to some improvements in some waterbodies. The existing planning system will need to account for water quality and refer to the programme of measures implemented through the RBMP.
Air and climatic factors	Air quality in Ireland is of a high standard across the country, meeting all EU air quality standards, according to the EPA. The absence of the draft NPF is not expected to affect this trend, however uncoordinated infrastructure development would be likely. As a result of manmade GHG emissions, climate change is predicted to occur in the future regardless of action. The UN Intergovernmental Panel on Climate Change (IPCC) in their *Climate Change 2007: Climate Change Impacts, Adaptation and Vulnerability Report* predict sea level rise, changes in rainfall patterns and temperatures as well as changes in the frequency of droughts and extreme weather events. The potential impacts from sea level increases, increased flooding, summer droughts, etc.
Material Assets	The draft NPF acknowledges the requirements of existing directives, regulations and measures. It provides for the coordination of these controls to reduce impacts to the environment and examines how activities are impacting the wider environment and the measures needed to address these negative effects. In the absence of the draft NPF, Irish Water would continue to invest in water services, bringing improvements to water bodies, particularly where urban wastewater is the single pressure. The population will continue to grow with the associated demand for infrastructure as well as municipal and community services. Without the draft NPF these complex scenarios would continue to be managed in a less coordinated manner, thus the cumulative and synergistic impacts on the environment would continue. Critically without the draft NPF there would remain an uncoordinated approach to assigning resources and targeting those resources to the greatest need.
Cultural Heritage	In the absence of the draft NPF the uncoordinated approach to measures could result in unnecessary impacts on existing cultural heritage resource. However at a local level the existing development planning processes should provide a level of protection.
Landscape	In the absence of the draft NPF the uncoordinated approach to measures could result in unnecessary impacts to protected or sensitive landscape. However at a local level the existing development planning processes should provide a level of protection.

ENVIRONMENTAL PROTECTION OBJECTIVES AND SEA FRAMEWORK

There are essentially three types of objectives considered as part of this SEA. The first relates to the objectives of the plan. The second relates to wider environmental objectives i.e. environmental protection objectives at a national, European and international level, and finally there are the Strategic Environmental Objectives (SEO), which were devised to test the effects of the draft NPF on the wider environment.

The assessment is an objectives-led assessment which involves comparing the proposed alternatives against defined SEA Environmental Objectives for each of the identified issue areas. The selected SEOs for this SEA are set out in **Table 6**. These environmental objectives are based on the current understanding of the key environmental issues having regard to the environmental protection objectives outlined in **Chapter 6**, of the main Environmental Report. A draft set of objectives was included in the SEA Scoping Report prepared for the draft NPF which underwent public consultation in 2016. The objectives have been updated prior to the assessment based on feedback from statutory consultees and the public on the draft objectives.

Table 6 – Strategic Environmental Objectives

Environmental Component	Strategic Environmental Objective
Objective 1 - Population and Human Health	*To create an environment where every individual and sector of society can play their part in achieving a more healthy Ireland.*
Objective 2 - Biodiversity Flora and Fauna	*To preserve, protect, maintain and, where appropriate, enhance the terrestrial, aquatic and soil biodiversity, particularly EU designated sites and protected species.*
Objective 3 - Soils	*Protect soils against pollution, and prevent degradation of the soil resource.*
Objective 4 - Water	*Ensure that the status of water bodies is protected, maintained and improved in line with the requirements of the WFD and MSFD.*
Objective 5 - Air Quality	*To avoid, prevent or reduce harmful effects on human health and the environmental as a whole resulting from emissions to air.* *Maintain and promote continuing improvement in air quality through the reduction of emissions and promotion of renewable energy and energy efficiency.*
Objective 6 - Climatic Factors	*To minimise emissions of greenhouse gasses.*
Objective 7 - Material Assets	*Consolidate growth and limit urban sprawl.* *Optimise existing infrastructure and provide new infrastructure to match population distribution proposals in the draft NPF.*
Objective 8 - Archaeology, Architecture and Cultural Heritage	*Protect places, features, buildings and landscapes of cultural, archaeological or architectural heritage.*
Objective 9 - Landscape	*To provide a consistent framework for identification, assessment, protection, management and planning of landscapes having regard to the European Landscape Convention.*

ALTERNATIVES

The consideration of alternatives is a requirement of the SEA Directive (2001/42/EC). The term 'reasonable' is not defined in the legislation. Good practice points to the analysis of 'alternatives' as being a constructive and informative exercise for the policy makers, and that only 'possible' options for policy are examined.

Alternatives are required to take into account the objectives of the draft NPF. The alternatives study therefore must operate within the strategic objectives, set out for the draft NPF, and provide an examination of alternative means of implementing the NPF. Section 3.14 of the DEHLG Guidelines[3]

[3] Implementation of SEA Directive (2001/42/EC): Assessment of the Effects of Certain Plans and Programmes on the Environment, DEHLG 2004

notes that the higher the level of the plan, the more strategic the options which are likely to be available.

Consideration of alternatives commenced early in the development of the NPF through strategic consideration of four strategic scenarios under four 'pillars' which included:

- **Pillar 1 – Regional Distribution Scenarios:** how the regions will grow over the next 20 to 25 years;
- **Pillar 2 – Concentration-Dispersal Scenarios:** where future growth will be concentrated;
- **Pillar 3 – Compact-Sprawl Scenarios:** how densely this growth will be concentrated; and
- **Pillar 4 – Temporal Infrastructure Scenarios:** the timing and delivery of services and infrastructure.

Following the consideration of the four pillars, six strategy alternatives were developed as presented in **Table 7**.

Table 7 – Alternatives Considered

Scenarios	Alternatives Considered
Option 1 – Compacted Concentration	(i) The level of growth in the North West Regional Assembly (NWRA) and Southern Regional Assembly (SRA) combined would equal that of the Eastern Midlands Regional Assembly (EMRA); (ii) Focus the highest quantum of growth and rates of growth in 5 cities through a tailored approach to settlement growth targets; (iii) Deliver at least 50% of all new homes in the 5 cities on infill or brownfield sites within the built up envelope of existing urban settlements (and at least 30% in all other settlements); and (iv) Provide some critical infrastructure in advance of planned growth to kick start development and provide other infrastructure sequentially and on a phased basis in tandem.
Option 2 – Regional Effectiveness and Settlement Diversity	(i) The level of growth in the NWRA and SRA combined would be equal to that of the EMRA; (ii) Focus the highest quantum of growth and rates of growth in 5 cities and a number of regionally important large towns through a tailored approach to settlement growth targets; (iii) Deliver at least 40% of all new homes nationally on infill or brownfield sites within the built up envelope of existing urban settlements; and (iv) Provide some critical infrastructure in advance of planned growth to kick start development and provide other infrastructure sequentially and on a phased basis in tandem.
Option 3 – Regional Effectiveness and Settlement Consistency	(i) The level of growth in the NWRA & SRA combined would be equal to that of the EMRA (ii) Focus the highest quantum of growth in 5 cities and a number of regionally important large towns, with equal rates of growth across all settlements. (iii) Deliver at least 40% of all new homes nationally on infill or brownfield sites within the built up envelope of existing urban settlements; and (iv) Provide some critical infrastructure in advance of planned growth to kick start development and provide other infrastructure sequentially and on a phased basis in tandem.
Option 4 – Regional Dominance and Settlement	(i) Growth in EMRA is less than that of the NWRA & SRA combined; (ii) Focus the highest quantum of growth and rates of growth in cities and a

Scenarios	Alternatives Considered
Diversity	number of regionally important large towns in NWRA and SRA and lower than national growth rates in Dublin City and regionally important large towns, through a tailored approach to settlement growth targets; (iii) Deliver at least 40% of all new homes nationally on infill or brownfield sites within the built up envelope of existing urban settlements; (iv) Provide some critical infrastructure in advance of planned growth to kick start development and provide other infrastructure sequentially and on a phased basis in tandem.
Option 5 – Regional Dominance and Settlement Consistency	(i) Growth in EMRA is less than that of the NWRA and SRA combined; (ii) Focus the highest quantum of growth and rates of growth equally in cities and a number of regionally important large towns in NWRA and SRA and lower than national growth rates in Dublin City and regionally important large towns in EMRA; (iii) Deliver at least 50% of all new homes in the cities and a number of regionally important large towns on infill or brownfield sites within the built up envelope of existing urban settlements in the NWA and SRA and at least 30% in EMRA; (iv) Provide some critical infrastructure in advance of planned growth to kick start development and provide other infrastructure sequentially and on a phased basis in tandem.
Option 6 – Business as Usual	(i) The majority of growth takes place in the EMRA; (ii) Focus growth in existing gateways and hubs as designated in the National Spatial Strategy; (iii) No national specification between greenfield and brownfield/infill delivery targets for new housing; (iv) Infrastructure delays or deficit of infrastructure to support planned growth.

An objectives-led assessment was undertaken on the six options presented and each alternative was assessed against the SEOs outlined in **Table 6**.

The preferred alternative is considered to be O*ption 2 – Regional Effectiveness & Settlement Diversity*. This alternative is likely to achieve the maximum overall gain in relation to the SEOs in terms of maximising use of public transport, thereby reducing transport related emissions in tandem with facilitating higher densities in city areas, and focussed managed growth in supporting settlements, thereby improving regional connectivity and services outside of the cities.

The preferred option acknowledges the economic importance of the Dublin whilst ensuring growth across the regions and in other urban centres. It will help ensure that there are no constraints in the growth of the cities allowing regional centres develop and prosper. It will also contribute to preserving sense of place and improving regional connectivity and services outside of the cities.

ASSESSMENT OF PREFERRED SCENARIO

This section evaluates as far as possible the likely significant effects on the environment and to set out measures envisaged to prevent, reduce and as far as possible offset any significant adverse effects of implementing the draft NPF. **Table 8** summarises the NPF and presents an overview of the environmental assessment of the policy objectives.

Table 8 – Summary of Assessment

Reference	Summary of Measures and Assessment	Mitigation?
Chapter 2 – A New Way Forward	Broadly neutral to positive, particularly for population and material assets. Policies set out the population and job growth targets for each of the regional Assembly areas including the five cities and other settlements. Market-led growth in terms of services provision has historically been, and continues to be, an issue particularly in terms of transport and water services where demand was not matched by phased provision. The policies are aimed at achieving a balanced and coordinated approach to development and promote consolidation of development on infill or brownfield within existing urban envelopes.	✓
Chapter 3 – Making Stronger Urban Places	Broadly positive, particularly for population and material assets, where the emphasis is placed on developing high quality urban environments where proportionally higher growth is encouraged in appropriate areas. Potential negative implications for biodiversity, soils, water, air quality and landscape as emissions to air and water will increase in densified urban areas. Many existing urban areas are already located close to European Sites and urban areas remain sources of diffuse pressures to water. A number of key priorities are also set out for each of the five cities. These policies are broadly positive for population, material assets and climate factors owing to the focus on city connectivity via public transport, regeneration, and opportunities for communities. Potential negative impacts arise for biodiversity, water, soils and landscape where there may be legacy contaminated site issues associated with brownfield and docklands/port development.	✓
Chapter 4 – Planning for Diverse Rural Places	The policies aim to secure a level of sustainable growth within rural settlements through development of underutilised lands, regeneration and reuse of derelict buildings. These policies are positive for population, material assets and cultural heritage as there is an emphasis on reversing the social and economic decline in rural areas and preserve sense of place. Policies to promote diversification of the rural economy and provision of new infrastructure such as broadband and amenity development has potential for negative impacts on biodiversity, soils, water and landscape depending on the type of activities that are developed.	✓
Chapter 5 – People, Homes and Communities	The policies are broadly positive as the focus is on housing, health and leisure policies and the requirements of an ageing population. The policies are broadly neutral across the environmental objectives owing to the promotion of sustainable development for communities and their work. As with all infrastructural development, there is potential for both direct and indirect negative impacts on biodiversity, soils, water, cultural heritage and landscape unless proper siting and environmental studies are incorporated into the strategic planning of development, including housing.	✓
Chapter 6 – Realising our Island and Marine Potential	Broadly positive. Ireland's ocean wealth represents enormous potential for current and future growth. The policies include the Regional Authority Regional Spatial and Economic Strategies, Metropolitan Area Plans, and Local Authority Development Plans taking account of maritime spatial planning issues, strategic development of Tier 1 ports and sustainable management of the marine resource in in relation to environmental protection, climate change and renewable energy development.	✓
Chapter 7 – Working with our Neighbours	The focus of policies is on collaboration and cooperation with Northern Ireland to manage the shared environment. References to enhanced connectivity, services provision and infrastructure development is positive in terms of population and material assets however there are negative	✓

Reference	Summary of Measures and Assessment	Mitigation?
	implications for the remaining environmental objectives as there is no specific siting laid out. There are uncertainties related to decisions pertaining to Brexit and the implications of levels of environmental compliance.	
Chapter 8 – Realising our Sustainable Future	The policies are broadly positive for the majority of the environmental objectives as the emphasis is placed on the circular economy, sustainable land management, ecosystem services, sustainable modes of transport and renewable energy. These policies are closely related to other plans and will rely on synergies to achieve effective implementation.	✓
Chapter 9 – Investing in Ireland 2040 - Implementation	The policies are overall indirectly positive for all environmental objectives as they deal with coordinated planning in terms of delivering infrastructure to meet the demands and growth of future populations. There are potential negative impacts for all environmental indicators as housing and infrastructure development of any kind has the potential to impact on the environment through loss of greenfield, regeneration and use of brownfield/infill, and where water/wastewater capacity is not delivered in advance of or in tandem with development.	✓
Chapter 10 – Assessing Environmental Impact	Broadly positive across all environmental objectives as the policies are focussed on ensuring environmental considerations are taken into account from any plans, projects and activities requiring consent through a requirement for relevant environmental assessments.	x

MITIGATION AND MONITORING

Mitigation

Following an assessment of the draft NPF, the SEA Environmental Report, Natura Impact Statement and Strategic Flood Risk Assessment have proposed mitigation measures and text alterations to the draft NPF. The actions within the draft NPF promote coordinated spatial planning, sustainable use of resources, protection of the environment and the Natura 2000 network ensuring that environmental considerations have been integrated into the draft NPF. Mitigation measures have been proposed in the SEA Environmental Report. These include general measures such as additional text clarifying obligations in relation to protection of European Sites, additional clarity on the definitions/wording in policies, greater transparency on stakeholders and their role, particularly for the implementation phase as well as specific recommendations and suggestions on how to improve the effectiveness of the plan going forward. It is noted that many of these suggestions will require agreement across a number of stakeholder groups and as such, discussions will be needed throughout the consultation phase which will now commence.

Monitoring

Member States are required to monitor the significant environmental effects of the implementation of plans so that any unforeseen adverse effects can be identified and appropriate action taken. The primary purpose of monitoring is to cross-check significant environmental effects which arise during the implementation stage against those predicted during the draft NPF preparation stage. A monitoring programme is developed based on the indicators selected to track progress towards reaching the targets paired with each SEO, thereby enabling positive and negative impacts on the environment to be measured. The environmental indicators have been developed to show changes that would be attributable to implementation of the draft NPF. The monitoring programme is outlined in **Table 9**.

Table 9 – SEA Monitoring Programme

Strategic Objective	Target	Indicator	Data Source
Objective 1 Population & Human Health *To create an environment where every individual and sector of society can play their part in achieving a more healthy Ireland.*	▪ Increase the proportion of people who are healthy at all stages of life. ▪ Increase by 20% proportion of the population undertaking regular physical activity.	▪ Achievement of objectives, targets and indicators outlined in *Healthy Ireland Implementation Plan 2016-2019.*	▪ Health Service Executive
Objective 2 Biodiversity, Flora and Fauna *To preserve, protect, maintain and, where appropriate, enhance the terrestrial, aquatic and soil biodiversity, particularly EU designated sites and protected species.*	▪ Require all regional, county and local level land use plans to include ecosystem services and green/blue infrastructure provisions in their land use plans and as a minimum, to have regard to the required targets in relation to the conservation of European sites, other nature conservation sites, ecological networks, and protected species.	▪ Number of spatial plans that have included ecosystem services and green/ blue infrastructure provisions when their relevant plans are either revised or drafted.	▪ Regional Spatial Economic Strategies (RSES) ▪ Development Plans ▪ Local Area Plans
Objective 3 Soils *Protect soils against pollution, and prevent degradation of the soil resource.*	▪ Maintain built surface cover nationally to below the EU average of 4%.[4] ▪ To avoid or minimise adverse effects on mineral resources, important geological and geomorphological sites and soils.	▪ Percentage land cover change in Ireland.	▪ Environmental Protection Agency (EPA), Geoportal
Objective 4 Water *Ensure that the status of water bodies is protected, maintained and improved in line with the requirements of the WFD and MSFD.*	▪ The stated expected outcomes of the second cycle of the River Basin Management Plan are achieved by 2021. ▪ The stated expected targets of the MSFD are achieved or maintained by 2020.	▪ Status of water bodies as reported by the EPA Water Monitoring Programme for the WFD. ▪ Indicators for descriptors as reported for the MSFD are achieved or maintained by 2020.	▪ EPA Monitoring Programme for WFD compliance ▪ Department of Housing, Planning and Local Government, Marine and Foreshore Section
Objective 5 Air Quality (i) *To avoid, prevent or reduce*	▪ Decrease in proportion of journeys made by private fossil fuel-based car compared	▪ Percentage change from 2014 position of 74% car modal share.	▪ Central Statistics Office, National Travel Survey

[4] http://www.epa.ie/irelandsenvironment/environmentalindicators/#land_and_soil

Strategic Objective	Target	Indicator	Data Source
harmful effects on human health and the environmental as a whole resulting from emissions to air. (ii) *Maintain and promote continuing improvement in air quality through the reduction of emissions and promotion of renewable energy and energy efficiency.*	to 2014 National travel Survey levels ▪ Adoption of the National Clean Air Strategy [to be published in Q4, 2017]	▪ Achievements of the Key Performance Indicators outlined in the National Clean Air Strategy.	▪ Department of Transport Tourism and Sport, Transport Trends (DTTAS) ▪ Department of Communications, Climate Action and Environment (DCCAE)
Objective 6 Climatic Factors *To minimise emissions of greenhouse gases.*	▪ Achieve transition to a competitive, low-carbon, climate-resilient and environmentally sustainable economy by 2050. ▪ A net reduction in the GHG emissions from the transport as outlined in the Greenhouse Gas Emissions Inventory. (Inventory for 2014 reported a 2.5% increase in carbon dioxide equivalent emissions). ▪ The Renewable Energy Directive (2009/28/EC) set a target for all Member States to reach a 10 % share of renewable energy in transport by 2020. ▪ Reduce overall emissions of carbon dioxide (CO_2) by at least 80-95% of 1990 levels by 2050. ▪ To promote reduced energy consumption and support the uptake of renewable options and a move away from solid fuels for residential heating.	▪ No. of actions delivered through the National Mitigation Plan, published in July 2017. ▪ A net annual reduction in the GHG emissions from the relevant sectors (electricity generation, built environment and transport). Carbon neutrality in the agriculture/forestry sector.	▪ Department of Communications, Climate Action and Environment (DCCAE) ▪ EPA Annual National GHG Emissions Inventory reporting
Objective 7 Material Assets (i) *Consolidate growth and limit*	▪ To map brownfield and infill land parcels in each administrative area.	▪ Number of administrative areas that have developed maps showing	▪ Department of Housing, Planning and Local Government in conjunction

Strategic Objective	Target	Indicator	Data Source
urban sprawl. (ii) *Optimise existing infrastructure and provide new infrastructure to match population distribution proposals in the draft NPF.*	▪ Increased budget spend on water and wastewater infrastructure. ▪ By 2020 all citizens will have access to speeds of 30Mbps, and that 50% of citizens will be subscribing to speeds of 100Mbps.	brownfield and infill lands ▪ Budget allocated to Irish Water under the National Capital Plan 2017. ▪ Percentage completion of broadband by 2021.	with Local Authorities ▪ Department of Communications, Climate Action and Environment (DCCAE) ▪ Department of Public Expenditure and Reform (DPER)
Objective 8 Archaeology, Architecture and Cultural Heritage *Protect places, features, buildings and landscapes of cultural, archaeological or architectural heritage.*	▪ No unauthorised physical damage or alteration of the context of cultural heritage features.	*More appropriately dealt with at project level.*	N/A
Objective 9 Landscape *To provide a framework for identification, assessment, protection, management and planning of landscapes having regard to the European Landscape Convention.*	▪ Avoid damage to designated landscapes as a result of NPF implementation.	*More appropriately dealt with at project level, however the* Development of a National Landscape Character Map will contribute to protecting landscapes.	N/A

NEXT STEPS

There is some important work to be done before the NPF can be adopted.

Witten submission or observation on the draft NPF or associated environmental reports can be made by email, preferably in 'word' format, to npf@housing.gov.ie. Alternatively, responses can be posted to: NPF Submissions, Forward Planning Section, Department of Housing, Planning and Local Government, Custom House, Dublin 1, D01 W6X0.

The final date for responses in respect of this consultation is **noon on Friday 3rd November 2017**.

These submissions/ observations will be taken into consideration before finalisation of the draft NPF. Early responses would be appreciated to allow more time to clarify and resolve issues that may arise.

1 INTRODUCTION

This environmental report has been prepared by RPS as part of the Strategic Environmental Assessment (SEA) of *Ireland 2040: The National Planning Framework* (NPF), in accordance with the requirements of EU and national legislation on the assessment of the effects of certain plans and programmes on the environment. The Department of Housing, Planning and Local Government (DHPLG), as competent authority, have developed the draft NPF to set a new strategic planning and development context for Ireland and all of its regions in the period between now and 2040. It sets a high level framework for the co-ordination of a range of national, regional and local authority policies and activities, planning and investment.

The purpose of this environmental report is to:

- Inform the development of the draft NPF;
- Identify describe and evaluate the likely significant effects of the draft NPF and its reasonable alternatives; and
- Provide an early opportunity for the statutory authorities and the public to offer views on any aspect of this environmental report and accompanying NPF documentation, through consultation.

1.1 BACKGROUND

In 2002, the Government launched the National Spatial Strategy (NSS) as a spatial plan to underpin balanced regional development. The plan was based on the identification of nine 'gateways' comprising twelve cities and towns and nine 'hubs' comprising eleven towns. Each was to be built up with critical scale and mass to provide a focus to influence wider regional development and provide a spatial framework to encourage development away from the Greater Dublin Area.

The NSS was important because it established spatial planning at a national level in Ireland, but was significantly undermined by a number of factors. These included:

- The National Development Plan 2007-2013 was aligned with the NSS but it was superseded by the economic downturn.
- €300m NSS 'Gateway Innovation Fund' launched in 2007, did not materialise; and
- Other criticisms have also been levelled at the NSS such as: it designated too many centres; created a perception of 'winners and losers'; wasn't adequately supported by the political system; relaxation of controls on new rural housing; lacked an economic dimension; and did not have statutory legislative backing.

Fifteen years on, some of the key ambitions of the NSS have not been realised with development-driven planning and sprawl continuing to be prevalent. The reality of the NSS has led to unanticipated consequences in terms of population growth and regional development with as much growth in settlements outside those that were designated as gateways and hubs. In most cases the rapid growth trajectory of the fastest growing towns in Ireland over the past twenty years had commenced prior to 2002, but publication of the NSS did not alter this. Many of these trends were

identified in a review of the NSS undertaken in 2010[5] and it is now considered time to revisit national spatial planning based on lessons learned from the past.

1.2 ROLE OF THE NATIONAL PLANNING FRAMEWORK

The purpose of the NPF is to provide a focal point for spatial plans throughout the planning hierarchy. It will provide a framework for the new Regional Spatial and Economic Strategies (RSESs) by the three new Regional Assemblies and the associated enhancement of the economic development focus of local authorities as per the Local Government Reform Act 2014. The NPF will co-ordinate the strategic planning of urban and rural areas in a regional development context to secure overall proper planning and development as well as co-ordination of the RSES's and city/county development plans in addition to local economic and community plans and local area plans and local development. **Figure 1.1** shows the proposed planning hierarchy going forward.[6]

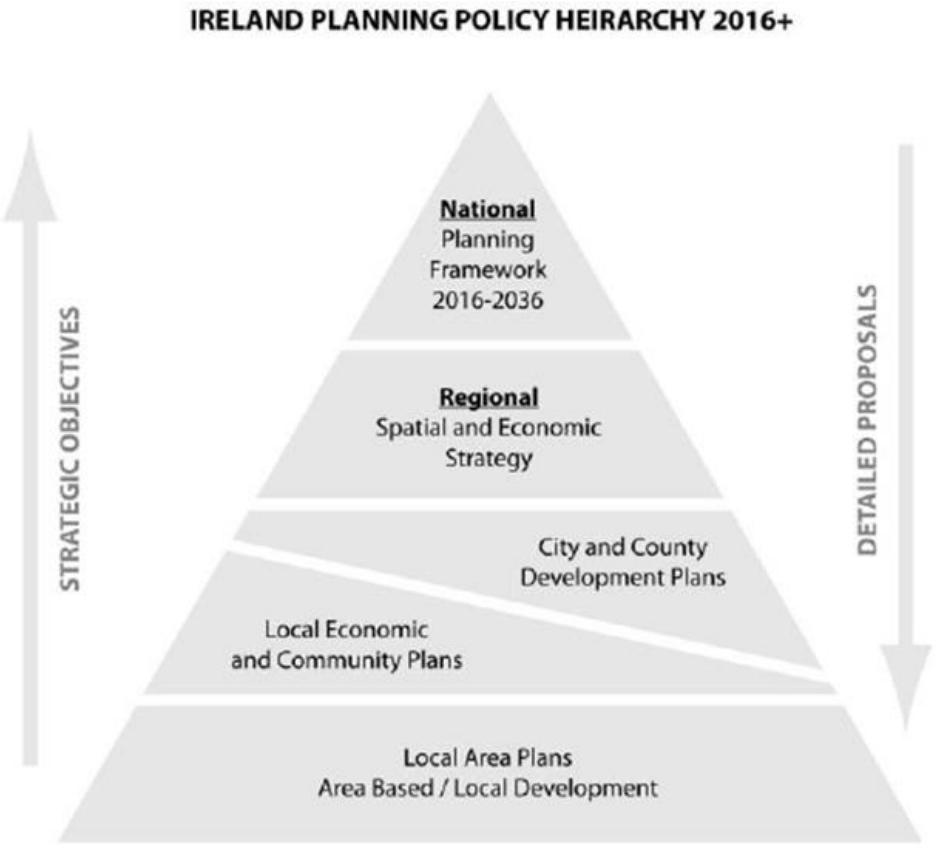


Figure 1.1 – Ireland's Planning Policy Hierarchy Post-2016

[5] Department of Environment, Community and Local Government (October 2010) Implementing the National Spatial Strategy: 2010 Update and Outlook Harnessing Potential, Delivering Competitiveness, Achieving Sustainability.

[6] Department of Environment, Community and Local Government (December 2015) Towards a National Planning Framework.

1.3 APPROACH TO DEVELOPING THE NATIONAL PLANNING FRAMEWORK

The DHPLG is leading the preparation of the draft NPF on behalf of Government with input from other departments and agencies which themselves are tasked with developing policy on long term and place-based public policy and investment. The purpose of this inclusive approach is to allow shared national development goals, including improved living standards, quality of life, prosperity, competitiveness and environmental sustainability, to be more broadly considered with the intention of providing greater clarity for the private sector and unlocking investment. The framework is intended to assist the achievement of more effective regional development and as such the regional dimension is critical to successful outcomes. The RSES which will support the delivery of the draft NPF by both feeding into and feeding off the national framework, removing the top down perception and replacing it with a shared responsibility and understanding.

The NPF process was initiated in December 2015 with the publication of the NPF Road Map to inform people that a new NPF is proposed as a successor to the NSS. Following on from this and in advance of formal public consultation, the NPF Unit within the Department carried out a series of focussed, high level stakeholder meetings in June 2016. These events provided an opportunity for stakeholders as representatives from the business community, infrastructure providers, higher education, governance and society, environmental bodies and recreation sectors to contribute to the discussion on the formation of the new NPF and assist in exploring concepts and ideas.

2 CONTENTS AND MAIN OBJECTIVES OF THE FRAMEWORK

2.1 INTRODUCTION

This chapter provides an overview of the draft NPF, its policy objectives which have been subject to the SEA and AA process as documented in this Environmental Report. Therefore the draft NPF as presented in this chapter is the finalised version for public consultation.

2.2 SCOPE AND FUNCTION OF THE FRAMEWORK

The draft NPF is a long-term strategy for the next 20 years which will set the groundwork for the spatial development of Ireland. The starting point for the strategy is to lay the groundwork for a better quality of life for all and a basis for sustainable economic growth. It is intended that the draft NPF will both provide a strong focus to guide and inform regional and county/ city plans and set the framework for integrated investment decisions. The NPF development will address both opportunities and challenges to deliver policy directions across a broad spectrum. The policy areas to be considered include the following broad headings:

- A New Way Forward
- Making Stronger Urban Places
- Planning for Diverse Rural Places
- People, Homes and Communities
- Realising our Island and Marine Potential
- Working with our Neighbours
- Realising our Sustainable Future
- Investing in Ireland 2040 - Implementation
- Assessing Environmental Impact

The NPF process is being led by the DHPLG and overseen by a High Level Cross Departmental Steering (CDS) Group, chaired by the Minister for Housing Planning and Local Government and consisting of senior personnel across government departments. An advisory group is also in place to facilitate the participation of a range of interests under the broad umbrellas of economic, environment, social and knowledge sectors. An environmental steering group has also been established to oversee the integration of environmental requirements in the preparation of the NPF e.g. SEA, AA and SFRA.

In developing the NPF and the future RSES's it has been important to establish a strong empirical evidence base to support policy formulation and implementation. Key aspects have included the development of economic and demographic projections based on past trends and the generation of a range of future spatial development scenarios. The Economic and Social Research Institute (ESRI) have undertaken the key modelling inputs with oversight from a Demographic and Econometric Steering Group. This work will also help to inform the forthcoming RSES's. The All Island Research Observatory (AIRO) has, as part of the development of the NPF, conducted spatial mapping to underpin spatial trends and options regarding future growth.

2.3 CONTENT OF THE NATIONAL PLANNING FRAMEWORK

The draft NPF contains the following information:

Chapter Number	Content
Chapter 1: Ireland 2040: Our Plan and National Planning Framework	Introduction to the National Planning Framework titled 'Ireland 2040 – Our Plan', setting the scene and providing background to the need for the NPF as well as outlining the vision for the years ahead under the headings: opportunity; choice; quality; creativity; connectivity; collaboration; self-reliance; and commitment.
Chapter 2: A New Way Forward	This chapter sets out the issues and challenges to setting a new way forward in terms of coordinated planning and looks at how to target growth levels across the various regions and build accessible centres of scale.
Chapter 3: Making Stronger Urban Places	This chapter looks at Ireland's urban structure. It provides details on the importance of urban centres and how to make cities, towns and villages attractive places to live, work and visit through planning for urban growth.
Chapter 4: Planning for Diverse Rural Places	Provides details on the approach to conserving and enhancing rural areas, addressing rural decline and connectivity gaps, while planning for future growth and development of rural areas.
Chapter 5: People, Homes and Communities	Focuses on health, education, housing, local planning and leisure policies, with a focus on the requirements of an ageing population and quality of life through sustainable communities.
Chapter 6: Realising our Island and Marine Potential	Provides details on the growing maritime economy and the planning processes needed to effectively drive development and management with a focus on integrated land and maritime planning, maritime infrastructure, the coastal environment and planning for climate change, as well as offshore renewable energy.
Chapter 7: Working with Neighbours	Focusses on cooperation with our nearest neighbours, and Northern Ireland in particular, to grow key economic corridors, coordination of infrastructure investment and responsible management of the shared environment.
Chapter 8: Realising Our Sustainable Future	Focusses on the transition to a low-carbon, climate-resilient and environmentally sustainable economy by 2050. Outlines that the manner in which we plan is important for the sustainability of our environment.
Chapter 9: Investing in Ireland 2040- Implementation	Sets out the implementation framework around the pillars of governance and investment. The framework will be guided by targeting national strategic outcomes across ten key areas.
Chapter 10: Assessing Environmental Impact	Outlines how environmental considerations have been taken into account in the plan as well as setting out the need for relevant environmental assessments for plans, projects and activities arising from the plan. Outlines the strategic alternatives considered for the plan.
Appendix 1	*A Methodology for a Tiered Approach to Land Zoning*
Appendix 2	*A Methodology for the Prioritisation of Development Lands*

3 STRATEGIC ENVIRONMENTAL ASSESSMENT METHODOLOGY

3.1 THE SEA PROCESS

The SEA Directive requires that certain plans and programmes, which are likely to have a significant impact on the environment, be subject to the SEA process. The SEA process is broadly comprised of the following steps, as outlined in **Table 3.1**.

Table 3.1 – SEA Stages

SEA Step / Stage	Purpose	Status
Screening	The purpose of this stage of the process was to reach a decision, on whether or not an SEA of the draft NPF was required.	The Department undertook SEA Screening in 2016 and determined that SEA of the NPF would be required.
Scoping and statutory consultation	The purpose of this stage of the process was to clarify the scope and level of detail to be considered in the environmental assessment. This was done in consultation with the defined statutory bodies for SEA in Ireland and other stakeholders. Consultation was also undertaken with the authorities in Northern Ireland.	This stage was completed in Q1 2017.
Environmental assessment and consultation	The purpose of this stage of the process was to assess the likely significant impacts on the environment as a result of implementation of the draft NPF and consideration of reasonable alternatives. The output from this stage of the process is an SEA Environmental Report which records this assessment. Consultation on the draft NPF and Environmental Report are also part of this stage.	This stage was completed in Q3 2017 and is the subject of this report.
SEA Statement	The purpose of this stage of the process is to identify how environmental considerations and consultations have been integrated into the final plan culminating in the production of an SEA Statement.	To be published with final NPF in 2018.

3.2 WORK COMPLETED TO DATE

3.2.1 Screening

The SEA Directive requires that certain plans and programmes, prepared by statutory bodies, which are likely to have a significant impact on the environment, be subject to the SEA process. An SEA

screening of the NPF was undertaken by the Department in 2016 after which it was concluded that SEA would be required.

3.2.2 Scoping

Scoping was carried out and a draft Scoping Report was prepared in Q1 2017 to help inform statutory scoping. The draft scoping report outlined the geographical and temporal scope of the NPF and identified the scope and level of detail of the proposed environmental assessment. The scoping report confirmed the following:

Geographical Scope: The aim of the NPF is to set a long-term national framework within which government departments and agencies, the regional assemblies and local authorities, as well as wider private sector and community interests, will work together to ensure proper planning and sustainable development and in particular the optimal development of the country as a whole. As such the assessment is primarily focussed at activities occurring at the national to regional scale.

Temporal Scope: The NPF is looking forward to the next 20 years or more, up to 2040. In line with the SEA Directive, short, medium and long-term impacts (including reference to secondary, cumulative, synergistic, permanent and temporary, positive and negative effects) will be considered during the assessment. The recommendations put forward in the NPF have a longer perspective and will take a number of years for certain aspects to be implemented and take effect. As a result the timelines proposed for assessment of long-term impacts extends beyond the timeframe of the actual plan. For the purpose of the SEA, a short term horizon of 2022, a medium term horizon of beyond 2028 and a long term horizon of beyond 2040 has been considered.

Scoping of SEA Environmental Topics: The environmental topics in the SEA Directive that were scoped in for the assessment of the NPF following SEA scoping in consultation with the statutory consultees for the SEA were: Biodiversity, Flora and Fauna; Population and Human Health; Soils, Geology and Hydrogeology; Water; Air Quality; Climatic Factors; Material Assets; Cultural Heritage including Architectural and Archaeological Heritage; Landscape; and the interrelationship between the above factors.

In line with the SEA Directive, specific environmental authorities (statutory consultees) were consulted on the scope and level of detail of the information to be included in the Environmental Report. The relevant statutory consultees[7] that were consulted as part of the SEA Scoping phase for the draft NPF SEA were:

- Department of Housing, Planning, Community and Local Government (DHPCLG);[8]
- Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs (DAHRRGA);[9]
- Department of Communications, Climate Action and the Environment (DCCAE);
- Department of Agriculture, Food and the Marine (DAFM); and
- Environmental Protection Agency (EPA).

[7] S.I. 435 of 2004 as amended lists statutory consultees as: DAFM; DAHG; DCENR; DEHLG and EPA; however following a change in Government in Q2 of 2016 some department names have changed and in some cases, responsibilities have migrated.

[8] This Department is now referred to as the Department of Housing, Planning and Local Government.

[9] This Department no longer remains and the following two Departments have been formed: Department of Culture, Heritage and the Gaeltacht and Department of Rural and Community Development.

In addition to statutory consultees, members of the environmental steering group were provided a copy of the scoping report for review and comment; however it is acknowledged some of the environmental steering group members are also prescribed bodies for the purposes of SEA.

The need for transboundary consultation has been identified within the SEA process and this scoping documentation has been sent to the relevant authority for SEA in Northern Ireland, the Department of Agriculture, Environment and Rural Affairs (DAERA).

3.2.2.1 Consultation Feedback

The Scoping Report was published by the DHPLG alongside the Ireland 2040: Issues and Choices Paper. The public was invited to contribute initial views by 16th March 2017 and subsequently the consultation process was extended to the end of March 2017. During the public consultation a range of stakeholders including statutory consultees, non-governmental organisations (NGOs), local authorities and members of the public made submissions. Approximately 3,360 submissions were received out of which 2,700 focused specifically on boundary issues in Kilkenny and the remaining submissions identified key issues including:

- Further clarity requested on the implementation process of the NPF.
- A need to clearly define the interactions of the NPF with other plans and programmes, particularly key national plans e.g. promoting and implementing Ireland's Transition to a Low Carbon Energy Future 2015-2030, aligning blue growth with Harnessing Our Ocean Wealth Plan and Maritime Spatial Planning.
- The NPF must have regard to all applicable environment and nature legislation and incorporate environmental protection throughout.
- Addressing climate change and transition to a low-carbon economy at all planning levels will be of key importance.
- Concerns were raised in relation to job creation, reduction of unemployment, and equality of access to the workforce. The issue of overconcentration of jobs in Dublin in relation to the rest of the country was also raised.
- Imbalance between levels of development in Dublin and the East when compared to the rest of the country. Some responses indicated that this imbalance should be addressed. Other responses favoured the continued concentration of development within the Eastern region.
- Social inclusion of the elderly was raised as a concern, along with provision of adequate services and appropriate accommodation.
- The accessibility and quality of healthcare across the country was seen as an area that needs to be improved, particularly in relation to the reduction of travel times to healthcare facilities. Responses also called for the upgrade and retention of existing hospital and primary healthcare services and the promotion of preventative healthcare.
- A need for appropriately located, high quality housing provision was identified, as was the need to reduce high housing prices and rents.
- There were numerous responses concerned with the provision of high quality public transport routes between towns, cities and rural areas. Responses were also concerned with the upgrade of existing transport routes.
- Tourism was seen as an area for investment and growth on a national scale. The development of greenways and blueways were proposed to encourage eco-tourism and activity tourism.

- Support and objection to the proposed county boundary changes with a majority of responses rejecting it.
- Renewable energy was seen as an area for growth, investment and research. However, the visual impact of wind farms was an area of concern. Involvement and consultation with local communities in relation to proposed renewable energy developments was widely supported.
- Concerns were raised over the effectiveness of the NPF. Responses advocated integration of the NPF with existing planning frameworks and independent monitoring of its implementation.
- Waste management, waste reduction, and wastewater treatment were areas identified for investment and improvement.
- Protection of the environment was a common concern. Responses supported the greening of cities, expansion of national parks, and enhancement of the natural environment.

A summary of the statutory responses is outlined in **Appendix A**.

3.2.3 Workshop

A workshop was undertaken with a wide group of stakeholders following the publication of the Department's Issues and Choices Paper and the SEA Scoping Report, which was provided to the statutory consultees in January 2017. The workshop was held on 5th May 2017 at Custom House, County Dublin, and focussed on the issues relative to development of the NPF. Stakeholders such as utility providers, agriculture representatives, universities, transport authorities, marine bodies and regional assemblies were invited to attend the workshop. Regard to the comments raised during the workshop has been taken into account in the development of this Environmental Report.

3.3 ENVIRONMENTAL ASSESSMENT

3.3.1 Assessment Approach

SEA is, as its name suggests, set at a strategic level therefore it is not possible for the baseline environment to be described (and assessed) in as much detail as could be done for a project-level environmental impact assessment. Instead, SEA uses a system of *objectives*, *targets* and *indicators* to rationalise information for the purposes of assessment.

In order to streamline the assessment process, this report has used broad themes, based on the environmental topics listed in the SEA Directive, to group large environmental datasets e.g. human health, cultural heritage and climate. Assigned to each of these themes is at least one high-level Strategic Environmental Objective (SEO) that specifies a desired direction for change, e.g. reduce CO_2 emissions, against which the future impacts of the NPF can be measured. These high-level SEOs are then paired with specific targets. The progress towards achieving these specific targets is monitored using environmental indicators, which are measures of identified variables over time. The environmental assessment includes a combination of qualitative and quantitative assessment and expert judgement. **Table 3.2** outlines the type of assessment that has been carried out.

Table 3.2 – SEA Environmental Assessment

Environmental Assessment	Is it Quantifiable?
Biodiversity, Flora and Fauna	National and regional datasets are available for aspects relating to biodiversity, flora and fauna. Given the scale of the NPF, the assessment has considered all nature conservation sites, including European sites protected under national legislation, National Parks, Refuges for Fauna etc. It is noted that there is generally an absence of location-specific information therefore assessment is focussed on qualitative however some quantification is possible.
Population and Human Health	National datasets are available for population density and distribution and the potential impacts of the NPF can be assessed quantitatively relative to the available information. Health impacts would primarily be secondary via emissions to air, water, soil, etc. There is no quantitative baseline data that could be usefully examined in relation to NPF policies. However reference to emissions under the headings *Air Quality, Water,* etc. have been included.
Soils	National high level datasets are available for soils, geology and land use resources at a county/ national scale. This is in keeping with the strategic nature of the NPF and is considered adequate at this scale.
Water	National and regional datasets are available for aspects relating to water quality, water and wastewater infrastructure as well as protected areas such as nutrient sensitive waters, bathing waters etc. It is noted that there is generally an absence of location-specific information therefore assessment is focussed on qualitative however some quantification possible.
Air Quality	National and regional datasets are available for relevant air quality parameters.
Climatic Factors	National datasets are available for carbon emissions and other transboundary gas emissions.
Material Assets	National datasets are available for certain resources that may be affected by the NPF including transport infrastructure, electricity and gas infrastructure, wastewater infrastructure and water infrastructure. It is noted that there is generally an absence of location-specific information therefore assessment is focussed on qualitative however some quantification possible.
Architectural, Archaeological & Cultural Heritage	National datasets are available for archaeology and architectural heritage, however the nature of the datasets are directed towards local project-specific sources. Without specific spatial development patterns, there is no obvious way of quantitatively assessing impacts.
Landscape	There are no national datasets available for landscape and the information that is available at a county level is not consistent across all of the counties. By its nature, assessment of landscape and visual impacts is subjective.

3.3.2 SEA Environmental Report

This Environmental Report complies with the requirements of the Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment (the SEA Directive) as implemented in Ireland through the European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations (S.I. No. 435 of 2004) and the Planning and Development (Strategic Environmental Assessment) Regulations 2004 (S.I. No. 436 of 2004), as amended. Based on the legislation and guidance, the Environmental Report must include the information outlined in **Table 3.3**.

Table 3.3 – Requirements of the SEA Directive and Relevant Section in Environmental Report

Requirement of SEA Directive (Article 5(1) Annex I)	Chapter of Environmental Report
An outline of the contents and main objectives of the plan or programme, or modification to a plan or programme, and relationship with other relevant plans or programmes.	Chapter 2: Content and Main Objectives of the Plan Chapter 4: Review of Relevant Plan, Policies and Programmes
The relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the plan or programme, or modification to a plan or programme.	Chapter 5: Relevant Aspects of the Current State of the Environment (Baseline)
The environmental characteristics of areas likely to be significantly affected.	Chapter 5: Relevant Aspects of the Current State of the Environment (Baseline)
Any existing environmental problems which are relevant to the plan or programme, or modification to a plan or programme, including, in particular, those relating to any areas of a particular environmental importance, such as areas designated pursuant to the Birds Directive or the Habitats Directive.	Chapter 5: Relevant Aspects of the Current State of the Environment (Baseline)
The environmental protection objectives, established at international, European Union or national level, which are relevant to the plan or programme, or modification to a plan or programme, and the way those objectives and any environmental considerations have been taken into account during its preparation.	Chapter 4: Review of Relevant Plan, Policies and Programmes
The likely significant effects on the environment, including on issues such as biodiversity, population, human health, fauna, flora, soil, water, air, climatic factors, material assets, cultural heritage including architectural and archaeological heritage, landscape and the interrelationship between the above factors.	Chapter 8: Assessment of Preferred Scenario
The measures envisaged to prevent, reduce and as fully as possible offset any significant adverse effects on the environment of implementing the plan or programme, or modification to a plan or programme.	Chapter 9: Mitigation and Monitoring
An outline of the reasons for selecting the alternatives dealt with, and a description of how the assessment was undertaken including any difficulties (such as technical deficiencies or lack of know-how) encountered in compiling the required information	Chapter 7: Alternatives
A description of the measures envisaged concerning monitoring of the significant environmental effects of implementation of the plan or programme, or modification to a plan or programme	Chapter 9: Mitigation and Monitoring
A non-technical summary of the information provided under the above headings	Non-technical Summary

3.3.3 Links between the SEA and AA Process

The Habitats Directive (Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora) obliges member states to designate Special Areas of Conservation (SACs) to protect and conserve habitats and species of importance in a European Union context. Article 6 is one of the most important articles of the Habitats Directive in determining the relationship between conservation and site use. Article 6(3) requires that "*any plan or project not directly connected with or necessary to the conservation of a site but likely to have a significant effect thereon, either*

individually or in combination with other plans or projects, shall be subject to Appropriate Assessment (AA) of its implications for the site in view of the site's conservation objectives."

The Habitats Directive has been transposed into Irish law by the Planning and Development Act 2000 (as amended) and the European Communities (Birds and Natural Habitats) Regulations 2011 (as amended). In the context of the draft NPF, the governing legislation is principally Regulation 27 of the Birds and Natural Habitats Regulations 2011 which sets out the duties of public authorities relating to nature conservation. Public authorities are obliged, when exercising their functions, to take appropriate steps to avoid the deterioration of natural habitats and the habitats of species in European Sites, as well as disturbance of species for which a site has been designated insofar as this disturbance could be significant in relation to the objectives of the Habitats Directive.

An AA of the draft NPF is being carried out in parallel with the SEA process, with the findings of the AA used to guide the development of the alternatives to considered as part of the SEA. The assessment undertaken as part of the AA process also feeds directly into the assessment of biodiversity, flora and fauna in this SEA.

Other aspects of the Habitats Directive, in addition to Art. 6(3) and 6(4), in relation to the conservation, protection and management of (European) sites are also noted including Art. 6(1) and Art 6(2). The EU considers the role of these supporting sub-articles in Art. 6 as: *Article 6(1) makes provision for the establishment of the necessary conservation measures, and is focused on positive and proactive interventions. Article 6(2) makes provision for avoidance of habitat deterioration and significant species disturbance. Its emphasis is therefore preventive.*[10]

Article 10 of the Habitats Directive refers to features of the landscape outside designated sites which are of major importance for wild flora and fauna. It is noted that the requirements of Article 10 of the Habitats Directive are not specifically considered under the AA (except in so far as they support a qualifying feature) but it is noted such features have been considered in the SEA under the broader heading of Biodiversity, Flora and Fauna.

3.3.4 Links between the SEA and SFRA Process

Alongside the development of the NPF and the accompanying SEA and AA, a Strategic Flood Risk Assessment (SFRA) has been undertaken. It has been prepared in accordance with the requirements of The Planning System and Flood Risk Assessment Guidelines for Planning Authorities (2009) and Circular PL02/2014 (August 2014).[11]

Under the Floods Directive, the EU recognises the importance of land use management and spatial planning as a key tool in flood risk management. The 'Floods' Directive requires Member States to prepare catchment-based Flood Risk Management Plans (FRMPs) that will set out flood risk management objectives, actions and measures. The OPW has developed six regional FRMPs which are in the final phase of approval and are expected to be published in Q4 2017. Regard to these FRMPs has been incorporated into the SFRA of the NPF where information was available.

[10] European Commission (2000) Managing Natura 2000 Sites: the provisions of Article 6 of the Habitats Directive 92/43/EC.

[11] The Planning System and Flood Risk Assessment Guidelines for Planning Authorities (2009) and Circular PL02/2014 (August 2014) hereafter will be referred to as 'the Guidelines'

Increased flood risk as a result of land use planning has, above all else has been one of the most costly (environmental, social and economic) legacy issue of previous national, regional and local land use decisions. The policy objectives taken now in the NPF will both assist the legacy issue and future proof future plans such as the RSES and County Development Plans developed under the NPF. The NPF provides an assessment of all types of flood risk within a national context and the assessment undertaken as part of the SEA process has had regard to the impacts identified in the SFRA.

The SFRA will be placed on public display alongside the draft NPF, SEA Environmental Report and Natura Impact Statement.

3.3.5 Difficulties Encountered

The following difficulties and data gaps were encountered:

- Poor boundaries/ administrative overlap for some datasets;
- Lack of quantitative data for some topics (e.g. health, regional carbon emission data);
- Lack of digitised data in some topic areas (e.g. landscape); and
- Quantitative assessment is made very difficult due to the very strategic level of the policy objectives proposed.

3.4 SEA STATEMENT

The main purpose of the SEA Statement is to provide information on the decision-making process and to document how environmental considerations, i.e. the views of consultees and the recommendations of the Environmental Report, have been taken into account in the draft NPF. The SEA Statement illustrates how decisions were taken, making the process more transparent. The SEA Statement for the draft NPF will be compiled after the statutory consultation on the draft NPF and Environmental Report has been completed.

4 REVIEW OF RELEVANT PLANS, POLICIES AND PROGRAMMES

4.1 INTRODUCTION

As documented in the SEA Directive, the purpose of SEA is "*to provide for a high level of protection of the environment and to contribute to the integration of environmental considerations in the preparation and adoption of plans and programmes with a view to promoting sustainable development*". Therefore it is imperative that environmental considerations are documented and taken into account in the development of the draft NPF. In order to do this, the environmental protection objectives from relevant key plans, programmes and policy must be first identified and then explored in relation to the draft NPF.

The SEA Directive also states in Article 5(1) of Annex 1, that the environmental assessment must identify "*the environmental protection objectives, established at International, European Union or national level, which are relevant to the plan or programme, or modification to the plan or programme, and the way those objectives and any environmental considerations have been taken into account during its preparation*". Therefore the main objectives of the draft NPF must be outlined along with the "*relationship with other relevant plans or programmes*". The draft NPF is a national plan and therefore the review has focused on relevant national, European and international plans and frameworks.

This chapter follows on from the overview of the draft NPF provided in **Chapter 2**. Its purpose is to set out how the draft NPF interacts with other key relevant plans and programmes and their environmental protection objectives. A list of key relevant plans and programmes has been compiled in **Appendix B**.

4.2 METHODOLOGY

During the SEA scoping stage key plans and programmes were identified and this chapter seeks to consider the objectives/ measures within such plans/ programmes which will directly drive and influence or be influenced by the draft NPF during its development. As the draft NPF is a national framework, the review of such key plans/ programmes has both focused at a higher European level whilst reflecting upon both national and regional plans and programmes. Such plans and programmes have been explored under specific topic headings addressing sectors such as: spatial planning, climate change, energy, transportation, water, agriculture, and nature conservation. In order to set a framework for exploring the relationship between the draft NPF and key plans/ programmes the following two questions were borne in mind:

- Does the draft NPF contribute to the fulfilment of environmental protection objectives set in other key plans/ programmes?; and
- To what degree are the environmental protection objectives/ measures set in these other key plans/ programmes impacted by the draft NPF?

In addition, this chapter seeks to take on board comments made on plans/ programmes during the SEA scoping stage.

4.3 RELATIONSHIP OF THE DRAFT NPF AND OTHER PLANS, PROGRAMMES AND POLICIES

4.3.1 Spatial Planning

The development of the National Planning Framework (NPF) to replace the National Spatial Strategy will provide a strong focus to guide and inform future planning and set the framework for integrated investment decisions. The focus will be on ensuring compatibility between future growth of cities and towns within Ireland alongside environmental sustainability. The NPF will be given full statutory effect under the Planning and Development (Amendment) Bill 2016 creating a legislative process not only for its preparation but also its monitoring and cyclical review into the future.

It is intended that the national policy will be detailed through Regional Spatial and Economic Strategies (RSES's) which will set long term national, regional and local development frameworks from within which sectors will work together to ensure proper planning and sustainable development. Like the NPF, the three RSES's will need to take account of other plans and programmes and in particular to focus on ensuring that sustainable development is an integral element.

In Northern Ireland, regional spatial policy is directed through the Regional Development Strategy (RDS) 2025 (published 2010) which provides an overarching strategic planning framework influencing spatial development for Northern Ireland up to 2035. It is aimed at guiding both the public and private sectors and it informs the spatial aspects of the strategies of all government departments. It complements the Strategic Planning Policy Statement document (published 2015) which aims for consistent land development in Northern Ireland. The NPF recognises that Northern Ireland accounts for 28% of Ireland's all-island population and its development has been in tandem with RDS 2025. Three key areas have been outlined in the NPF for practical co-operation between departments and local authorities in Ireland and Northern Ireland.

4.3.2 Human Health and Air Quality

A key aim of the NPF is sustainable land use planning which takes account of growth patterns, populations change and changing demographics. It is recognised that people in Ireland are experiencing increasing life expectancy and decreased mortality from various diseases. However it is also recognised that there are a number of trends which are leading people towards unhealthy lifestyles and increased healthcare costs later in life. To combat this, Healthy Ireland 2015-2025 is the HSE's framework strategy for improving health and wellbeing. The main aims of Healthy Ireland therefore are to: increase the numbers of people experiencing good health (mental and physical) at all life stages; reduce health inequalities with a focus on social factors; protect the public and increase preparedness for threats to public health; and to encourage every individual and society as a whole to collaboratively engage with its own health and wellbeing. The first Implementation Plan has been published covering the period 2015-2017.

The NPF will have to ensure that Ireland continues to meet its commitments in relation to air quality protection. Air quality is regulated both at the local level through ambient air quality limits and at the national level through emission ceilings. The drivers for air quality in Ireland are largely international or EU-driven but in April 2017 participants were invited to comment on the draft National Clean Air Strategy. This Strategy "*will provide the strategic policy framework necessary to*

identify and promote the integrated measures across government policy that are required to reduce air pollution and promote cleaner air while delivering on wider national objectives." The current challenge to air quality from increased particulates through increased uptake in diesel vehicle ownership has been identified both through the Clean Air Strategy and the National Policy Framework on Alternative Fuels Infrastructure for Transport, which has identified measures to move transportation away from fossil fuel sources.

4.3.3 Climate and Energy

A key-interdependency for the NPF is how climate change will impact on land use change and increasing demands on natural resources into the future, and how actions taken within the NPF may contribute to or be affected by climate change. The United Nations Intergovernmental Panel on Climate Change (IPCC) states that there is now "unequivocal" evidence of climate change. There is marked evidence that Ireland's climate is changing with projections for Ireland indicating that there is a likelihood of a rise in sea levels, changes in rainfall events, increased frequency of storm events, changes to air and soil temperate and periods of increased drought. These events will directly impact on urban, terrestrial and aquatic systems and the lands' abilities to deal with the potential extreme weather events and other pressures.

Due to the likelihood of such extreme events Ireland is required to address adaptation to manage risks posed by climate change. Such steps commenced with the National Climate Change Adaptation Framework (2012) which is focused on building resilience to climate changes and requires that government departments prepare sectoral plans. The challenge posed in reducing greenhouse gas emissions in line with Ireland's commitments understood by Government and subsequently reflected in the National Policy Position on Climate Action and Low Carbon Development published in April 2014. With the establishment of the Climate Action and Low Carbon Development Act 2015, there is now a statutory basis on which National Climate Change Adaptation Frameworks and Sectoral Adaptation Plans are to be established. It is expected that the National Climate Change Adaptation Framework will be finalised in late 2017 followed by the development of sectoral adaptation plans. The policies and measures developed by the Adaptation Framework are likely to focus on infrastructural measures which have the potential to impact on land use changes which has specific relevance for the draft NPF. In addition, a National Climate Mitigation Plan has been prepared which contains specific measures to mitigate the effects of climate change across the transport, energy, built environment and agriculture sectors.

European goals and targets to tackle climate and energy have been set in the form of the EU Climate and Energy Packages. Such goals and targets could directly influence land management and future climate change projections which will thus potentially have an impact on land use and spatial considerations. Key areas of focus are the future increase in the development of renewables and the reduction in greenhouse gas (GHG) emissions released to the atmosphere. The EU 20-20-20 Agreement has set the following three key targets: a 20% cut in EU GHG emissions on 1990 levels; 20% of EU energy from renewable energy sources; and a 20% improvement in energy efficiency. The 2030 EU Climate and Energy Package continues on from the base set out in the 20-20-20 Agreement and proposes new targets and measures to make the EU's economy and energy system more competitive, secure and sustainable. It includes targets for reducing GHG emissions and increasing use of renewable energy, and proposes a new governance system and performance indicators. This 2014 policy framework for climate and energy outlined three key targets for the year 2030:

- At least 40% cuts in GHG emissions from 1990 levels;

- At least 27% share for the renewable energy; and
- At least 27% improvement in energy efficiency.

The agreement on the 2030 framework, specifically the EU domestic GHG reduction target of at least 40%, will form the basis of the EU's contribution to global climate change. At the Conference of the Parties in Paris (COP21), for which Ireland is a member, the Paris Agreement (2015) was produced. This agreement includes "*holding the increase in the global average temperature to well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5 °C above pre-industrial levels*" as its overarching objective. As a member state Ireland will have to adhere to the goals and targets set by the EU in relation to climate and energy. The National Policy Position on Climate Action sets a fundamental national objective to achieve the transition to a competitive, low-carbon, climate-resilient and environmentally sustainable economy by 2050.

Alongside the focus towards reducing GHG emissions, Ireland also needs to increase its share of renewable energy. Renewable energy sources include a range of possibilities, although to date much of the focus has been on wind energy. There are a number of sector plans in development that are focused on increasing renewables and reducing GHG emissions. The National Renewable Energy Action Plan was produced as a requirement of the Renewable Energy Directive (2009/28/EC), and sets targets for 40% of electricity from renewable sources (RES-E), 12% of heat from renewable sources (RES-H) and 10% of transport energy from renewable sources (RES-T). The National Policy Framework for Alternative Fuels Infrastructure for Transport has the potential to contribute to the achievement of the target for transport energy from renewable sources on account of the renewable portion of electricity used for road vehicles. The National Renewable Electricity Policy and Development Framework (in prep) will outline the approach that Ireland will take to optimise the opportunities for producing electricity from renewable energy sources while the draft Bioenergy Plan (currently being updated) will look to measures to increase Ireland's contribution to 12% of heat from renewable sources.

Smarter Travel 'A New Transport Policy for Ireland' 2009-2020 is a national action plan designed to show how the State can reverse current unsustainable transport and travel patterns and reduce the health and environmental impacts of current trends. It sets out five key goals: to reduce overall travel demand; to maximise the efficiency of the transport network; to reduce reliance on fossil fuels; to reduce transport emissions; and to improve accessibility to transport. These goals have provided a foundation on which the NPF has been developed as the shape for the future of our towns and cities is focused on settlement consolidation while ensuring strong urban environments that utilise sustainable transport patterns.

4.3.4 Maritime Planning and Protection

The Marine Strategy Framework Directive (MSFD) (2008/56/EC) has adopted an ecosystem-based approach to protect and manage the marine environment. This forms an integral component of maritime spatial planning within the EU and requires Member States to develop a strategy to achieve or maintain good environmental status in their marine waters by 2020. Ireland has developed a Programme of Measures that will meet targets set in order to achieve or maintain good environmental status.

The Marine Spatial Planning Directive also obliges all coastal Member States to establish maritime spatial plans (MSPs) as soon as possible and at the latest by 31st March 2021. This will help promote sustainable growth of maritime activities recognising the ever increasing use and exploitation of the maritime space and its resources by a number of sectors such as fishing, shipping, leisure,

aquaculture and renewable energy. The NPF will have to align itself with Ireland's forthcoming Maritime Spatial Plan (in prep and due in 2021) and the MSFD Programme of Measures 2016.

4.3.5 Water

The Water Framework Directive (WFD) (2000/60/EC) aims at improving the aquatic environment and as such it applies to rivers, lakes, estuaries, coastal waters and groundwater. Member states are required to achieve at least good status in all waters and must ensure that status does not deteriorate, with a requirement for water quality management to be centred on river basin districts (RBDs). A key development in meeting the requirements of the WFD has been the publication of River Basin Management Plans (RBMPs) which have provided a coordinated approach to water management throughout Ireland and across Europe, with the first cycle of RBMPs covering the period 2009 to 2015.

The second cycle RBMP covering the period 2018-2021 is currently on public display. Since the first cycle of the RBMPs, there have been new approaches to governance, river basin planning and catchment science. A more integrated approach between key governmental departments, the EPA and local authorities was therefore considered to meet the challenges. The second cycle Programme of Measures will be implemented by the local authorities and have been developed to allow for the protection of good status, or the restoration of good status, for all water bodies. The outcomes are then monitored in order to feed into further characterisation and setting of measures as the cycle moves forward. Future planning through the NPF should contribute to the fulfilment of the environmental protection objectives required under the WFD through participation in river basin management planning at a national level.

4.3.6 Water and Services

It is recognised that improvements are required in water and waste water practices within Ireland and steps have been taken through the provision of a single utility provider. Irish Water has prepared a Water Services Strategic Plan (WSSP, 2015), under Section 33 of the Water Service No. 2 Act of 2013 to address the delivery of strategic objectives which will contribute towards improved water quality and WFD requirements. The WSSP forms the highest tier of asset management plans (Tier 1) which Irish Water prepare and it sets the overarching framework for subsequent detailed implementation strategies and plans (Tier 2) and water services projects (Tier 3). The WSSP sets out the challenges we face as a country in relation to the provision of public water services and identifies strategic national priorities. The WSSP sets out the strategic objectives against which the Irish Water Capital Investment Programme (CIP) is developed. The current version of the CIP outlines the proposals for capital expenditure in terms of upgrades and new builds of Irish Water-owned assets which is a critical element of future growth for our cities and towns as outlined in the draft NPF.

4.3.7 Flooding

There are parts of Ireland, many communities and individual properties that are susceptible to flooding and plans are therefore being developed which identify measures to reduce the risks to both people and property. As part of the development of the draft NPF a Strategic Flood Risk Assessment (SFRA) was undertaken to ensure that the objectives identified in the draft NPF were robust in relation to flood risk.

The Office of Public Works (OPW) is responsible for the implementation of the Floods Directive (2007/60/EC) which is being carried out through a Catchment-based Flood Risk Assessment and Management Studies (CFRAMS) Programme. As part of the directive Ireland has undertaken Preliminary Flood Risk Assessments, to identify areas of existing or potentially significant future flood risk and to prepare flood hazard and risk maps for these areas.

Following this flood risk management plans have been developed for these areas setting objectives for managing the flood risk and setting out a prioritised set of measures to achieve the objectives. The CFRAM programme is currently being rolled out and 29 draft Flood Risk Management Plans (FRMPs) have been prepared. Once finalised, the protection measures from each of the plans will be collated to form a national priority list which will inform the development of a programme of implementation for capital works. The final FRMPs are not expected to have ministerial approval until late 2017. The work to date as part of CFRAMS has had a direct strategic influence on the draft NPF and the mapping produced for the FRMPs will direct the next tier of planning as part of the development of the RSES's. The long term strategy for sustainable planning will be directly influenced by areas that are susceptible to flood risk ensuring that future infrastructure growth such as housing, transport routes and wastewater infrastructure are positioned in the appropriate locations.

4.3.8 Nature Conservation

Ireland is a party to the UN Convention on Biological Diversity and is therefore committed to measures to conserve biodiversity. The measures include conservation of ecosystems, habitats and species in their natural surroundings both inside and outside protected areas, conservation of the components of biological diversity outside their natural habitats and impact assessment. The EU Biodiversity Strategy to 2020 aims to halt the loss of biodiversity and the degradation of ecosystems in the European Union (EU) by 2020. The Habitats Directive (92/43/EC) and the Birds Directive (2009/147/EC) which has been transposed into Irish law principally through the European Communities (Birds and Natural Habitats) Regulations 2011 which consolidates the European Communities (Natural Habitats) Regulations 1997 to 2005 and the European Communities (Birds and Natural Habitats) (Control of Recreational Activities) Regulations 2010 provide high level European protection. Article 6 of the Habitats Directive requires that any plan or project, which includes the NPF, be screened for AA to determine if it, alone or in combination with other plans and projects, is likely to have a significant effect on a European Site. This screening has been undertaken in parallel to development of the NPF and it was concluded that a Stage 2 Appropriate Assessment was required due to the potential for impacts arising from the NPF. Further detail can be found in the Natura Impact Statement (NIS) which accompanies this SEA Environmental Report and the NPF.

At a national level, protection and conservation is outlined in the National Biodiversity Plan and the National Parks and Wildlife Conservation Plans for SACs and SPAs. Ireland's second National Biodiversity Plan (BAP) covered the period 2011-2016, and the third draft BAP has been published covering 2017-2021. The BAP outlines Ireland's vision for biodiversity protection and management. The National Peatlands Strategy has been developed to give direction to Ireland's approach to peatland management including bog conservation and restoration, over the coming decades. In addition to the Peatlands Strategy, the National Parks and Wildlife Service (NPWS) are close to publishing the National Raised Bog SAC Management Plan which is being produced to outline the approach to be taken specifically for the conservation and management of the 53 raised bog SAC sites. It is informed by and will support the aims of the National Peatlands Strategy. The draft NPF will need to work within the limits of these plans and policies to ensure that objectives do not have a

negative impact on biological diversity. A key consideration will be that future growth and infrastructure is developed in a manner that ensures that the biodiversity of Ireland is maintained.

Whilst the NPF will look to the 20 year future of the Republic of Ireland it will also take cognisance of the natural heritage within Northern Ireland and as such will take into account plans such as: the Regional Development Strategy 2035; Valuing Nature - a Biodiversity Strategy for Northern Ireland to 2020; and the Conservation (Natural Habitats etc.) Regulations (Northern Ireland) 1995 (as amended).

4.3.9 Land Use

The agri-food sector is a growing sector within Ireland and Food Wise 2025 outlines the key actions to ensure that this sector maximises its contribution to agricultural growth and exports. Achieving the objectives within Food Wise 2025 has the potential to apply increased pressure on the environment in localised areas through the intensification of farming.

The agricultural sector is actively enhancing competitiveness whilst trying to achieve more sustainable management of natural resources. The common set of objectives, principles and rules through which the European Union co-ordinates support for European agriculture is outlined in the Rural Development Programme 2014-2020 under the Common Agricultural Programme. The 2014-2020 Rural Development Programme (RDP) contains a suite of measures and has been designed to enhance the competitiveness of the agri-food sector, achieve more sustainable management of natural resources and ensure a more balanced development of rural areas. Within the RDP is a substantial targeted agri-environment scheme - Green Low Carbon Agri-Environment Scheme (GLAS) which includes measures for the protection of water to mitigate against climate change and to promote biodiversity.

Ireland is obliged under the Nitrates Directive 91/676/EEC to prepare a National Nitrates Action Programme (NAP) to protect water quality from pollution by agricultural sources and to promote good farming practice. The Nitrates Regulations give legal effect to the NAP and directly contribute to the protection of water quality and meeting the objectives of the WFD. Ireland's third Nitrates Action Programme came into operation in 2014 and is currently being reviewed with a fourth NAP expected at the end of 2017. Therefore at a national level there are a number of key influencing plans that are expected to be finalised at the end of 2017 including the River Basin Management Plan, the Nitrates Action Programme and the Catchment Flood Risk Management Plan.

Ireland's forestry sector is striving to increase forestry cover and one of the recommended policy actions in the Forest Policy Review: Forests, Products and People – A Renewed Vision (2014) is to increase the level of afforestation annually over time and support afforestation and mobilisation measures under the Forestry Programme 2014-2020. The increase in forestry is a key measure nationally to mitigate climate change within the agricultural sector. Historically there have been forestry practices that have contributed to water quality issues such as release of suspended solids, acidification of water courses, loss and disturbance of riverine habitat. These issues have been acknowledged and are gradually being amended through changes to forestry management practices but legacy issues remain. The latest forestry policy makes provision for the management of existing forests and the development of the forestry sector, whilst ensuring compliance with environmental requirements and objectives. Two key objectives within the Forestry Programme 2014-2020 that will influence the NPF are to increase Ireland's forest cover to 18% and to establish 10,000 ha of new forests and woodlands per annum.

4.3.10 Waste

Three Regional Waste Management Plans (Eastern-Midlands; Southern; and Connaught-Ulster) were published in 2015 to provide a framework for the prevention and management of wastes for the three defined regional areas. These documents include policies and actions complementary to the NPF, in particular those addressing remediation of historic and illegal landfills and the promotion of reuse and recycling. In addition the National Hazardous Waste Management Plan 2010-2020, prepared by the EPA, identifies priority actions to prevent hazardous waste, improve the collection rate of hazardous waste in certain categories, movement towards self-sufficiency in hazardous waste management for Ireland and the identification and regulation of legacy issues in relation to hazardous waste. As the NPF outlines the need for compact smart growth, there is a likelihood of generating increased volumes of contaminated land that will have to be removed from brownfield sites and this material will require appropriate management and disposal.

4.3.11 Cultural Heritage and Landscape

The National Landscape Strategy for Ireland (2015-2025) was produced in line with Ireland's obligations under the European Landscape Convention. The strategy contains data outlined to assist with future decision-making processes in Ireland, ensuring that decisions are made on the basis of factual evidence collected and that there is consistency in the decision making across the country. A number of the actions outlined within the strategy will have a direct influence on further planning tiers such as the RSES's.

The Government Policy on Architecture (GPA) was launched in 2009 and provides the framework for architectural policy to 2015 and beyond, with a review of on-going policy underway. The emphasis is on a holistic approach to quality, sustainable development having regard to both the environment and urban design. As such the GPA will have direct interactions with the NPF objectives as consolidation is a key element of the plan. The implementation programme for the GPA encourages sensitive, sustainable and adaptive use of existing historic building stock. Other initiatives include the Historic Towns Initiative, the Living City Initiative (2015) for the six large urban areas as developed by the Department of Finance and the European Regional Development Fund-supported Designated Urban Centres Grants Scheme 2014 – 2020. The aims of these are to encourage urban regeneration and facilitate consolidation of towns and cities.

The Government has indicated the intention to update the National Heritage Plan (2002-2007). The Department of Culture, Heritage and the Gaeltacht recognised that the heritage sector is comprised of many different sub-sectors and interests and is currently considering how best to develop the successor plan with the intention to utilise a framework similar to the one used successfully for Culture 2025. Culture 2025 is a Framework Policy to 2025 which sets the vision for the future of culture and the arts in Ireland and prioritises actions. It recognises the diverse and multi-faceted nature of culture in Ireland and the contribution of 'culture' to sense of self, national identity and the arts. As the NPF will require the reuse of the existing building stock and reducing vacancy rates, the NPF must align with the objectives of heritage policy with a view to conserve and protect heritage while allowing for development in a sensitive and sustainable way.

5 RELEVANT ASPECTS OF THE CURRENT STATE OF THE ENVIRONMENT (BASELINE)

5.1 INTRODUCTION

This section of the Environmental Report examines the relevant significant issues of the current state of the environment in relation to Biodiversity, Flora and Fauna, Population, Human Health, Water, Soil and Geology, Air Quality, Climatic Factors, Material Assets, Cultural Heritage, Landscape and the interrelationship between these factors. The baseline has been compiled using available datasets and indicators developed through scoping and this environmental assessment. It is noted that the draft NPF is national in its focus and this is mirrored in the level of detail presented for the baseline description which follows.

The baseline description is focussed in the first instance on the Republic of Ireland, however given the boundary with Northern Ireland, there is potential for environmental impact on water quality, biodiversity etc. in Northern Ireland. As such the description below includes reference, where relevant, to conditions in Northern Ireland. The characteristics of areas likely to be significantly affected and existing environmental problems are summarised for each topic heading. Existing issues pressures have, in the majority of cases, been identified with reference to the January 2016 publication - *Shaping Ireland's Future: National Planning Framework to 2040 Issues and Choices*.

5.1.1 State of the Environment Overview – Republic of Ireland

Ireland's natural environment, although under increasing pressure, generally remains of good quality and represents one of the country's most essential national assets (EPA, 2008, 2012 and 2016). However it is acknowledged that problems and challenges still remain. In their 6th and most recent state of the environment review, the EPA reiterates the four priority challenges from 2012 for the environment, which, if addressed successfully, should benefit the present and future quality of Ireland's environment. These comprise:

- Valuing and Protecting our Natural Environment;
- Building a Resource-Efficient, Low Carbon Economy;
- Implementing Environmental Legislation; and
- Putting the Environment at the Centre of Our Decision Making.

These challenges are summarised below in **Table 5.1**.

Table 5.1 – EPA Key Challenges and Relevance to the draft NPF

Challenge	Relationship to the National Planning Framework
Challenge 1: Valuing and Protecting our Natural Environment	The draft NPF is focussed on long-term, sustainable, consolidated spatial planning across Ireland. However, development associated with housing, infrastructure and services provision has the potential to impact on the natural environment. In this regard, the draft NPF has been developed to ensure that the national policy objectives associated with spatial planning and related activities are carried out in compliance with all existing EU and national objectives, policies and legislation which also seek to protect the

Challenge	Relationship to the National Planning Framework
	natural environment.
Challenge 2: Building a Resource-Efficient, Low Carbon Economy	The National Policy Position on climate action and low carbon development sets a fundamental national objective to achieve transition to a competitive, low-carbon, climate-resilient and environmentally sustainable economy by 2050. The draft NPF is being prepared with consideration given to this objective and the supporting legislation. It will aim to maximise coordination of land use planning in a sustainable way which will have positive implications for increasing resourcefulness and helping to tackle climate change by increasing efficiencies at multiple levels within the planning hierarchy.
Challenge 3: Implementing Environmental Legislation	The draft NPF is undergoing SEA, AA and SFRA in line with existing EU and national legislation. Plans, measures and projects arising from the NPF in many cases will require further environmental assessment (SEA, EIA, SFRA, EPA licensing). Where development is below the thresholds of this legislation and regulation, this Environmental Report will make recommendations to protect the environment.
Challenge 4: Putting the Environment at the Centre of Our Decision Making	The Department's Issues and Choices Paper recognises that sustainable development must happen with regard to Ireland's unique environment. As noted previously, the draft NPF is undergoing SEA, AA and SFRA in line with existing EU and national legislation. This is ensuring that the broader environmental consequences are taken into account as part of the framework's development. Both processes are helping to shape the evolution of the draft NPF.

Following on from the four key challenges, seven key actions for Ireland on the state of the environment have also been listed, and comprise the following:

- **Environment, health and wellbeing:** recognise that a good quality environment brings benefits to health and wellbeing.
- **Climate change:** the response to climate change needs to be accelerated - we need to act quickly, transform our energy systems and a shift to a more sustainable transport system.
- **Implementation of legislation:** there needs to be an improvement in tracking plans and policies, as well as compliance with several directives and continued targeting of non-compliances by environmental enforcement bodies.
- **Restore and protect water quality:** measures should continue to be implemented to achieve at least Good Status in all water bodies, while also acknowledging that while Ireland's marine waters are relatively unpolluted, pressures continue to increase.
- **Nature and wild places:** habitat and biodiversity loss continue - initiatives need to be developed which incorporate nature protection at the core of decision-making.
- **Sustainable economic activities:** the economy can be competitive, but in a sustainable way having regard to finite resources. Issues include the increase in exported residual waste, the need to phase out subsidies and exemptions which encourage unsustainable activities/emissions as well as the challenge of intensifying agricultural output in a sustainable way.
- **Community engagement:** a strong evidence-base and good communication strategies are key for keeping stakeholders and citizens reliably informed - sustainable growth requires changes to the way all consumers act.

A summary of the relevant aspects of the current state of the environment in Ireland, as presented in the EPA State of the Environment (2016) has been provided in **Table 5.2**.[12]

Table 5.2 – Summary of Current State of the Environment in Ireland (2016)

Theme	Key Findings
Air Quality and Transboundary Air Emissions	While air quality is of a good standard compared to other EU member states, monitoring shows that local levels of some pollutants e.g. nitrogen dioxide (NO_2) are at concentrations that may impact on health. Trends of polycyclic aromatic hydrocarbons (PAH) levels in Ireland are a concern. Ireland may need to adopt stricter WHO guidelines, particularly for particulate matter and ozone, as compliance with the EU limit values is still not enough to protect health. A 2015 EEA report indicates that around 1,200 deaths in Ireland in 2012 were directly linked to air pollution. Continued effort is being made to reduce air pollution through bans on bituminous coal in large towns and cities and implementing the actions set out in the Smarter Travel Policy for Sustainable Transport. Incentives in recent years to change from petrol to diesel in the personal car fleet has had unforeseen and significant effects on air quality, increasing key pollutants in cities especially PM_{10} and $PM_{2.5}$. Incentives to switch to electric vehicles should therefore be encouraged.
Climate Change	Irish per capita greenhouse gas (GHG) emissions remain among the highest in Europe, with agriculture the largest source accounting for 33.3% of total national emissions. Sectors such as energy are showing decreases in GHGs due to increased use of renewables and improving standards. In 2016, Ireland is just over halfway to meeting its Renewable Energy Directive target and the Climate Action and Low Carbon Development Act will also help transition to a low carbon economy. Further reductions, particularly in the agriculture and transport sectors, will be required to meet the 2020 EU Effort Sharing targets of 20% below 2005 levels. Longer term horizons will pose a serious challenge for Ireland based on current trajectories, as Ireland is not on track to meeting its National Policy Position of 80% reduction in CO_2 emissions by 2050. There is an urgent need for further policies and regulations in order to meet existing targets and achieve decarbonisation.
Nature	The majority of Ireland's most important habitats are reported to be of inadequate or bad conservation status; most species are considered to be stable however a number of key species are declining. Aquatic species and bees are reported to be most at risk. Pressures from changes to land use, intensification of agriculture, pollution and climate change, as well as the impacts of a growing economy, are likely to bring additional pressures on a number of species and habitats in Ireland. Based on the poor conservation status of many important habitats and some species, considerable efforts and resources will be required to improve their status, both within and outside protected areas.
Inland and Marine Waters	Most of Ireland's water bodies are of good ecological status or better however a number of main pressures persist including eutrophication, urban waste water, diffuse agricultural sources and impacts to the marine environment (e.g. overfishing, by-catch, pressures from aquaculture). Measures to improve water quality are being implemented in order to achieve the targets of the Water Framework Directive (WFD) such as the development of River Basin Management Plans (RBMPs) and control and licensing of industrial discharges. However there has been little overall improvement since the last river basin management cycle; in the latest water quality assessment period (2013-2015) there has been a decline in the number of high status sites. The merging of the River Basin Districts into one national district as well as implementation of the three tier catchment management system are key responses to addressing these issues. The second cycle RBMP is in preparation and is anticipated for completion towards the end of 2017. The implementation and enforcement of the Nitrates Action Plan is the most important

[12] EPA (November 2016) Ireland's Environment – An Assessment 2016

Theme	Key Findings
	measure to address diffuse agricultural pollution of freshwaters. This includes a code of Good Agricultural Practice (GAP) which is mandatory for all farms. Other measures such as the GLAS Scheme, the Agricultural Catchments Programme, the National Inspection Plan for domestic waste water systems, as well as improvements to urban waste water discharges, are also key for tackling point and diffuse sources of pollution.
Waste	The current Regional Waste Management Plans were published in 2015. Ireland continues to move from a position of almost total reliance on landfill, to a high level of recovery, with a focus on prevention, reuse and recycling. The waste sector is almost wholly privatised which has led to considerable investment in technologies but which comes with its own challenges. More value is now being derived from waste as fuel than from disposal, with the number of landfills reducing from 18 in 2012 to 6, however much of Ireland's residual waste continues to be exported which has implications for infrastructural capacity and market security. Litter and fly-tipping continue to remain significant problems. Increases in municipal, construction and demolition waste have also increased since 2012, likely as a result of economic recovery; municipal waste generation also continues to grow (an increase of 6% between 2012 and 2014). Over half of households are still without a separate bin for food waste, with organic matter still being disposed to landfill. While Ireland is currently meetings its targets under the Landfill Directive, some future targets are at risk of not being met (e.g. relating to end-of-life vehicles, WEEE and battery collection).
Land and Soil	There is no single national-scale baseline dataset of land use or land cover for Ireland. The CORINE dataset is the nearest proxy, but has resolution issues (the smallest unit of mapping is 25ha), however more detailed sectoral mapping is available for agriculture and forestry. According to the latest CORINE dataset (2012), artificial and built surfaces nationally account for approximately 2.46% of Ireland's land cover. The actual figure is likely to be higher given that built surfaces less than 25ha in area (including one-off housing), sections of the road/rail network, and smaller quarrying sites are not captured at this resolution. In Ireland the main changes since 2012 have been an increase in the amount of forested lands, semi-natural areas and artificial areas, and a decrease in the total amount of agricultural land and peatland. The main land use type in Ireland is for agriculture, while forestry cover in Ireland remains very low compared to other European countries. The main drivers of land use change over the coming decade will be the agricultural policy of Food Wise 2025 and afforestation policies associated with the National Forestry Programme 2014-2020. While the rate of urbanisation decreased with the economic downturn, this trend is expected to increase in the future. The decline in peatland ranges and functions also represents a significant problem, as is degradation of soils.
Environment, Health and Wellbeing	Environmental sources of harm include the built environment, the natural environment and consumption patterns. It is therefore recognised that health and wellbeing are tied to a good quality environment. The overall quality of the Irish environment is generally good, but health impacts associated with air pollution in Ireland, particularly from traffic and burning of smoky solid fuels, are still issues that require further measures. Exposure to noise, odours and radon in homes also impact health. The availability, safety and attractiveness of high-quality green spaces (parks, woods, countryside) and blue spaces (ponds, river banks, lakeshores and seashores) helps to foster activity on the road to better health. The EU's Drinking Water Regulations (2014) set quality standards for water at the tap, however there are still some problems which need to be tackled such as long-term boil notices and addressing key priorities such as lead, disinfection, pesticides etc. The quality of Ireland's bathing waters has remained high, with the vast majority meeting required EU standards. Damage to health associated with environmental pollution in Ireland is much less than that caused by lifestyle factors such as poor diet, lack of exercise and tobacco use. Emerging risks include impacts from climate change, microbial resistance and new chemical substances. The ongoing protection of Ireland's high-quality environment is

Theme	Key Findings
	vital.
Environment and the Economy	The quality of Ireland's environment is generally good though it has been under increasing pressure over the last decade as a result of economic changes, population growth and urbanisation, and changing consumer patterns. The European Commission's Economic Forecasts indicate that the economy continues to recover from the last recession. The main challenge for Ireland now is to grow the economy in a sustainable way, with a focus being an economy that is circular, resource-efficient and striving for carbon-neutrality. Many of the persistent environmental problems that we face, such as air pollution, biodiversity loss, and hazardous waste, continue to be rooted in unsustainable production and consumption patterns. The extra challenge to government is to consider environmental quality, well-being and sustainability in addition to indicators such as GDP or GVA.
Environment and Transport	The transport sector in Ireland is currently very fossil fuel dependent, making up about 20% of GHG emissions. While emission levels dropped during the economic downturn, current recovery means emissions are climbing again. The transport sector is required to deliver 10% of its energy from renewable sources by 2020, representing a major challenge. The EEA has highlighted that use of alternative fuels, electrification of the fleet as well as major modal shifts are required to help meet decarbonisation targets. Modal shifts as well as increased fuel efficiency are critical to enable the transport sector to become faster, more convenient, and more sustainable. To achieve this, measures such as good planning, capital investment as well as fiscal measures are required. The main policies and initiatives are included in the Energy White paper, the National Mitigation Plan, the Biofuels Obligation Scheme, the Greater Dublin Area Transport Strategy as well as the Dublin Area Cycle Network.
Environment and Energy	Use of fossil fuels in Ireland remains very high, providing 90% of the country's energy requirement. The shift towards renewable sources of energy will be critical in the coming decades. To achieve this, there is a requirement for large-scale investments infrastructure and technology, as well as distribution and storage systems. Further, a significant number of private and business buildings will need to be retrofitted to bring them to higher energy efficiency standards. This step this will be critical for achieving Ireland's target of a 20% reduction in energy costs from energy efficiency by 2020. Engagement with the public and stakeholders is necessary to help mobilise these changes.
Environment and Agriculture	Agriculture is the largest user of land in the country, with about 67% of total land cover. Food Wise 2025 is the main agricultural strategy developed to increase productivity, export and employment. The main challenges will be to increase primary production in a way that is sustainable and does not adversely impact the environment. Currently, the agriculture sector in Ireland accounts for 33% of GHG emissions, which is projected to rise in the coming years and could place pressures on achieving 2020 and 2030 national emissions reduction targets. Diffuse loss of nutrients from agriculture to water remains a major environmental pressure. Current actions to address these issues are covered by the Common Agricultural Policy, the Nitrates Action Programme, Origin Green, the River Basin Management Plans, Climate Action and Low Carbon Development Act 2015, National Climate Change Mitigation Plan, as well as the Industrial Emissions Directive. A strong research and evidence base, as well as sharing of information and knowledge, will be critical to keep all stakeholders informed, so that protection of the environment and agricultural productivity can be balanced.

5.1.2 State of the Environment Overview – Northern Ireland

The second State of the Environment Report for Northern Ireland (2013) is titled "*From Evidence to Opportunity"* and provides a five year update and commentary on forty-four indicators across eight

themes to provide an evidence-based assessment of the state of the environment. The current state is mixed. Air quality continues to improve, water quality is benefitting from improved effluent controls and there are increases in municipal waste recycling rates. However, declines in quality have been recorded for biodiversity freshwaters, landscapes, habitats and heritage. Like Ireland, Northern Ireland has experienced the effects of recession which has in turn reduced some of the pressure on the environment but this has been replaced by new pressures and challenges associated with trying to stimulate an economy and reliance on natural resources.

The Northern Ireland Environmental Statistics Report (2017)[13] provides an annual update to the figures and provides commentary around the trends outlined in the second State of the Environment Report for Northern Ireland (2013). The relevant aspects of the current state of the environment in Northern Ireland have been summarised in **Table 5.3**.

Table 5.3 – Summary of Current State of the Environment in Northern Ireland

Theme	Key Findings
Air Quality	There are 22 air quality monitoring stations in Northern Ireland. There is continued improvement in air quality but NO_2 levels have remained relatively stable over the past 13 years due to emissions from transport. Agricultural emissions of ammonia still remain high and threaten ecosystems and habitats, with 93% of emissions coming from livestock in 2015. Continued effort is required to reduce air pollution from key sources such as road transport and agriculture.
Climate	There is evidence that the climate in Northern Ireland is changing. There has been a reduction in GHGs but road transport emissions are still increasing. There are government targets towards reducing GHG emissions in the UK by at least 80% on 1990 levels by 2050 but this will prove challenging; Northern Ireland's emissions amounted to 4% of the UK total in 2014. A key priority for climate change has been the implementation of Northern Ireland's Climate Change Adaptation Programme in 2014. The Northern Ireland Environmental Statistics Report 2017 reported that GHG emissions have decreased since 1990, with a reduction of 17.4% achieved by 2014. Most sectors have shown a decrease on the levels in the base year, with the exception of transport and land use. Whilst the emissions have increased by 30% since the base year, there had been a reduction of 9% by 2014, partly due to improvements in average fuel efficiency of vehicles and a switch from petrol to diesel cars.
Water	The overall status of water bodies in Northern Ireland has not significantly changed from that recorded in 2009 but improvements have been identified in water utility discharges and drinking water quality. In 2015, 32.7% of the river water bodies were classified as 'high' or 'good' quality. There were 1,745 water incident reports made to the NIEA of which 57% were unsubstantiated. The key challenges for the water bodies relate to diffuse nutrient pollution, chemical status of the water environment and measures to address physical modifications of beds, banks and shore of surface waters. For the second cycle of River Basin Management Planning in Northern Ireland there are 496 surface water bodies including 450 river, 21 lakes and 25 transitional and coastal waters.
Marine	There has been an improvement to the overall quality of the marine environment, including bathing water quality and beaches, around Northern Ireland's shores. This can be directly linked to improvements in waste water treatment. One key remaining issue is marine litter. The implementation of the Marine Strategy Framework Directive programme of measures will protect marine waters. The Northern Ireland Environmental Statistics Report 2017 reported that almost 36% of marine water bodies around Northern Ireland's shores are classified as 'high' or 'good', with the remaining water body areas being classified as

[13] Northern Ireland Environment Agency, Department of Agriculture, Environment and Rural Affairs (2017) Northern Ireland Environmental Statistics Report, Issue No. 9.

Theme	Key Findings
	'moderate' (56%), 'poor' (8%). In 2015, 9 marine water bodies were at 'high'/'good' status with the remainder at 'moderate'/'poor'/'bad' status.
Land and Landscape	There is a marked change in the landscape with the development of upland wind farms and the significant decline in housing development has reduced pressure on land use. The number of planning applications for environmental installation for renewable energy has fallen since its peak of over 800 in 2011/2012 (329 for 2015/16). This could be due to a reduction in funding and a lack of capacity of the grid. The Northern Ireland Environmental Statistics Report 2017 reported that at the end of 2016, 46,000 ha of land in Northern Ireland were under agri-environment scheme agreement (29% of NI farmland) which is a decrease on the 2015, figure of 305,000 ha.
Biodiversity	Despite continued action many key elements of biodiversity continues to decline, however the wild bird population has increased by 62% between 1994 and 2015. The underlying bird populations are not all increasing, such as the skylark which has declined by 50% for the same period. In particular since 2000 grassland habitats have shown the most declines, but in contrast woodland habitats have increased. The key pressures identified relate to land-use changes through agriculture and development with additional pressures such as pollution, invasive species and fisheries practices. The Northern Ireland Environmental Statistics Report 2017 reports that as of 31st March 2016, a total of 387 sites had been declared as Areas of Special Scientific Interest (ASSI), 57 sites as Special SACs, 17 sites as SPAs and 21 sites as Ramsar sites (areas of wetland and waterfowl conservation).
Built Heritage	The key risks identified to archaeological resources come from agricultural landuse and urban activities. It has been identified that protected sites have fared better. Through the Second Survey of Buildings of architectural or historic interest there has been an increase in the number of listed buildings. Built heritage has provided emerging opportunities in relation to regeneration, tourism and economic development. The Northern Ireland Environmental Statistics Report 2016 reported that in 2015/16, there were a total of 1,977 scheduled historic monuments protected under Article 3 of the Historic Monuments and Archaeological Objects (NI) Order 1995. Listed buildings are those of special architectural or historic interest and there were a total of 8,774 buildings recorded by NIEA in 2015/16 with 487 listed buildings and structures classified as 'at risk' on the online Built Heritage at Risk in Northern Ireland (BHARNI) database.
Waste and Resources	Recycling has seen a significant increase and is becoming much more common in Northern Ireland. The revised version of the Northern Ireland Waste Management Strategy proposed to introduce at 60% recycling target by 2020 for local authority collected municipal waste. In 2015/16 the total amount of local authority collected municipal waste arising's declined by 8.9% between 2006/07 and 2015/16. It was noted by the Environmental Statistics Report 2017 that the most common actions taken by households for environmental reasons were to reuse plastic bags and ensure that clothes and furniture were reused.

5.2 ENVIRONMENTAL CHARACTERISTICS

The following baseline information is prefaced for each environmental discipline by clarification on the nature and extent of effects considered for that discipline in relation to the draft NPF. The baseline information is then summarised in relation to the identified scope.

5.2.1 Biodiversity, Flora and Fauna

Biodiversity is the variety and variability of plants (flora) and animals (fauna) in an area and their associated habitats. The importance of preserving biodiversity is recognised from an international to a local level. Biodiversity is important in its own right and has value in terms of quality of life and

amenity. The natural environment is also critical in delivering ecosystem services such as providing clean air and water, food and raw materials and cultural benefits.

Ireland has obligations under EU law to protect and conserve biodiversity. This relates to habitats and species both within and outside designated sites. Nationally, Ireland has developed a Biodiversity Plan (2011-2016), updated to cover the period 2017-2021[14] to address issues and halt the loss of biodiversity, in line with international commitments. The overall target for Ireland's National Biodiversity Plan is *that biodiversity loss and degradation are reduced by 2016 and progress is made towards substantial recovery by 2020*. This follows on from the European Commission EU Biodiversity Strategy to 2020 which has a headline target *to halt the loss of biodiversity and ecosystem services by 2020, to restore ecosystems in so far as is feasible and to step up the EU contribution to averting global biodiversity loss.* This implements EU commitments under the Convention on Biological Diversity (1992).

The preparation of the draft NPF has had regard to the EU Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (as amended) – (commonly referred to as the Habitats Directive) and Directive 2009/147/EC of the European Parliament and of the Council on the conservation of wild birds (commonly referred to as the Birds Directive). These are transposed into Irish law by the European Communities (Birds and Natural Habitats) Regulations 2011 to 2015 (S.I. No. 477 of 2011, S.I. No. 499 of 2013 and S.I. No. 355 of 2015) and requires that any plan or project not directly connected with or necessary to the management of a European Site but likely to have a significant effect on such a site must undergo an appropriate assessment in view of best scientific knowledge and in view of the conservation objectives of the site. The draft NPF falls under the remit of these regulations, and an Appropriate Assessment is being undertaken pursuant to these regulations. The draft NPF must have regard for these commitments and associated legal obligations.

The key issues associated with the development of a national NPF and biodiversity relate to:

- Loss or disturbance of habitats and species from land use change and changes to land management; and
- In-combination/ cumulative effects without land use plans and programmes e.g. forestry, fisheries, agriculture;
- Potential introduction/ spread of alien species and invasive species;
- Disturbance effects from recreation or tourism activities.

Given the strategic nature of the draft NPF, focus of the baseline for biodiversity is primarily at a national level however consideration has been given to the following:

- Watercourses, surface water bodies and associated wetlands;
- Nature conservation sites including European Sites and those protected under national legislation, e.g. National Parks etc.;
- Species of wild flora and fauna, including rare and protected species and their habitats; Annex IV (Habitats Directive) species of flora and fauna, and their key habitats;
- Other species of flora and fauna and their key habitats which are protected under the Wildlife Acts, 1976-2000;

[14] A draft National Biodiversity Action Plan was placed on public display earlier in 2017.

- Protected species and natural habitats as defined in the Environmental Liability Directive (2004/35/EC) and European Communities (Environmental Liability) Regulations, 2008; and
- Stepping stones and ecological corridors.

5.2.1.1 Designated Sites

Ireland has designated sites and species of conservation value and/ or concern in an effort to protect its biodiversity resource. There are eleven types of nature conservation sites considered for the purposes of the draft NPF. The number of each type of designation on a national level is presented in **Table 5.4** and their locations are presented in **Figure 5.1**.

Table 5.4 – Number and Type of Nature Conservation Sites in Ireland

Designation Type	Description	Number
Important Bird Areas	The Important Bird Areas (IBA) Programme is a BirdLife International initiative aimed at identifying and protecting a network of critical sites for the conservation of the world's birds. BirdWatch Ireland is the BirdLife partner, and is responsible for promoting and updating the status of Ireland's birds and their key sites.	140
National Nature Reserves	A National Nature Reserve is an area of importance to wildlife, which is protected under Ministerial order. Most are owned by the State but some are owned by organisations or private landowners. The NPWS provides an online spatial viewer displaying the National Parks and Nature Reserves.	75*
National Parks	National parks are areas that exist to conserve natural plant and animal communities and scenic landscapes and which facilitate public access. They exist in accordance with international criteria established by the world conservation union (IUCN).	6*
Natural Heritage Areas (NHA)	Natural Heritage Areas (NHAs) are protected under the Wildlife Amendment Act 2000. NHAs are areas considered important for the habitats present or which hold species of plants and/ or animals whose habitat needs protection.	155*
Proposed Natural Heritage Areas (pNHA)	Proposed Natural Heritage Areas (pNHAs) were published on a non-statutory basis in 1995, but have not since been statutorily proposed or designated. These sites are of significance for wildlife and habitats.	1,089*
Ramsar	Ramsar sites are wetlands of international importance designated under the Ramsar Convention on Wetlands 1971, which Ireland joined in 1984. This intergovernmental treaty provides for national action and international cooperation for the conservation and wise use of wetlands and their resources with a particular focus on birds.	45
Refuges for Fauna	Refuges for Fauna are designated by ministerial order under Section 17 of the Wildlife Act 1976 as amended by Section 28 of the Wildlife (Amendment) Act 2000.	7
Special Areas of Conservation (SAC)	Special Areas of Conservation (SAC) are designated under the EU Habitats Directive (92/43/EEC) and Special Protection Areas are designated under the Birds Directive (2009/147/EC). Together these sites form the backbone of the Natura 2000 network. Further details on these sites can be found in the Appropriate Assessment for the draft NPF.	433* + 6 offshore SAC
Special Protection Areas (SPA)		165*
UNESCO Biosphere Reserve	Biosphere Reserves are areas of terrestrial and coastal/marine ecosystems, designated to reconcile the conservation of biodiversity with the quest for economic and social development and the maintenance of cultural values. They are internationally recognised within the framework of UNESCO's	2

Designation Type	Description	Number
	Programme on Man and the Biosphere.	
Wildfowl Sanctuary	A Wildfowl Sanctuary is an area that has been excluded from the 'Open Season Order' so that game birds can rest and feed undisturbed.	68*

**Numbers retrieved from the NPWS website (www.npws.ie) August 2017.*

In Northern Ireland there are 59 SACs, 18 SPAs, 20 Ramsar and 390 Areas of Special Scientific Interest (ASSIs). The ASSIs are areas of land with national conservation value. Three additional European Sites and one National Site were recently adopted under the Marine Act (Northern Ireland) 2013 which are in close proximity to transboundary waters: Carlingford Marine Proposed SPA (pSPA), East Coast Marine pSPA, North Channel Proposed SAC (pSAC) and Carlingford Marine Conservation Zone (MCZ). Some designations in the Republic of Ireland, such as Carlingford Lough SPA and Carlingford Shore SAC, extend into Northern Ireland and as such present potential for transboundary effects.

5.2.1.2 Protected Habitats and Species

In 2007 and again in 2013 the NPWS published a report detailing the conservation status in Ireland of habitats and species listed in the EU Habitats Directive (92/43/EEC), often referred to as the Article 17 Report.[15] Under Article 11 of the Habitats Directive, each member state is obliged to undertake surveillance of the conservation status of the natural habitats and species in the Annexes and under Article 17, to report to the European Commission every six years on their status and on the implementation of the measures taken under the Directive.

There are 59 habitats in Ireland that are listed under Annex I of the Habitats Directive. Of these, 16 are considered priority habitats which are in danger of disappearing within EU territory and require particular protection.

There are 26 species listed in Annex II of the Habitats Directive (25 of these are aquatic or water-dependent species). These are animal or plant species whose conservation requires the designation of Special Areas of Conservation. There are a further 41 species of animals and plants listed in Annex IV of the Habitats Directive. These require strict protection. There are 48 Annex V species whose taking in the wild may be subject to management measures. Some of the Annex IV and V species are also covered by Annex II.

In the Article 17 Report for 2013, 9% of all habitats were assessed as "*favourable*", 50% as "*inadequate*" and 41% as "*bad*". Among the key findings were:

- Some of the coastal and estuarine habitats are considered to be improving, and to have better prospects, due in part to implementation of other EU environmental Directives and new regulations concerning fisheries and aquaculture, in addition to EIA affecting wetlands and grasslands;
- Improvements to waste water treatment facilities and use of fertilisers will result in cleaner freshwaters and estuaries;
- Continued loss of the cleanest stretches of river in a significant concern for the Freshwater Pearl Mussel which is in decline. The number of high status sites decreases year on year;

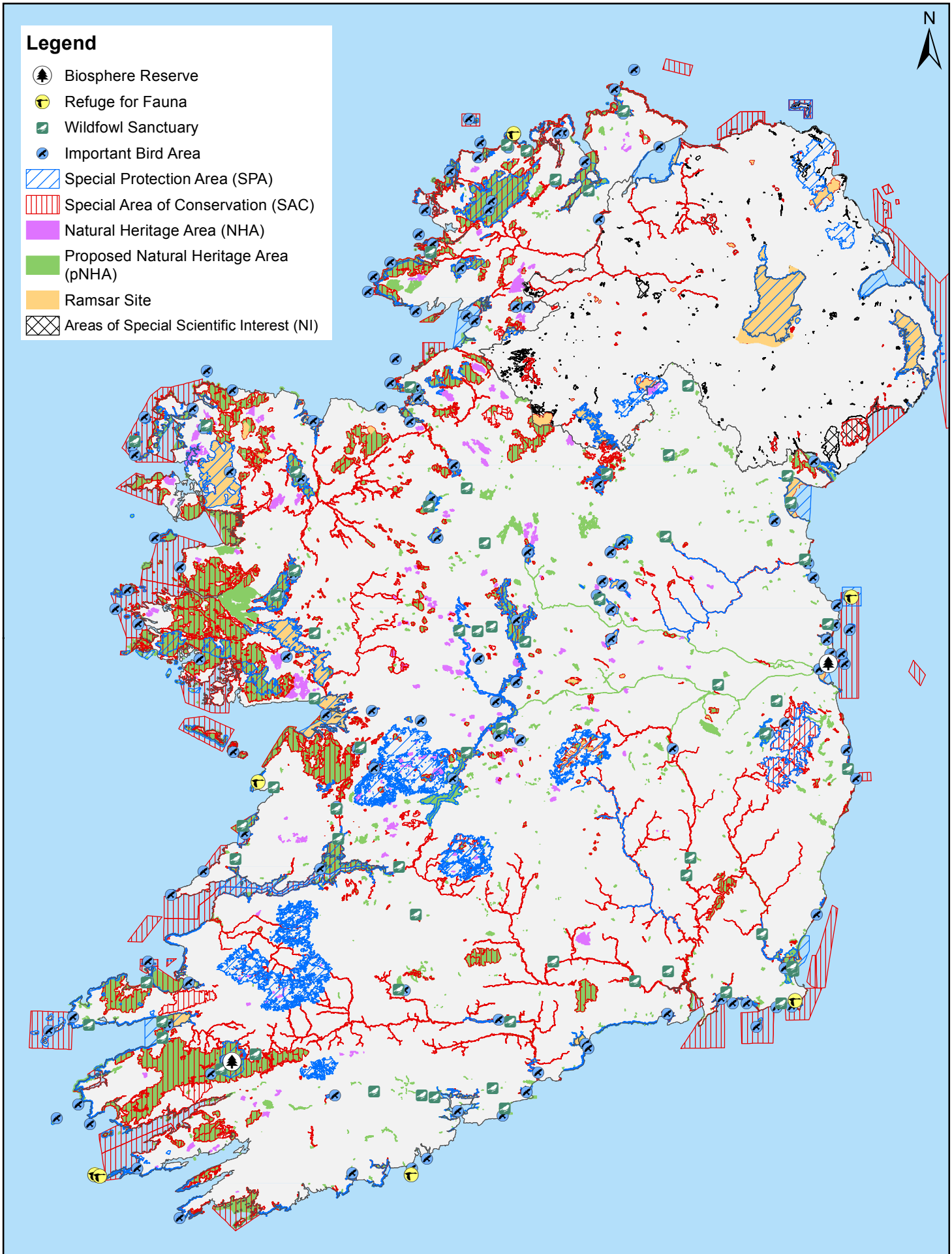
[15] NPWS (2007 & 2013) The Status of EU Protected Habitats and Species in Ireland, Vol. 1-3.

- Some lake habitats are at "*bad*" status due to ongoing pressures such as enrichment through excessive nutrient loading from the catchment. Recovery in these cases will take a long time;
- Dune and machair habitats are under pressure from recreational activity, agricultural practices and in some cases abandonment pressures;
- The status of raised bogs in Ireland is "*bad*"; and the trend is for an ongoing decline as restoration is necessary to cause improvement, notwithstanding the cessation of cutting on SAC bogs;
- Blanket bog is also assessed as "*bad*"; the report notes that, as one of the main impacts on this habitat is grazing, an improving trend might be expected due to the implementation of Commonage Framework Plans. However, this improvement appears to be offset and even exceeded by on-going deleterious effects such as peat cutting, erosion, drainage and burning; and
- Losses of limestone pavement has been recorded outside the SAC network, however the BurrenLIFE and Burren Farming for Conservation Programme have significantly improved the quality of pavement and its associated habitats.

The most recent Article 17 Report (2013) concludes that the main pressures on habitats are: under- or overgrazing; pollution of freshwaters; drainage and/ or cutting of peat; drainage of wetlands; invasive species; recreational pressures; and building works. Additional pressures include diffuse urban pressures, fertilisers and road building, although the report notes that these pressures have decreased since the 2001 – 2006 report.

From the 2013 report, 52% of all species were assessed as "*favourable*", 20% as "*inadequate*", 12% as "*bad*" and 16% as "*unknown*" or considered to be vagrant species. Among the key findings are:

- Aquatic species are deemed to be most at risk;
- Freshwater pearl mussel is "*bad*" and declining, with few locations with recruiting populations showing near-adequate replenishment;
- Otter has been assessed as "*favourable*" with evidence of an expanding range and apparent population recovery;
- Salmon is showing signs of improvement and the population is stable, but there are low numbers and salmon is susceptible to a wide range of pressures. The overall conservation status is "*inadequate*" but stable;
- Killarney shad is assessed as "*favourable*", but some other fish remain at "*bad*" status.
- The common frog has improved from "*inadequate*" to "*favourable*", but the conservation status for the natterjack toad is "*bad*" but improving as there have been efforts made by farmers to provide the ponds they need for breeding, resulting in stabilisation of future prospects;
- Sea lamprey has remained at "*bad*" conservation status as physical barriers such as weirs are limiting their ability to reach breeding areas;
- Pollan has remained at "*bad*" conservation status due to nutrient enrichment in large lakes;
- There are concerns regarding the habitat quality at spawning sites for the twaite shad which has also remained at "*bad*" conservation status; and
- Many species of dolphin and whale have "*favourable*" conservation status; however data for vagrants is limited and insufficient to draw a conclusion.



Data source: National Parks and Wildlife Service (npws.ie); Northern Ireland Environment Agency (daera-ni.gov.uk); Ramsar (ramsar.org); and BirdLife International (birdlife.org).

Title

Figure 5.1 - Designated Sites

Project

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NOTE:

Wildlife Act

The Wildlife Act 1976 to 2010 (as amended) is the principle national legislation underpinning the protection of fauna and flora and nature conservation in the Republic of Ireland. All bird species, a number of animal species and species of flora are afforded protection under the Act. The Act also provides statutory protection for NHAs.

Flora Protection Order

The current list of plant species protected by Section 21 of the Wildlife Act, 1976 is set out in the Flora Protection Order (S.I. No. 356 of 2015). It is illegal to cut, uproot or damage the listed species in any way. In addition, it is illegal to alter, damage, or interfere in any way with their habitats. This protection applies wherever the plants are found and is not confined to sites designated for nature conservation. The list includes vascular plants, mosses, lichens and stoneworts.

Ecological Corridors

Stepping stones and ecological corridors can include nature conservation sites (other than European sites), habitat areas and species' locations covered by the wider obligations of the Habitats Directive. It is also recognised that non-designated receptors, such as landscape features, can function as ecological stepping stones or corridors, which are of importance to wildlife. There is a diversity of habitats (e.g. woodlands, hedgerows, field boundaries, sand dunes, saltmarshes, rivers, streams and associated riparian zones, canals, marine habitats and wetlands) that are not subject to legislative protection although they are of high biodiversity and conservation value and contribute to the concept of "green infrastructure".

5.2.1.3 Fisheries

Inland Fisheries Ireland (IFI) is the primary body responsible for management of the fish habitat, which is a national resource that needs to be protected. In Ireland, there are 7 fish species listed under Annex II and/ or Annex V of the Habitats Directive, including: 3 species of lamprey (*Petromyzon* sp. and *Lampetra* spp.), two species of shad (*Alosa* spp.), Atlantic salmon (*Salmo salar*) and pollan (*Coregonus autumnalis*). Annex V species are protected such that the exploitation of the fish resource and taking their in the wild is compatible with maintaining the species at favourable conservation status.

The Article 17 Report produced by NPWS (2013) lists Killarney shad as having "*favourable*" conservation status but other species such as sea lamprey, pollan and twaite shad remain at "*bad*" status. This is due to a variety of pressures which include physical barriers such as weirs which limit migration to breeding sites, nutrient enrichment and general habitat quality.

It is noted that European and national legislation does not cover all watercourses and as such there is a significant portion of watercourses that are not under formal European designation but may hold species that are designated under the European Habitats Directive, for example salmon and lamprey (sea, river and brook) which are listed as Annex II Species.

5.2.1.4 Shellfish Growing Areas

Table 5.5 lists the shellfish growing areas that are found in the Republic of Ireland, following Quality of Shellfish Waters Regulations (S.I. No. 55 of 2009).

Table 5.5 – Shellfish Growing Areas in the Republic of Ireland

Shellfish Growing Areas			
Lough Foyle	Ballysodare	Galway Bay	Oysterhaven
Trabreaga	Killala Bay	Shannon Est./Carrigaholt	Cork Harbour
Lough Swilly	Blascksod Bay (Belmullet)	Poulnasherry	Youghal
Mulroy Bay	Inishkea Islands	Askeaton Trumerra Bay	Dungarvan
Sheephaven	Achill North	Ballylongford	Waterford Harbour
Gweedore	Achill South	Tralee Bay	Bannow Bay
Dungloe	Clew Bay	Castlemaine (Cromane)	Ballyteigue Bay
Traweenagh	Killary Harbour	Valentia River	Rosslare
Gweebarra	Ballinakill	Kenmare River	Curracloe
Loughras Beg	Streamstown	Bantry Bay	Wexford Harbour
McSwynes Bay (Bruckless)	Clifden Inner	Dunmanus Bay	Malahide
Inver Bay	Clifden Outer	Roaringwater Bay	Skerries
Donegal Harbour	Mannin Bay	Sherkin North	Gormanston
Drumcliff	Kilkieran Bay North	Sherkin Kinnish	Dundalk Bay
Sligo Harbour	Casheen Bay	Kinsale	Carlingford Lough (Irish Waters)

5.2.1.5 Freshwater Pearl Mussel Areas

The Freshwater pearl mussel (FPM) is a filter feeder (filtering up to 50 litres of water per day) and is associated with salmonid waters but requiring a higher water quality than salmonids. *Margaritifera margaritifera* is more common than *Margaritifera durrovensis*, with the latter recorded only in the Nore catchment.[16] There are a total of 27 populations that have been designated within 19 SACs. The FPM is protected under Annex II and V of the Habitats Directive and is legally protected in Ireland under Schedule 1 of the Wildlife Act. There has been a considerable decline in species distribution and numbers of FPM in Ireland and across the EU. In Ireland, the Article 17 Report (2013) produced by NPWS indicates that the conservation status for FPM is "*bad*" and declining, with few locations with recruiting populations showing near-adequate replenishment.

The NPWS Conservation Status report (Article 17) states that FPMs are widespread in Ireland, occurring in more than 160 rivers and a handful of associated lakes. The national population estimate of 10.99 million adult mussels represents a decline of 8% since 2007. In 2009, legislation was enacted to support the achievement of favourable conservation status for FPMs (S.I. 291 of 2009) and the NPWS developed 27 FPM Sub-basin Management Plans as designated under S.I. 291 of 2009 to address measures to halt the decline in the species. **Table 5.6** lists the SACs that have been designated for the FPM.

[16] *Freshwater Pearl Mussel Sub-basin Management Plans, SEA Scoping Document.* 2009. Department of the Environment, Heritage and Local Government

Table 5.6 – SACs designated for *Margaritifera* within Ireland

SAC Site Code	SAC Site Name	FPM Population	Water body containing *Margaritifera* (list not exhaustive)
000140	Fawnboy Bog/Lough Nacung	Clady	Clady
000163	Lough Eske and Ardnamona Wood	Eske	Eske
000197	West of Ardara/Maas Road	Owenea	Owenea
000297	Lough Corrib	Owenriff (Corrib)	Owenriff, Glengawbeg, Corrib
000365	Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment	Caragh	Caragh, Owenroe, Meelagh, Caraghbeg, Glashawee, Lough Beg Stream, Lough Acoose, Cloon Lough
000365	Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment	Currane	Capall, Cummeragh
000365	Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment	Gearhameen (Laune)	Gearhameen & Owenreagh
002173 & 000365	Blackwater River (Kerry) & Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment	Kerry Blackwater	Blackwater, Kealduff, Derreendarragh
000375	Mount Brandon	Owenmore	Owenmroe & Newport
000781	Slaney River Valley	Derreen (Slaney)	Derreen
001879	Glanmore Bog	Ownagappul	Ownagappul & Barrees
001932	Mweelrea/Shreefry/Erriff Complex	Bundorragha	Bundorragha
002031	The Twelve Bens/Garraun Complex	Dawros	Dawros
002047	Cloghernagore Bog and Glenveagh National Park	Glaskeelan (Leannan)	Glaskeelan
002047	Cloghernagore Bog and Glenveagh National Park	Owencarrow	Owencarrow
002137	Lower River Suir	Clodiagh (Suir)	Clodiagh
002144	Newport River	Newport	Newport
002162	River Barrow and River Nore	Nore	Nore
002162	River Barrow and River Nore	Aughavaud (Barrow)	Aughavaud
002162	River Barrow and River Nore	Ballymurphy (Barrow)	Ballymurphy
002162	River Barrow and River Nore	Mountain (Barrow)	Mountain, Aughnabrisky
002165	Lower River Shannon	Cloon (Shannon Estuary)	Cloon
002170	Blackwater River (Cork/Waterford)	Allow (Munster Blackwater)	Allow
002170	Blackwater River (Cork/Waterford)	Licky	Licky
002170	Blackwater River (Cork/Waterford)	Munster Blackwater	Munster Blackwater (main channel)
002171	Bandon River	Bandon	Bandon & Caha
002176	Leannan River	Leannan	Leannan

The conclusions drawn during the assessment of conservation conditions for the Article 17 Report in 2013 were as follows:

- **Favourable recruitment range (FRR):** There has been an increase in FRR between 2007 and 2013; however this is due to improved knowledge relating to locations of new populations and the mapping of additional beds at known sites. It is suggested that the populations are more likely to be contracting.
- **Favourable reference populations (FRP)**: There are significant constraints when it comes to accurate estimation of populations. It is suggested that the FRP be set in terms of viable populations. In 2007, the number of viable populations was reported to be 11.
- **Habitat for the species**: This has remained "*bad*" with a decrease due to improved knowledge and increased accuracy of data. The attributes of a site which determine status include macroinvertebrates, phytobenthos/ diatoms, macroalgae cover, macrophyte cover and siltation. For both macroinvertebrates and phytobenthos the target is 'high ecological status' based on water-related WFD objectives. The results were as follows: for macroinvertebrates, 92% of sites failed; phytobenthos/ diatoms, 31% failed; for macroalgae cover, 69% failed; for macrophyte cover, 92% failed; and for siltation, 92% failed. Nutrient enrichment and sedimentation were deemed to be the main causes of decline.
- **Future prospects**: Due to declining habitat conditions and suspected contraction of populations, future prospects are also "*bad*" and declining.

5.2.1.6 Invasive Alien Species

Invasive alien species (IAS) are species that are transported outside of their natural range across and ecological barriers as a result of human action. They can establish and spread in their new location and cause negative impacts on biodiversity, society and the economy. A 2010 report by the Institute for European Environmental Policy reported that IAS are estimated to have cost the EU at least €12 billion per year over the past 20 years, and the damage costs continue to increase. Impacts associated with IAS in Ireland include competition with native species, alteration to habitats, introduction of pathogens and parasites and economic loss. If an invasive species e.g. giant hogweed and Japanese knotweed, becomes established it can be difficult, or in some cases nearly impossible, to eradicate. Construction and demolition waste, such as that generated through development, in particular of brownfield sites, has the potential to spread invasive species.

5.2.1.7 Existing Environmental Pressures/ Problems: Biodiversity, Flora and Fauna

The main drivers and pressures on biodiversity flora and fauna noted by the EPA in their most recent State of the Environment Report (2016) include pressures from changes to land use and direct habitat loss and damage as a result of infrastructural developments and water pollution. Relevant indirect pressures include population growth, climate change and land use change, such as loss of greenbelt to development and intensification of agriculture. The key pressures and threats on biodiversity in relation to the draft NPF are listed below:

- Habitat loss/ fragmentation and/ or disturbance as a result of land use change;
- Species loss and / or disturbance as a result of land use change;
- Impacts on water quality and associated species and habitats associated with construction stage of any new developments or infrastructure;
- Spread of invasive plant species during construction stage of any new developments or

infrastructure.

5.2.2 Population and Human Health

Population and human health are broad topic areas within the assessment framework which encompass consideration of the presence of people, their activities, their use of the receiving environment and their wellbeing. Population distribution and growth forecasts are important indicators of both pressure on infrastructure and resources, and potential exposure to pollution and risk. In terms of health and wellbeing, these can be affected by a number of direct and indirect environmental pathways, typically through emissions to air and water. These emissions are generally considered in the context of reference to international and national standards of safety in doses, exposure and risk.[17]

The key issues associated with the draft NPF and population/ human health relate to:

- Addressing historic settlement patterns leading to sprawl and unbalanced regional development;
- Increased requirements for water and wastewater treatment to service population growth;
- Increased requirements for transport services to service population growth and commuter belts;
- Increasing car dependency and associated air quality emissions;
- Changing demographic patterns and needs e.g. increase in aging population;
- Increasing rates of obesity;
- Homelessness, housing availability and affordability;
- Access to education, childcare, healthcare; and
- Avoidance of inequalities.

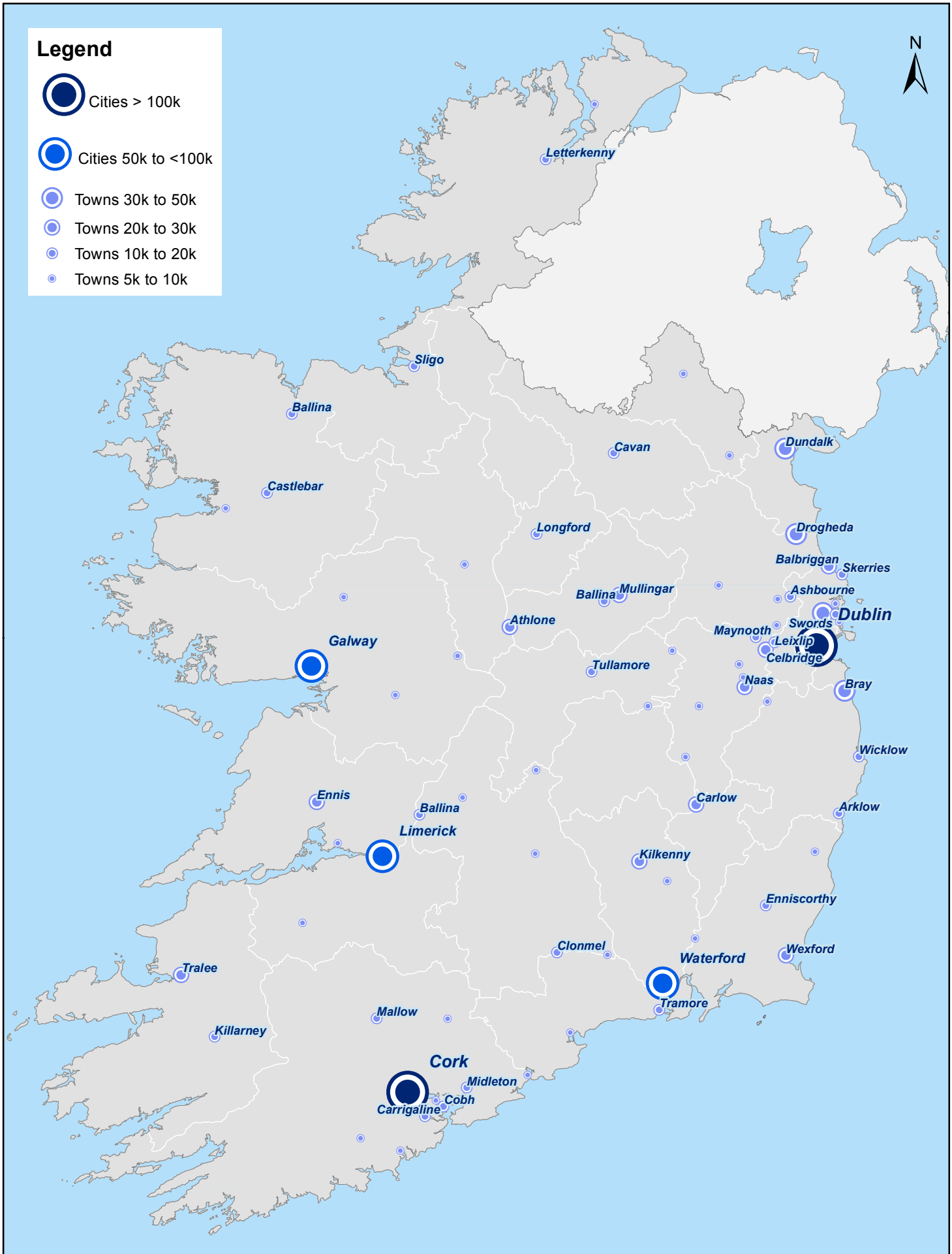
Given the strategic nature of the draft NPF, the focus of the baseline for population and human health is at the national level and this section provides baseline data on population and human health in Ireland. The urban structure under the draft NPF showing the main population centres are illustrated in **Figure 5.2**.

5.2.2.1 Population Change and Growth

Figures from the 2016 Census for Ireland outline a population of 4,761,865 for Ireland as of April 2016. This is an increase of 173,613 people or 3.8% (0.8% annual average) on the 2011 Census (4,588,252).[18] The population of Ireland has generally been rising since the 1960s as a result of declines in emigration, an increase in birth rate and declining death rates. The Census 2016 results indicate that 63% of the population lives in urban areas with 37% living in rural areas.

[17] EPA (May 2017) Revised Guidelines on the information to be contained in Environmental Impact Assessment Reports.

[18] CSO (April 2017) Census 2016 Summary Results - Part 1.



Data source: OSi national boundaries, 100m generalised (data.gov.ie).

Title

Figure 5.2 - Cities & Towns in Ireland (Census 2016)

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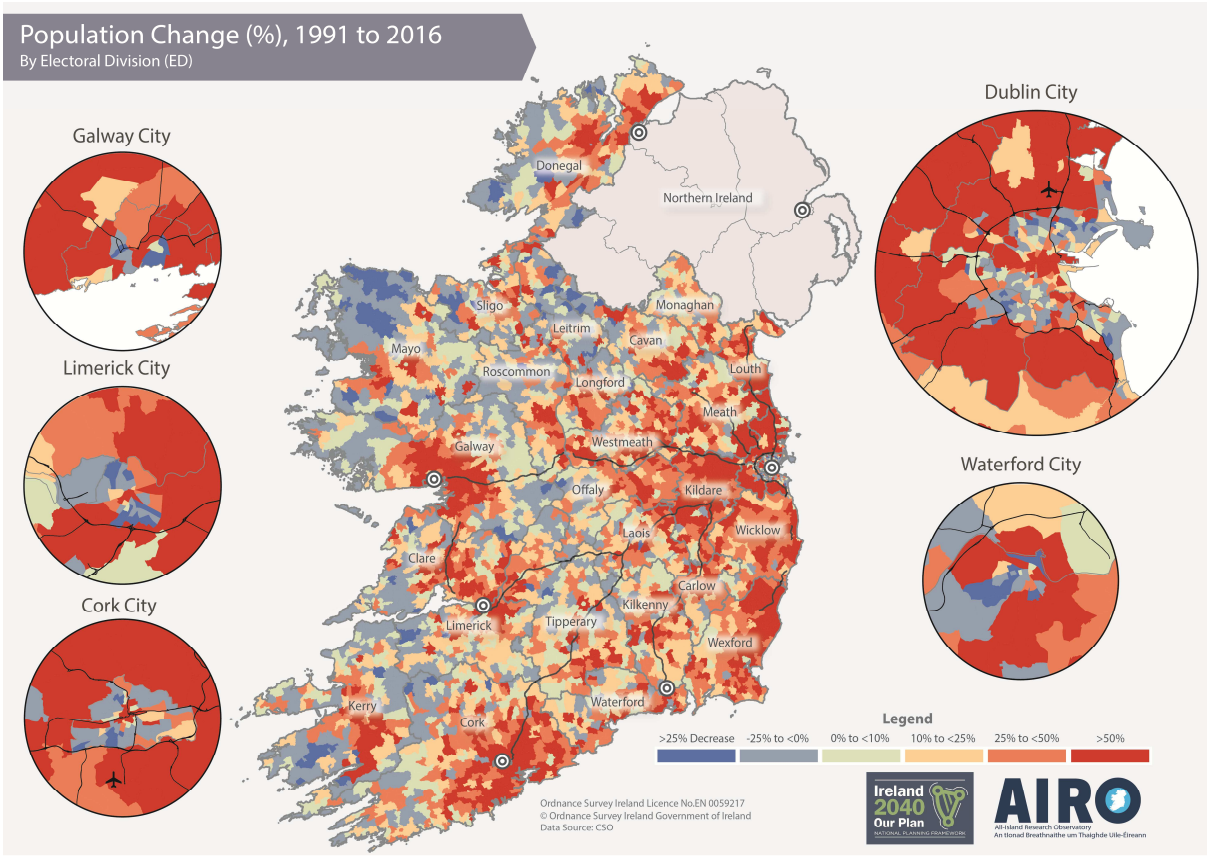
Population changes have varied widely across the country ranging from a high of over 8% in Fingal to a low of -1.2% in Donegal and -0.1% in Mayo. The five cities of Dublin, Cork, Galway, Limerick and Waterford have all grown faster than their surrounding counties and the fastest growing counties were the four administrative areas of Dublin along with the commuter belt counties of Meath, Kildare and Laois. Population declines were identified namely in the rural counties such as Donegal, Mayo and Sligo.

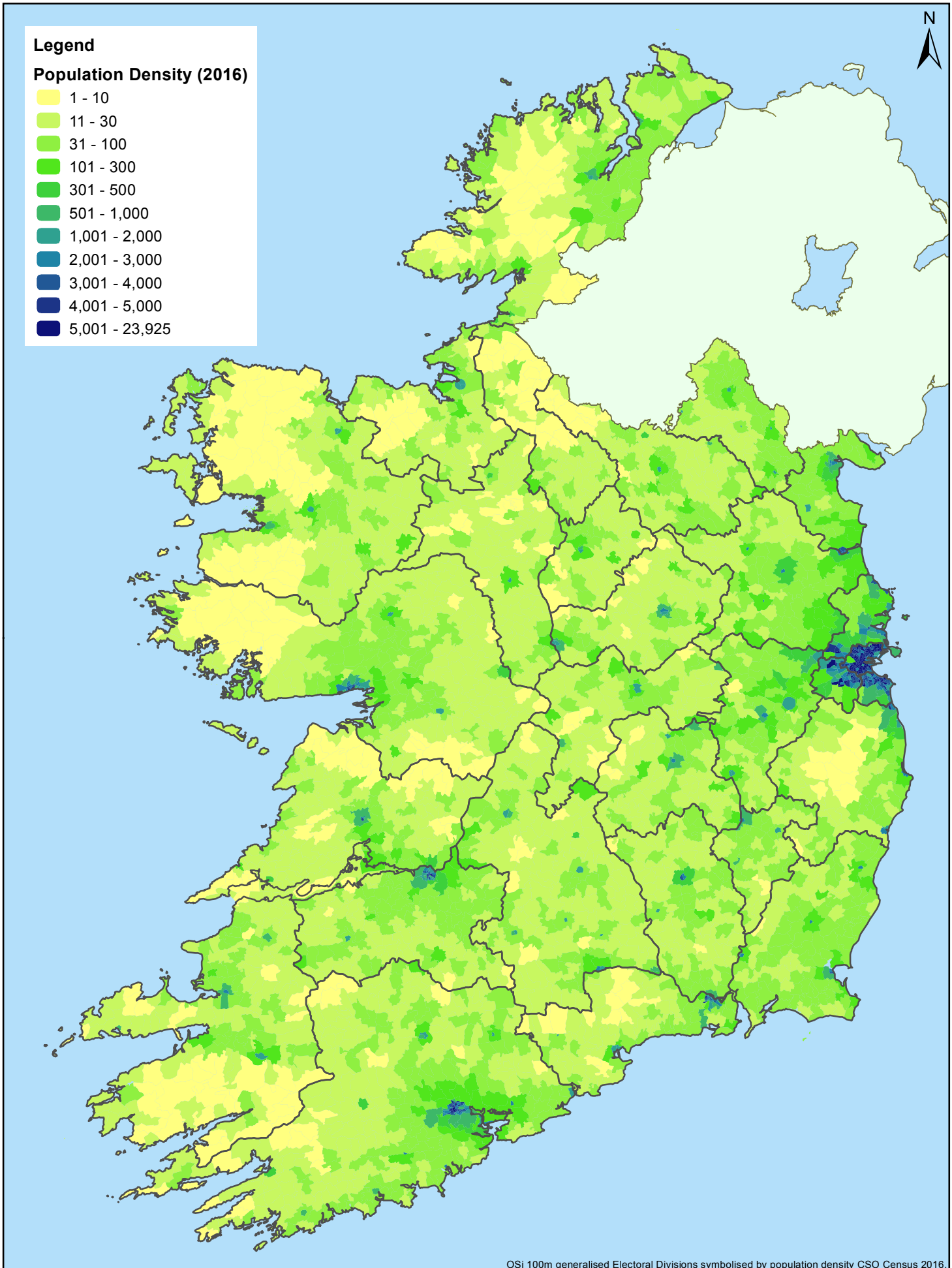
Between 2011 and 2016, the population grew by an average of 33,945 persons each year, representing a growth rate of 0.7%. The long term population change from 1991 to 2016 is shown in **Figure 5.3** for Ireland and the five cities.

Figure 5.3 – Population Change in Ireland 1991-2016



Source: AIRO.

Between the latest two censuses, 2011 and 2016, most of the population increase was in urban areas (138,899 or 80%). The largest rural population increases occurred in Cork County (6,946 increase) and Kildare (4,025 increase). The rural population in Sligo declined by 1,621 which was mostly balanced by an increase in the urban population of 1,763, mainly due to Collooney being reclassified from rural to urban. Current population density for 2016 for the electoral divisions is shown in **Figure 5.4**. The population growth targets to 2040 for the five cities under the NPF are outlined in **Table 5.7**.



OSi 100m generalised Electoral Divisions symbolised by population density CSO Census 2016.

Title

Figure 5.4 - Population Density 2016 (People per Square Kilometre)

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National Planning Framework

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Table 5.7 – Ireland 2040: Targeted Pattern of City Population Growth

City or Town	Population 2016	Population Growth to 2040[19]		Target Population 2040
		% Range	People	
Dublin City and Suburbs	1,173,000	20-25%	264,000	1,437,000
Cork City and Suburbs	209,000	50-60%	115,000	324,000
Limerick City and Suburbs	94,000	50-60%	52,000	146,000
Galway City and Suburbs	80,000	50-60%	44,000	124,000
Waterford City and Suburbs	54,000	50-60%	29,000	83,000

Source: Table 3.1 of the NPF.

5.2.2.2 Settlement Patterns

For each of the five city areas, AIRO has defined the corresponding hinterlands. These correspond to the more rural elements to the five cities. The hinterlands have been generated on an assignment process where a CSO electoral division is linked to a city where ≥15% of its workforce is employed in that destination. The hinterlands have therefore been developed using the CSO's 2011 POWCAR data (Place of Work Census Anonymised Results) and are subject to revision as the 2016 data becomes available. The 15% is based on the standardized EU/ OECD definition of a city region to help identify the urban influence of cities and large towns (those with a population >10,000), leaving the influence of smaller towns to be determined more locally.

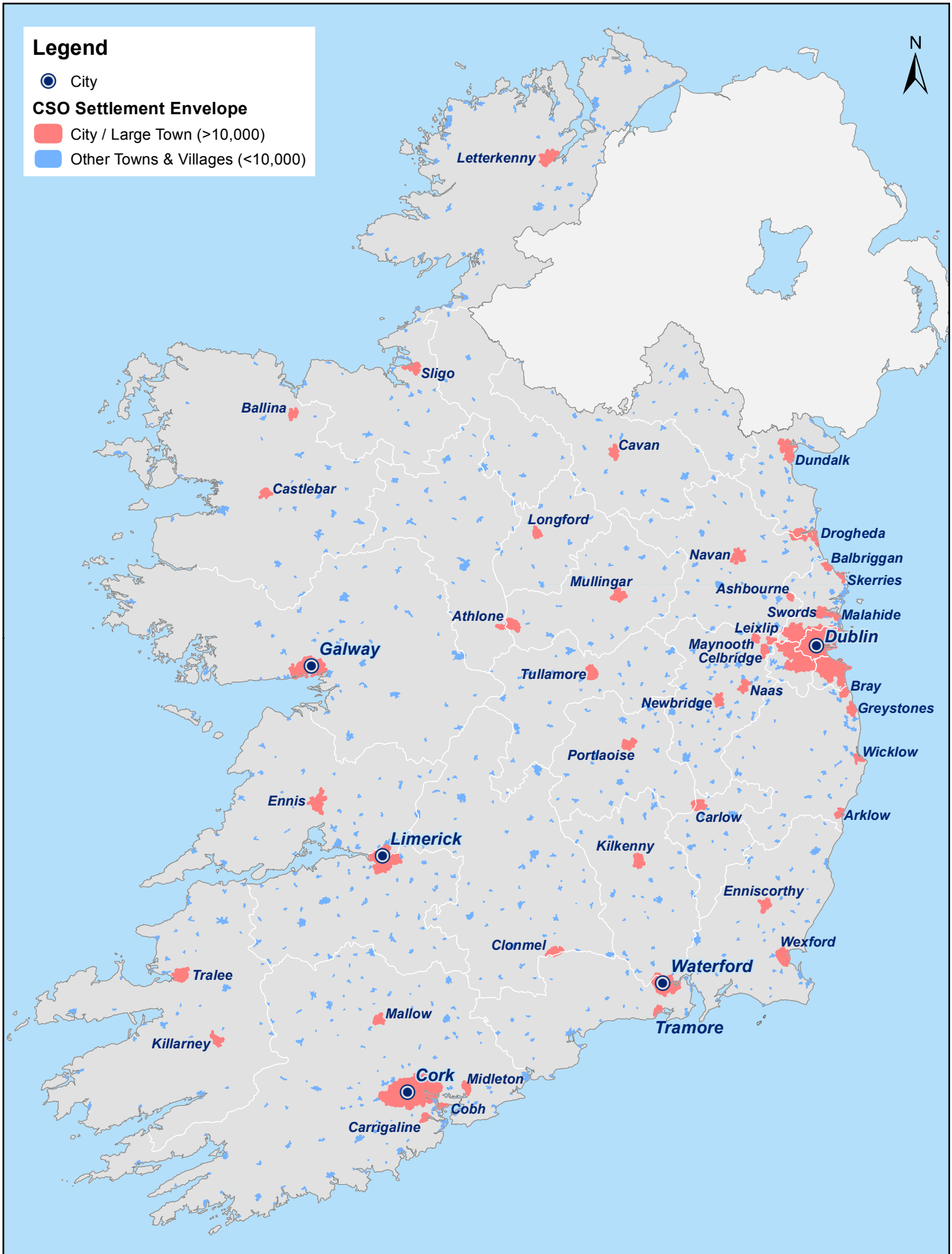
For the purposes of analysis of Census results, the settlement boundary or envelope of a town is defined as "*a cluster with a minimum of 50 occupied dwellings, with a maximum distance between any dwelling and the building closest to it of 100 metres, and where there was evidence of an urban centre (shop, school etc.)*"[20]

The CSO then defines 'rural' as the areas outside settlements that have a population of 1,500 people or more. These settlements are vital for sustaining viable rural communities. 'Rural' also includes smaller settlements of less than 1,500 people together with the open countryside; in 2016, this comprised approximately 37% of Ireland's population. Under the draft NPF, 'rural' is further considered to include towns and villages up to a population of 10,000 people, which means around half of Ireland's population lives in areas with a predominantly rural, small town and village settlement pattern; see **Figure 5.5** showing the CSO settlement envelopes for 2016.

Outside of existing settlement envelopes, there continues to be a demand for the provision of single housing in the countryside. The DHPLG reports that the majority of recent single housing in the countryside has been developed privately whereas provision of social housing has largely occurred in cities, towns and villages. Scattered development can contribute to spatial and social imbalances, where provision of services is made more difficult due to urban sprawl and the proliferation of linear developments. Population declines in smaller settlements have resulted in closed services and can lead to marginalisation and isolation of more vulnerable people.

[19] Urban population growth targets are based on the ESRI NPF projected growth rate, are at the midpoint of the range and are rounded to the nearest 1,000. The maximum point is 20% approximately higher than the minimum point to allow for flexibility and the possibility that targets may not be achieved in all locations. The initial focus of this twenty year Framework that will be subject to future review, is on the midpoint.

[20] https://data.gov.ie/dataset/settlements-generalised-100m-osi-national-statistical-boundaries



Data source: OSi national boundaries, 100m generalised (data.gov.ie).

Title

Figure 5.5 - CSO Settlement Envelopes (Census 2016)

Project

National Planning Framework

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The Regional Economic and Spatial Strategies (RSES's) for each Regional Assembly area will address the potential of towns and their surrounding rural areas in conjunction with consideration of growth targets as set out in the draft NPF.

5.2.2.3 Households and Vacancy Rate

The CSO states in their latest population and labour force projections report that the total population is predicted to grow to between 4.7 and 5.3 million over the period 2016-2026.[21] The CSO predicts the average annual population growth rate during this period (taking account of fertility and migration) to be between 0.4 and 1%, compared to the 1.6% growth rate observed during the 2006-2011 inter-censal period, and 0.7% between 2011 and 2016.

Over the period 1991 to 2011, the average household size decreased from 3.3 persons per household to 2.7 mainly driven by the growing number of one person households and falling family size. The preliminary results for 2016 reveals that the number of households has increased by 3%, whilst the population increased by 3.7%. This indicates that household formation has fallen behind population growth between 2011 and 2016. This pattern is particularly evident in Dublin (Dublin City, Fingal, Dún Laoghaire-Rathdown and South Dublin) and for counties in the immediate vicinity of Dublin. Preliminary figures for 2016 indicate that there were almost 260,000 vacant dwellings in Ireland, or a vacancy rate of 12.8% (compared to 14.4% in 2011 and 15% in 2006); see **Table 5.8**.

Table 5.8 – Housing Stock and Vacant Dwellings Comparison for 2011 and 2016

State Totals	2011	2016	Actual change	% Change
Housing Stock	2,003,914	2,022,895	18,981	+0.9
Occupied Households	1,669,180	1,718,465	49,285	+3
Temporarily Absent	45,283	44,868	-415	-0.9
Vacant Holiday Homes	59,395	61,204	1,809	+3
Other Vacant Dwellings	230,056	198,358	-31,698	-13.8

Source: CSO Census 2016, StatBank Code: EP007. Figures for 2016 are noted to be preliminary.

The Department estimates that between 2017 and 2040, the provision of approximately 25,000 new homes will be required every year in order to meet housing demands. There is a greater need to cater for one and two person households, and the provision of a wide range of differing housing requirements. In acknowledging the reuse of the existing stock, the breakdown of required units to 2040 is set out in **Table 5.9**.

Table 5.9 – Breakdown in Projected Housing Requirements to 2040

Overall number of units projected to 2040[22]	Dublin City and Suburbs (Net Figure)	Other Four Cities and Suburbs	Other Large Urban Areas (>10,000)	Small Towns (<10,000) and Rural Areas
550,000	143,000	132,000	99,000	176,000

Source: Table 5.1, draft NPF.

[21] CSO (April 2013) Population and Labour Force Projections 2016-2046.

[22] This figure reflects the overall housing requirement to 2040 related to an additional population of one million people based on a household occupancy rate of 2.5 taking account of obsolescence, changing vacancy rates and rate of completions.

5.2.2.4 Human and Wellbeing

Healthy Ireland is the Health Service Executive's (HSE's) national framework for action in order to improve the health and wellbeing of Ireland's population. It was adopted by Government in 2013 in response to the changing trends in Ireland's health and wellbeing. The main focus of the framework is on the prevention of health issues in the first instance as well as keeping people healthier for longer. The four main goals of the Healthy Ireland framework are to:

- Increase the proportion of people who are healthy at all stages of life;
- Reduce health inequalities;
- Protect the public from threats to health and wellbeing; and
- Create an environment where every individual and sector of society can play their part in achieving a healthy Ireland.

The strategy also emphasises the positive impact that social interaction and social connectedness can have in terms of empowering people and building strong communities for health and wellbeing. The promotion of social inclusion can have positive impacts on human health as the two are closely related. Social exclusion is considered to be circumstances under which a person may be excluded from participating in activities that would be considered normal in the lives of others, and can lead to feelings of disempowerment. Social exclusion can have detrimental impacts on both physical and mental health.[23]

The CSO statistical publication "*Measuring Ireland's Progress 2013*" stated that life expectancy at birth for males in Ireland in 2012, as calculated by Eurostat, was 78.7 years, 1.2 years higher than the EU average. Female life expectancy at birth in 2012 was 83.2 years in Ireland, just above the EU average of 83.1 years. At the time of the 2011 Census, 88.3% of the total population considered themselves to be in 'very good' or 'good' health. Perceptions of healthiness showed substantial deterioration with age, with 11.6% of the population aged 85 and above identifying themselves as having 'bad' or 'very bad' health compared to 0.4% of 20-24 year olds. Cities were also found to have the poorest levels of health compared to suburbs, smaller towns or rural areas.

More recently the CSO's Irish Health Survey 2015 (StatBank Code: IH001) indicates that the number of people aged 15 or over reporting 'very good' or 'good' health decreased slightly to 83%. Social connectedness and wellbeing are included as topic areas in the survey, emphasising that overall health is not solely related to physical wellbeing. The majority of deaths registered in Ireland during 2015 were as a result of circulatory system disease at 31% of deaths, of which 4,417 were due to ischemic heart disease and 1,902 were due to cerebrovascular disease.[24] Of all deaths recorded across Ireland, 29% can be attributed to cancer, while respiratory disease accounted for 13%.

An ageing population for Ireland and globally is also a significant trend. In Ireland, the number of people aged 65 and over has doubled since 1960, and the number of people over 85 has quadrupled over the last 50 years.[25]

[23] McAvoy, H. and Meehan, K. *Levelling up* – Securing Health Improvement by Promoting Social Inclusion: A Cross Border Action Plan for the North West of Ireland. Dublin: Institute of Public Health in Ireland, 2008.

[24] CSO (2016) Vital Statistics Yearly Summary 2016.

[25] DHPLG (2016) Ireland 2040 – Issues and Choices Paper.

The built environment is an important factor to peoples' health and wellbeing. Health is also related to socio-economic factors. Poor people tend to live in poor quality built environments and have a greater risk of exposure to adverse environmental circumstances. The increase of indoor and sedentary lifestyles is also associated with increased risk of developing chronic health conditions such as obesity, heart disease and depression. Spatial planning plays an important role here in terms of public transport options, connectivity, housing conditions and access to the natural environment. The over-reliance on the private car as a mode of transport has implications for health in terms of emissions to air (nitrogen oxides and particulate matter), particularly in urban areas, and 77% of the national vehicle fleet is comprised of cars. This has also resulted in a proliferation of urban parking and the pushing of shopping and leisure services activity to the outskirts of town. This can lead to loss of footfall in town centres and a loss of local connectivity. Creating and maintaining a sense of place and providing options that encourage people to make healthier choices in terms of physical activity and use of alternative transport is essential to improving health and wellbeing.

Employment and income are among the most significant determinants of long-term health, influencing a range of factors including the quality of housing, access to and level of education, diet, lifestyle, coping skills, access to services and social networks. Communities which are subject to socio-economic deprivation are more likely to suffer from morbidity, injury, anxiety, depression and tend to suffer from higher rates of premature death than those less deprived.[26]

Noise is also recognised as affecting health and wellbeing. Exposure to noise is recognised as being both an environmental pressure to wildlife as well as human beings, and can affect human health and general well-being by causing stress, anxiety and disruption of activities such as sleep. The degree to which noise exposure impacts disease incidence is less well understood compared to air pollutant exposure. Exposure to excessive noise has also been linked to an increased risk of heart attack, stroke and premature death.[27] People are generally exposed to the most noise from transport-related sources, particularly road traffic. Railways, airports and industrial activities are also sources of noise. Urban areas can exacerbate the impacts of noise to human health, in particular because air pollution levels are often higher, creating in-combination effects. Regulation of noise comes under the remit of the Environmental Noise Directive (2002/49/EC), with the requirement for Member States to produce noise maps and noise action plans based on those maps; each local authority in Ireland is required to produce a Noise Action Plan for their administrative area.

Clean water is important to a population's general health. Ireland has in general good water quality and consequently the health of the population benefits from having it. There are many potential contaminant sources that pose a risk to Ireland's clean water supply. The main potential risks to human health come from biological sources (verotoxigenic *E. coli* [VTEC], *Cryptosporidium* etc.) and chemical sources (fertilisers, pesticides, herbicides, trihalomethanes (THMs), heavy metals and pharmaceuticals etc.). In addition, the development of infrastructure may have the potential to have a negative impact on water quality in some instances. Water supply and drinking water quality are discussed in detail under Material Assets in **Section 5.2.6.4** and wastewater treatment and capacity issues are discussed in **Section 5.2.6.5**.

Air pollution is also recognised as a significant public health burden in terms of illness and premature death associated with air pollution generally, and from the transport sector in particular. Continued use of solid fossil fuels for domestic usage and the increasing vehicle fleet leading to emissions of

[26] Marmot, M. (2005) Social determinants of health inequalities, *Lancet*, 365, 1099-1104.

[27] EEA (2015) The European Environment State and Outlook Synthesis Report.

particulate matter and nitrous oxides for instance are issues. Air quality is discussed in detail in **Section 5.2.5.1**.

5.2.2.5 Existing Environmental Pressures/ Problems: Population and Human Health

The main drivers and pressures on population and human health according to the Current State of the Environment Report (2016), include climate change, antimicrobial resistance and chemical pollution. At a local level in Ireland this also includes drinking water quality and the need to eliminate long-term Boil Water Notices.

Population growth in Ireland is set to continue, with an estimated one million addition people by 2040. The demographics will change and there will be more people over the age of 65 – a doubling to over a million over the next 20 years; this will place pressure on the provision of adequate services, particularly healthcare. There will be a requirement for at least 500,000 new homes, more people working as well as increased demand for placements in third level education. All of this will place demand and pressure on space, provision of services and infrastructure.

A potential risk to human health comes from exposure to air emissions from a range of combustion sources. There remains an overreliance on private cars as the main mode of transport in Ireland. The EPA notes in the State of the Environment Report (2016) that the primary sources of concern in 2015 were emissions from road traffic and domestic space heating using solid fuels (i.e. coal, peat, biomass).

The key challenges in relation to the draft NPF for population and human health addressing future settlement patterns and ensuring that adequate housing and services are provided for.

5.2.3 Soils, Geology and Hydrogeology

Soil is a valuable resource that performs many ecosystem services: production of food; production of biomass; storage, filtration and transformation of nutrients and water; carbon storage and cycling; and contributes to the landscape and cultural environment. Such functions of soil are worthy of protection because of their socio-economic as well as environmental importance. Soils in any area are the result of the interaction of various factors, such as parent material, climate, vegetation and human action.

Regarding landuse, the Intergovernmental Panel on Climate Change (IPCC) deals with mitigation of climate change through Working Group III,[28] which has concluded that landuse, including agriculture and forestry, plays a central role for food security and sustainable development. Infrastructure (including housing), agriculture and forestry all compete for land and Ireland faces the challenge of availability of land in light of policies to increase afforestation and agricultural production alongside expansion of housing and infrastructure for a growing population.

Given the strategic nature of the draft NPF, focus of the baseline for soils, geology and hydrogeology is at a national level and the key issues associated with the draft NPF relates to:

- Intended and unintended land use change;

[28] Agriculture, Forestry and Other Landuse (AFOLU), (IPCC)

- Inappropriate agricultural and forestry activities;
- Loss of prime agricultural land for development;
- Erosion of soils;
- Spread of invasive species;
- Soil pollution;
- Effects on geomorphology (i.e. geological heritage, landforms and river channels);
- Sealing of soils; and
- Increase in the extent of built-up areas and urban sprawl.

5.2.3.1 Soils and Land Cover

Despite the importance of soil, there is little in the way of direct EU or national legislation obliging Ireland to maintain soil quality however, indirectly, issues such as contaminated land have been dealt with through other legislation (e.g. waste). As far back as 2006, the European Commission published a proposal Communication (COM(2006) 231) for a Thematic Strategy for Soil Protection and a Soil Framework Directive, leading the way for full EU legislation. More recently in 2012, the EC published a policy report on the implementation of the Strategy and ongoing activities (COM(2012) 46). However in May 2014, the EC decided to withdraw the proposal for this directive, opening the way for an alternative initiative in the next mandate. The Seventh Environment Action Program has acknowledged that degradation of soil is a serious problem. It is proposed that by 2020 all land in the EU should be managed sustainably and soils afforded protection, with remediation of contaminated sites laid out as a priority.

The quality of soils in Ireland is considered generally good although there are pressures impacting on its long-term protection and maintenance particularly from landuse changes, intensification of use, urbanisation and disposal of organic wastes to soils (EPA, 2008). The soils of Ireland are an immensely valuable and finite national resource which forms and evolves slowly over very long periods of time and can be easily damaged and lost. Soil is a biologically active, complex mixture of weathered minerals (sand, silt and clay), organic matter, organisms, air and water that provides the foundation for life in terrestrial ecosystems. The Great Soil Groups of Ireland are set out in **Table 5.10**.

Soil biodiversity is the foundation of many ecosystems and ecosystem services and it is estimated that soils contain up to a quarter of all living species on earth. This massive resource is responsible for regulating natural processes, controlling pollution, providing food and other resources.

Table 5.10 – Soil Classifications

Great Soil Group	Description
Ombrotrophic	Ombrotrophic peat soils are rain-fed peat soils in lowland (raised bog) and upland positions (blanket peat). They are oligotrophic with a pH < 4.0.
Minerotrophic	Minerotrophic Peat soils are ground water-fed peat systems occurring in river valleys, inter-drumlin hollows and on the periphery of raised bogs. They are eutrophic and have a pH > 4.0.
Rendinza	Rendzinas are shallow (< 30 cm depth) calcareous (> 2% CaCO3) soils with hard rock (R) or skeletal material comprising > 80% coarse fragments (> 2 mm esd) at or above 30 cm.
Lithosol	These are shallow (> 30 cm depth) non-calcareous soils, commonly overlying hard rock or skeletal and gravelly material made up of > 80% coarse material (> 2 mm esd). They tend

Great Soil Group	Description
	to be stony soils, or with shattered bedrock and are associated with frequent rock outcrops.
Alluvial	Alluvial soils are formed in deposits of river, lake, estuarine or marine alluvium. The majority of series described are associated with recent rivers and streams. The lake alluviums found in Ireland are mostly associated with depressions at the sites of glacial or post-glacial lakes.
Groundwater Gley	These soils have gleyed sub-surface horizons, displayed by prominent mottling or uniformly grey subsoils within 40 cm depth. The gleying is caused by periodic waterlogging resulting from a shallow fluctuating groundwater table.
Surface Water Gley	Surface-water gleys have a gleyed sub-surface horizon and a slowly permeable sub-surface horizon. The slowly permeable sub-surface horizon impedes vertical water movement from in situ precipitation and/or lateral run off from upslope positions resulting in seasonal waterlogging.
Podzol	Podzols have a dark, humose or peaty surface horizon and an albic horizon (E) overlying a podzolic B horizon (Bs). If the topsoil is peaty it should be < 40 cm thick. The albic horizon has a moist colour value > 4. An iron pan may be present and if the topsoil is peaty a Bh horizon may also develop. Gleying can also occur within the profile.
Brown Podzolic	Brown Podzolic Soils show features of incipient podzolic processes but are not sufficiently expressed to classify them as Podzols. They have a podzolic B horizon (Bs) but lack an albic (E) horizon. The podzolic B has a moist chroma > 3. This Great Group includes degraded Podzols, primarily through cultivation or land improvement and in some cases there may also be a thin discontinuous iron pan present.
Luvisol	These soils are associated with clay eluviation which results in a Bt horizon with significant accumulation of clay (argillic B horizon) compared to the overlying horizons. Base saturation is > 35%. An albic E horizon may be present between the A and Bt horizons. These soils are decalcified, thus soils that are calcareous do not have argillic B horizons.
Brown Earth	Brown Earths are well drained soils possessing rather uniform profiles with little differentiation between horizons. They have a Bw horizon with a colour (10YR or redder, moist value 3-4 and chroma 3 or more, or moist value 5 and chroma 4 or more) or structural change compared with lower horizons. They have not been extensively leached or degraded (i.e. they lack argillic (Bt) or podzolic B (Bs, Bh) horizons) although some leaching has resulted in the translocation of calcium and magnesium.

In Ireland, some soil protection legislation has been enacted including the 2011 EIA Regulations for On Farm Development which includes a requirement for EIA of soil operations such as soil drainage. On a national scale, the EPA in conjunction with Teagasc and Cranfield University, launched the Third Edition Soil Map in 2014, part of the Irish Soil Information System, a project which combined traditional soil survey techniques with digital mapping in a GIS-based soil information system. Phase 1 of the project began in 2008 and was completed in 2014, with Phase 2 progressing from 2015. This project provides valuable information on existing soils in the county. The overall objective of the project is to produce soil map of Ireland at a scale of 1:250,000 with an associated web-based soil information system in the public domain (http://gis.teagasc.ie/soils/map.php).

The potential for disturbance of soils during infrastructural development can lead to the loss of soils along with compaction of soils due to operations of heavy machinery. Loss of soils and sediment to water courses can lead to sediment issues such as an increase in suspended solids, which can impact on water quality.

Nitrate Vulnerable Zones

Within Ireland, a Nitrates Action Programme has been prepared in accordance with Article 5 of the Nitrates Directive and is to be applied to the state as a whole.

Soil Contamination

In April 2007, the EPA published a Code of Practice that provides a framework for the identification of contaminated sites, the assessment of the potential risks associated with them and the identification of the appropriate remedial measures or corrective actions required to minimise risk to the environment and human health. Following the publication of the Code, the EPA trained local authority staff on its use and application. Local authorities are now implementing the Code and the EPA is overseeing its implementation; however, a list of contaminated sites across Ireland is not centrally compiled.

The EU also has directive regarding the control of major accident hazards, commonly known as the Seveso III Directive (2012/18/EC). This was adopted and ratified into Irish law through the Control of Major Accident Hazards Involving Dangerous Substances (COMAH) Regulations 2015 (S.I. No. 209 of 2025). The Directive aims to prevent major accident hazards involving dangerous substances and chemicals and the limitation of their consequences for people and the environment. In conjunction with the Health and Safety Authority (HSA), it is policy for local authorities to implement the provisions of the Seveso III Directive (2012/18/EU). Seveso sites are defined as industrial sites which, because of the presence of sufficient quantities of dangerous or hazardous substances, must be regulated under this EU directive. If there are planning applications for development occurring within a certain distance of the perimeter of a Seveso site, the HSA provides appropriate advice to the planning authorities in respect of development within a distance of these sites.

Contaminated land requires appropriate remediation of the site prior to any development, ensuring there is no migration of contaminated material during remediation or measures to handle landfill gases. Seveso sites are categorised as Upper Tier or Lower Tier depending on the size of the site and the quantities of dangerous/hazardous material present. As of March 2017, the HSA lists that there are 45 Lower Tier Seveso sites and 46 Upper Tier Seveso sites in Ireland.

Slope Stability and Landslide Potential

Ireland is fortunate not to be a high-risk area for landslides, though landslides do occur, however infrequently, with the most occurrences in coastal, upland and peat bog areas. Though the potential for major destructive landslides is slight, there have been instances of severe events in Ireland in the past. Historically, the GSI has recorded 2,781 landslide events nationally. The GSI Irish Landslides Working Group (ILWG) has compiled a landslide database in order to assess the scale of the landslide problem historically and also to assess the susceptibility of areas to landslide hazard in the future. This has direct relevance to the sustainable development of the landscape in terms of housing, infrastructure etc. and is therefore an important issue for the planning process. This national landslide susceptibility mapping was completed in 2016. The majority of the country (approximately 80%) is classed as having 'Low' landslide susceptibility. The data indicates that risk increases to 'Moderately High' and 'High' in more uplands areas, notably the Wicklow Mountains in the east and around the more mountainous parts of the west coast of Ireland particularly in Counties Cork, Kerry, Galway and Donegal.

5.2.3.2 Land Cover

The main source of national-scale information on land cover in Ireland is the EEA/ EPA CORINE land cover data series, which is an EU-wide inventory of land cover in 44 classes categorised from satellite photography. It should be noted that the smallest amount of land analysed under the study is 25 hectares, therefore features smaller than this are not discernible at the resolution of CORINE however the EPA undertakes some adjustments to better fit Ireland's land cover. In 1990 a CORINE database of land cover for Europe was produced, which is updated by the EEA every 6 years; **Figure 5.6** shows the land cover for Ireland based on the latest CORINE Study (2012).

The main land cover type in Ireland is agricultural land, which accounts for approximately two-thirds (67%) of the national landmass. Most of this is permanent grassland pastures. Peatlands and wetlands are the second most widespread land cover type, covering almost one-fifth (about 18%) of the country, while forested areas covers about 11% of the country. The classes for artificial surfaces and built ground encompass features such as urban fabric, ports, road/rail networks and extraction sites etc. Overall, this class covers just 0.02% of the country (CORINE, 2012).

5.2.3.3 Geology and Hydrogeology

Bedrock Geology: According to the GSI's 1:100,000 scale Bedrock Map Series, the bedrock across a large portion of central Ireland is comprised of Carboniferous limestones, which were deposited in tropical seas 350 million years ago. Sandstone and shale of varying ages from 500 – 300 million years ago are the next most prevalent lithology across the country, some of which are interspersed with basalt and rhyolite, followed by Ordovician to Devonian granite intrusions. The bedrock in the south of Ireland is comprised of Devonian Old Red Sandstones, where thick layers of sediment were laid down in semi-arid and mountain river systems. The northwest is comprised of much older Precambrian quartzites, gneisses, schists and granites, and other igneous intrusive rocks.

Mineral Potential: There is a mining legacy across some parts of the country. Minerals and metals that were mined include zinc, lead, gypsum, coal, silver, copper and gold. In addition to metals, crushed rock, sand and gravel are also currently quarried at over 400 sites in Ireland (Exploration and Mining Division, DCCAE, 2016). According to the Extractive Industries Register maintained by the EPA under the Waste Management (Management of Waste from the Extractive Industries) Regulations 2009 (S.I. No. 56 of 2009), there are extractive industries nationally (including quarrying, commercial peat extraction and timber production). As of the start of 2017, the GSI's active quarries database notes that 143 quarries reported as active.

Sand and Gravel Potential: Unlike most other forms of development, minerals can only be worked where they are found. This means that the spatial distribution of mineral resources and thus the potential for workings is dictated by geological considerations and not by the demands of human geography. The GSI Minerals Section began a programme of mapping of "Aggregate Potential" on a county-by-county basis. Data is now available nationwide and covers crushed rock aggregate potential as well as granular potential. Spatial data is hosted by the GSI and viewable on a dedicated project viewer.[29]

Geological Heritage: The Irish Geological Heritage (IGH) Programme is a partnership between the GSI and the NPWS. In Ireland, geological heritage is assessed under a framework of 16 themes

[29] http://spatial.dcenr.gov.ie/GeologicalSurvey/APM/

which cover different time periods and aspects of geology. Some of these sites have been selected or recommended for eventual designation as Geological NHAs. The remainder are being considered as County Geological Sites (CGS) which have no statutory protection but can be included within County Development Plans. Across Ireland there are approximately 1,300 geological heritage sites (includes both audited and unaudited site boundaries). These sites can be viewed online via the GSI's dedicated heritage map viewer.[30]

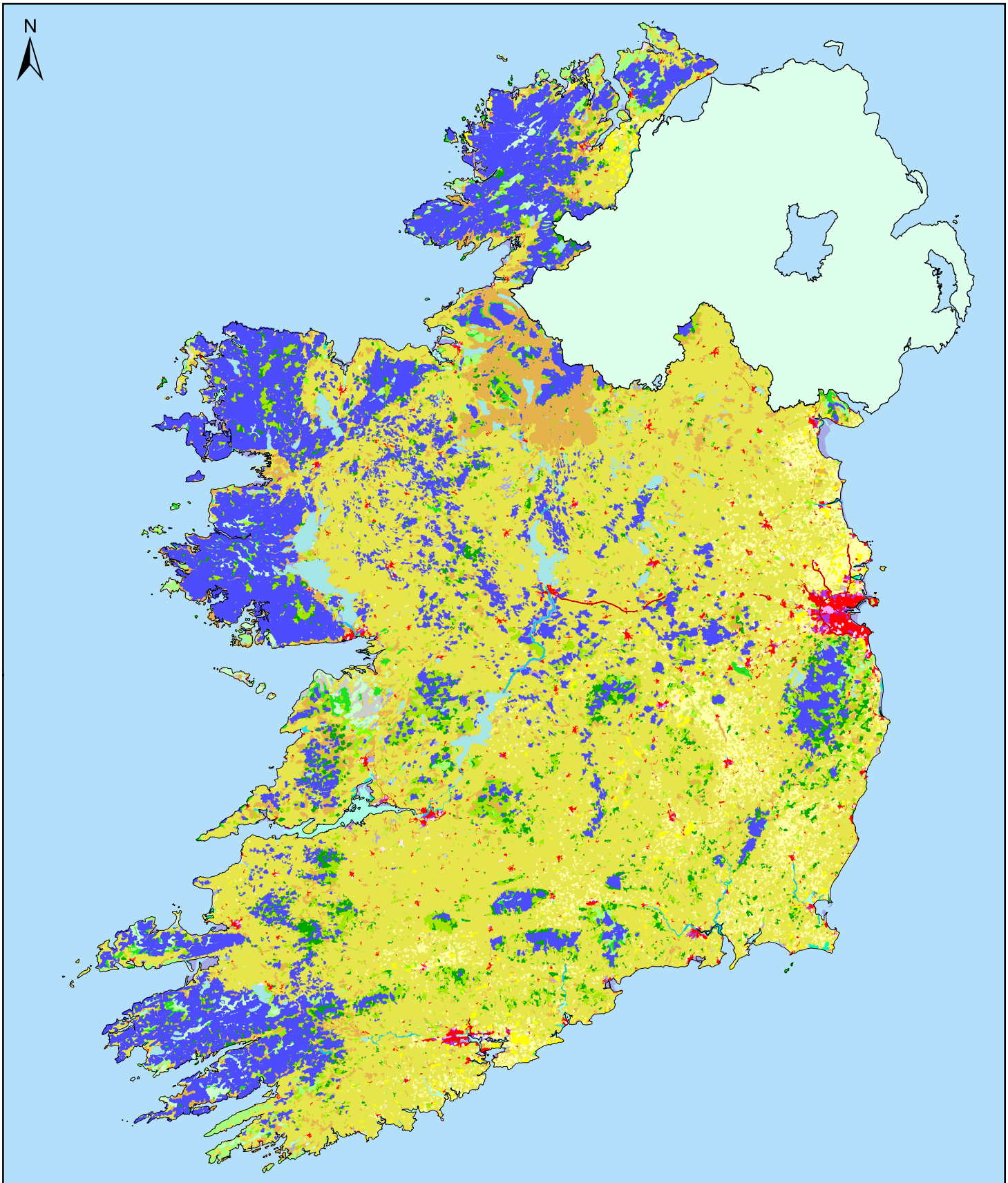
Hydrogeology: Approximately 50% of Ireland is underlain by limestone. Limestone pavement is a priority habitat for conservation under the EU Habitats Directive due to habitats relying on hydrological, hydrogeological and geological conditions. The most extensive limestone pavement occurs in the Burren/East Galway area. The nature of the limestone strongly influences its susceptibility to karstification, and most of the largest springs in Ireland emerge from karst. The GSI borehole database indicates that there are over 33,200 groundwater wells and springs at a national level (those with the highest positional accuracy). Of these, over 850 are at the appropriate abstraction yield to provide for potable water supply. Karst springs, both large and small, are ready sources of drinking water in areas where there are often no other alternatives due to the absence of adequate surface watercourses.

Due to the particular characteristics of karst, including an irregular bedrock surface, the presence of large voids and rapid underground drainage, it can present problems for infrastructure development as groundwater is most at risk where the subsoils are thin or absent and contaminants can enter the groundwater with little or no filtration or attenuation. Common karst features can include swallow holes, caves, turloughs and enclosed depressions. The GSI maintains a database of such mapped features across the country. The distribution of these features indicates that the majority occur in the midlands of the country and along the west coast of Ireland. As of 2017, there were just over 10,800 karst features recorded nationally by the GSI. The database is not comprehensive however, and new features are added as more information becomes available.

The Geological Survey of Ireland (GSI) also classifies the groundwater resource according to vulnerability i.e. the hydrogeological characteristics intrinsic to a groundwater body which determines how easily that water body may be contaminated through human activities. Groundwater vulnerability in Ireland exhibits a range of vulnerability ratings and is classified by Low risk up to Moderate, High, Extreme and 'X', where the rock is exposed near the surface or comprised of karst. The groundwater vulnerability classification for Ireland is illustrated in **Figure 5.7**.

An aquifer is an underground body of water-bearing rock or unconsolidated materials (gravel or sand) from which groundwater can be extracted in useful amounts. The GSI classifies aquifers and the classes are divided into three main groups based on their resource potential, and further subdivided based on the type of openings through which groundwater flows. There are nine aquifer categories in total. Regionally important (karstified - conduit) aquifers are generally located to the west of the country, in the Burren/East Galway area. Gravel aquifers are much smaller in number and extent, covering only about 1,221km^2 nationally. The distribution of aquifers is mapped in **Figure 5.8**.

[30] http://dcenr.maps.arcgis.com/apps/MapSeries/index.html?appid=a30af518e87a4c0ab2fbde2aaac3c228



Corine Landcover Type

- 111 Continuous urban fabric
- 112 Discontinuous urban fabric
- 121 Industrial or commercial units
- 122 Road and rail networks
- 123 Sea ports
- 124 Airports
- 131 Mineral extraction sites
- 132 Dump
- 133 Construction sites
- 141 Green urban sites
- 142 Sport and leisure facilities
- 211 Non-irrigated land
- 231 Pastures
- 242 Complex cultivation patterns
- 243 Land principally occupied by agriculture with areas of natural vegetation
- 311 Broad-leaved forest
- 312 Coniferous forest
- 313 Mixed forest
- 321 Natural grassland
- 322 Moors and heaths
- 324 Transitional woodland scrub
- 331 Beaches dunes sand
- 332 Bare rocks
- 333 Sparsely vegetated areas
- 334 Burnt areas
- 411 Inland marshes
- 412 Peat bogs
- 421 Salt Marshes
- 423 Intertidal flats
- 511 Stream courses
- 512 Water bodies
- 521 Coastal lagoons
- 522 Estuaries

Data source: EPA and the European Environment Agency (EEA).

Title

Figure 5.6 - CORINE 2012 Land Cover

Project

National Planning Framework

Client

Department of Housing, Planning and Local Government

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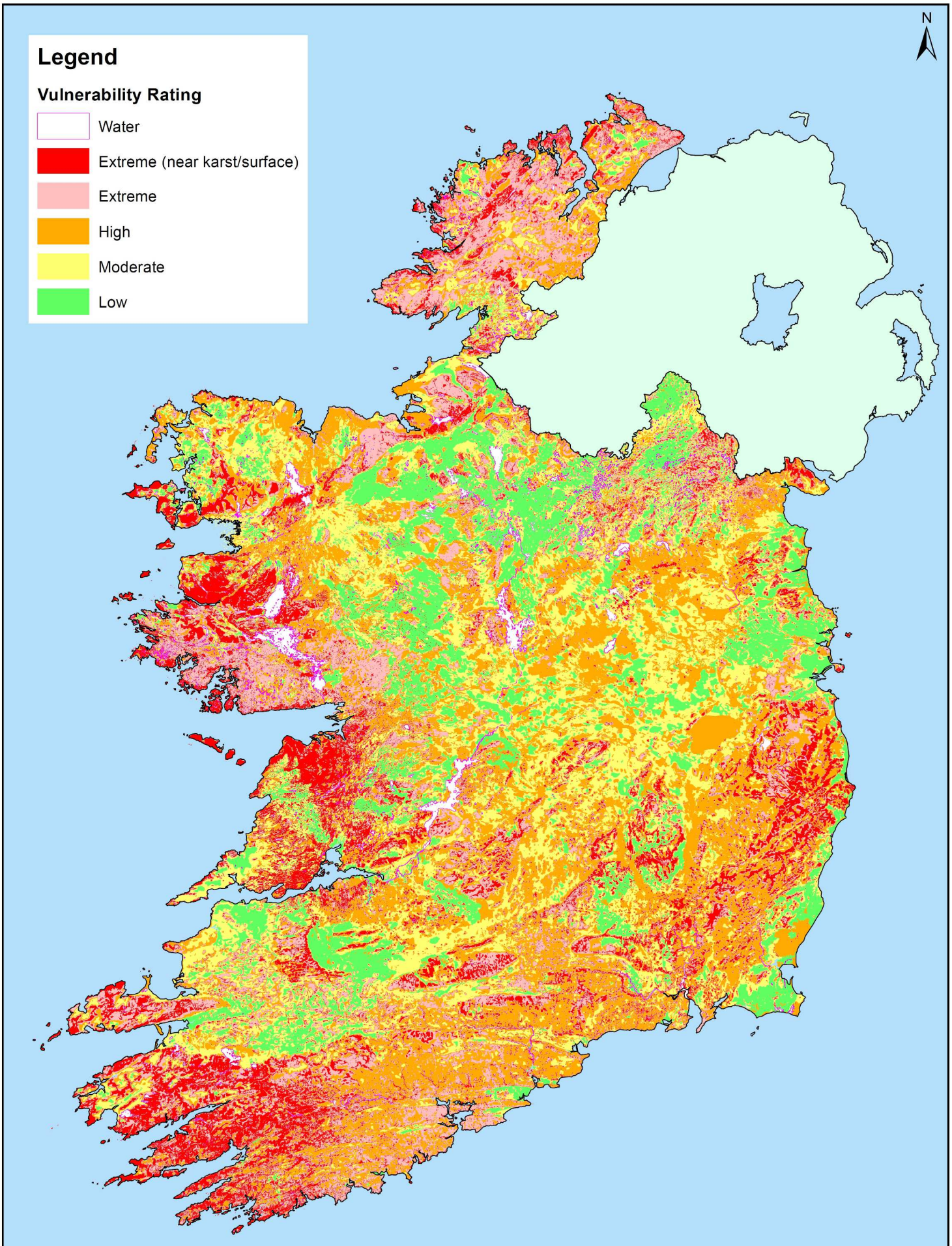

Data source: Geological Survey of Ireland (GSI, DCENR) www.gsi.ie; Irish Water

Title

Figure 5.7 - Groundwater Vulnerability

Project

National Planning Framework

Client

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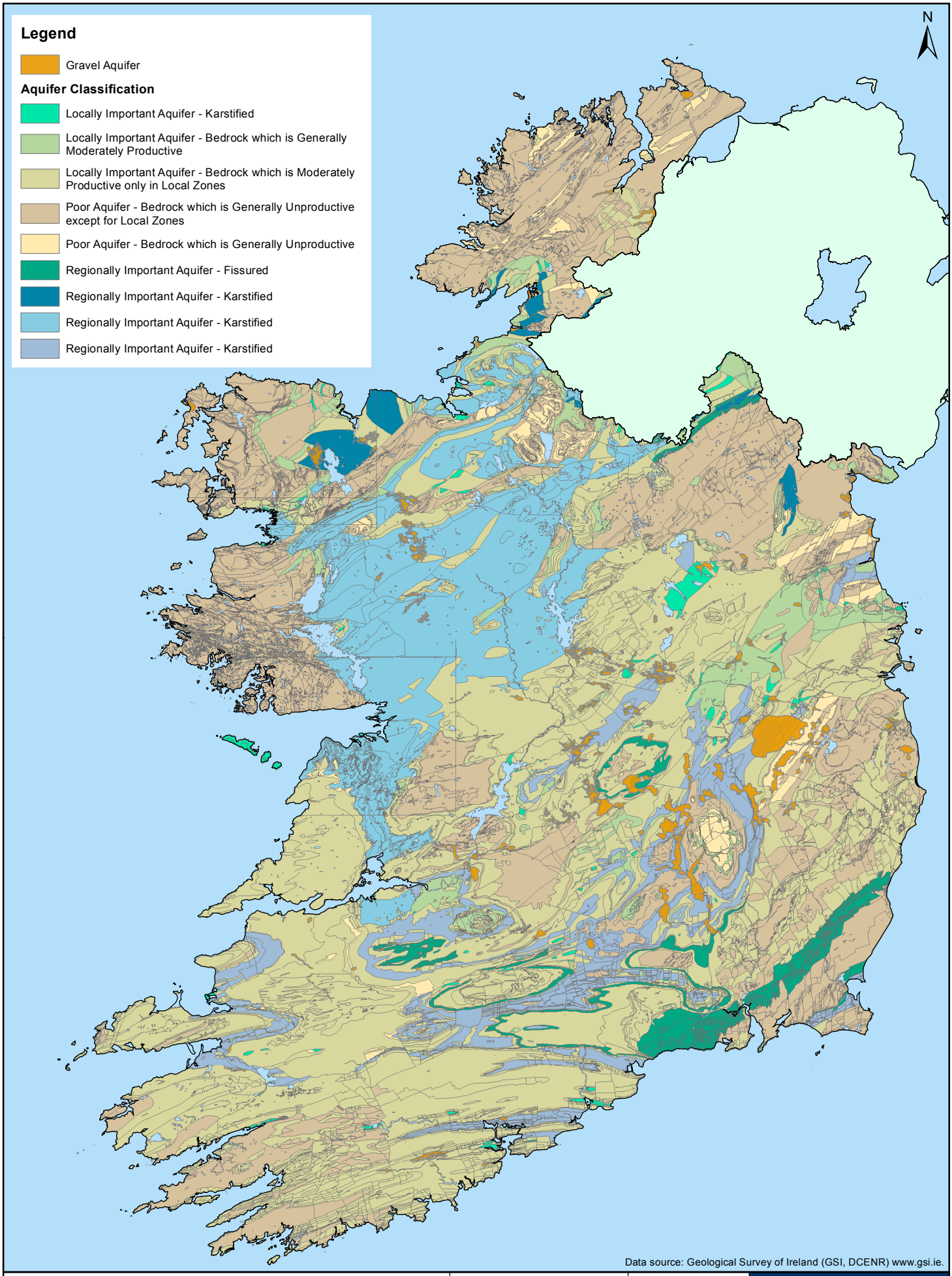

Data source: Geological Survey of Ireland (GSI, DCENR) www.gsi.ie.

Title

Figure 5.8 - Groundwater Aquifers

Project

National Planning Framework

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Date:	28/08/2017		

5.2.3.4 Existing Environmental Pressures / Problems: Soils, Geology, Hydrogeology

Despite the wide range of functions that soils perform from an ecosystem services perspective, there is little legislation relating directly to soils and soil protection and as such, a targeted response to the pressure on soils in Ireland cannot be formulated to any great extent.

The EPA in 2002 identified the main pressures on the soil resource in Ireland as: intensive agriculture; forestry; industry; peat extraction; and urbanisation and infrastructure development. Little has changed in the intervening years and the 2012 EPA State of the Environment Report included pressures such as land use change, population growth and soil contamination.

While Ireland has excellent natural resources for agriculture, agricultural practices are known to pose a range of pressures on water quality, biodiversity and other environmental media. The planned intensification under Food Wise 2025 will increase the numbers in the national herd and may increase these pressures if the planned intensification is not carried out in sustainable manner.

In relation to land use, the EPA's 2016 report also concludes that forward strategic planning is required in order for growth to be sustainable and not add to existing environmental pressures. The competitive nature of various sectoral plans and policies must also be accounted for, in particular the range of national policies that could influence land use change and resource management. The 2016 State of the Environment report indicates that, over the coming decade, the main drivers of land use change will be the agricultural policy of Food Wise 2025 as well as the afforestation policies associated with the National Forestry Programme (2014-2020). Urbanisation is also expected to increase in the future following the economic recession.

The decline in peatland ranges and the functions of peat also represents a significant issue, as is degradation of soils (e.g. from soil sealing and compaction). Extraction activities, when mismanaged, can result in pressures on water quality. The extractability of mineral, sand and gravel resources is also being curtailed and/ or reduced by the encroachment of residential development into rural areas and the conflicts between people and the impacts associated with these activities, e.g. noise and traffic. The additional restrictions associated with water management activities is a cumulative pressure on these resources.

Predictions have been made about the impact of global warming on Ireland, with these predictions indicating a change to wetter winters and drier summers.[31] In addition there may be an increase in frequency of high intensity rainfall events. Such precipitation changes could have serious implications for slope stability and landslides and their resultant impacts on water management activities.

Eroded soil washed into rivers during heavy rainfall contains an increased nutrient content, which can damage the balance of nutrient-poor aquatic ecosystems by shifting their species composition, supporting more species that thrive on increased nutrients. This can lead to the eutrophication of rivers and lakes. If contaminated soils are eroded and transported to the sea, aquatic plants and animals can be severely damaged.

Key issues for the draft NPF in relation to soils, land cover geology and hydrogeology therefore relate to:

- Land use changes which may result in increased soil erosion and runoff from excess nutrients, pesticides and other chemicals into nearby watercourses;
- Loss of wetlands through changes in land use and new infrastructural developments;
- Planning for future infrastructure e.g. to increase waste water treatment capacity, supply of drinking water;
- Loss of peatlands through land drainage and reclamation for agricultural purposes, with knock-on impacts for climate change; and

[31] Sweeney, J. (1997) Ireland, In: Wheeler, D. & Mayes, J. (eds) Regional Climates of the British Isles. London: Routledge.

- Suitable management of landscape to address changing socio-economic needs and also to help mitigate against future impacts of climate change (e.g. flood defences etc.)

5.2.4 Water

Water is essential for all life on earth and as such management of the water resource is a significant issue nationally and within Europe. While Ireland's surface and groundwater water quality compares favourably with other EU Member States, there are ongoing pressures and problems associated with achieving and maintaining at least good status in line with Water Framework Directive (2000/60/EC) objectives, as well as other water directives. The key issues impacting the quality of water in Ireland relate to:

- Urban waste water discharges;
- Agriculture;
- Forestry;
- Peat;
- Diffuse urban sources/ towns;
- Hydromorphology;
- Domestic waste water treatment systems;
- Industrial discharges; and
- Invasive species.

The main issues for the draft NPF in relation to Water relate to:

- Facilitating growth and development without compromising achievement of WFD and Marine Strategy Framework Directive (MSFD) objectives;
- Facilitating upcoming marine spatial planning requirements;
- Ensure adequate drinking water and wastewater treatment is available to accommodate planned growth and development;
- Protect water-dependant ecosystems from pollution;
- Prevent the introduction and/ or spread of invasive species; and
- Impacts on water bodies from construction of new wastewater treatment facilities and from existing septic tanks.

To date, water protection efforts have succeeded in reducing the extent of serious pollution in rivers but there remains a need to improve the status of others which are currently at less than good ecological status. While the overall length of unpolluted river channels in Ireland has remained relatively unchanged, there has been a significant loss of high status sites as reported by the EPA in 2016. Only 21 rivers were classified as the highest quality (i.e. Q5) in the 2013-2015 assessment period compared to 82 sites between 2007-2009 and 575 between 1987-1990.

The three main challenges for water quality management are to eliminate serious pollution associated with point sources (waste water treatment plants); to tackle diffuse pollution (pollution

from agricultural activities and septic tanks); and to use the full range of legislative measures in an integrated way to achieve better water quality (EPA, 2012, 2016).

Since 2000, the Water Framework Directive (WFD) has directed water management in the EU. A key development in meeting the requirements of the WFD has been the publication of River Basin Management Plans (RBMPs). These plans have provided a coordinated approach to water management throughout Ireland and across Europe, with the first cycle of RBMPs covering the period 2009 to 2015. During this period the island of Ireland was represented by eight River Basin Districts (RBDs) i.e. areas of land that are drained by a large river or number of rivers and the adjacent estuarine/ coastal areas. This included international districts where water bodies flowed between Ireland and Northern Ireland. As a result, eight separate RBMPs were prepared. These plans summarised the water bodies that may not meet the environmental objectives of the WFD by 2015, and identified the pressures that were preventing these water bodies from meeting same.

The second cycle RBMP is underway, building on the good work and taking into account lessons learned during the first cycle period. Much has changed since the first cycle of the RBMPs and there have been new approaches to governance, river basin planning and catchment science. A more integrated approach between key governmental departments, the EPA and Local Authorities was therefore considered to meet the challenges. For the second cycle period covering 2016-2021, the Eastern, South Eastern, South Western, Western and Shannon RBDs merged to form one national RBD. The existing North Western and Neagh Bann International RBDs will remain and there will be a single administrative area established in the Republic of Ireland to coordinate the management of these international RBDs with authorities in Northern Ireland.

5.2.4.1 Surface Waters

The area of influence of the draft NPF covers all or part of the three RBDs in Ireland: the national RBD, the North Western International RBD and the Neagh-Bann International RBD. The draft NPF does not directly apply to the remaining RBD located wholly within Northern Ireland, but it is acknowledged that there is potential for impacts on water bodies within the district and as such transboundary impacts are considered in the assessment.

The WFD requires that all Member States implement the necessary measures to prevent deterioration of the status of all waters (surface, estuarine and coastal) and protect, enhance and restore all waters with the aim of achieving at least good status by 2015. A "water status" assessment approach was implemented in Ireland as part of the WFD implementation by Local Authorities. The approach incorporates chemical and biological monitoring into a status grade for each water body. WFD water status is classified according to a scale of *High, Good, Moderate, Poor* and *bad*. Further, under the second cycle RBMP, characterisation of water bodies was undertaken to assess the risk of not achieving their assigned environmental objectives e.g. Good or High status, and the risk of deterioration of status.

A key finding of the "*Water Quality in Ireland 2010-2012*" Report (EPA, 2015) was that 53% of rivers, 43% of lakes, 45% of transitional waters, 93% of coastal waters and 99% of groundwater were satisfactory at good or high status. The report noted that while there has been some modest improvement in the quality of Ireland's waters over the period between 2010 and 2012, there is a significant challenge to meet the requirements of the WFD, with some targets set in the first cycle of the river basin management planning not met by 2015, such as the 13.6% target improvement in surface water ecological status.

The current status of river, lake, transitional and coastal water bodies for the 2010-2015 WFD reporting period is summarised in **Table 5.11** and shown on **Figure 5.9**.

Table 5.11 – Water Framework Directive Ecological Status (2010-2015)

Status	River	Lake	Transitional	Coastal
High	10%	11%	13%	23%
Good	46%	35%	19%	56%
Moderate	25%	33%	49%	16%
Poor	18%	12%	15%	5%
Bad	0%	8%	5%	0%

Source: EPA 2010-2015 status (catchments.ie, June 2017). Note: Water Quality Status is for Surface Water bodies that are monitored as part of the Irish Water Framework Monitoring Programme, regardless of jurisdiction and as such takes into account some water bodies in Northern Ireland. Unassigned water bodies have been excluded; percentages are based on monitored water bodies only.

Significant additional targeted action is required to achieve the objectives set out in the WFD. The publication "*Significant Water Management Issues in Ireland*" Report (DECLG, 2015) identifies the key pressures on our water environment and states that "*Much of the water pollution identified in Ireland is caused by excessive nutrients entering waters resulting in eutrophication*". The main sources continue to be urban and domestic waste water discharges as well as diffuse runoff from agriculture (EPA, 2016). Other pressures which have been identified include fine sediment, inland fisheries pressures (e.g. barriers to migration), climate change, invasive alien species and changes to the physical environment. The main impacts to the marine environment include litter, overfishing, by-catch and pressures from aquaculture.

5.2.4.2 Water Framework Directive Protected Areas

Article 6 (Annex IV) of the WFD requires each Member State to establish a register of protected areas for water bodies or parts of water bodies that must have extra controls on their quality by virtue of how their waters are used by people and wildlife. This register is split into five categories as follows:

(i) Areas designated for the abstraction of water intended for human consumption under Article 7;

(ii) Areas designated for the protection of economically significant aquatic species;

(iii) Bodies of water designated as recreational waters, including areas designated as bathing waters under Directive 76/160/EEC;

(iv) Nutrient-sensitive areas, including areas designated as vulnerable zones under Directive 91/676/EEC and areas designated as sensitive areas under Directive 91/271/EEC; and

(v) Areas designated for the protection of habitats or species where the maintenance or improvement of the status of water is an important factor in their protection, including relevant European Sites (Natura 2000) designated under Directive 92/43/EEC and Directive 79/409/EEC.

In Ireland, waters intended for human consumption are protected under the Drinking Water Regulations (S.I. No. 122 of 2014). 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. The breakdown of WFD protected areas are outlined in **Table 5.12** and shown on **Figure 5.10**.

Table 5.12 – Water Framework Directive Register of Protected Areas

Water Framework Directive Protected Areas	Counts
Drinking Waters (rivers and lakes)	353
Economically Significant Aquatic Species (shellfish areas)	64
Recreational and Bathing Waters	134
Nutrient Sensitive Areas (rivers, lakes and estuaries)	42
Salmonid Rivers	34
Water-Dependent Habitats & Species	85,826

Source: EPA WFD Register of Protected Areas GeoDatabase (current version of GIS database: February 2017) and the River Basin Management Plan (DHPLG, 2017).

Note: Salmonid Rivers (designated under S.I. 293 of 1988) are included in the EPA's Register of Protected Areas as the Habitat Regulations cover only Atlantic salmon whereas the Salmonid Regulations cover all salmonid species.

5.2.4.3 Groundwaters

Ireland's groundwater resource accounts for approximately 25% of drinking water nationally. Furthermore it is also a contributor to many rivers, lakes and estuaries around the country. As such, impacts on groundwater can have significant ecological and social implications. Groundwater bodies are assessed over a 6 year cycle compared to every 3 years for surface waters. There are a total of 513 groundwater bodies in Ireland. Of these, 44 are currently at poor chemical status for the 2010-2015 WFD reporting cycle. This represents 9% of groundwaters, compared to 3% in the previous assessment period (2007-2012). Those failing to meet good status are often related to the contribution of phosphate loading to surface waters as a result of diffuse pollution (EPA, 2016). Historical contamination from mining activities and industrial development are other pressures impacting groundwater. A further issue relates to contamination of drinking water well supplies by microbial pathogens; approximately 51% of samples taken from 205 sampling locations in 2012 as part of an EPA monitoring campaign were found to be polluted by microbial pathogens (coliforms).[32]

The topsoil and subsoil - depending on their type, permeability and thickness - also play a critical role in preventing groundwater contamination and mitigating the impact of many potential pollutants, and they act as a protecting filtering layer over groundwater. Groundwater is most at risk where the subsoils are absent or thin and, in areas of karstic limestone, where surface streams sink underground at swallow holes. See also **Section 5.2.3: Soils, Geology and Hydrogeology**.

The WFD requires that all Member States implement the necessary measures to prevent deterioration of the status of all waters including groundwater and protect, enhance and restore all waters with the aim of achieving at least good status.

5.2.4.4 Heavily Modified and Artificial Water Bodies

Some surface waters in Ireland have been substantially changed in character to allow certain uses such as navigation (for example ports), water storage, public supply, flood defences or land drainage/ land reclamation. Examples include: the Rivers Dodder, Liffey and Vartry, which are all

[32] Water Quality in Ireland 2010-2012, EPA (2015)

subject to flow regulation; reservoirs such as Poulaphouca; weirs and sluices, which aid both water storage and navigation; the hydroelectric power scheme associated with Ardnacrusha Dam; and the ports of Dublin, Cork and Foynes for example. To recognise that the benefits from such modifications need to be retained, these waters are designated as heavily modified water bodies (HMWBs). Artificial water bodies (AWBs) include those surface waters which have been created by human activity where no water body previously existed, and have not been formed by other processes such as realignment or alteration of an existing water body. Canals are designated as AWBs under the WFD.

5.2.4.5 River Channel Maintenance and Enhancement

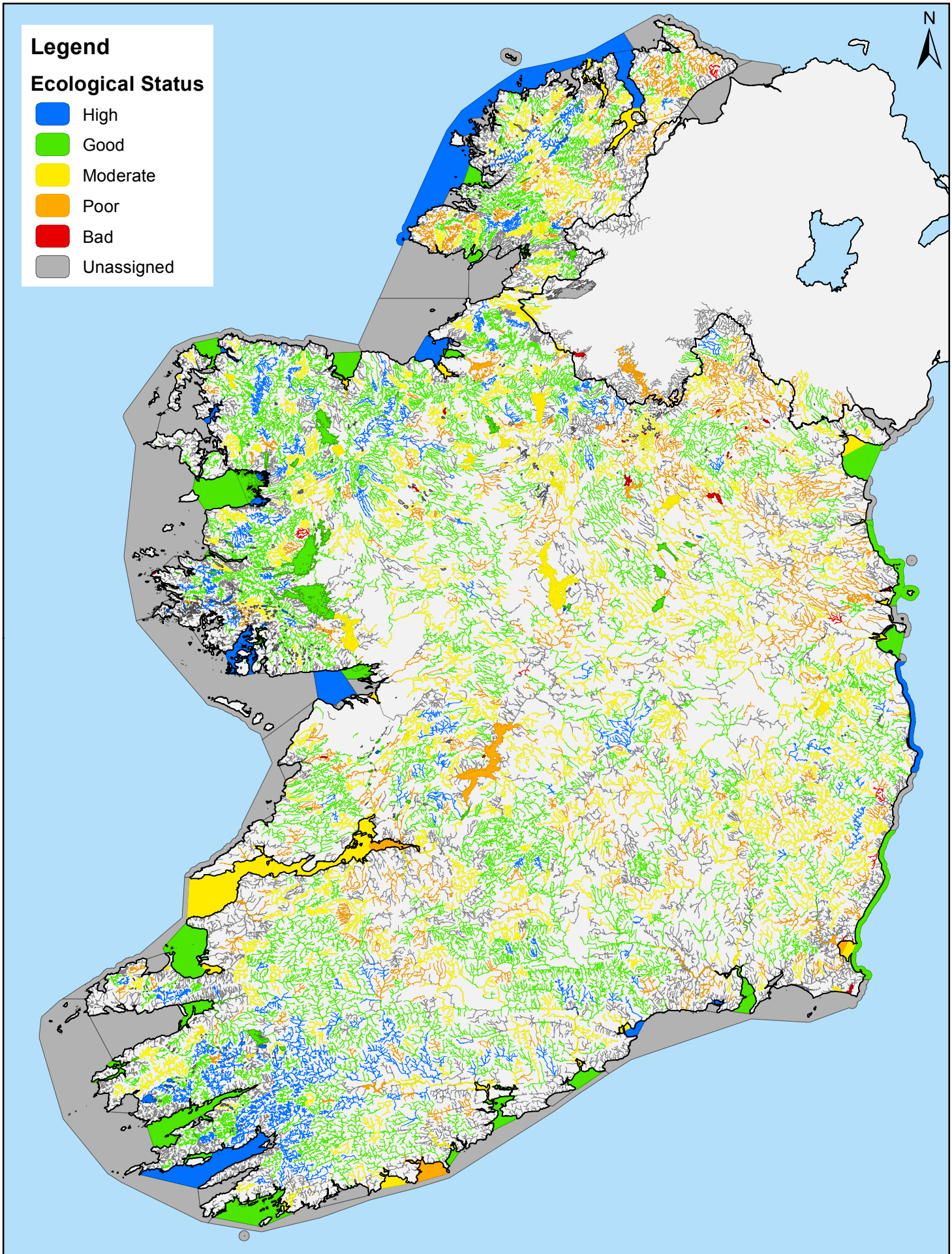
For navigation channels, stretches of river often require cleaning out from time to time, in order to remove silt build-up, reduce flooding risk and to ensure that the system is navigable. These works typically result in alterations to Hydromorphology. The OPW maintains an online map viewer which displays the locations of drainage districts, channelization works, embankments and benefitting areas (http://maps.opw.ie/drainage/map/). The IFI, with the OPW, run the Environmental River Enhancement Programme (EREP).[33] Various legislative and national policies such as the Habitats Directive and the National Biodiversity Plan have influenced the approach to channel maintenance works by identifying the impacts of such works on the ecology of an area and the strategies for engaging in works in a more environmentally-friendly manner.

5.2.4.6 Flood Risk

Floods are a natural and inevitable part of life that can pose a risk to human life and well-being, property and the environment. Flood risk can be minimised or avoided through careful selection of areas for development. Where a risk exists from the inundation during any construction activities, this can be mitigated against as part of the implementation of good working practices and Construction Environmental Management Plans as appropriate. Catchment Flood Risk Assessment and Management (CFRAM) Studies have been undertaken and Flood Risk Management Plans (FRMPs) are currently being prepared in line with the European Directive 2007/60/EC (Floods Directive). It requires member states to carry out preliminary flood assessments in order to identify areas of potentially significant flood risk, or Areas for Further Assessment (AFA). Each CFRAM Study is required to produce flood maps, flood risk management objectives and the FRMPs. The CFRAM programme is central to the medium to long-term strategy for the reduction and management of flood risk in Ireland. Draft FRMPs are being developed and it is anticipated that they will be published in late 2017.

In addition, in 2009 the '*The Planning System and Flood Risk Management Guidelines for Planning Authorities*' were published which ensures that flood risk assessment and management is incorporated within the planning system. In relation to flooding, it is important for the Department to ensure the resilience of any infrastructure to the effects of climate change, including flood protection of assets, and ensure that its activities do not increase flood risk of other development located downstream within a catchment.

[33] Inland Fisheries Ireland and the Office of Public Works Environmental River Enhancement Programme - Annual Report 2014. IFI (2015)



Data source: Environmental Protection Agency (EPA) epa.ie. Ecological Status for 2013-2015 (updated May 2017).

Title

Figure 5.9 - WFD Surface Water Ecological Status

Project

National Planning Framework

Client

Department of Housing, Planning and Local Government

RPS

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Issue Details

Drawn By:	NON	**Project No.**	MDR1273
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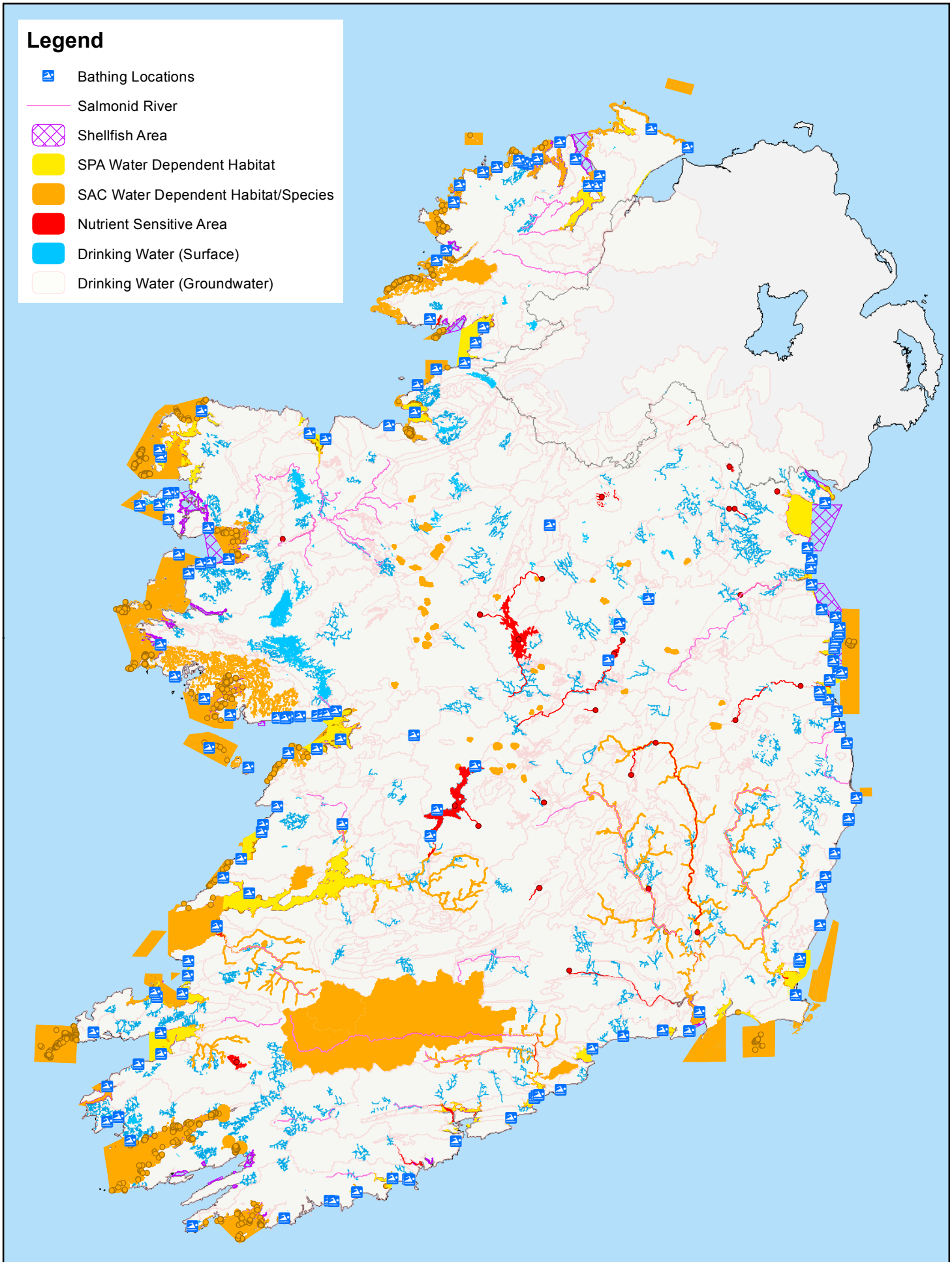

Title

Figure 5.10 - WFD Register of Protected Areas

Project

National Planning Framework

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Date:	21/08/2017		

NOTE:

5.2.4.7 Existing Environmental Pressures / Problems: Water

The most recent report of the Significant Water Management Issues (SWMI) in Ireland was launched in 2015. This document highlighted the following key issues in relation to water:

- Urban waste water treatment plants;
- Agriculture;
- Forestry;
- Peat-related activities;
- Diffuse urban sources/towns;
- Hydromorphology
- Domestic waste water treatment systems;
- Industrial Discharges; and
- Activities which spread invasive alien species.

The most significant surface water quality issue in Ireland continues to be excessive nutrient enrichment which leads to eutrophication; agriculture and municipal sources are the most important suspected causes of pollution to rivers. The EPA's Urban Wastewater Report (2016) states that ten (out of 171) large urban areas did not meet the EU Urban Waste Water Treatment Directive requirement for the provision of secondary treatment, and untreated sewage was routinely discharged from 43 areas.

One percent (1%) of groundwaters was noted as impacted by poor chemical status as a result of elevated phosphorus, historic mining activities and industrial development. This showed an improving trend based on the results of the previous report which covered the monitoring cycle from 2007 to 2009. At that time 13% of groundwaters had poor chemical status. Coliforms in groundwater remain a risk for drinking waters in areas where treatment is inadequate. Wastewater discharges also contributed to poor water quality at 6 out of 137 bathing waters in 2015. Effective management will be required to mitigate against future pressures arising from population growth and planned expansion of the agricultural and industrial sectors under Food Wise 2025. Approximately two thirds of the land use in Ireland is accounted for by agriculture, which has resulted in agriculture being one of the most significant pressures on Irish water bodies. Pressures arising are primarily nutrient driven, however pathogens and sediment are also a problem.

Other significant pressures include forestry; forest cover in Ireland is approximately 10.7% (EU average: 38%) and the main pressures to water from forestry activities relate to sediment and nutrients entering watercourses. The impacts from peat-related activities can also cause a decline in water quality, through release of nutrients and sediment. Elevated concentrations of ammonium and hydromorphological impacts are the significant associated pressures.

Hydromorphological issues also impact on water bodies; channelisation and in-stream dredging are common pressures which can damage habitats or even result in habitat loss, thereby reducing biodiversity. These changes physically alter the flow of the river with impacts such as accumulation of sediment (where the channel is widened as the flow velocity decreases) or bank erosion where there is deepening. Other in-stream pressures such as barriers and weirs can have negative impacts on the migration of some fish species. Impoundments and their associated flow regimes can also negatively impact biodiversity if they are not managed correctly.

On-site domestic waste water systems are another source of nutrients and organic pollution and the number of such systems are estimated by the CSO to be approximately 500,000 (or about one third of all households). Industrial pollution accounts for approximately 5% of slight and moderate

pollution cases, with discharges from the food and beverage sectors tending to carry large nutrient loads.

Invasive alien animal and plant species (e.g. zebra mussel, Japanese knotweed etc.) compete with and can displace native species and can contribute to river bank destabilisation. Movement of boats and fishing gear between locations in the aquatic environment can spread such species, as well as moving soil.

5.2.5 Air Quality and Climatic Factors

Air quality impacts can be on a local scale or a regional/ national scale. Local air quality impacts such as dust can have health and nuisance impacts in the vicinity of construction activities. These local impacts are typically addressed through the consent processes with restrictions imposed by planning regulation. On a regional scale, vehicle and plant emissions generate transboundary gases i.e. greenhouse gases (GHGs) such as carbon dioxide (CO_2). Given the geographic scope of the draft NPF, this baseline assessment addresses the national scale emissions, as local impacts will be addressed through the planning and EIA processes and has had regard to the EPA Guidance Note on integrating climate change into SEA.

The following challenges and issues have been identified with regards to air quality and climatic factors:

- Car-dependant culture and encouraging modal shifts away from road transport and private vehicles;
- Increasing nitrous oxides (NO_x) and particulate matter (PM_{10} and $PM_{2.5}$) emissions as a result of road transport, in particular diesel fuelled vehicles;
- Switch to alternative fuels and the associated combustion emissions e.g. biofuels
- Switch to electric vehicles;
- Reducing transport demand;
- Levels of naturally-occurring concentrations of radon;
- Climate adaptation and mitigation plans;
- Flood risk; and
- Coastal zone management.

5.2.5.1 Ambient Air Quality

Ireland has good air quality which is consistently rated among the best in Europe. This is due largely to the prevailing clean westerly air-flow from the Atlantic and the relative absence of large cities and heavy industries. The Clean Air for Europe (CAFE) Directive (2008/50/EC) deals with each EU member state in terms of "zones" and "agglomerations" for managing air quality.

For Ireland, four zones are defined in the Air Quality Standards Regulations (S.I. No. 180 of 2011), amended in 2013 to take account of population counts from the 2011 census and to align with the coal restricted areas in the 2012 Regulations (S.I. No. 326 of 2012):

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

Air quality in Ireland is monitored at 31 stations in the National Ambient Air Quality Monitoring Network and in comparison to the rest of Europe is considered good quality. In 2015, measured sulphur dioxide (SO_2), nitrogen dioxide (NO_2), carbon monoxide (CO), ozone (O_3), particulate matter (PM_{10} and $PM_{2.5}$), heavy metals, benzene and polycyclic aromatic hydrocarbon (PAH) concentrations were all below their individual limit and target values, as set out in the CAFE Directive and 4th Daughter Directive (2004/107/EC). Ireland was however above the tighter World Health Organisation (WHO) guidelines for: PM_{10} at 16 sites (24hr WHO guideline); $PM_{2.5}$ at 8 sites (24hr WHO guideline) and 1 site (annual WHO guideline); and ozone at 7 sites. The European Environment Agency (EEA) level for PAHs was also exceeded at 4 sites in 2015. The 2015 dioxin survey indicates that levels are similar to or lower than previous surveys and compared to other EU countries.

The EPA has recommended that Ireland must decrease the concentrations of particulate matter to below the WHO air quality guideline values. Approximately 50% of national emissions of $PM_{2.5}$ relate to the burning of residential sources of solid fuel, which also represents a significant challenge to achieving good air quality.

Under the National Exposure Reduction Target (NERT) Ireland is required to reduce levels of $PM_{2.5}$ by 10% on or before 2020. This may have future implications for Ireland should these tighter guidelines become adopted by the EU following the Commission's review of air quality directives. The Clean Air Package was announced by the European Commission in 2014 and will involve a shift in tackling air emissions at source with the possibility of introducing tighter air quality standards from 2020 onwards. This may have future implications for Ireland should these tighter guidelines become adopted by the EU following the Commission's review of air quality directives.[34] The Clean Air Policy Package was announced by the European Commission in 2014 and will involve a shift in tackling air emissions at source with the possibility of introducing these tighter air quality standards from 2020 onwards. Air Quality is currently being addressed nationally through the National Clean Air Strategy which is currently in being developed.

5.2.5.2 Greenhouse Gases

Greenhouse gases (GHGs) in the atmosphere are rising as a result of human activity, in particular the burning of fossil fuels for heating, energy and transport in addition to other activities such as agriculture and waste. According to the EPA's emissions inventory up to 2015, emissions of GHGs in Ireland are estimated to be 59.88 Mt carbon dioxide equivalent (CO_2 eq).[35] This is 3.7% higher than emissions in 2014 (57.72 Mt CO_2eq). There is strong evidence now that emissions are increasing as a result of economic recovery and employment, particularly in the transport sector.

[34] EPA (2016) Air Quality in Ireland 2015 – Key Indicators of Ambient Air Quality.

[35] EPA (2017) Ireland's Greenhouse Gas Emissions in 2015.

Agriculture remains the single largest contributor to the overall emissions at 33.1% of the total. *Transport* and *Energy Industries* are the second and third largest contributors at 19.8% and 19.7% respectively. Emissions from the *Residential* and *Manufacturing Combustion* sectors account for 10.1% and 7.6% respectively. The remainder is made up of *Industrial Processes, F-Gases, Waste, Commercial Services* and *Public Services* at 9.7%. Between 1990 and 2015, *Transport* shows the greatest overall increase of any sector at 130.3%.

Given the Dublin area as the major economic driver in Ireland, the region is therefore a major contributor to national emissions in terms of agricultural area, energy and transport usage. To this end, the four Dublin local authorities have recently produced a *Strategy Towards Climate Change Actions Plans* in association with Codema, Dublin's energy agency.[36] The document is a first step towards a collaborative effort to develop transboundary Climate Change Actions Plans. One outcome of this effort will be the development of a regional energy and CO_2 emission baselines and maps, expected for delivery in 2018. Codema reports that Dublin City's energy consumption as of 2014 was 10.14 TWh with carbon emissions amounting to 5.6 t CO_2 per person per year.[37]

At a national scale, the EPA has published its Greenhouse Gas Emission Projections for 2016 – 2036.[38] It is estimated that non-ETS sector emissions are projected to be 4% - 6% below 2005 levels by 2020, where the target level is 20%. Transport emissions are projected to show strong growth over the period to 2020 with a 10%-12% increase on current levels depending on the level of policy implementation. Emissions from agriculture are expected to grow by 4% - 5% on current levels by 2020, reflective of the impact of Food Wise 2025.

The European Council, in the context of necessary reductions according to the IPCC by developed countries as a group, reconfirmed in February 2011 the EU objective of reducing GHG emissions by 80-95% by 2050 compared to 1990 levels. To ensure that Ireland can effectively and equitably contribute to the EU objective of reducing GHGs by 80-95% and for the purposes of compliance with EU law, it has been necessary to develop a low-carbon development strategy for the period to 2050.

The National Policy Position on climate action sets a fundamental national objective to achieve the transition to a competitive, low-carbon, climate-resilient and environmentally sustainable economy by 2050. The policy states that GHG mitigation and adaptation to the impacts of climate change are to be addressed in parallel national strategies, through a series of National Mitigation Plans and a series of National Climate Change Adaptation Frameworks respectively. Further to the National Policy Position, the Climate Action and Low Carbon Development Act 2015 sets out the proposed national objective to transition to a low carbon, climate resilient and environmentally sustainable economy by the end of 2050. The Act sets out provisions require the Minister to prepare and submit to Government the first statutory National Mitigation Plan and to renew it every five years thereafter. The provisions contained in the Act will, when enacted, also permit the Government to request the appropriate Government Ministers to submit the sectoral mitigation measures that they propose to adopt within the plan. The National Mitigation Plan has been published and represents a national plan setting out Ireland's first statutory low carbon development strategy for the period to 2050.

[36] Codema (January 2017) A Strategy Towards Climate Change Action Plans for the Dublin Local Authorities.

[37] Codema (December 2013) Dublin City Sustainable Energy Action Plan – Monitoring and Progress Report 2014.

[38] EPA (2017) Ireland's Greenhouse Gas Emissions Projections 2016-2035.

Energy Recovery

The national renewable energy target for 2020 is for renewable sources to account for 40% of electricity consumption. There is also an EU target under the EU Renewable Energy Directive for renewable energy to account of 16% of final energy use across electricity, transport and thermal energy by 2020; this stood at 7.1% in 2012.

To meet future targets, strong action is needed across all sectors to help reduce GHG emissions. A transition to a lower carbon economy with changes to the fuel mix and improved energy efficiency is necessary as emissions in Ireland will not remain depressed as the global economy starts to uplift and activity levels rise.

5.2.5.3 Transboundary Gases

Under the revised National Emissions Ceiling Directive 2016/2284/EU, Ireland is required to limit the annual national emissions of SO_2, NO_x, volatile organic compounds (VOC), ammonia (NH_3) and fine particulate matter ($PM_{2.5}$) in accordance with the national emission reduction commitments applicable from 2020 to 2029 and from 2030 onwards, as laid down in Annex II of the Directive.

Of relevance to the draft NPF are NO_x and VOCs which are released indirectly from vehicle emissions, electricity generators and space heating in the built environment and NH_3 from agriculture. Emissions of NO_x contribute to acidification of soils and surface waters, tropospheric ozone formation and nitrogen saturation in terrestrial ecosystems. The latest national emissions estimates reported by the EPA are 76.5kt in 2013.[39] NO_x emissions have been consistently above the previous national emission ceiling, reflecting the ongoing challenge Ireland faces in complying with the ceiling for NO_x. Under the new Directive, Ireland must reduce NO_x emissions by 49% in the period 2020 to 2029 and 69% from 2030 onwards relative to the 2005 levels.

NO_x emissions in Ireland have decreased by 45% between 1990 and 2013 and emissions have decreased by 35.4kt (32%) since 2008. This reduction was achieved due to improved abatement at the Moneypoint Power Plant, reduced demand for clinker/ cement and a reduction in fuel used in road transportation. The transport sector, which mainly consists of road transport, is the principal source of NO_x emissions, contributing approximately 53% of the total in 2013. The industrial and power generation sectors are the other main source of NO_x emissions, with contributions of 16% and 11%, respectively in 2013. The remainder of NO_x emissions emanate from combustion in the residential/ commercial and the agriculture sectors, which together produced around 20% of the total in 2013.

VOCs are emitted as gases by a wide array of products including paints, paint strippers, glues, cleaning agents and adhesives and they also arise as a product of incomplete combustion of fuels and, as such, are a component of vehicle exhaust emissions. VOC emissions from manure management in the agriculture sector are included as a new source in the 1990-2013 emissions inventory. Emissions in 2013 were 90kt which are above the previous EU National Emissions Ceilings (NEC) Directive target of 55kt. Under the new Directive, Ireland must reduce VOC emissions by 25% in the period 2020 to 2029 and 32% from 2030 onwards relative to the 2005 levels.

The main sources of VOC emissions in Ireland are from manure management in agriculture and solvent use. These sources combined produce 74% of the annual total in 2013. Coal burning in the residential sector is another important but declining source as coal consumption decreases.

[39] EPA (2015) Ireland's Transboundary Gas Emissions In 2013.

Emissions from stationary combustion of fossil fuels across all sectors; power stations, residential, commercial and agriculture account for 17% of national total VOC emissions. Transport emissions account for almost 8% of national total emissions of VOC, mainly from exhaust and fugitive releases from gasoline vehicles.

Emissions of ammonia are derived almost exclusively from the agriculture sector (99% with the remainder from vehicle exhausts) and these emissions are a direct result of the 40 million tonnes of animal manure and 300,000 tonnes of nitrogen fertilisers applied per annum. Emissions in recent years have been within the emission ceiling of 116kt, but the intensification of agriculture under Food Wise 2025 poses a potential threat to compliance with stricter 2020 and 2030 emission ceilings. This also has implications for impacts to habitats not just in Ireland but also in border areas.

5.2.5.1 Existing Environmental Pressures / Problems: Air Quality and Climatic Factors

In general ambient air quality in Ireland is good due largely to the prevailing clean westerly air-flow from the Atlantic and the relative absence of large cities and heavy industry.

Increasing population and the demand for electricity, heating fuels, construction materials and vehicle ownership are some of the national drivers for air emissions in Ireland. Ireland also has a large agricultural and food export industry, a key driver for ammonia emissions. Expected growth in the agricultural sector along with the removal of milk production quotas within the European Union (CEU, 2009) will increase pressure on future emissions to air from this sector (EPA, 2012). Under the CAFE Directive, Ireland is required to reduce levels of $PM_{2.5}$ by 10% between 2012 and 2020. $PM_{2.5}$ is fine particulate matter and can be emitted directly into the atmosphere or can be formed secondarily. This reduction will be challenging as it will require an integrated approach across a number of sectors including industrial, transport and residential emissions.

The test in meeting Ireland's obligations under the National Emissions Ceiling Directive is greater, in particular for NO_x and VOCs which are currently out of compliance. Transport emissions are the greatest source of NO_x and the measures proposed in the National Programme on Transboundary Pollutants will seek to reduce these emissions to below the ceiling limit by 2010 and each year thereafter.

With climate change come a host of environmental impacts such as changes to precipitation patterns which can result in increased intensity or duration of events. This also has implications for flooding and land drainage capacity, as well as seasonal flows, surface-groundwater interactions and the adequacy of water supply for abstraction.

As such, the EU Commission's proposal requires Ireland to deliver a 20% reduction in emissions of GHGs relative to the 1990 levels by 2020. Despite the current economic downturn leading to a marked reduction in Ireland's GHG emissions this 20% reduction on 1990 levels will be difficult to achieve. An integrated approach across a range of sectors, including transport, is required to meet Ireland's EU and International obligations to reduce GHG emissions and to improve air quality. The latest data from the EPA indicate that emissions of GHGs in Ireland in 2015 were 59.88Mt CO_2 equivalent which represents an increase of 3.7% on emissions in 2014.

5.2.6 Material Assets

The term 'Material Assets' is not clearly defined in the SEA Directive or indeed the EIA Directive, and this has led to a wide range of interpretations by environmental practitioners and environmental regulators alike. Material assets primarily relate to the infrastructural assets that enable a settlement to function as a place to live and work and can be taken to mean infrastructure including also settlements (towns and villages etc.), transport, energy supply and utilities. The following sections therefore comprise a high-level summary of the baseline environment at a national level in relation to Material Assets. The summary below includes both water-related material assets (such as waste water treatment works, etc.) as well as non-water related material assets such as transport infrastructure. The main issues for the draft NPF relating to material assets include the following:

- Competing land uses;
- A shift towards intensification in the agriculture, forestry, fisheries and renewable energy sectors;
- Conflicting policy and guidance between sectors; and
- In-combination impacts on biodiversity, water, soils, landscape, cultural heritage, soils etc. from competing sectors.

5.2.6.1 Road and Rail Infrastructure

The total length of the national road network in Ireland is 5,306km.[40] National primary roads comprise 2,649km in length and national secondary roads comprise 2,657km. Motorways comprise 916km; of this, approximately 320km is operated by Public Private Partnerships. Other road infrastructure is comprised of local roads, minor roads and unclassified urban roads. Transport Infrastructure Ireland (TII) operates, maintains and improves the national primary and secondary road network in Ireland; see **Figure 5.11**. The local authorities manage the urban and remote sections of dual carriageway, national secondary, regional and local roads.

Vehicular traffic is by far the most common mode of travel in Ireland. The Department of Transport, Tourism, and Sport (DTTAS) reported in 2016 that the national vehicle fleet was made up of 2,624,958 vehicles consisting of the mix presented in **Table 5.13**.[41] Private cars consist of the major share at 77% followed by goods vehicles at 13%.

Table 5.13 – National Vehicle Fleet

Description	Number of Vehicles	Fleet Share (2016)
Private Cars	2,026,977	77.2%
Goods Vehicles	342,259	13.0%
Motorcycles	38,023	1.4%
Tractors & Machinery	89,482	3.4%
Other Vehicles	128,217	4.9%
All Vehicle Types	**2,624,958**	**100%**

[40] Transport Infrastructure Ireland. Retrieved: http://www.tii.ie/roads-tolling/our-road-network/

[41] DTTAS (May 2017) Irish Bulletin of Vehicle and Driver Statistics 2016.

Iarnród Éireann is responsible for the maintenance of over 2400km of rail line that makes up the heavy rail intercity and regional network in Ireland which is used for both passengers and freight. Of this, approximately 17% of the heavy rail network is either disused or dismantled. The CSO reported that Iarnród Éireann carried 540,000 tonnes of freight in 2015 and the principal commodity carried was mineral ores.[42] Transport Infrastructure Ireland is responsible for the light rail Luas networks that are based in Dublin; see **Figure 5.11**.

The CSO reported that in 2015, Irish licensed vehicles travelled a total of 46.0 billion kilometers with each vehicle travelling, on average, 17,852 kilometers. Private cars accounted for 77.4% of the total number of licensed vehicles and 75.3% of the total distance travelled in 2015. In 2015, Irish registered goods vehicles made 10.3 million laden journeys and transported a total of 118.1 million tonnes of freight.[42] A number of key statistics from the CSO in relation to public transport and other modes excluding private cars include:

- A total of 201 million passengers were carried on scheduled bus services;
- 34.6 million passengers travelled on the Luas;
- 39.7 million passengers travelled by rail in 2015; and
- The number of journeys by users of the bicycle sharing scheme in Dublin increased to just over 4 million (4,072,878) in 2015, an increase of 35.1% on the 2014 figure.

The CSO reports[43] that the number of people commuting to work increased from 1.7 million in 2011 to 1.88 million in 2016 (10.7% increase), with just under three in four people using private vehicles to commute to work. The use of public transport modes represents 9.3% of all working commuters. A critical aspect of the transport and services provision will be to address rising transport demand, reduce the 46 billion kilometres travelled on Irish roads by private cars and also to reduce the emissions per kilometre (through efficiency or better consumer choice on fuel/vehicle) to mitigate against road transport emissions which dominate the transport sector.

5.2.6.2 Airports and Seaports

There are 10 main airports across Ireland: Cork Airport, Donegal Airport, Dublin Airport, Weston Airport, Galway Airport, Kerry (Farranfore) Airport, Ireland West Airport Knock, Shannon Airport, Sligo Airport and Waterford Airport. Cork, Dublin and Shannon are international airports. The CSO reports that:[42]

- In 2015 29.8 million passengers passed through Irish airports in 2015, an increase of 12.5% on 2014;
- Dublin airport accounted for 5 out of every 6 air passengers in Ireland;
- The Dublin-Heathrow route carried the most air passengers (1,683,092) in 2015; and
- There was a 12.5% increase in the number of passengers handled by the main airports for the months of June to August 2015 when compared with the same period in 2014.

Twenty commercial ports exist nationwide; international ports include Shannon Foynes, Cork, Dublin Port and Drogheda. In addition there are 15 international ferry ports, 99 local ferry ports and 48 fishing ports. See **Figure 5.11** for the locations of key ports and harbours. The CSO reports[42] that:

[42] CSO (December 2016) Transport Omnibus 2015.

[43] CSO (June 2017) Census 2016 Summary Results - Part 2.

- 12,242 trading vessels (of 100 gross tonnes or more) arrived in Irish ports in 2015;
- 50.7 million tonnes of goods were handled by Irish ports (33.6 million tonnes of goods unloaded and 17.0 million tonnes loaded);
- Dublin Port handled 43.8% of all goods in 2015; and
- The busiest ferry route in 2015 was the Dublin-Holyhead route, accounting for 63.4% of all passengers on scheduled ferry services.

5.2.6.3 TEN-T Network

As part of wider European infrastructure policy to connect all areas of Europe, Ireland is part of the Trans-European Transport Network (or TEN-T). Under TEN-T, Ireland has one core network corridor crossing through the country, the North Sea-Mediterranean Corridor. Within Ireland, the core part of this corridor stretches from Belfast and the Irish Ports of Cork and Dublin, as shown in **Figure 5.12**.

A number of Ireland's motorways make up part of this TEN-T corridor including the M1, M50, M7 and M8 along with the ports of Dublin, Cork and Shannon-Foynes; Dublin International and Cork airports are also identified as core airports within the wider network. This corridor is part of a wider network that stretches across the United Kingdom and Europe and covers rail, road, airports, ports, road/rail terminal (RRTs), the Dutch-Belgian inland waterway system as well as the Rhône River.

5.2.6.4 Water Supply

The GSI borehole database indicates there are 19,632 groundwater wells and springs (those with the highest positional accuracy of the borehole) located nationwide. Of these, approximately 601 are at the appropriate abstraction yield to provide for potable water supply (i.e. they are classed as 'Excellent' or 'High Spring'). More recently, a database of active abstractions and discharges has been compiled on behalf of the EPA.[44] The data indicates that across Ireland, there are a total of 2,630 abstractions which are taken from a mix of groundwater, lake and river sources and are used for both public and private water supplies. Of these 1,286 are for public drinking water supplies and 635 are for privately-sourced group water supplies. Some 700 abstractions are associated with IPC/ IE installations, bottled water plants, power generation plants, quarries, mines, schools and private supplies. There are also approximately 431 water treatment works nationwide. The locations of the water treatment works are shown on **Figure 5.13**.

In 2015 the EPA undertook auditing of 69 public water supplies (PWS).[46] Of these, three were found to be operating at 110% capacity. These were: Ballykelly Campile, Co.Wexford; Spiddal PWS, Co. Galway; and Graiguenamanagh PWS, Co. Kilkenny. The current major water supply capacity issue relates to the provision of a new water supply for the Eastern and Midlands Region in order to service current and future growth on a regional scale. Irish water's Final Options Appraisal Report for the Eastern and Midlands Water Supply Project (WSP) has identified a preferred option involving water abstraction from the Parteen Basin located on the River Shannon, with water pumped via pipeline to a reservoir in Dublin. This proposed water supply option is intended to meet the domestic and commercial needs of around 40% of Ireland's population.[45]

[44] RPS for the EPA (2016) Development of a National Abstraction Database and a National Discharge Database.

[45] https://www.water.ie/projects-plans/national-projects/water-supply-project/

The majority (99.9%) of public water supplies (PWS) comply with microbial standards, 99.4% comply with chemical standards and 99% comply with indicator standards.[46] Further, during 2015 there were 44 boil water notices (related to turbidity, *Cryptosporidium*, *E. coli*) and water use restrictions (e.g. presence of lead, odours). At the end of 2015, 115 PWS were listed on the EPA's remedial action list; most issues relate to inadequate treatment for microbial pathogens and trihalomethanes as well as treatment and management issues.[47] The EPA notes that some of the strategic issues for drinking water include the elimination of boil water notices, implementation of action programmes to improve treatment of trihalomethanes (used as industry solvents and refrigerants) and progression of drinking water safety plans. Around 20% of Ireland's population are serviced by a private water supply. Water quality is consistently poorer in private water supplies compared to public supplies; in 2015 96.1% of private group schemes and 94.8% of small private supplies where compliant with *E. coli* standards.[48]

To date, the GSI has completed Groundwater Protection Schemes (which includes the delineation of source protection zones for public water supplies) for the following local authorities: Cavan, Clare, Cork (South), Donegal, Dublin (Fingal and South Dublin), Galway, Kildare, Kilkenny, Laois, Leitrim, Longford, Meath, Monaghan, Offaly, Roscommon, Sligo, Wicklow and Waterford. The EPA also delineates additional source protection zones for groundwater not covered by the GSI programme.

5.2.6.5 Wastewater Treatment

According to the 2016 EPA database, there 1,085 wastewater treatment plants (WWTPs) nationwide; this includes 544 Certificates of Authorisation (COAs) i.e. plants with a capacity <500 PE); see **Figure 5.13**. The majority of these discharge to rivers; however, a few discharge to lakes, transitional and coastal waters. There are 220 wastewater works which have tertiary treatment for the removal of nitrogen, phosphorus, or both.

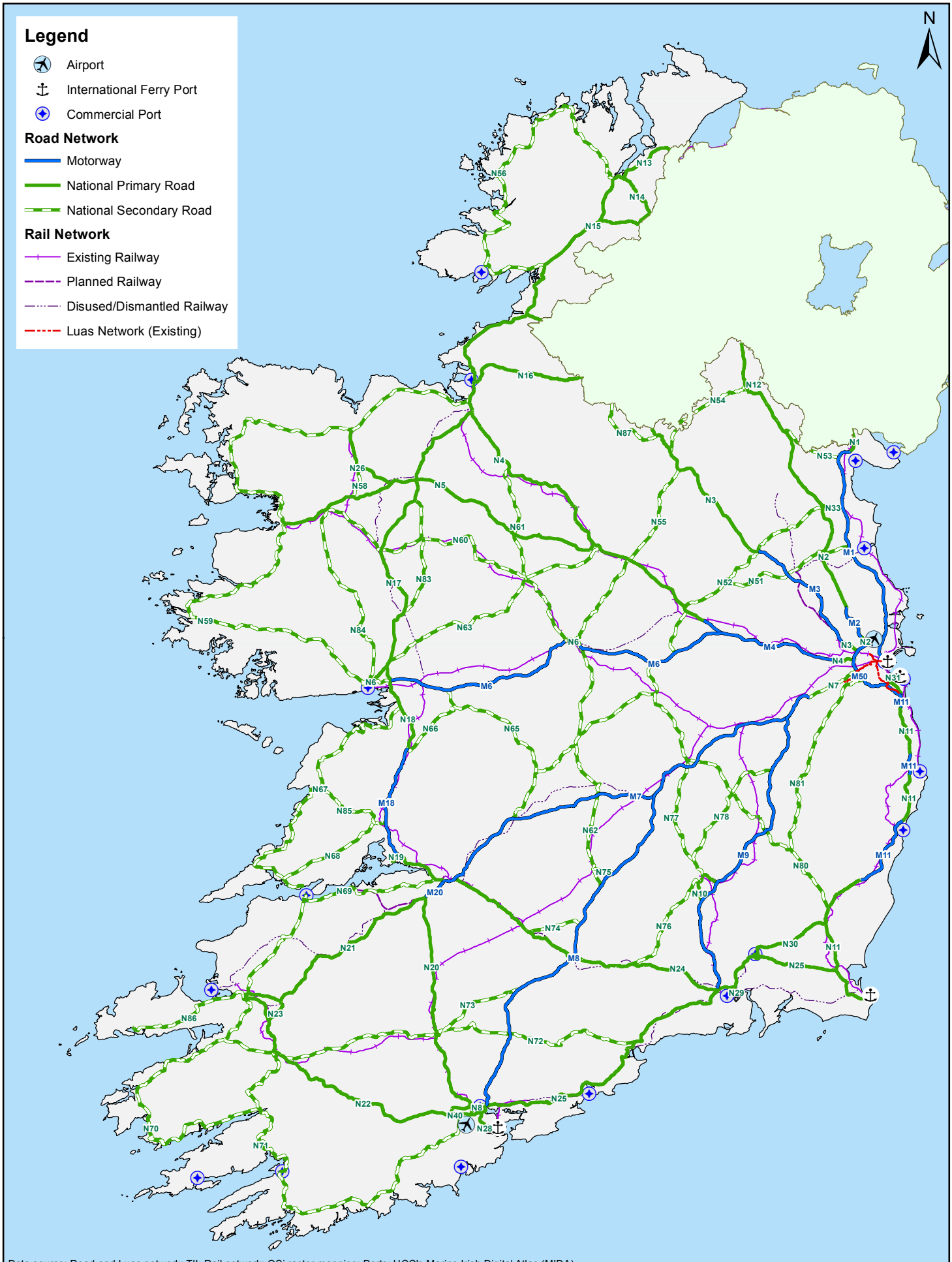
Based on the recorded design capacity and the PE of the agglomeration served, approximately 698 plants are operating within their design capacity, with 387 plants operating at or over capacity. Four of the highest capacity WWTPs in the country are currently operating >100,000 PE over capacity: Ringsend, Limerick, Galway and Ringaskiddy. A further six WWTPs are operating >15,000 PE over capacity: Upper Liffey Valley Sewerage Scheme, Lower Liffey Valley Sewerage Scheme, Swords, Killybegs, Aherlow and Environs, and Youghal.

Based on the latest AER data submitted to the EPA (for the year 2016), Irish Water reports that approximately 133 WWTPs (>500 PE) are currently exceeding, or will likely exceed, their design capacity within the next three years, or will experience peak loads at certain times of the year (e.g. summer).

[46] EPA (2016) Drinking Water Report for Public Water Supplies 2015.

[47] EPA (2017) EPA Drinking Water Remedial Action List Q2 of 2017.

[48] EPA (2017) Focus on Private Water Supplies.



Data source: Road and Luas network: TII; Rail network: OSi raster mapping; Ports: UCC's Marine Irish Digital Atlas (MIDA).

Title

Figure 5.11 - Major Transport Infrastructure Elements

Project

National Planning Framework

Client

Department of Housing, Planning and Local Government

RPS

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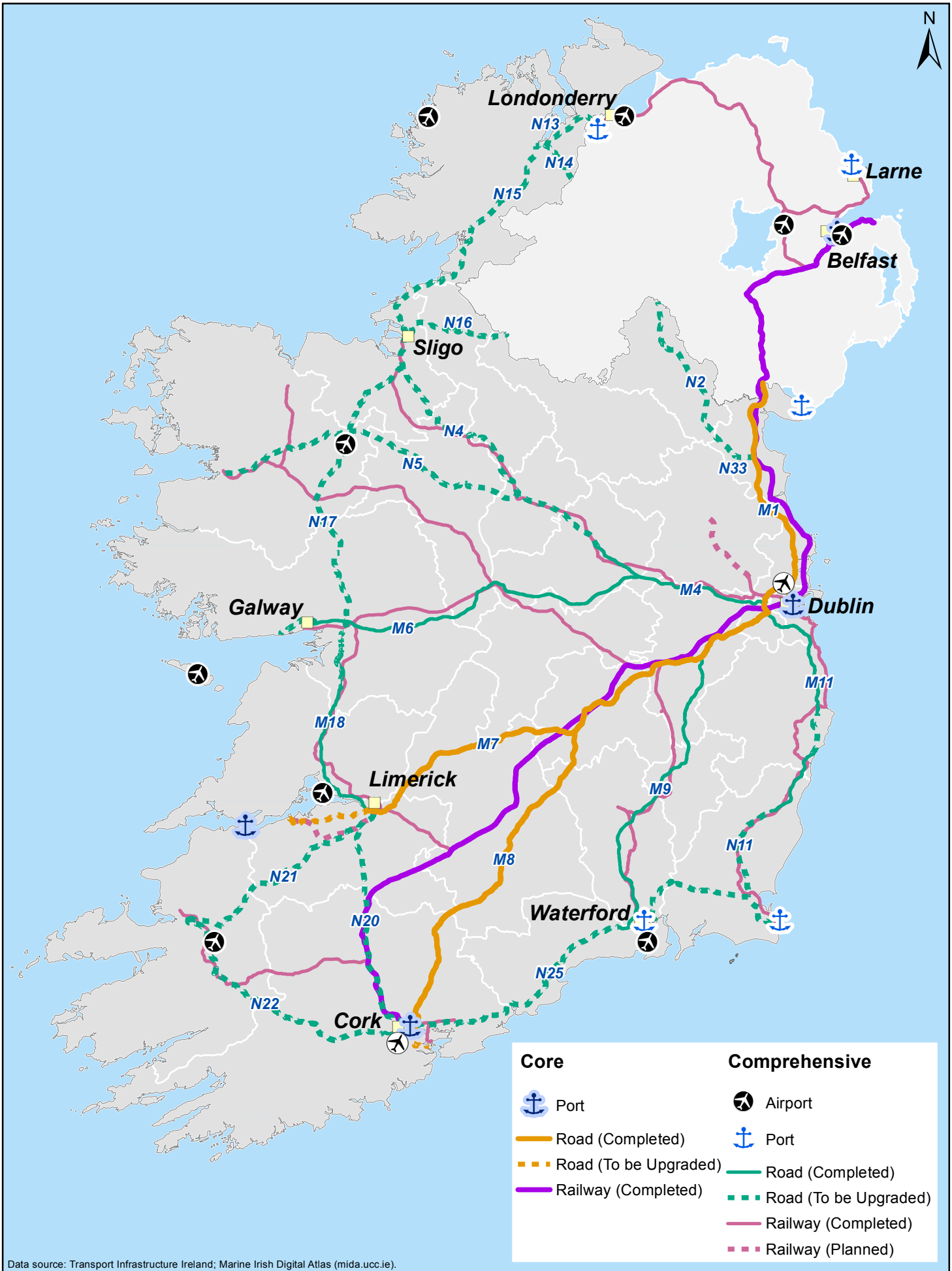

Data source: Transport Infrastructure Ireland; Marine Irish Digital Atlas (mida.ucc.ie).

Title

Figure 5.12 - TEN-T Network

Project

National Planning Framework

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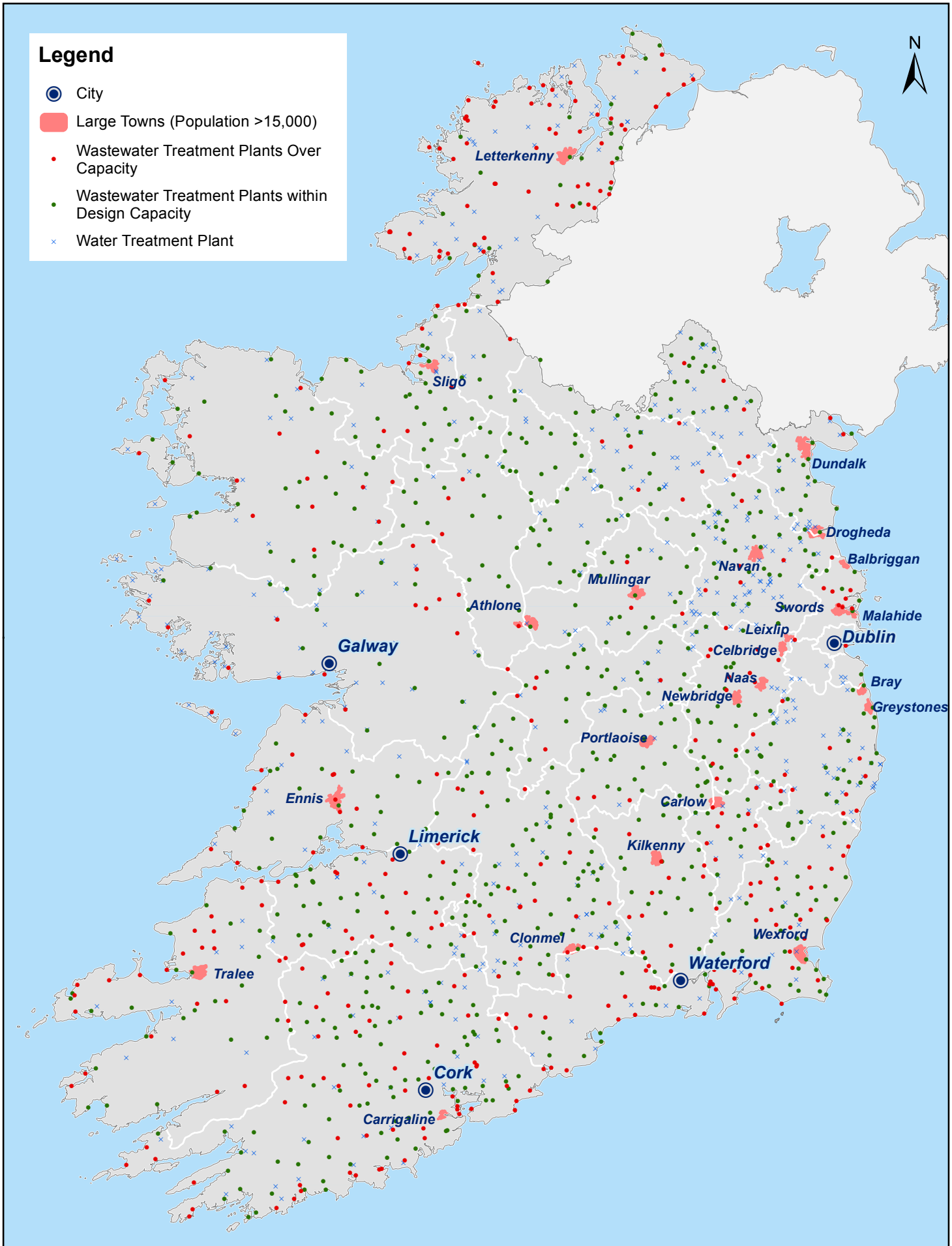

Data source: EPA urban wastewater treatment plants (includes Certificates of Authorisation), issued January 2016, and water treatment plants, issued July 2011.

Title

Figure 5.13 - Water and Wastewater Treatment Plants

Project

National Planning Framework

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Drawn By:	NO'N	Project No.	MDR1273
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Date:	27/09/2017		

NOTE:

5.2.6.6 Communications Infrastructure

The Government recognises that reliable high speed broadband is essential for today's economy and society in this transformational digital age. The provision of high speed broadband enables citizens, businesses and institutions to access information, services and opportunities that would otherwise be out of reach. Achieving universal access to high speed broadband is also a key target under the EU Digital Agenda for Europe, which envisages that by 2020 all EU citizens will have access to download speeds of 30 megabits per second (Mbps) and that 50% of citizens will be subscribing to download speeds of 100Mbps.

The 2012 National Broadband Plan (NBP) outlined the Government's commitment to deliver high speed broadband to every citizen and business in Ireland, regardless of location. At that time, industry envisaged that it would provide 1 million premises with high speed broadband and the Department of Communications, Climate action and Environment (DCCAE) committed to facilitating investment with policy and regulatory supports to provide high speed broadband to the balance of 1.3m premises in the State.

The Broadband Intervention Area Map also indicates that broadband operators have committed to delivering fibre-to-the-house broadband to buildings (corresponding to the GeoDirectory), and for which residential and commercial buildings can expect significant improvements to services; see **Figure 5.14**.[49]

5.2.6.7 Energy Supply and Security

Existing key electricity generation and transmission infrastructure in Ireland is presented in **Figure 5.15** showing the location of the main grids, interconnectors and the generating stations. EirGrid and SONI (System Operator for Northern Ireland) release annual reports on the generation capacity of the island of Ireland. The latest report concludes that with the commissioning of the second North South Interconnector, the all-island system meets the adequacy standard for all years and for most scenarios modelled.[50]

There are a number of pending changes relating to electricity generation infrastructure in Ireland in the coming years, in particular the planned decommissioning of a number of the older fossil fuel combustion plants. For example, the 592MW oil fired plant at Tarbert is due to cease generation in 2022. Similarly, Marina (95MW natural gas) and North Wall (104MW natural gas) and Aghada (348MW of 963MW natural gas) will be decommissioned in 2023. More modern plants have been installed including a new combined-cycle gas turbine (CCGT) plant that was commissioned at Great Island in County Wexford in 2015.

According to the Key Statistics report published by SEAI, the use of energy for thermal purposes (energy used for space, process and water heating and for cooking etc.) accounted for 32% of total primary energy supply in 2015 and 39% of the final energy demand.[51] Of this, 44% of thermal energy usage is accounted for by the residential sector, which is the largest proportion to an individual sector. The use of smart technologies in the home, for example the control of heating timings and

[49] DCCAE Broadband Intervention Area Map. Retrieved: https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=99c229dc4c414971afc50818b25337ef

[50] EirGrid and SONI (April 2017) All-Island Generation Capacity Statement 2017-2026.

[51] Howley M., Holland M. and Dineen D. (2015) *Energy in Ireland – Key Statistics 2015*. Sustainable Energy Authority of Ireland, Dublin, Ireland.

temperature through a smart phone or online, has been proven to reduce energy consumption by up to 20% per year. A national roll out of the *Smart Technology Energy Saving Scheme* which was launched in early 2016 will see 10,000 homes across Ireland fitted with a remote control heating system to enable the households to fully control the energy their home uses over a 12 month period. Participation in the scheme has been supported by a number of local authorities and housing associations.

In terms of renewable energy sources that are not based on combustion the following outlines the current capacities in Ireland:

- The amount of wind capacity installed in Ireland has reached 2440 MW by the end of 2015 and SEAI estimate the need for a further 1600 MW of wind to be installed by 2020 to reach the target of 40% renewable electricity. According to the latest contracted generators lists published by EirGrid and ESB Networks, approximately 2,200 MW of wind capacity is contracted to be added to the grid over the period 2016 – 2018;
- There are 15 hydroelectric generators connected to the power transmission system, 14 of which have a maximum export capacity (MEC) of over 4 MW. The total hydro connected to the transmission system in 2015 was 212 MW;
- There is currently one pumped hydro station in Ireland, at Turlough Hill which comprises four 73 MW generators giving a total capacity of 292 MW; and
- There are currently 24 MW solar photovoltaic systems contracted for connection to the electricity grid. A further 3 GW in generation applications has been submitted to the distribution and transmission systems in 2015 and 2016.

Figure 5.14 – National Broadband Plan Intervention Map

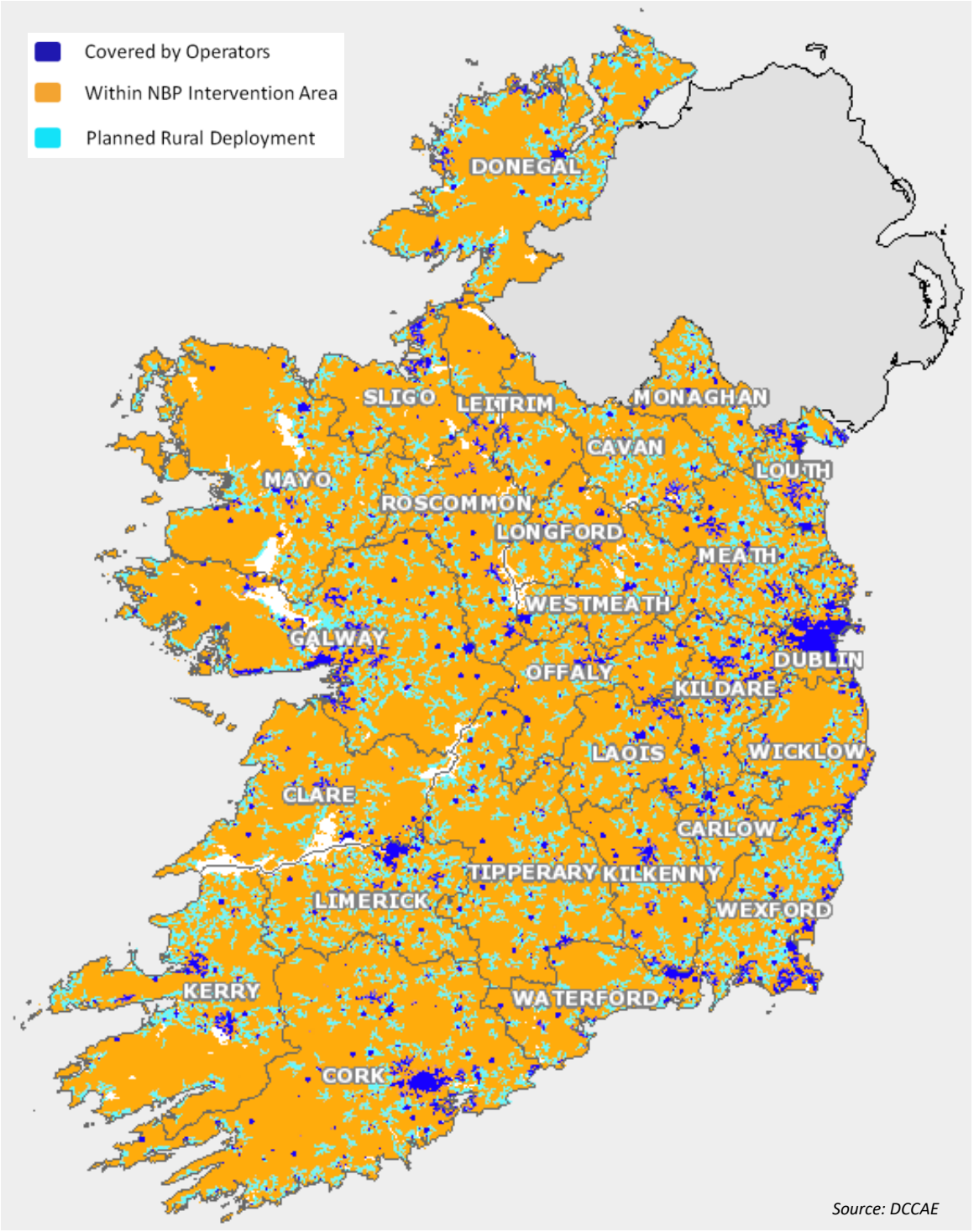
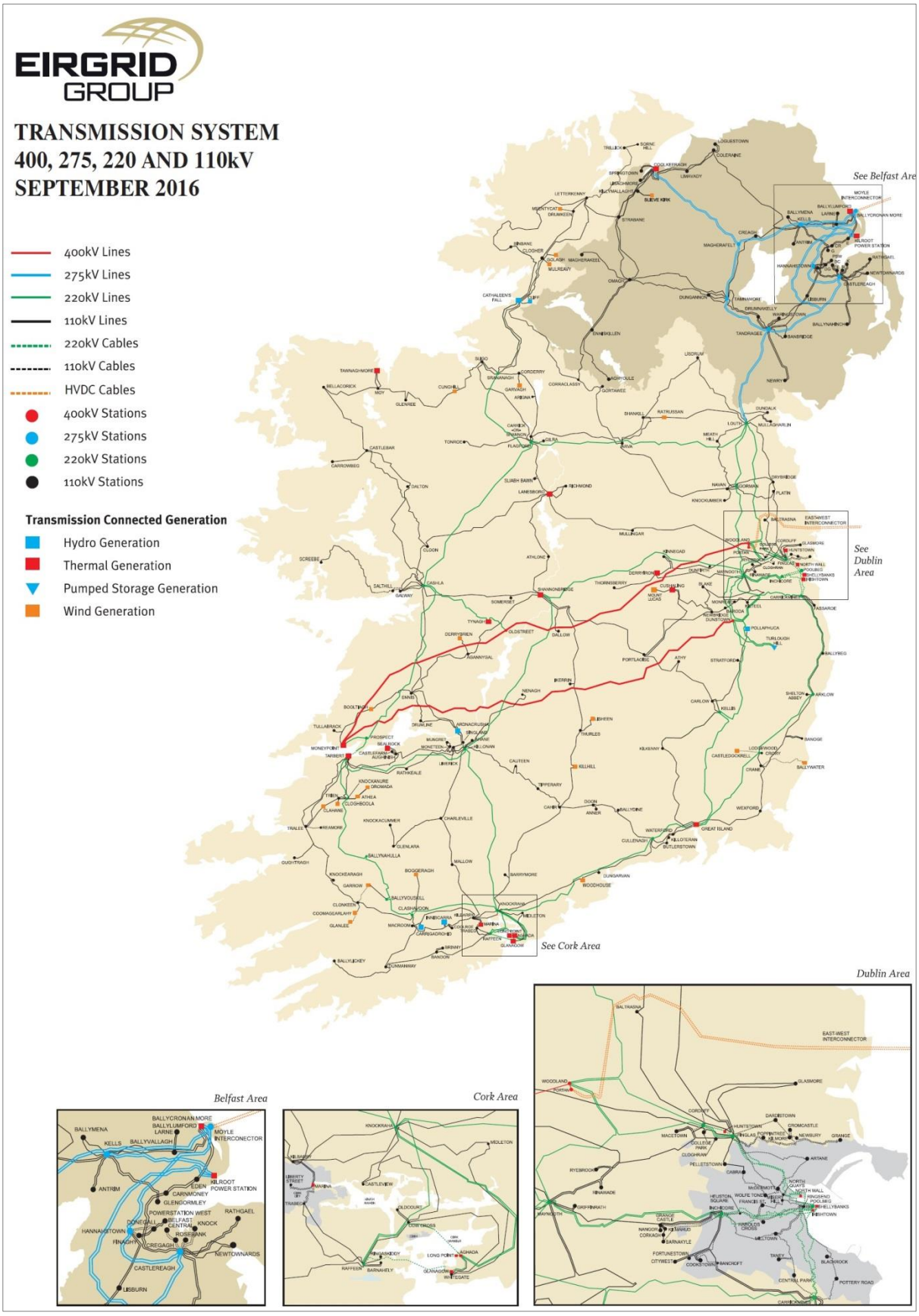


Figure 5.15 – Electricity Generation Infrastructure in Ireland



There are also a number of renewable sources of electricity generation that are based on combustion but not on the combustion of fuels and these are summarised below:

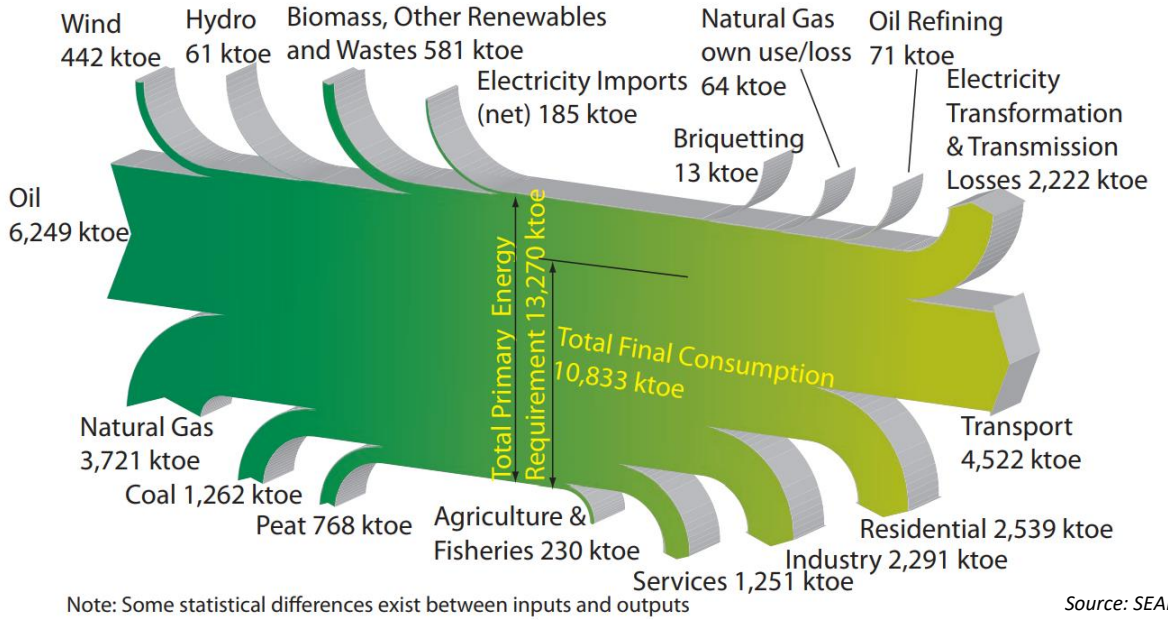
- In 2015, 184 GWh of electricity was produced from the co-firing of biomass in conventional plant while a further 13 GWh of electricity was produced from biomass combined heat and power (CHP); and
- There is currently one 17 MW municipal waste-to-energy plant in Duleek, County Meath with two additional plants in Ringaskiddy, County Cork and Poolbeg, Dublin. In 2015, 151GWh of electricity was produced from waste incineration.

The combustion-based and non-combustion based renewable energy sources will have varying impacts on the environment (air quality, human health, biodiversity, etc.) and some of these solutions may offer more long term environmental benefits than others.

The SEAI have published a report[52] on energy security and supply and **Figure 5.16** shows the energy balance for Ireland in 2014 as a flow diagram. This provides an overview of the current energy landscape, illustrating clearly the significance of each of the fuel inputs (by relevant thickness), energy lost in transformation and final energy demand to each of the end-use markets, electricity, thermal and transport. The high input from oil is principally as a result of the need for petrol/diesel in road transport.

Domestic production accounted for 14.5% of Ireland's energy requirements in 2014, resulting in Ireland having an import dependency of 85.5% (at an estimated cost of €5.7 billion). In 2014 oil accounted for 56% of total imports on an energy basis, natural gas 31%, coal 10%, electricity 1.6% and renewables 1.1%. A greater development of indigenous renewables will help increase security of supply in the energy sector as well as aiding the decarbonisation of the electricity generation market and to a lesser extent the transport sector.

Figure 5.16 – Overall Energy Flow in Ireland (2014)



Note: Some statistical differences exist between inputs and outputs

Source: SEAI

[52] Energy Security in Ireland: A Statistical Overview 2016 Report, SEAI

From **Figure 5.16** it is clear that Ireland remains heavily reliant on fossil fuels. The SEAI reports that Ireland's energy import dependency increased to 88% in 2015 (up from 85% in 2014)[53] with oil and natural gas being the largest contributors to Ireland's energy flow.

The SEA reports that use of natural gas in Ireland increased in 2015 by 1.0% to 3,761 ktoe and its share of the total primary energy requirements (TPER) was 27%. Between 2005 and 2015, use of natural gas use increased by 8.1% or 0.8% per annum. The existing natural gas transmission and distribution network in Ireland is operated by Gas Networks Ireland (GNI); **Figure 5.17** shows the distribution of the high, medium and low pressure gas pipeline network.

5.2.6.8 Landfills, Mines and Quarries

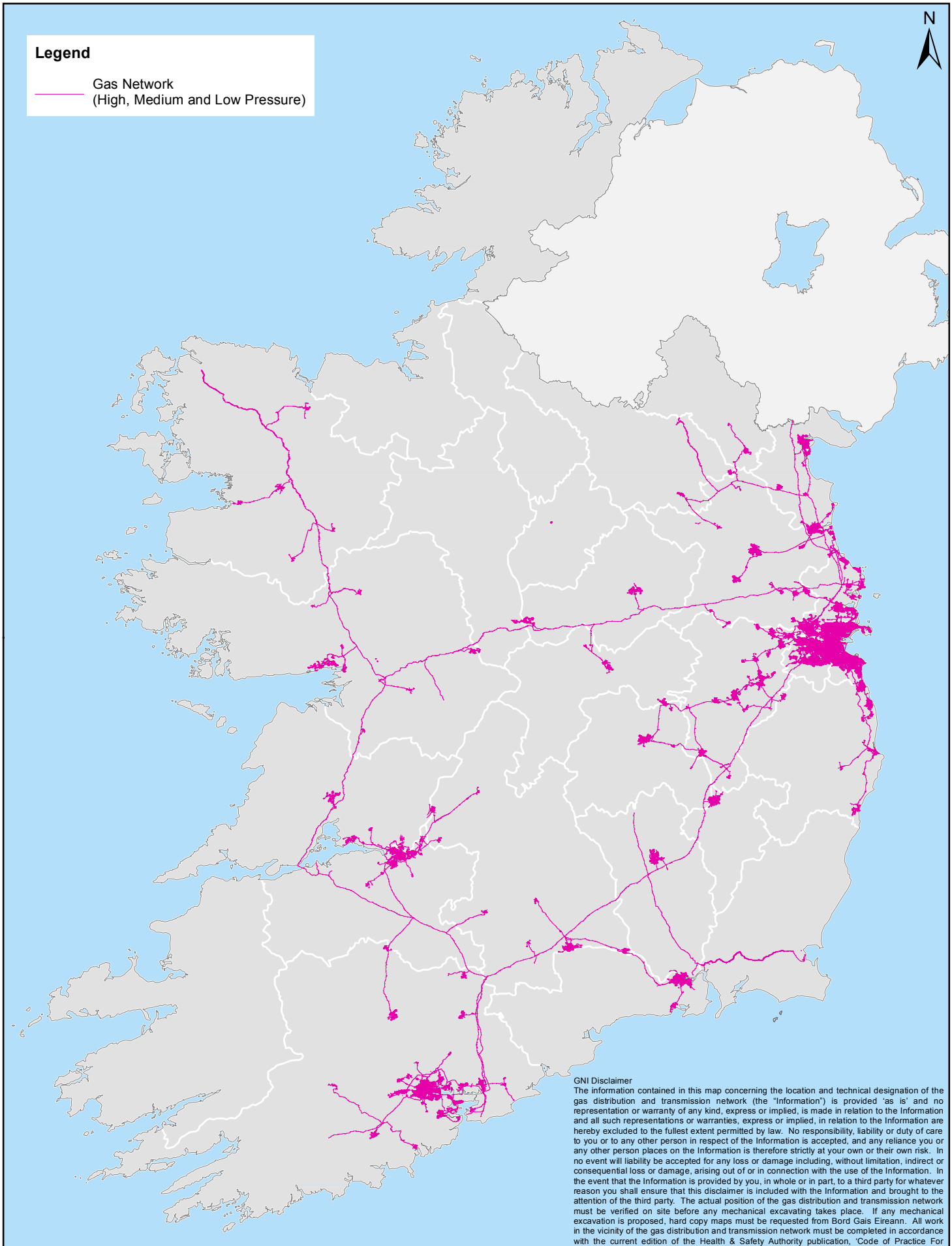
Ireland has dramatically reduced the volume of waste being sent to landfill. There are presently 6 active municipal waste landfills in Ireland compared to 2012[12] when there were 18 landfills operating. Preliminary data indicates that for 2014, 2.72Mt of municipal waste was generated in Ireland, with household waste comprising 1.52Mt of this; the latter figure is similar to the EU average. However the built capacity of landfill, based on the 2015 rate of fill, is now considered to be at a critical stage, with an estimated 1 years' capacity remaining (EPA, 2016). In addition, there is no dedicated hazardous waste landfill and there is limited capacity in other available infrastructure. Just one landfill has the ability to process mildly contaminated inert materials (Murphy Environmental Hollywood Ltd.). This has implications for the levels of contaminated waste which could be generated through the use of infill and brownfield sites for provision of housing, particularly in urban areas where there have been historic industry uses or old dumping sites. Waste capacities for the various waste infrastructure types are outlined in **Table 5.14**. Additionally, there are also a number of mines and quarries located nationwide. The potential for mineral, sand and gravel resources is discussed in **Section 5.2.3, Soil, Geology and Hydrogeology**.

Table 5.14 – Waste Infrastructure Capacity

	Type	Capacity
Landfill	Built municipal waste landfill capacity	910,000 t built capacity (end 2014)
	Hazardous waste landfill	Zero
Commercial Hazardous Waste Treatment	Licensed facilities	Approx. 380,000 t*
Incineration	Municipal waste to energy incineration	830,000 t p/a active
	Co-incineration of solid recovered fuel at cement kilns	343,000 tonnes p/a
Biological Treatment	Composting and anaerobic digestion	Approx. 540,000 t p/a (65,000 t of anaerobic digestion)
Public Amenity Facilities	Civic amenity sites	130 as of 2014 (94 public sector, 36 private sector)
	Bring banks	1,787 as of 2014 (1,772 public sector, 15 private sector)
	Pay-to-use compactors	Approx. 50 as of 2014 (private sector)

Source: Table modified from the State of the Environment Report, EPA (2016) Ireland's Environment – An Assessment 2016.
**Physical and chemical treatment. Not including incineration and co-incineration plants which are authorised to accept certain hazardous materials for treatment.*

[53] SEAI (November 2016) Energy in Ireland 1990 – 2015.



Data source: Gas Networks Ireland (GNI).

GNI Disclaimer

The information contained in this map concerning the location and technical designation of the gas distribution and transmission network (the "Information") is provided 'as is' and no representation or warranty of any kind, express or implied, is made in relation to the Information and all such representations or warranties, express or implied, in relation to the Information are hereby excluded to the fullest extent permitted by law. No responsibility, liability or duty of care to you or to any other person in respect of the Information is accepted, and any reliance you or any other person places on the Information is therefore strictly at your own or their own risk. In no event will liability be accepted for any loss or damage including, without limitation, indirect or consequential loss or damage, arising out of or in connection with the use of the Information. In the event that the Information is provided by you, in whole or in part, to a third party for whatever reason you shall ensure that this disclaimer is included with the Information and brought to the attention of the third party. The actual position of the gas distribution and transmission network must be verified on site before any mechanical excavating takes place. If any mechanical excavation is proposed, hard copy maps must be requested from Bord Gais Eireann. All work in the vicinity of the gas distribution and transmission network must be completed in accordance with the current edition of the Health & Safety Authority publication, 'Code of Practice For Avoiding Danger From Underground Services' which is available from the Health and Safety Authority (1890 28 93 89) or can be downloaded free of charge at www.hsa.ie.

Title

Figure 5.17 - Gas Pipeline Network

Project

National Planning Framework

Client

Department of Housing, Planning and Local Government

RPS

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Issue Details

Drawn By:	NO'N	**Project No.**	MDR1273
Checked By:	EO	**File Ref:**	MDR1273Arc0017F01
Approved By:	AG		
Scale:	1:1,792,332 @ A4	**Projection:**	ITM (IRENET95)
Date:	28/08/2017		

5.2.6.9 Existing Environmental Pressures / Problems: Material Assets

While the state has a high level of road transport infrastructure, this has led to the over-reliance on road traffic as the predominant mode of transport for both passengers and freight. As a consequence, emissions of greenhouse gases and acidifying gases from the road transport sector dominate national emissions and show increasing trends into the future. There is a strong need for measures to encourage modal shift away from private cars and encourage more informed decision making and consumer choices in relation to distance travelled and the vehicles/ fuels employed by citizens.

Increased development including residential, agricultural and industrial expansion continues to put pressure on existing water sources with regards to quantity as well as on the treatment facilities used to treat both drinking water and wastewater. This is particularly true given the increased loadings to wastewater treatment facilities as the population continues to grow. The impact of municipal wastewater discharges remains a significant pressure impacting on Irish water bodies, in particular from inputs of nitrogen and phosphorus causing eutrophication. Inadequate treatment in terms of infrastructure (or lack thereof), insufficient treatment capacity, or the level of treatment carried out, all contribute to contamination and put pressure on both source and receiving waters.

The CSO predicts that the average annual population growth rate during the period 2016-2026 will be between 0.4 and 1%. As such it will be important to ensure that any new premises are offered connection to high speed broadband services.

The EPA's most recent State of the Environment report (2016) drew several high-level conclusions drawn in relation to transport, energy usage and the environment. The report acknowledges that fossil fuels currently provide approximately 88% of Ireland's energy which has significant negative impacts for human health and the environment. It also states that the planned phasing out of fossil fuels and deployment of renewable energy resources will require large-scale public and private investment in energy infrastructure, energy efficiency and innovative management systems. Enabling better energy efficiency in the home through smart technologies would help to reduce the pressure on energy resources. The deployment of indigenous renewables will also support Ireland's energy security.

The State of the Environment report states that landfilling in Ireland is currently at an all-time low and Ireland produces less waste per capita compared to the European average. However CSO data indicates that some 500,000 homes do not implement waste prevention, and around 51,000 homes do not participate in legal waste management practices. With continued population growth and the need for adequate housing provision, this will put pressure on local authorities and necessitates more resourcing at LA level as well as better waste management and access to services. The objectives under the draft NPF to utilise infill and brownfield sites in urban areas to accommodate housing means there is potential to excavate and generate significant levels of contaminated materials, particularly in areas with recent or historical industrial uses. Ireland has no hazardous waste landfill, and limited capacity in other available infrastructure. Just one landfill has the ability to take and process some contaminated land. This has implications for the levels of contaminated waste generated and whether excess waste would need to be exported.

Many types of infrastructure are also vulnerable to the effects of climate change. The European commission notes[54] that the transport network is vulnerable from a number of impacts, including: disruption to services from flooding e.g. flooded train lines and platforms; storm

[54] European Commission (2014). *Europe's transport network vulnerable to climate change*. [online] Available at: https://www.eea.europa.eu/highlights/europe2019s-transport-network-vulnerable-to [Accessed 18 Aug. 2017].

events causing erosion of foundations and structures or cancellation of services; rising temperatures affecting infrastructure materials e.g. buckling of pavements and roads; sea level rise threatening port and harbour infrastructure and services; changes to transport demand as a result of changes in other sectors such as tourism or agriculture. The EC notes that progress to adapt Europe's infrastructure to the impacts of climate change has to date been limited, and there is an associated cost to upgrade and adapt established infrastructure elements. The EPA notes that the sectors most at risk from the effects of climate change are natural resources (such as biodiversity) and the built environment (including coastal infrastructure).[55]

5.2.7 Cultural Heritage

The main issue for archaeological, architectural and cultural heritage associated with the implementation of the draft NPF is the resulting potential for both direct and indirect impacts on archaeological and architectural features and their settings as a result of siting of new infrastructure (e.g. for waste water treatment) and land use change. The key issues associated with the development of the draft NPF and cultural heritage relates to:

- To preserve and protect the cultural heritage including architecture, archaeology and cultural heritage from unsustainable development;
- Impacts on archaeological features and setting; and
- Impacts for underwater archaeological features during construction of new infrastructure and/ or upgrades.

5.2.7.1 Archaeological and Architectural Heritage

The sites and features considered as part of the cultural heritage baseline for the draft NPF include those listed on the:

- Record of Monuments and Places (RMP), which is the statutory list of all known archaeological monuments in Ireland as compiled by the Archaeological Survey of Ireland, part of the Department of Arts, Heritage and the Gaeltacht;
- National Inventory of Architectural Heritage (NIAH), which identifies, records and evaluates 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 Housing, Planning and Local Government [previously the Minister for Environment, Heritage and Local Government] to the planning authorities for the inclusion of particular structures in their Record of Protected Structures; and
- United Nations Educational, Scientific and Cultural Organisation (UNESCO) World Heritage List, which includes cultural and natural heritage sites around the world considered to be of outstanding value to humanity.

Table 5.15 presents the number of features listed on each of these within the counties of Ireland. There are two UNESCO sites within Ireland, Brú na Bóinne in County Meath and Skellig Michael in County Kerry. There are an additional 7 sites which have been submitted on the tentative list: the

[55] EPA (2013) Current and future vulnerabilities to climate change in Ireland. Climate Change Research Programme (CCRP) 2007-2013 Report Series No. 29.

Burren; Céide Fields and NW Mayo Boglands; the Monastic City of Clonmacnoise and its Cultural Landscape; Early Medieval Monastic Sites (Clonmacnoise, Durrow, Glendalough, Kells and Monasterboice); the Royal Sites of Ireland (Dún Ailinne, Hill of Uisneach, Rathcroghan Complex and Tara Complex); and the Western Stone Forts.

Table 5.15 – Number of Listed/ Designated Cultural Heritage Resources in Each County

County	RMP	NIAH	County	RMP	NIAH
Carlow	1,790	305	Louth	2,273	1,482
Cavan	2,426	820	Mayo	8,638	1,889
Clare	8,189	473	Meath	3,627	1,504
Cork	18,939	9,226	Monaghan	1,587	1,274
Donegal	3,547	4,750	North Tipperary	3,687	868
Dublin	3,612	5,519	Offaly	3,548	1,631
Galway	12,126	2,159	Roscommon	6,488	627
Kerry	13,317	873	Sligo	6,521	924
Kildare	2,702	1,710	South Tipperary	5,204	1,489
Kilkenny	4,897	2,124	Waterford	3,398	2,833
Laois	2,106	520	Westmeath	3,827	2,137
Leitrim	2,221	409	Wexford	3,678	2,854
Limerick	7,835	3,191	Wicklow	2,934	1,328
Longford	2,496	1,132			

Source: National Monuments Service and Buildings of Ireland (retrieved November 2016).

It is recognised that impacts to specific monuments and subsurface unknown archaeology are more appropriately assessed at a project level e.g. proposals for new infrastructure.

5.2.7.2 Other Heritage

Engineering Heritage

There are a number of water-related sites such as buildings and structures listed for their engineering importance within the National Industrial Engineering Heritage (NIEH) maintained by the Engineering Department of Trinity College. There are a number of water-related engineering features listed, for example: the engineering complexes of the Grand and Royal Canals, water mills, bridges and weirs, lighthouses and breakwaters.

Marine Heritage

In general, the majority of marine archaeological features occur beyond the 1 mile limit for transitional and coastal water bodies. Hydrographic charts for Ireland mark numerous wrecks and seabed obstructions; however these are primarily for navigational rather than cultural heritage importance.

Due to the number of historic ports and settlements throughout coastal regions, there are thought to be several thousand wrecks in the coastal waters of Ireland, such as those associated with various ports along the coast. Some wrecks, such as the Thomas Petley, date back to the 11th century, while the remnants of Viking trading links, ports and vessels date back to the 8th century. The GSI's

INFOMAR Programme has compiled a shipwreck database containing 296 wrecks as of 2013 (no more recent update available).

Much of Ireland's inshore cultural marine heritage is unrecorded. There are estimated to be thousands of wrecks in Ireland's inshore waters. Most of these are currently unknown and difficult to detect, especially those of wooden construction, though most of these wrecks and structures are thought to be associated with historic ports and harbours and their approaches.

Sites and Properties

In addition to the monument registers, there are a number of properties and areas managed by cultural heritage groups in Ireland. These are structures or areas that have been passed to the care of responsible bodies for restoration, public access and amenity value. Examples which are within proximity to water bodies include: the Battle of the Boyne site on the south bank of the Boyne, four miles north of Donore, with the restored 18th century Oldbridge House Visitor Centre; Connemara National Park (covers 4942 acres of scenic countryside and coastal habitats); and the Burren landscape and visitor centre.

5.2.7.3 Existing Environmental Pressures / Problems: Cultural Heritage

Development resulting from economic growth and increasing population is placing pressure on sites or features of architectural, archaeological or cultural heritage interest. Individually these developments puts direct pressure of architectural heritage, where it is in proximity, or increases the potential to interact with known or previously unknown archaeological sites and features. Cumulatively, this results in impacts on the overall cultural heritage resource.

5.2.8 Landscape

Broadly speaking, landscapes are areas that are perceived by people which are made up of a number of layers:

- Landform, which results from geological and geomorphological history;
- Land cover, which includes vegetation, water and human settlements; and
- Human values, which are a result of historical, cultural, religious and other understandings and interactions with landform and land cover.

The key issues associated with the development of the draft NPF and cultural heritage relates to:

- Impacts on designated landscapes;
- Impacts on landscape character;
- Indirect land use changes associated with other key policies e.g. forestry and biofuels; and
- No national landscape character assessment.

5.2.8.1 National Landscape Character Assessment

Ireland is a signatory to the European Landscape Convention, which aims to promote landscape protection, management and planning and to organise European co-operation on landscape issue. Ireland ratified the Convention in 2002 and it came into effect in 2004. Ireland, as a party to the Treaty, is required to undertake general measures to recognise landscapes in law, establish landscape policies with public participation and to integrate landscape into its existing policies, such as regional and town planning.

The National Landscape Strategy for Ireland (2015-2025) was produced in line with Ireland's obligations under the Landscape Convention. The strategy was launched following the publication and public consultation of a Strategy Issues Paper in September 2011 and *A Draft Landscape Strategy for Ireland 2014-2024* in July 2014 as required under the screening process for Strategic Environmental Assessment and Appropriate Assessment.

The overall vision of the strategy is stated as:

> "*Our landscape reflects and embodies our cultural values and our shared natural heritage and contributes to the well-being of our society, environment and economy. We have an obligation to ourselves and to future generations to promote its sustainable protection, management and planning*".

The National Landscape Strategy is the means by which the State, working in co-operation with public authorities, stakeholders, communities and individuals, will provide a framework for the protection of the many cultural, social, economic and environmental values embedded in the landscape. It will ensure compliance with the European Landscape Convention and it will provide a high level policy framework to achieve balance between the management, planning and protection of our landscape.

Currently local authorities conserve and protect scenic value as areas of high amenity, high sensitivity, areas of outstanding natural beauty, protected views and similar designations but the approach is uncoordinated and can lead to different prioritisations in neighbouring counties. Each local authority is responsible for the designation of these within their individual jurisdictions, with each development plan providing objectives to protect such scenic values.

The strategy outlines six key objectives and actions, one of which is to develop a National Landscape Character Assessment. It is proposed that Landscape Character Assessments will be prepared at local and intra-local authority level. These regional and local landscape character assessments will inform and guide landscape policy, action plans and local authority development plans. In the absence of a national landscape character assessment then the CORINE Land Cover Map is used as a proxy for the purposes of landscape as can be seen in **Figure 5.6**.

5.2.8.2 Protected Landscape Areas

In terms of landscape and visual amenity, local authorities in Ireland conserve and protect scenic value as Areas of High Amenity, Areas of Outstanding Natural Beauty and Protected Views. Each local authority is responsible for the designation of these within their individual jurisdictions, with each Development Plan providing objectives to protect such views.

5.2.8.3 Building Height

Building heights in towns and cities also contributes to the landscape of a city, its skyline or 'cityscape'. Taller buildings can help to densify cities through more efficient use of the vertical space. Building heights in Ireland are typically low compared to other cities. Some of the tallest storied buildings in Ireland currently include, for instance: the Elysian in Cork (residential/offices: 17 storeys/ 71m), the Google Docks (offices: 14 storeys/ 67m), Cork County Hall (offices: 17 storeys/ 67m) and Millennium Tower (residential: 16 storeys/ 63m).

Some of the city development plans (DP) have policies which relate to building height. The current Dublin City DP (2013-2019) emphasises that Dublin is a predominantly low-rise city, with a specific policy objective to "*…recognise that Dublin City is fundamentally a low-rise city and that the intrinsic quality associated with this feature is protected whilst also recognising the potential and need for taller buildings in a limited number of locations subject to the provisions of a relevant LAP, SDZ or within the designated strategic development regeneration area (SDRA).*" The Dublin DP identifies four areas which could accommodate high-rise (>50m) buildings as well as other areas with the potential to accommodate mid-rise buildings (up to 50m). In the South Dublin DP (2016-2022), high buildings are considered to be those >5 storeys. Typical building heights in Dún Laoghaire-Rathdrum are typically 2-4 storeys and up to 7 storeys and the DP (2016-2022) indicates that tall buildings may only be permitted in certain urban areas and University College Dublin. The Fingal DP (2017-2023) makes no reference to external building height.

In the Cork City DP (2015-2021), tall buildings are considered to be >32m in height. The DP aims to protect cityscape character by limiting tall buildings to two areas. The Limerick City DP (2016-2019) notes the need for the development of high-rise buildings in certain areas but does not specify the heights or permitted development areas.

The Galway City DP (2017-2023) has an objective regarding building height such that buildings taller than the prevailing heights will only be considered where it is considered that there is no adverse impact on historic setting/protected architectural areas, views and residential amenity. The current Waterford City DP (2013-2019) has no objectives relating to building height but notes that developments are required to be sympathetic to the 'riverscape' in terms of building heights.

5.2.8.4 Existing Environmental Pressures / Problems: Landscape and Visual

Existing pressures on landscape and visual resources are related to sensitive views and landscapes resulting from the siting of developments and infrastructure, without sensitive regard to these resources.

The National Landscape Strategy for Ireland 2015-2025 will be the means by which the State will provide a framework for the protection of the many cultural, social, economic and environmental values embedded in the landscape with a key action to develop a National Landscape Character Assessment. The main issue for landscape associated with the implementation of the draft NPF is the resulting potential for both direct and indirect impacts on landscape character, areas of outstanding natural beauty, protected views and similar designations. The key issues relates to:

- Impacts on designated landscape;
- Impacts on landscape character as a result of siting infrastructure and changes in landuse cover;

- Impacts on cultural heritage resources; and
- Impacts on natural heritage resources and tourism assets which are dependent on the adjoining landscape setting.

5.3 ENVIRONMENTAL SENSITIVITY MAPPING

AIRO has developed an online environmental sensitivity mapping (ESM) Webtool, funded by the EPA under the STRIVE Programme for use in SEA and environmental assessments. The ESM Webtool will be made publicly available in due course. ESM is a useful method for identifying at a strategic level, environmentally sensitive areas helping to inform the assessment of cumulative and in-combination effects on the environment. Such sensitivity mapping is based on the principles of SEA and presents a visual overview of the relative sensitivity of areas, particularly where they overlap, in order to provide a more strategic and informed approach to planning. Sensitive environmental receptors have less capacity to absorb changes to their conditions.

Various layers under different SEA-relevant themes are processed in the online geographic information system (GIS) to allow spatial overlay and calculation of overall sensitivity. The sensitivity index/colour scheme for each map gives an indication of the relative sensitivity of the environment, with darker red indicating high sensitivity and greens to greys representing areas better able to absorb development. The maps can be tailored to the assessment context by including or excluding datasets (i.e. environmental criteria), and weighting can be assigned to environmental themes included in the sensitivity analysis. AIRO stress that that weights are only to be used to emphasize the relative significance of an environmental aspect, as applying weights to more than two themes would magnify, and possibly overstate, the overall sensitivity. For the purposes of this SEA, biodiversity, flora and fauna was assigned a weight of 2 to highlight the relative importance of this theme and particularly sensitive environmental receptors e.g. Annex I habitats and the freshwater pearl mussel.

While it is acknowledged that there are limitations and an element of subjectivity to ESM, particularly where weightings are assigned to themes to indicate greater sensitivity and where there is a concentration or overlap of sensitive receptors, it contributes to anticipating land use conflicts whereby increased development in sensitive areas could cause deterioration of the environment. The output maps of the ESM Webtool have a resolution of 100m x 100m and are to be used to inform strategic planning (i.e. they may not capture issues at the local level)

5.3.1 Sensitivity Maps

An ESM has been generated for each of the five cities (see **Figure 5.18 – Figure 5.22**), whilst a national ESM has been generated for the whole of Ireland, as shown in **Figure 5.23**. The variables used to generate the ESM maps are presented in **Table 5.16**. Also outlined below this table is the AIRO guidance text in relation to the use of the ESM Webtool.

Table 5.16 – Data Variables used in the ESM Mapping

Theme	Weight	Variables
Biodiversity, Flora and Fauna	2	Special Areas of Conservation, Special Protection Areas, Natural Heritage Areas, Proposed Natural Heritage Areas, *Margaritifera* Sensitive Areas, Ancient Woodlands, Annex I Habitats, Coastal Habitats - Saltmarshes, Forest Inventory Planning System, Salmonid Waters, Woodland Habitats
Population and Human Health	1	WFD RPA Surface Water Drinking Water (Lakes), WFD RPA Surface Water Drinking Water (Rivers)
Soils and Geology	1	Geoparks and Geosites, Peat Bogs, Soil Permeability
Water	1	Aquifer Vulnerability, Bedrock Aquifer Susceptibility, Groundwater Source Protection Areas, Wetlands, WFD Groundwater Status, WFD Lake Status, WFD River Status, WFD RPA Nutrient Sensitive Areas (Lakes),WFD RPA Nutrient Sensitive Areas (Rivers), WFD RPA Recreational Waters Coastal, WFD RPA Recreational Waters Lakes, WFD RPA Water Dependant Habitats (SPAs), WFD RPA Water Dependant Habitats (SACs)
Air and Climate	1	Historical Flood Extents
Cultural Heritage	1	National Inventory of Architectural Heritage, Record of Monuments and Places

Source: AIRO ESM Webtool with user-selected input variables.

"WARNING: Environmental themes and factors represented by the ESM Webtool datasets must be selected and combined in a sensible way, incorporating only considerations that are relevant to the plan/programme under assessment and applying rational relative weights.

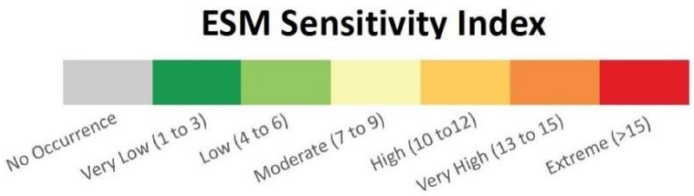
When selecting environmental datasets and applying weights, bear in mind that:

A. The more spatial datasets are selected, the higher the likelihood of sensitivity in the study area. It is the user's responsibility to coherently select relevant spatial datasets and weights for the creation of meaningful sensitivity maps that are relevant to and appropriate for the assessment of the plan/programme.

B. Particular care should be given to double counting issues by selecting datasets that are directly related. For example, selecting Ancient woodlands, Annex I habitats and Woodland habitats would overemphasise the sensitivity of certain woodlands. Similarly, selecting Aquifer vulnerability, WFD Groundwater status and Groundwater source protection areas would overstate the sensitivity of this natural resource. If this may be the intention of the assessment, it should be clearly stated so, or taken into consideration when interpreting the output map/s.

C. Weights are only to be used to emphasise the relative significance of an environmental aspect. Applying a weight of 2 to more than two SEA themes would magnify and possibly overstate the overall sensitivity of the study area. Where all considered themes are equally important in the assessment, a weight of 1 should be applied to them all." (AIRO, ESM Mapping WebTool User Guide).

The following legend indicates the relative sensitivity of the following maps.[56] Red colours indicate higher sensitivity, yellow represents moderate sensitivity and green indicates areas better able to absorb development, while grey indicates that no significant sensitive environmental receptors occur at that location:



[56] These maps contain basemap background imagery credited to the following sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, ©OpenStreetMap contributors, and the GIS User Community.

Figure 5.18 – ESM for the Dublin City Area

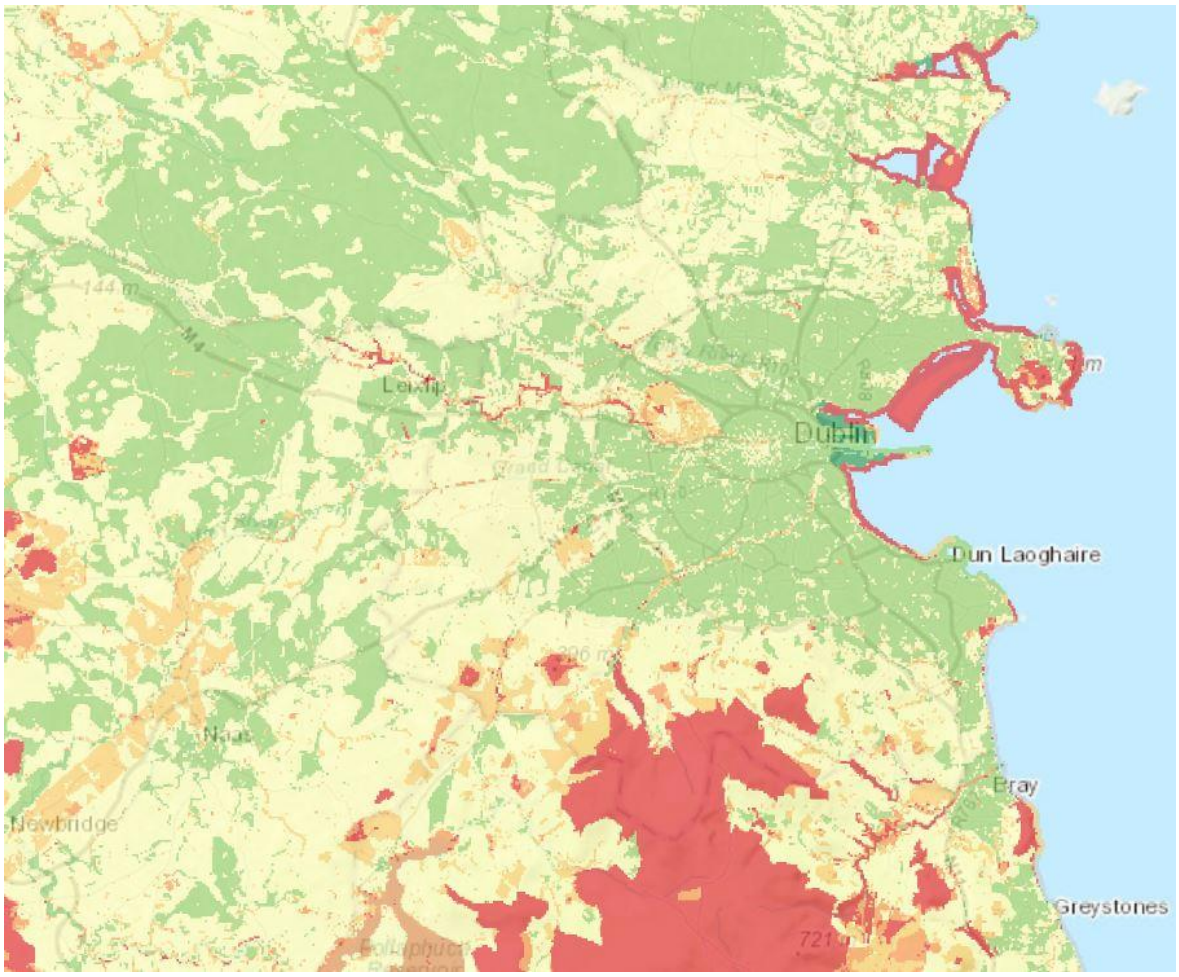


Figure 5.19 – ESM for the Cork City Area

Figure 5.20 – ESM for the Limerick City Area

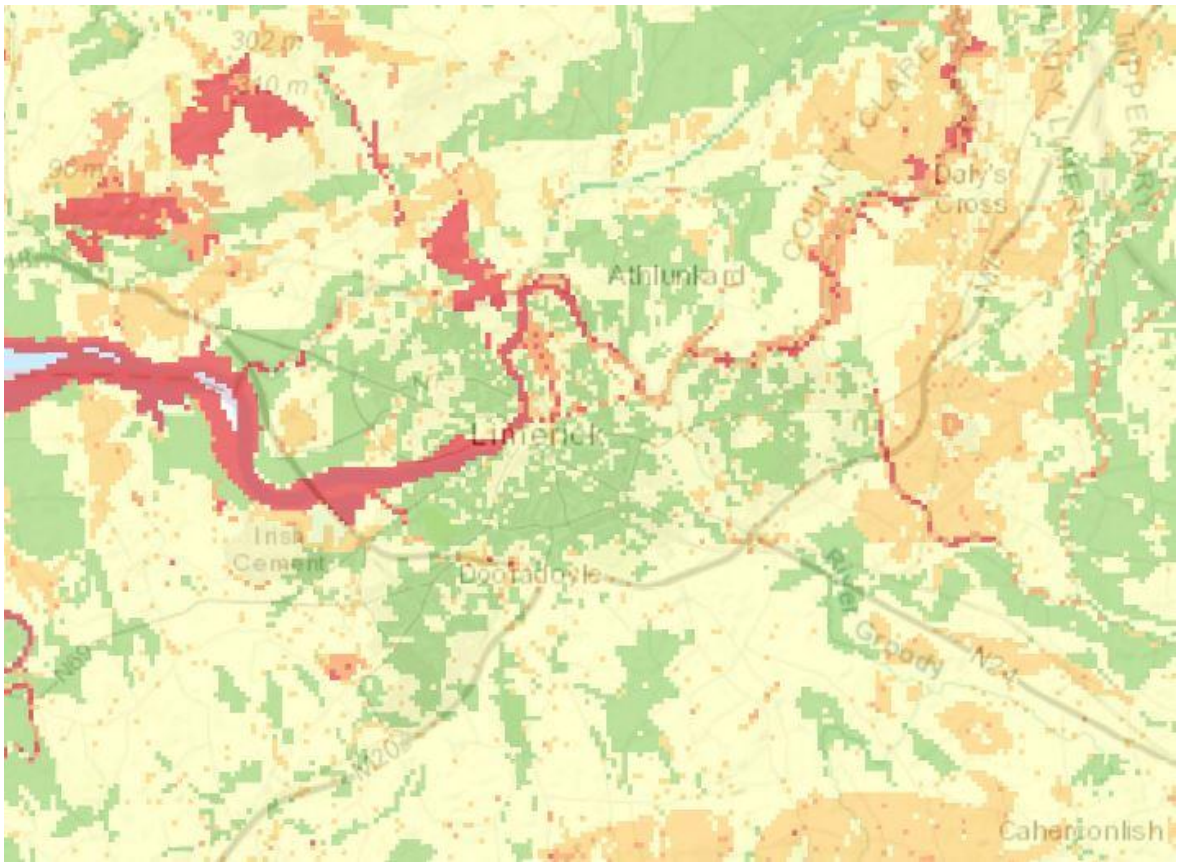


Figure 5.21 – ESM for the Galway City Area

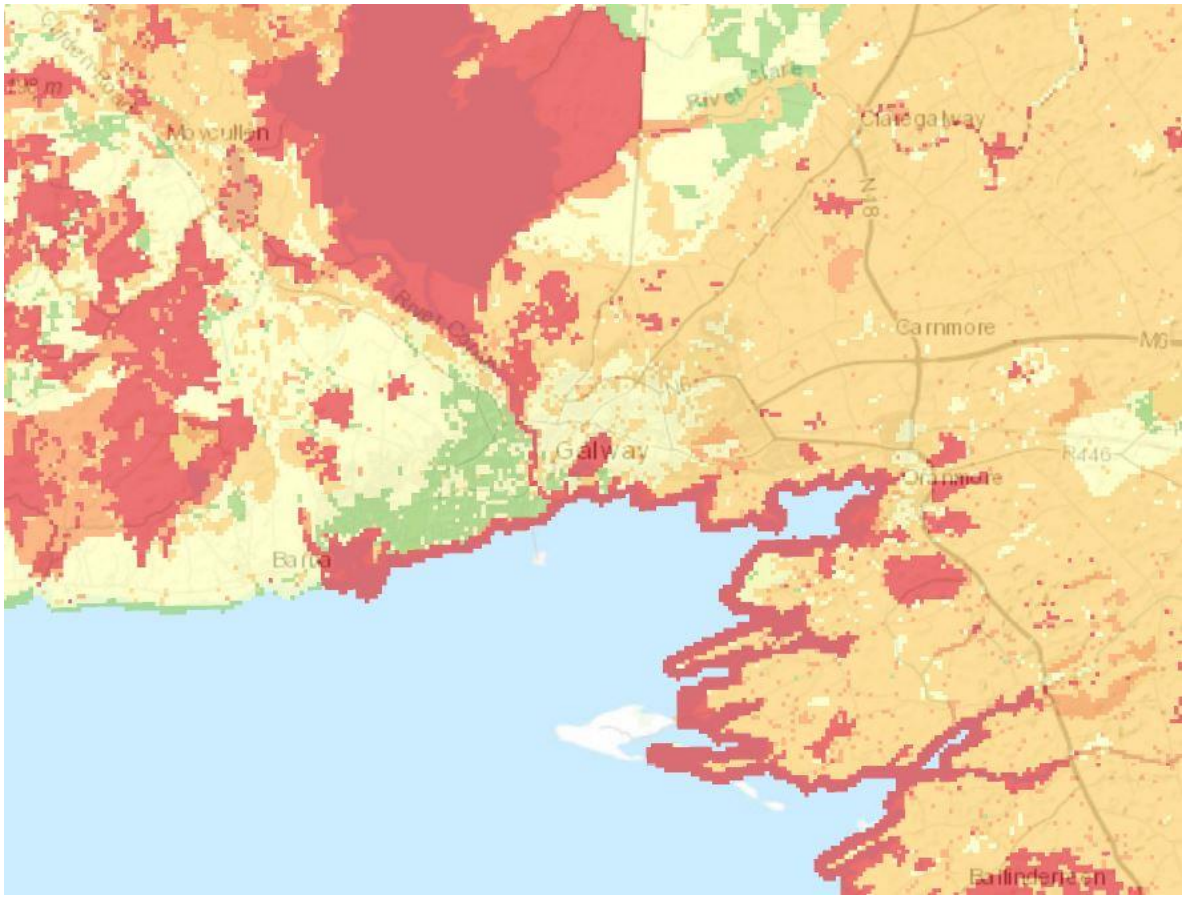


Figure 5.22 – ESM for the Waterford City Area

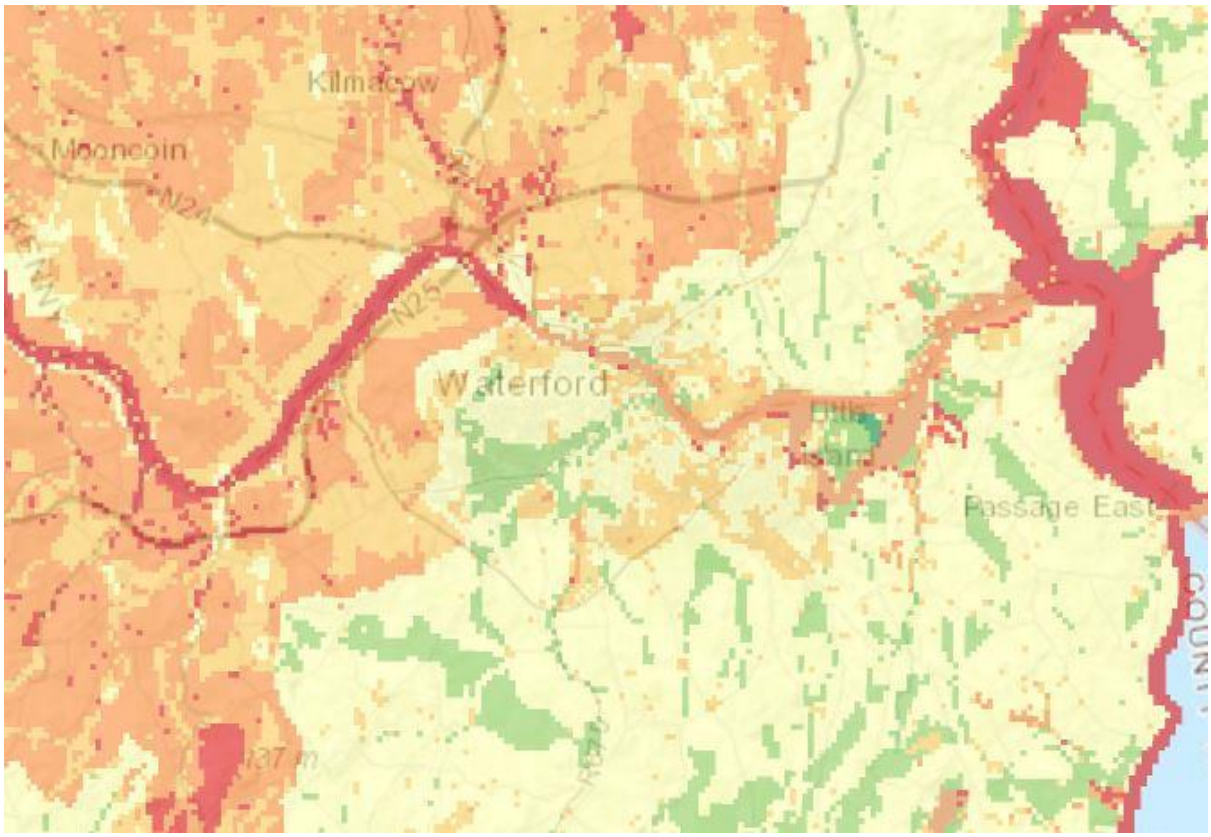
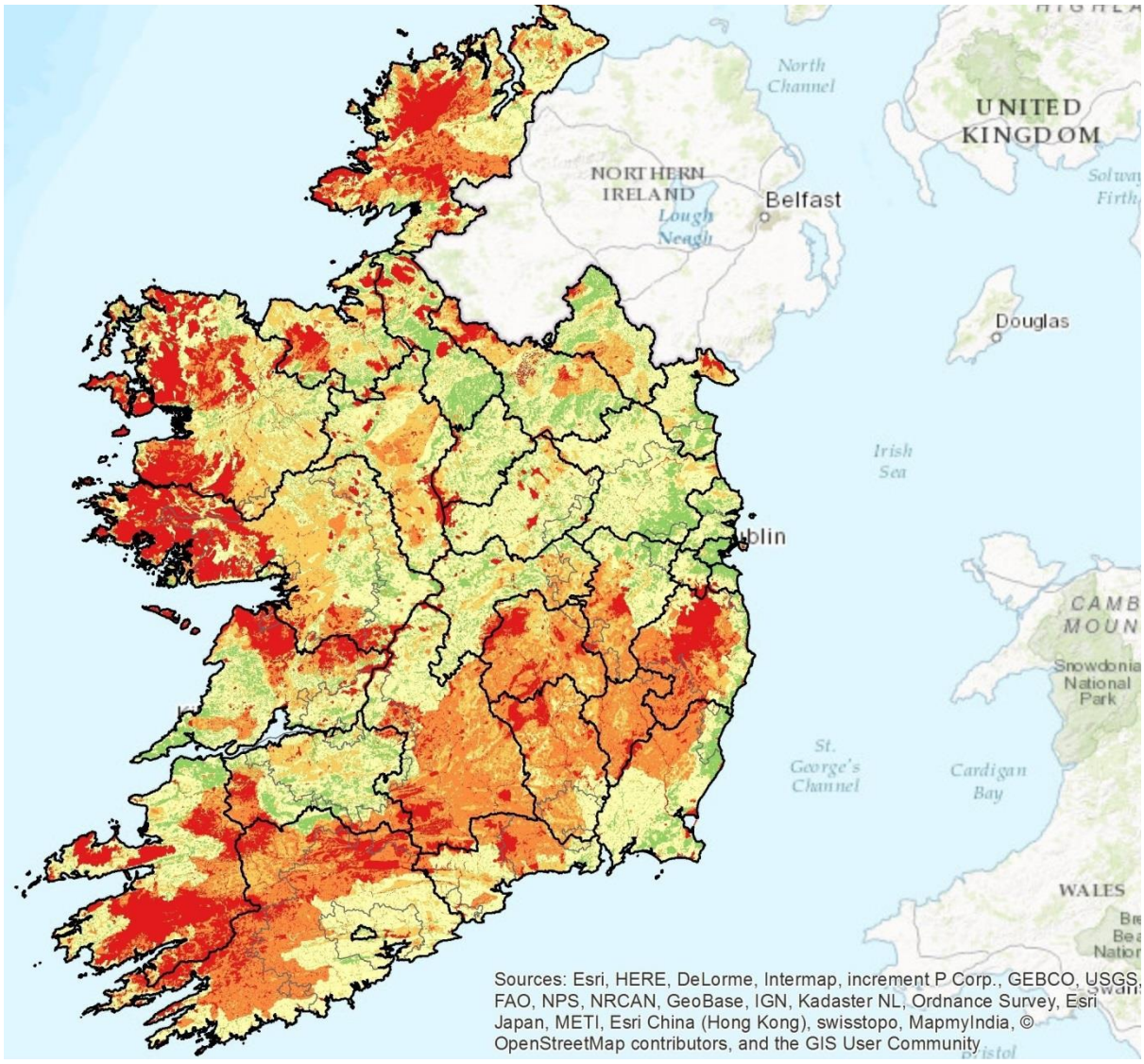


Figure 5.23 – ESM for Ireland



5.3.2 ESM Discussion

It can be seen from **Figure 5.18 – Figure 5.22** that the ESM gives a strategic overview of the likely sensitive areas associated with each of the cities, while **Figure 5.23** gives a strategic overview of the sensitive areas from the national perspective. River corridors, coastal areas and upland areas in general are more sensitive due to the habitats and species usually associated with them (e.g. salmonids, peat bogs).

The ESM also considers statutory protection measures associated with features such as the groundwater vulnerability rating, water quality/ WFD status and the presence of SACs and SPAs, which also influence the sensitivity of the relevant areas. For instance, where multiple protected features or resources overlap in an area, the relative sensitivity of the area will increase. The ESM Webtool represents a useful spatial support tool for SEA, helping to assess the potential for land-use conflicts by identifying areas sensitive to change. It is envisaged that the Webtool could be also of benefit at lower-level planning hierarchies such as the forthcoming Regional Spatial and Economic Strategies (RSESs) and County Development Plans (CDPs).

5.4 INTERRELATIONSHIPS

In accordance with the SEA Directive, the interrelationship between the SEA environmental topics must be taken into account (**Table 5.17**). The key interrelationships identified in this SEA are set out below.

Table 5.17 – Inter-relationships between SEA Topics

	Biodiversity Flora, Fauna	Population & Human Health	Soil	Water	Air Quality	Climatic Factors	Material Assets	Cultural Heritage
Population & Human Health	✓							
Soil	✓	✓						
Water	✓	✓	✓					
Air Quality	✓	✓	x	✓				
Climatic Factors	✓	✓	✓	✓	✓			
Material Assets	✓	✓	✓	✓	✓	✓		
Cultural Heritage	x	✓	✓	✓	x	✓	✓	
Landscape	✓	✓	✓	✓	x	✓	✓	✓

5.5 EVOLUTION OF THE BASELINE IN THE ABSENCE OF THE DRAFT NPF

The SEA legislation requires that consideration is given to the likely evolution of the current baseline where implementation of the draft NPF does not take place. Initiatives such as the Irish Water Investment Programme, Food Wise 2025 and continued urban/ suburban development through County and Local Development Plan processes are still likely to occur even without the draft NPF. **Table 5.18** summarises the key issues.

Table 5.18 – Likely Evolution of the Baseline without Implementation of the draft NPF

Key Issue	Likely Evolution in the Absence of the draft Ireland 2040 - NPF
Biodiversity, flora and fauna	Without the draft NPF, the pressure on aquatic and terrestrial flora, fauna and habitats is likely to continue with key drivers from development and land-use changes in addition to intensification of agriculture through initiatives such as Food Wise 2025. This is likely to lead to habitat loss and/ or fragmentation. In addition, there are changes expected to occur through climate change that may alter species and habitat ranges, with potential for range expansion of some invasive alien species which are an increasing concern. In the absence of the draft NPF, measures to address these pressures may not be coordinated or focussed in relation to the most sensitive habitats and species leading to permanent loss of key species.
Population and Human Health	The population of Ireland has been predicted to grow up to 5.3 million over the period 2016-2026, an annual average population growth rate of up to 1%. The draft NPF projects that Ireland will be home to an additional one million people by 2040. These projected population increases will increase pressure on land use, water/ wastewater and transport services. In the absence of the draft NPF, this increased pressure will not be accounted

Key Issue	Likely Evolution in the Absence of the draft Ireland 2040 - NPF
	for in terms of integration with evolving policy giving rise to pressure on existing infrastructure and inadequate provision for future changes.
Soils	In the absence of the draft NPF the soils, geology and hydrogeology would continue to exist in much the same pattern. There is currently little or no legislation relating directly to soils and soil protection.
Water	The eleven existing directives outlined under Article 11 of the WFD would continue to be implemented and enforced for the second cycle of the River Basin Management Plan (RBMP) running from 2017-2021, also taking account of the most recent status of water bodies, the outputs of the risk characterisation process as well as the lessons learned from the implementation of the first cycle. The Irish Water Investment Programme would take place independently of the draft NPF with the expected investment in the period to 2021 resulting in upgrades to in the order of 105 waste water treatment plants leading to some improvements in some waterbodies. The existing planning system will need to account for water quality and refer to the programme of measures implemented through the RBMP.
Air and climatic factors	Air quality in Ireland is of a high standard across the country, meeting all EU air quality standards, according to the EPA. The absence of the draft NPF is not expected to affect this trend, however uncoordinated infrastructure development would be likely. As a result of manmade GHG emissions, climate change is predicted to occur in the future regardless of action. The UN Intergovernmental Panel on Climate Change (IPCC) in their *Climate Change 2007: Climate Change Impacts, Adaptation and Vulnerability Report* predict sea level rise, changes in rainfall patterns and temperatures as well as changes in the frequency of droughts and extreme weather events. The potential impacts from sea level increases, increased flooding, summer droughts, etc.
Material Assets	The draft NPF acknowledges the requirements of existing directives, regulations and measures. It provides for the coordination of these controls to reduce impacts to the environment and examines how activities are impacting the wider environment and the measures needed to address these negative effects. In the absence of the draft NPF, Irish Water would continue to invest in water services, bringing improvements to water bodies, particularly where urban wastewater is the single pressure. The population will continue to grow with the associated demand for infrastructure as well as municipal and community services. Without the draft NPF these complex scenarios would continue to be managed in a less coordinated manner, thus the cumulative and synergistic impacts on the environment would continue. Critically without the draft NPF there would remain an uncoordinated approach to assigning resources and targeting those resources to the greatest need.
Cultural Heritage	In the absence of the draft NPF the uncoordinated approach to measures could result in unnecessary impacts on existing cultural heritage resource. However at a local level the existing development planning processes should provide a level of protection.
Landscape	In the absence of the draft NPF the uncoordinated approach to measures could result in unnecessary impacts to protected or sensitive landscape. However at a local level the existing development planning processes should provide a level of protection.

6 ENVIRONMENTAL PROTECTION OBJECTIVES AND SEA FRAMEWORK

Strategic Environmental Assessment, as its name suggests, is set at a strategic level, therefore it is not possible for the baseline environment to be described (and assessed) in as much detail as could be done for a project-level EIA. Instead, SEA uses a system of objectives, targets and indicators to set a framework for assessment of the plan.

In order to streamline the assessment process, this report has used broad themes, based on the environmental topics listed in the SEA Directive, to group large environmental data sets, e.g., human health, cultural heritage and climate. Assigned to each of these themes is at least one high-level Strategic Environmental Objective (SEO) that specifies a desired direction for change, e.g. reduce CO_2 emissions, against which the future impacts of the plans can be measured. These high-level SEOs are then paired with specific targets. The progress towards achieving these specific targets is monitored using Indicators, which are measures of identified variables over time.

6.1 DEVELOPMENT OF STRATEGIC ENVIRONMENTAL OBJECTIVES, TARGETS AND INDICATORS

6.1.1 Strategic Environmental Objectives

There are essentially three types of objectives considered as part of this SEA. The first relates to the objectives of the framework. The second relates to wider environmental objectives, i.e. environmental protection objectives at a national, European and international level (see **Chapter 4**), and finally there are the Strategic Environmental Objectives (SEOs), which were devised to test the effects of the draft NPF on the wider environment.

6.1.2 Strategic Environmental Indicators and Targets

The overall purpose of environmental indicators in the SEA is to provide a way of measuring the environmental effect of implementing the framework. Environmental indicators are also used to track the progress in achieving the targets set in the SEA as well as the framework itself. Targets were considered over the duration of the baseline data collection and assessment, and throughout the consultation process, in order to meet the SEOs as well as the objectives of the plan.

The proposed targets and indicators have been selected bearing in mind the availability of data and the feasibility of making direct links between any changes in the environment and the implementation of the plan. For this reason, where possible targets and indicators have been based on existing published targets such as Healthy Ireland Health Services Executives Implementation Plan 2012-2025, which set national objectives, targets and indicators to measure Ireland's progress in protecting human health.

The suggested draft objectives, targets and indicators associated with each topic area are presented in **Table 6.1**. Following feedback from the SEA statutory consultation process updates have been made to the objectives and targets as outlined in blue.

Table 6.1 – SEA Objectives, Targets and Indicators

Related to SEA Topic(s)	Targets	Indicators
Objective 1 Population & Human Health *To create an environment where every individual and sector of society can play their part in achieving a more healthy Ireland.*	▪ Increase the proportion of people who are healthy at all stages of life. ▪ Increase by 20% proportion of the population undertaking regular physical activity.	▪ Achievement of objectives, targets and indicators outlined in *Healthy Ireland Implementation Plan 2016-2019.*
Objective 2 Biodiversity, Flora and Fauna *To preserve, protect, maintain and, where appropriate, enhance the terrestrial, aquatic and soil biodiversity, particularly EU designated sites and protected species.*	▪ Require all regional, county and local level land use plans to include ecosystem services and green/blue infrastructure provisions in their land use plans and as a minimum, to have regard to the required targets in relation to the conservation of European sites, other nature conservation sites, ecological networks, and protected species.	▪ Number of spatial plans that have included ecosystem services and green/ blue infrastructure provisions when their relevant plans are either revised or drafted.
Objective 3 Soils *Protect soils against pollution, and prevent degradation of the soil resource.*	▪ Maintain built surface cover nationally to below the EU average of 4%.[57] ▪ To avoid or minimise adverse effects on mineral resources, important geological and geomorphological sites and soils.	▪ Percentage land cover change in Ireland.
Objective 4 Water *Ensure that the status of water bodies is protected, maintained and improved in line with the requirements of the WFD and MSFD.*	▪ The stated expected outcomes of the second cycle of the River Basin Management Plan are achieved by 2021. ▪ The stated expected targets of the MSFD are achieved or maintained by 2020.	▪ Status of water bodies as reported by the EPA Water Monitoring Programme for the WFD. ▪ Indicators for descriptors as reported for the MSFD are achieved or maintained by 2020.
Objective 5 Air Quality (i) *To avoid, prevent or reduce harmful effects on human health and the environmental as a whole resulting from emissions to air.* (ii) *Maintain and promote continuing improvement in air quality through the reduction of emissions and promotion of renewable energy and energy efficiency.*	▪ Decrease in proportion of journeys made by private fossil fuel-based car compared to 2014 National travel Survey levels.58 ▪ Adoption of the National Clean Air Strategy [to be published in Q4, 2017].	▪ Percentage change from 2014 position of 74% car modal share. ▪ Achievements of the Key Performance Indicators outlined in the National Clean Air Strategy.

[57] http://www.epa.ie/irelandsenvironment/environmentalindicators/#land_and_soil
[58] http://www.cso.ie/en/releasesandpublications/ep/p-nts/nationaltravelsurvey2014/keyfindings/

Related to SEA Topic(s)	Targets	Indicators
Objective 6 Climatic Factors *To minimise emissions of greenhouse gases.*	▪ Achieve transition to a competitive, low-carbon, climate-resilient and environmentally sustainable economy by 2050. ▪ A net reduction in the GHG emissions from the transport as outlined in the Greenhouse Gas Emissions Inventory. (Inventory for 2014 reported a 2.5% increase in carbon dioxide equivalent emissions). ▪ The Renewable Energy Directive (2009/28/EC) set a target for all Member States to reach a 10 % share of renewable energy in transport by 2020. ▪ Reduce overall emissions of carbon dioxide (CO2) by at least 80-95% of 1990 levels by 2050. ▪ To promote reduced energy consumption and support the uptake of renewable options and a move away from solid fuels for residential heating.	▪ No. of actions delivered through the National Mitigation Plan, published in July 2017. ▪ A net annual reduction in the GHG emissions from the relevant sectors (electricity generation, built environment and transport). Carbon neutrality in the agriculture/forestry sector.
Objective 7 Material Assets (i) *Consolidate growth and limit urban sprawl.* (ii) *Optimise existing infrastructure and provide new infrastructure to match population distribution proposals in the draft NPF.*	▪ To map brownfield and infill land parcels in each administrative area. ▪ Increased budget spend on water and wastewater infrastructure. ▪ By 2020 all citizens will have access to speeds of 30Mbps, and that 50% of citizens will be subscribing to speeds of 100Mbps.	▪ Number of administrative areas that have developed maps showing brownfield and infill lands ▪ Budget allocated to Irish Water under the National Capital Plan 2017. ▪ Percentage completion of broadband by 2021.
Objective 8 Archaeology, Architecture and Cultural Heritage *Protect places, features, buildings and landscapes of cultural, archaeological or architectural heritage.*	▪ No unauthorised physical damage or alteration of the context of cultural heritage features.	*More appropriately dealt with at project level.*
Objective 9 Landscape *To provide a consistent framework for identification, assessment, protection, management and planning of landscapes having regard to the European Landscape Convention.*	▪ Avoid damage to designated landscapes as a result of NPF implementation.	*More appropriately dealt with at project level, however the* Development of a National Landscape Character Map will contribute to protecting landscapes.

7 ALTERNATIVES

7.1 INTRODUCTION

The consideration of alternatives is a requirement of the SEA Directive (2001/42/EC). Article 5(1)[59] states that: *"Where an environmental assessment is required under Article 3(1), an environmental report shall be prepared in which the likely significant effects on the environment of implementing the plan or programme, and reasonable alternatives taking into account the objectives and the geographical scope of the plan or programme, are identified, described and evaluated."*

The term 'reasonable' is not defined in the legislation. Good practice points to the analysis of 'alternatives' as being a constructive and informative exercise for the policy makers, and that only 'possible' options are examined. Alternatives are required to take into account the objectives of the NPF. The alternatives study therefore must operate within the strategic objectives, set out for the NPF, and provide an examination of alternative means of implementing the NPF.

The Directive does not prescribe at what stage consideration of alternatives should be undertaken, however, to present a useful input into the plan making process, all guidance points to considering alternatives as early as possible. Guidance also recognises that multiple layers of alternatives may exist, particularly for plans of this nature.

Two principle guidance documents have been referenced in the development of alternatives:

- Implementation of SEA Directive (2001/42/EC): Assessment of the Effects of Certain Plans and Programmes on the Environment, DEHLG 2004; and
- Developing and Assessing Alternatives in Strategic Environmental Assessment, EPA 2015.

Early discussion of possible alternatives was undertaken during the scoping stage for the NPF. This chapter of the Environmental Report considers the reasonable alternatives which have been developed through the evolution of the draft NPF. Given the nature of the NPF, alternatives have been focussed at the strategic level.

7.2 APPROACH TO ALTERNATIVES FOR THE DRAFT NPF

In advance of preparing strategic alternatives, research was carried out by the Economic and Social Research Council (ESRI) examining population growth, employment and job growth projections to the horizon year of 2040. The research indicates that by 2040, there will be approximately 1 million additional people in Ireland, 550,000 additional homes and 660,000 more jobs. Of this, most growth would likely occur in the Dublin region and four surrounding counties as well as Cork and Galway. Almost 40% of the projected jobs are predicted to occur in Dublin alone under a *Business as Usual* approach.

A key challenge has been to firstly explore macro spatial alternatives that can accommodate this projected growth in the most optimal and sustainable manner that would achieve Ireland's economic, social and environmental requirements. Secondly, given that the NPF is a high level

[59] Directive 2001/42/EC On the assessment of effects of certain plans and programmes on the environment, EC 2001

framework, it has been important that options are strategic in nature. When developing the potential strategy alternatives it has also been important to outline options that reside with the legal competence of the plan-making authority, in this instance the DHPLG, but also assisted and supported across government. In addition, a key consideration has been to determine if the options or combination of options would be realistic (i.e. able to achieve the NPF's objectives), reasonable (i.e. based on socio-economic evidence), viable (technically and financially feasible) and implementable (realisable within the NPF's timeframe and resources).

7.2.1 Macro Spatial Growth Alternatives

In developing macro spatial growth alternatives, a key consideration has been to ensure a planning framework that will plan for changes which Ireland is likely to experience over the next 20-25 years in a way that is proactive, avoids adverse effects and supports a better quality of life for the population. The key challenges include:

- The **regional disparity** between regions, which is predicted to continue under *Business as Usual* and the need to explore options to arrest trends;
- The dispersed nature of growth is weakening the **role of settlements** as key drivers for growth, both across regions and more localised areas, contributing to the structural weakness of rural areas. There is a need to ensure a consistent and more comprehensive approach for growth;
- The **hollowing out of settlements** and high levels of vacancy, due to: building on the edges reinforcing issues of congestion and private car use; the dominance of greenfield development over reuse (brownfield development); and out-of-town retailing/ commerce; and
- Dispersal has led to **infrastructure deficits** and a mismatch between the pace of growth and pace of infrastructure deployment to service needs, with increasing costs to services.

To address the challenges of accommodating and planning for this growth and driving it in a sustainable way, a number of macro spatial alternatives were examined which are considered to be reasonable, realistic, viable, and implementable. These have been developed around four 'pillars', as shown in **Figure 7.1** and include:

- **Pillar 1 - Regional Distribution Scenarios:** how the regions will grow over the next 20 to 25 years;
- **Pillar 2 - Concentration-Dispersal Scenarios:** where future growth will be concentrated;
- **Pillar 3 - Compact-Sprawl Scenarios:** how densely this growth will be concentrated; and
- **Pillar 4 - Temporal Infrastructure Scenarios:** the timing and delivery of services and infrastructure.

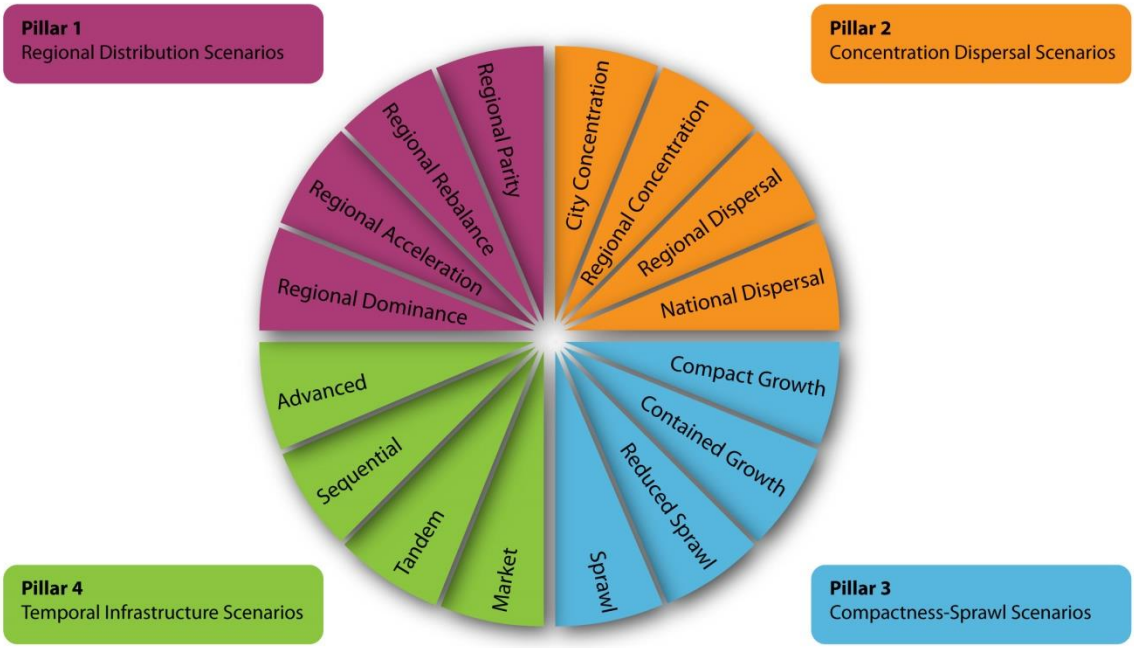


Figure 7.1 – Macro Spatial Options

In developing these alternatives a workshop was held with the SEA statutory bodies and key stakeholders (including business, community, environmental, services, and land use planning experts/ providers) to ascertain their views. This workshop also included members of the environmental steering group overseeing the SEA/ AA/ SFRA process. The workshop was a first step to examine the range of high level options that are available as part of a long-term growth strategy for the NPF, with a view to developing a number of growth options and potential viable combinations for evaluation.

7.2.1.1 Pillar 1 Regional Distribution Scenarios

It is statutory objective of the NPF, under the Planning and Development Amendment (Bill) 2016 to "*secure balanced regional development by maximising the potential of the regions, and support proper planning and sustainable development*". This macro spatial scenario seeks to explore the options for regional growth that will ensure effective regional development (also referred to as balanced regional development) as required under national planning policy and per statutory requirements to address the challenge of regional disparity. Under Pillar 1, four Regional Distribution Options were explored:

1. **Regional Parity:** The level of growth with the North and West Regional Assembly (NWRA) and Southern Regional Assembly (SRA) combined would be equal to that of the Eastern and Midlands Regional Assembly (EMRA).
2. **Regional Rebalance:** The level of growth with NWRA and SRA combined would be slightly more than that of the EMRA.
3. **Regional Acceleration:** The level of growth with the NWRA and the SRA combined would be 50% greater than that of the EMRA.
4. **Regional Dominance:** The level of growth with the NWRA and the SRA combined would be is 100% greater than that of the Eastern and Midlands Regional Assembly.

In examining the four options, it was considered that Regional Rebalance and Regional Acceleration would not be realistic given the scale and influence of the capital city on national growth and the existing dominance of the EMRA. The scale of the embedded and projected growth trajectory of the EMRA combined with the absence of a mechanism to redirect the majority of growth to the two other regions combined, means that the Regional Acceleration and Regional Dominance approaches are neither realistic nor implementable. Seeking to grow the NWRA and SRA significantly more than the EMRA would demand some level of artificial constraint on the growth and development of Dublin. This, together with the comparatively much smaller size of regional cities, could result in diminishing the scale of overall national development. As part of a progressive policy approach, Regional Parity is therefore considered to be a more reasonable and viable scenario, whereby the growth of the NWRA and SRA areas together would exceed that projected under a business as usual approach and would broadly equate to that of the EMRA.

Preferred Solution and Reason for Choosing: Regional Parity. This scenario would contribute to national objectives regarding regional development.

7.2.1.2 Pillar 2 Concentration-Dispersal Scenarios

It is a statutory objective of the NPF, under the Planning and Development Amendment (Bill) 2016 '*to establish a broad national plan for the Government in relation to the strategic planning of urban and rural areas'*. This macro spatial scenario seeks to address the challenges posed by the dispersed nature of growth, the weak settlement patterns and therefore explore the options for a settlement structure to sustainably support an additional 1 million people and 500,000 jobs. Under Pillar 2, four Concentration-Dispersal Options were explored:

1. **City Concentration:** Majority of future population and jobs growth would be focussed in the 5 principle cities (66%).
2. **Regional Concentration:** Majority of future population and jobs growth would be focussed in cities and a number of regionally important settlements.
3. **Regional Dispersal:** Less than 50% of future population and job growth would be focussed in less than 20 centres.
4. **National Dispersal:** Small minority (33% or less) of future population and jobs growth would be focussed in more than 20 centres.

In considering options, two important variables were the scale of concentration of activity and the relative distance, or ease of accessibility, to centres of scale. An approach focused on growth in and around Dublin and to some extent the regional cities would have negative consequences as it would not address the north-west which does not have the same scale of urban centres, outside of Galway City. Such a trajectory is likely to add to further growth pressures in the wider Dublin Region and inhibit more peripheral parts of Ireland from realising their full potential.

Preferred Solution and Reason for Choosing: While City Concentration is viable, the preferred scenario is Regional Concentration as it would contribute more to national objectives regarding regional development. In picking Regional Concentration as the preferred macro spatial option, it was considered important that while the majority of growth should be focussed in the cities and a number of regionally important centres, the rate of growth in comparison to the national rate of growth was a key determinant.

7.2.1.3 Pillar 3 Compactness-Sprawl Scenario

It has been established that getting the physical form and location of future development correct offers the best prospects to unlocking regional potential. Currently, the fastest growing areas are at the edges of, and outside of, our cities and towns. This results in a constant process of infrastructure and services catch-up, city centres becoming run-down and sprawl that extends the physical footprint of our urban areas. This pattern of development at greenfield locations suggests that in the long term, meeting Ireland's development needs in housing, employment, services and amenities will cost at least twice that of a compact/ smart growth-based approach. This issue is also recognised in Ireland's Planning Policy Statement 2015 which states it a key principle for "*efficient and effective use of previously developed (brownfield) land over the use of greenfield land to ensure the most efficient use of existing infrastructure, enhancing and strengthening the continued vitality of existing communities through regeneration"*.

Therefore four Compact-Sprawl Options were explored in relation to the level of housing delivery on infill and brownfield sites, in comparison to greenfield sites within settlements, they include:

1. **Compact Growth:** Large majority (66% or more) of growth as infill in existing built-up area footprints.
2. **Contained Growth:** Majority (50% or more) of growth as infill in existing built-up area footprints.
3. **Reduced Sprawl:** Minority (50% or less) of growth as infill in existing built-up area footprints.
4. **Sprawled Growth:** Small minority (33% or less) of growth as infill in existing built-up area footprints.

It was considered that the issue of compact versus sprawled growth was critical in that it translates the regional and settlement scenarios of Pillars 1 and 2 into physical implementation. It was determined that the scenarios should refer to the delivery of new homes within the built-up envelope of existing urban settlements on infill or brownfield sites.

Preferred Solution and Reason for Choosing: It was also determined that a combination of the options Contained Growth and Reduced Sprawl would be a significant improvement on business as usual approach that is currently happening in Ireland. It was therefore considered that the delivery of at least 40% of all new homes nationally on infill or brownfield sites, and within the built-up envelope of existing urban settlements, would contribute to national objectives regarding regional development.

7.2.1.4 Pillar 4 Temporal Infrastructure Scenarios

Under the Planning and Development Amendment (Bill) 2016 it is a requirement of the NPF to indicate national infrastructure priorities to address strategic development requirements for implementing the NPF. It is also important that the NPF and the structures it proposes are supported by Government through Cyclical Capital Reviews. In this regard the NPF will align with the long term National Investment Plan. In addition to identifying infrastructure needs, the timing of development is equally important for sustaining our progress in economic, social and environmental terms. Four scenarios were explored which include:

1. **Front-loading Provision:** Provide key infrastructure in advance of planned growth.

2. **Sequential Provision:** Provide some critical infrastructure in advance of planned growth to kick start development and provide other infrastructure sequentially and on a phased basis in tandem with development of people-focussed uses such as residential, community and commercial uses. This approach is based on a combination of time based approach and the quantum and scale of growth.
3. **Tandem Provision:** Key infrastructure is provided in tandem with development of people focussed uses such as residential, community and commercial uses, trying to keep pace with growth. This approach is based on the quantum and scale of growth rather than time specific.
4. **Market-led Provision:** Infrastructure provision does not match growth in some areas leading to delays. In some cases deficits potentially become compounded or require costly retrospective provisions or interventions by the State.

Unlocking the growth and regeneration opportunities for the NPF, in particular sustainable land management requires an approach to aid viability and deliverability. Front-loading Provision of services in advance of planned growth is not considered realistic across all sectors. It may however be applicable for certain areas such as strategic development zones and city metropolitan area strategic plans (MASPs). Market-led Provision may lead to deficits of service provision in some areas or result in the need for catch-up, putting pressure of other services.

Sequential Provision provides flexibility regarding the forward planning of strategic projects of national importance, which can take up to a decade to deliver from design to operation while also ensuring that infrastructure provisions keep pace with the scale of growth. Tandem Provision is also viable however it does not contain the ambition and forward planning needed over a 20 year period.

Preferred Solution and Reason for Choosing: Sequential Provision would best contribute to national objectives for national and regional development.

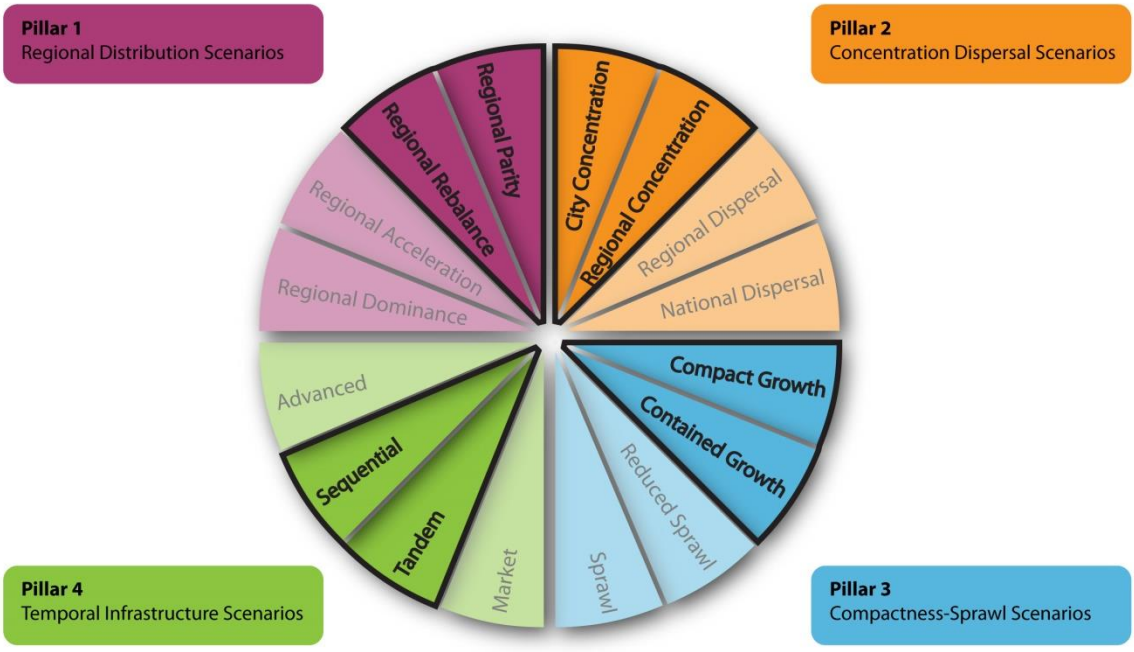


Figure 7.2 – Refinement of the Macro Spatial Options

7.2.2 Strategy Alternatives

The assessment of macro spatial growth alternatives under the four pillars presented in **Section 7.2.1** represents those strategic questions which have driven the direction of the plan. Following on from that analysis, six strategy alternatives were developed which integrated the preferred pillars into more focussed real world alternatives. The six alternatives developed for consideration were:

- **Option 1 – Compacted Concentration**
- **Option 2 – Regional Effectiveness and Settlement Diversity**
- **Option 3 – Regional Effectiveness and Settlement Consistency**
- **Option 4 – Regional Dominance and Settlement Diversity**
- **Option 5 – Regional Dominance and Settlement Consistency**
- **Option 6 – Business as Usual**

In the following sections each option has undergone an objectives-led assessment, reflecting on the SEA sensitivities. This qualitative assessment of each option compares the likely impacts against the SEOs, outlined in **Chapter 6**, to establish which alternatives meet the SEOs and which, if any, contradict them. The assessment carried out was primarily qualitative in nature based on expert judgement. For the purposes of these assessment, plus (+) indicates a potential positive impact, minus (-) indicates a potential negative impact, plus/minus (+/-) indicates that both positive and negative impacts are likely or that in the absence of further detail the impact is unclear, and a neutral or no impact is indicated by zero (0).

7.2.2.1 Option 1 – Compacted Concentration

Option 1 includes the following criteria:

(i) The level of growth in the NWRA and SRA combined would equal that of the EMRA;
(ii) Focus the highest quantum of growth and rates of growth in 5 cities through a tailored approach to settlement growth targets;
(iii) Deliver at least 50% of all new homes in the 5 cities on infill or brownfield sites within the built up envelope of existing urban settlements (and at least 30% in all other settlements); and
(iv) Provide some critical infrastructure in advance of planned growth to kick start development and provide other infrastructure sequentially and on a phased basis in tandem.

Key*	PHH	BFF	S	W	AQ	CF	MA	CH	L
Option 1 - Compacted Concentration	+/-	+/-	+/-	+/-	+	+	+	+/-	+/-

***Key**: BFF – Biodiversity, Flora and Fauna; PHH – Population and Human Health; S – Soils; W – Water; AQ – Air Quality; CF – Climatic Factors; MA – Material Assets; CH – Cultural Heritage; L– Landscape.*

This option would have positive impacts for PHH and MA as growth would be focussed on regional parity between the EMRA and the NWRA/SRA combined. This would recognise and preserve the economic drivers of the Dublin/Eastern Midlands area, while also promoting and facilitating growth in the two other regions. The *Compacted Concentration* option allows growth to be focussed in the five principle cities which can have positive impacts for BFF, S, W, CH and L as growth is principally focused in existing urban envelopes and not on greenfield sites.

The focus of growth in five cities has potential for both positive and negative effects. From a positive perspective, it affords greater opportunity to deliver services efficiently, a positive for MA, and reduce the potential for cumulative impacts from one off and piecemeal delivery of disjointed water, energy and telecoms infrastructure. Indirect positive impacts would be anticipated for BFF, S and W as a result. Furthermore, a focus on five cities allows for greater focus and spending on public transport, reducing the need for private car-based journeys with positive effects for AQ and CF in particular but also indirectly for BFF, W and CH. The concentration of people in city areas also offers greater potential to integrate other interrelated measures such as district heating, walking and cycling networks which will have direct positive impacts for CF. An approach that focuses on compactness and concentration for our cities may also give rise to negative impacts on L and PHH through changing skylines and indirect impacts from overshadowing caused by high-density development where significant building heights may be required. There is also the potential to impact negatively on CH if city growth is not sensitive to the existing archaeological, architectural and cultural heritage associated with the identified cities.

The *Compacted Concentration* option also includes for an increase in the use of infill or brownfield sites within the built-up envelope of existing urban settlements. Whilst development on brownfield land is broadly positive insofar as it reduces the need for greenfield development which may be an important community/ social assets in such cities, there is potential to encounter contaminated material that could indirectly impact on BFF, S and W through the remediation process. The volume and nature of the contamination will be an important factor to consider given the limited end-of-life solutions for some contaminated material.

The provision of some critical infrastructure prior to development is directly positive for PHH and MA as it ensures that services such as transport, water and wastewater provisions are put in place prior to occupancy of residential development. There could be indirect positive impacts on BFF and W if the infrastructure provision was to include wastewater treatment facilities. The high density of people within the cities could provide financial justification for public transport services thus increasing urban mobility and reducing the need for the private motor car. This could have indirect positive impacts on AQ and CF through the reduction in emissions.

7.2.2.2 Option 2 – Regional Effectiveness and Settlement Diversity

Option 2 includes the following criteria:

(i) The level of growth in the NWRA and SRA combined would be equal to that of the EMRA;
(ii) Focus the highest quantum of growth and rates of growth in 5 cities and a number of regionally important large towns through a tailored approach to settlement growth targets;
(iii) Deliver at least 40% of all new homes nationally on infill or brownfield sites within the built up envelope of existing urban settlements; and
(iv) Provide some critical infrastructure in advance of planned growth to kick start development and provide other infrastructure sequentially and on a phased basis in tandem.

Key*	PHH	BFF	S	W	AQ	CF	MA	CH	L
Option 2 - Regional Effectiveness and Settlement Diversity	+/-	+/-	+/-	+/-	+	+	+	+/-	+/-

***Key**: BFF – Biodiversity, Flora and Fauna; PHH – Population and Human Health; S – Soils; W – Water; AQ – Air Quality; CF – Climatic Factors; MA – Material Assets; CH – Cultural Heritage; L– Landscape.*

Option 2 is similar to Option 1 with a focus on regional parity, development of five city areas, use of infill and brownfield as part of the solution alongside provision of advanced critical infrastructure. However this option also sees a role for a number of regionally important large towns through a tailored approach to settlement growth targets. This variation reflects the social and community structure which has historically developed in Ireland and the importance of a supporting network of large towns to drive the regional and rural economy outside the functional influence of cities. Ireland has many rural areas with significant cultural ties to the land and needs effective regional and rural drivers to ensure that urban and rural development needs are met.

7.2.2.3 Option 3 – Regional Effectiveness and Settlement Consistency

Option 3 includes the following criteria:

(i) The level of growth in the NWRA and SRA combined would be equal to that of the EMRA;
(ii) Focus the highest quantum of growth in 5 cities and a number of regionally important large towns, with equal rates of growth across all settlements;
(iii) Deliver at least 40% of all new homes nationally on infill or brownfield sites within the built up envelope of existing urban settlements; and
(iv) Provide some critical infrastructure in advance of planned growth to kick start development and provide other infrastructure sequentially and on a phased basis in tandem.

(v) Key*	PHH	BFF	S	W	AQ	CF	MA	CH	L
Option 3 - Regional Effectiveness and Settlement Consistency	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-

***Key**: BFF – Biodiversity, Flora and Fauna; PHH – Population and Human Health; S – Soils; W – Water; AQ – Air Quality; CF – Climatic Factors; MA – Material Assets; CH – Cultural Heritage; L– Landscape.*

Option 3 is similar to Option 2 and in large parts to Option 1 with a focus on regional parity, development of five city areas, use of infill and brownfield as part of the solution, alongside provision of advanced critical infrastructure. Option 3 also includes the development of regionally important towns as per Option 2, however in this variation there is a stipulation around the rates of growth. An equal rate of growth across the settlements is proposed. While no direct impacts are anticipated form the addition of the growth rate there is potential for indirect effects. A greater spread of resources across a large number of settlements dilutes the potential to provide coherent solutions in terms of services, as there is often a lack of critical mass to justify the cost-benefits. This can indirectly impact on PHH and MA if the services offered are below standard or lack competition. The stipulation of equal growth rates across settlements does not consider the carrying capacity of environmental limits of the settlements in any way. If the growth rates of a settlement exceed the available capacity of wastewater or other vital services this can have knock on negative impacts on PHH, S, W BFF, and MA. Although the option does recognise the need for delivery of infrastructure in tandem, this may not be possible with such a dispersed approach to growth rates.

7.2.2.4 Option 4 – Regional Dominance and Settlement Diversity

Option 4 includes the following criteria:

(i) Growth in EMRA is less than that of the NWRA and SRA combined;
(ii) Focus the highest quantum of growth and rates of growth in cities and a number of regionally important large towns in NWRA and SRA and lower than national growth rates in

Dublin City and regionally important large towns, through a tailored approach to settlement growth targets;

(iii) Deliver at least 40% of all new homes nationally on infill or brownfield sites within the built up envelope of existing urban settlements; and

(iv) Provide some critical infrastructure in advance of planned growth to kick start development and provide other infrastructure sequentially and on a phased basis in tandem.

(v) Key*	PHH	BFF	S	W	AQ	CF	MA	CH	L
Option 4 - Regional Dominance and Settlement Diversity	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-

***Key**: BFF – Biodiversity, Flora and Fauna; PHH – Population and Human Health; S – Soils; W – Water; AQ – Air Quality; CF – Climatic Factors; MA – Material Assets; CH – Cultural Heritage; L– Landscape.*

Option 4 has clear differences to Options 1 to 3 in that it seeks to limit growth in the EMRA while focussing growth in the other two regions. The focussed five city strategy is replaced with a focus on cities and a number of large towns in the NWRA and SRA areas only. Focussed growth in the NWRA and SRA would be expected to give rise to positive impacts for PHH and MA in particular where population growth is coupled with economic investment, however it is noted that Dublin plays a significant role in the national economy, accounting for over 41% of GDP and it functions as an economic driver of growth not just for the EMRA but also nationally. Limiting growth in the region, in the manner proposed under this option, may have unintended negative consequences particularly for PHH and MA where existing established sectors may not continue to invest in Ireland if their needs are not met in key strategic locations such as Dublin. This could remove a viable sector from further investment in any of the three regions.

As with the other options, the focus on infill and brownfield development over greenfield is broadly welcomed however there is potential for negative impacts on S, W, BFF in particular depending on the nature of the infill/ brownfield lands and appropriate mitigation would be required through a National Policy Objective to address this.

7.2.2.5 Option 5 – Regional Dominance and Settlement Consistency

Option 5 includes the following criteria:

(i) Growth in EMRA is less than that of the NWRA and SRA combined;

(ii) Focus the highest quantum of growth and rates of growth equally in cities and a number of regionally important large towns in NWRA and SRA and lower than national growth rates in Dublin City and regionally important large towns in EMRA;

(iii) Deliver at least 50% of all new homes in the cities and a number of regionally important large towns on infill or brownfield sites within the built up envelope of existing urban settlements in the NWA and SRA and at least 30% in EMRA; and

(iv) Provide some critical infrastructure in advance of planned growth to kick start development and provide other infrastructure sequentially and on a phased basis in tandem.

Key*	PHH	BFF	S	W	AQ	CF	MA	CH	L
Option 5 - Regional Dominance and Settlement Consistency	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-

***Key**: BFF – Biodiversity, Flora and Fauna; PHH – Population and Human Health; S – Soils; W – Water; AQ – Air Quality; CF – Climatic Factors; MA – Material Assets; CH – Cultural Heritage; L– Landscape.*

Option 5 is broadly similar to Option 4 but sees an equal share in growth rates in cities and a number of regionally important large towns in each region. As with Option 3, a greater spread of resources across a large number of settlements dilutes the potential to provide coherent solutions in terms of services as there is often a lack of critical mass to justify the cost-benefits. This can indirectly impact on PHH and MA if the services offered are below standard or lack competition. The stipulation of equal growth rates across settlements does not consider the carrying capacity of environmental limits of the settlements in any way. If the growth rates of a settlement exceed the available capacity of wastewater or other vital services this can have knock on negative impacts on PHH, S, W BFF, and MA. Although the option does recognise the need for delivery of infrastructure in tandem, this may not be possible with such a dispersed approach to growth rates.

7.2.2.6 Option 6 – Business as Usual

In the context of the draft NPF, consideration has been given to a *Business as Usual* option where population and economic growth continues on its current trajectory.

The assumptions of Option 6 are that:

(i) The majority of growth takes place in the EMRA;
(ii) Focus growth in existing gateways and hubs as designated in the National Spatial Strategy;
(iii) No national specification between greenfield and brownfield/infill delivery targets for new housing; and
(iv) Infrastructure delays or deficit of infrastructure to support planned growth.

Key*	PHH	BFF	S	W	AQ	CF	MA	CH	L
Option 6 - Business as Usual	0/-	0/-	0/-	0/-	0/-	0/-	0/-	0/-	0/-

**Key: BFF – Biodiversity, Flora and Fauna; PHH – Population and Human Health; S – Soils; W – Water; AQ – Air Quality; CF – Climatic Factors; MA – Material Assets; CH – Cultural Heritage; L– Landscape.*

Under Option 6, the majority of growth would take place in the EMRA and more particularly toward the Greater Dublin Area. This has implications from a social and economic as well as an environmental perspective. As more focus is placed on Dublin, with higher employment opportunities this is likely to give rise to further shifting age profiles across the state as more of those in the working age profile move toward the EMRA leaving the other regions with an aging dispersed population which will be difficult to service. A focus on only one region and one dominant city is likely to result in a deterioration of smaller cities and large towns in other regions where investment in public transport and services may be difficult to justify if populations are not increasing. This would have negative implications for PHH and MA for these other cities and regions.

At the same time, negative impacts would be expected for Dublin as more and more population growth puts further pressures on existing services of water, wastewater, public transport and housing, and on available space. In the medium term, a lack of drinking water capacity is likely to lead to water shortages with potential negative impacts for PHH and MA. Equally, without adequate wastewater treatment capacity the available water quality is likely to deteriorate as existing facilities have to work to a service greater population equivalents than their design capacity. This would give rise to indirect negative impacts for BFF, W, S, PHH and MA. A lack of services like this is likely to drive residential development out of Dublin where public transport links cannot be efficiently provided or availed of by higher density development, forcing people into private car use and increasing commuting times similar to that seen in the last decade.

Option 6 does not address the lessons learned from the NSS, nor does it incorporate considerations of new policy and legislation particularly in relation to climate change, smart growth, water etc.

7.3 PREFERRED ALTERNATIVE AND REASON FOR CHOOSING

The previous sections have outlined the alternatives considered for the NPF. Throughout the process, the plan team has had regard to the wider policies and strategies of the Government, stakeholder feedback on the issue paper published in Q2 of 2017, and the strategic environmental objectives identified in **Chapter 6**. In considering the broad direction for the framework the macro spatial growth approach has been considered and the preferred approach is characterised as one displaying: regional parity for the EMRA, NWRA and SRA; regional concentration toward cities and some regionally important larger settlements; a focus on contained growth and reduced sprawl by targeting infill and brownfield lands in existing built-up areas; and sequential provision of infrastructure with some critical infrastructure in place to promote investment. This high level direction is considered to best reflect the most sustainable approach to growth patterns.

Following on from this the SEA has considered Strategy Alternatives with regard to the achievement of the strategic environmental objectives identified in **Chapter 6**. Although the Business as Usual scenario was considered, it is noted that it does not reflect the preferred macro spatial approach and as such is not considered a viable alternative. Options 1 to 5 all note the need for sequential provision of infrastructure with some critical infrastructure in place to promote investment. Similarly Options 1 to 5 all note the need for some level of infill or brownfield development of between 30-50%. The issues with development of these lands will be site-specific and an approach that recognises the environmental implications of development of such lands will be needed irrespective of the overall percentage target. The principle differences identified in Options 1 to 5 relate to the regional and settlement strategy approach. In this regard the preferred option is considered to be O*ption 2 – Regional Effectiveness & Settlement Diversity*. This alternative is likely to achieve the maximum overall gain in relation to the SEOs in terms of maximising use of public transport thereby reducing transport related emissions, in tandem with facilitating higher densities in city areas, and focussed managed growth in supporting settlements, thereby improving regional connectivity and services outside of the cities.

The preferred Strategy Alternative has been developed into a series of National Policy Objectives (NPOs) which are the main focus of the environmental assessment. These are presented and examined in **Chapter 8** with relevant mitigation presented in **Chapter 9**.

8 ASSESSMENT OF PREFERRED SCENARIO

The purpose of this section of the Environmental Report is to evaluate as far as possible the environmental effects of the proposed mitigation measures listed in the draft NPF and to set out measures envisaged to prevent, reduce and as far as possible offset any significant adverse effects on the environment.

8.1 ASSESSMENT APPROACH

The preferred scenario identified at the end of **Chapter 7** has been progressed and policies and policy actions have been developed for the following policy areas:

Chapter 2: A New Way Forward
Chapter 3: Making Stronger Urban Places
Chapter 4: Planning for Diverse Rural Places
Chapter 5: People, Homes and Communities
Chapter 6: Realising Our Island and Marine Potential
Chapter 7: Working with our Neighbours
Chapter 8: Realising Our Sustainable Future
Chapter 9: Investing in Ireland 2040 - Implementation
Chapter 10: Assessing Environmental Impact

The approach used for assessing mitigation measures in the draft NPF is an objective-led assessment. Each measure has been assessed against a set of strategic environmental objectives (SEOs), as outlined in **Chapter 6**. These SEOs have been developed in the context of broader environmental protection objectives set at EU and national level and also with reference to the context of potential for impacts associated with the draft NPF. The assessment considers the likely significant impacts of the measures and how their implementation will contribute to achieving these SEOs. For the purposes of this assessment:

- Plus (+) indicates a potential positive environmental impact;
- Minus (-) indicates a potential negative environmental impact;
- Plus/minus (+/-) indicates that both positive and negative environmental impacts are likely or that in the absence of further detail the impact is unclear; and
- Zero (0) indicates neutral or no impact.

A number of the policy objectives relate to existing schemes or plans that are in place at the time of drafting the NPF and these are noted.

8.2 ASSESSMENT PARAMETERS

Within the current scope of this SEA, temporary impacts have not been assessed. *Temporary impacts* arising from implementation of the draft NPF and proposals contained therein would typically be associated with the construction phase, however, no specific location or design parameters are addressed at this strategic level. It is therefore considered that the scope of the

draft NPF does not lend itself to an assessment of such impacts but such impacts will be addressed at lower-level planning hierarchies (i.e. RSESs, CDPs). *Permanent effects* are addressed in the assessment which follows.

The draft NPF will cover the period from up to 2040. In line with the SEA Directive, *short, medium and long-term impacts* must be considered during the assessment. The long-term horizon would represent possible effects beyond the 2040 horizon year. Short, medium and long-term impacts are addressed in the assessment which follows.

Cumulative effects arise for instance where several measures may each have an insignificant effect but together have a significant effect. *Synergistic effects* interact to produce a total effect greater than the sum of the individual effects so that the nature of the final impact is different to the nature of the individual impact. Cumulative/ synergistic assessment is addressed in the assessment which follows.

The primary effect of the draft NPF is to coordinate sustainable planning into the future. Many of the policy objectives under consideration will have *direct* positive impacts for population dynamics and material assets as a result. However, a number of the measures also have the potential to directly and indirectly impact on other environmental receptors. These *secondary and indirect* effects have been taken into account in the assessment which follows**.**

8.2.1 Integration of SEA, AA and SFRA with Development of the Draft NPF

To assist the draft NPF team in integrating environmental considerations into the evolving framework, the SEA, AA and SFRA teams have worked with the draft NPF team to provide advice and guidance in relation to the wording of certain measures, the inclusion of new measures and supporting text and modification of other measures to strengthen environmental outcomes. Specifically the SEA, AA and SFRA teams:

- Had input to meetings on alternatives (See **Chapter 7**);
- Undertook a preliminary review of emerging policy objectives;
- Provided feedback on language to address issues in particular in relation to European Sites and the AA process; and
- Developed additional mitigation measures for inclusion in the draft NPF (see **Chapter 9**).

The policy objectives as presented in this chapter mirror those presented in the draft NPF. It must be recognised that preliminary assessments were undertaken on the policy objectives and mitigation measures in the form of text amendments (as outlined in **Chapter 9**) were incorporated into the draft NPF.

The reader is advised of the availability of an NIS and SFRA, which have been prepared under separate cover. The NIS has been prepared in compliance with the requirements of the EU Habitats Directive (92/43/EEC) as transposed into Irish law by the Birds and Habitats Regulations 2011 (as amended). The SFRA has been prepared in accordance with the requirements of The Planning System and Flood Risk Assessment Guidelines for Planning Authorities (2009) and Circular PL02/2014

(August 2014)[60]. The NIS and SFRA provide specific information and detail and should be read in tandem with the draft NPF and the SEA Environmental Report.

8.3 ASSESSMENT OF POLICIES AND POLICY ACTIONS OF THE PREFERRED STRATEGIC APPROACH

8.3.1 Policy Area – A New Way Forward (Chapter 2)

This chapter of the NPF sets out the issues and challenges to setting a new way forward in terms of coordinated planning and looks at how to target growth levels across the various regions and build accessible centres of scale. A summary of the key messages of this chapter are as follows:

- Ireland 2040 is aiming for projected level of growth in the Eastern and Midland Regional Assembly area would be at least matched by that of Northern and Western and Southern Regional Assembly areas combined;
- 50% of overall national growth is being targeted at the five cities of Dublin, Cork, Limerick, Galway and Waterford with enhanced national grid of infrastructure linkages in mobility, communications and energy systems;
- In addressing the livability of urban places future growth is being targeted to happen in more compact and accessible, higher quality living environments; and
- Nationally, a high proportion (40%) of new housing is to be delivered within the existing built-up 'envelope' of settlements.

Specific policy objectives have been developed which address population targets, improving centres of scales, urban compactness versus sprawl, and identifying targets for infill housing development. These policy objectives are assessed in **Table 8.1**.

Table 8.1 – Policy Area: A New Way Forward

NPO	A New Way Forward
1a	*The projected level of population and jobs growth in the Eastern and Midlands Regional Assembly area would be at least matched by that of Northern and Western and Southern Regional Assembly areas combined.*
1b	▪ *Eastern and Midlands Region: a targeted 475,000 - 500,000 (0.475-0.5m) additional people, i.e. a population of around 2.8 million;* ▪ *Northern and Western Region: a targeted 150,000 - 175,000 (0.15-0.175m) additional people, i.e. a population of around 1 million;* ▪ *Southern Region: a targeted 350,000 - 375,000 (0.35-375m) additional people, i.e. a population of almost 2 million.*
1c	▪ *Eastern and Midlands Region: around 330,000 (0.33m) additional jobs, i.e. at least 1.33 million in total;* ▪ *The Northern and Western Region: around 110,000 (0.11m) additional jobs, i.e. at least 450,000 (0.45m) in total;* ▪ *The Southern Region: around 220,000 (0.22m) additional jobs, i.e. at least 880,000 (0.88m) in total.*
2a	*That population and jobs growth would generally be aligned to occur within the same functional area,*

[60] The Planning System and Flood Risk Assessment Guidelines for Planning Authorities (2009) and Circular PL02/2014 (August 2014) hereafter will be referred to as 'the Guidelines'

NPO	A New Way Forward
	whether a city of town catchment or all or part of one or more adjoining local authority area(s), on a coordinated basis through the Regional Spatial and Economic Strategy (RSES) and City and County Development processes.
2b	*That at least half (50%) of future population and jobs growth would be focused in the five Cities and their immediately adjoining suburbs and that around two-thirds (66%) would be focused in the cities and their suburbs together with a number of large regionally distributed towns and their environs to be identified through the Regional Spatial and Economic Strategy (RSES) processes.*
2c	*That accessibility to the north-west of Ireland and between centres of scale separate from Dublin would be improved, focused on cities and larger, regionally distributed centres and on key east-west and north-south routes.*
3a	*Deliver at least 40% of all new homes nationally within the built-up envelope of existing urban settlements*[61]*;*
3b	*At least half (50%) of all new homes in the five Cities and immediately adjoining suburban areas of Dublin, Cork, Limerick, Galway and Waterford would be delivered within the built-up envelope of existing urban settlements*[62]*;*
3c	*In areas other than the five City and suburban areas of Dublin, Cork, Limerick, Galway and Waterford, at least 30% of all new homes would be delivered within the built-up envelope of existing urban settlements*[63]*.*

NPO	PHH	BFF	S	W	AQ	CF	MA	CH	L
1a	+	0	0	0	0	0	+	0	0
1b	+	0/-	0	0/-	0	0	+/-	0	0
1c	+	0/-	0	0/-	0	0	+/-	0	0
2a	+	0	0	0	+	+	+	0	0
2b	+	0	0	0	+	+	+	0	0
2c	+/-	0/-	0/-	0/-	+/-	+/-	+	0/-	0/-
3a	+	0/-	0/-	0/-	+	+	+	0	0
3b	+	0/-	0/-	0/-	+	+	+	0	0
3c	+	0/-	0/-	0/-	+	+	+	0	0

PHH – Population and Human Health; BFF – Biodiversity, Flora and Fauna; S – Soils; W – Water; AQ – Air Quality; CF – Climatic Factors; MA – Material Assets; CH – Cultural Heritage; L– Landscape.

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NPO1a will have medium to long term direct positive impacts in terms of PHH and MA as population and job growth potential will be more inclusive among the regions. This approach to future growth within Ireland would contribute to addressing regional growth and prosperity across the regions by supporting proportionate opportunities for population growth and employment in all *regional assembly areas*. It must be recognised that a coordinated and balanced approached is required in planning, development of transport and energy infrastructure and water services to accompany population growth across the regions. The projected population and employment distribution across all three regions is presented in **NPO1b** and **NPO1c** which identifies the targeted population and jobs for each region. Whilst it is directly positive for PHH and MA that growth rates are predicted for each region having been based on demographic and econometric modelling, it has to be considered that there is potential for impact on the natural environment should services such as water/ wastewater and transport not be phased to match projected demand. The key potential negative

[61] This means within the existing built-up envelope of all sizes of urban settlement, as defined by the CSO in line with UN criteria i.e. having a minimum of 50 occupied dwellings, with a maximum distance between any dwelling and the building closest to it of 100 metres, and where there is evidence of an urban centre (shop, school etc.).

[62] On the basis of National Policy Objective 2b, this effectively targets 25% of all new homes nationally.

[63] On the basis of National Policy Objective 2b, this effectively targets 15% of all new homes nationally. Individual or scheme homes delivered outside the CSO defined urban settlement boundary are classed as greenfield.

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impacts from a lack of services will be on W and BFF through non-compliance with the requirements of the Water Framework Directive. It is clearly outlined in policy objectives contained within Chapter 9 of the NPF that there is a requirement for future zoned land to be adequately serviced, however it will be imperative for the natural and human environment that this occurs. The increased growth also has potential to result in habitat loss and disturbance of BFF to accommodate population and jobs growth. It is recognised that the NPF has indicated elsewhere that there will be a focus on the existing built environment of settlements to accommodate much of this growth and this will reduce the potential for loss of habitats through greenfield developments.

NPO2a and **NPO2b** will have positive impacts in terms of PHH and MA as it will be focused, co-ordinated and aligned to occur within the same city and adjoining metropolitan areas, town and environs or county which will promote accessibility, quality of life and improvement of services. The policy objective will directly contribute to consolidation within the urban areas which may positively contribute to AQ and CF if public transport services are provided and utilised. Improving accessibility to the North West of Ireland in **NPO2c** will have directly positive impacts on PHH and MA for the Northern and Western Regional area as it will ensure that there is easy access and transport links to an area that is currently quite isolated and as such growth is constrained. As it can only be assumed that accessibility involves improvements to our road and rail network there is potential for direct and indirect negative impacts on PHH, BFF, S, W, CH and L from linear infrastructural development. While improvements to bus and rail infrastructure will contribute positively to AQ and CF through potential for reduced emissions this may be offset if there is a higher uptake in road infrastructure utilised by fossil fuel cars.

The focus for **NPO3a**, **NPO3b** and **NPO3c** is development within existing urban settlements which will be directly positive for PHH and MA. Consolidation and increased density for settlements facilitates justification for public transport and increased sustainable travel and as such would have indirect positive impacts on AQ and CF. Where infill and brownfield sites are utilised this is positive for PHH and MA but has the potential to negatively impact S as sites can have hazardous materials which require remediation. Disturbance of contaminated material may lead to mobilisation of leachates with consequent negative impacts for water, soils and indirectly for BFF. There is also potential for further negative impacts on BFF due to possible spread of Invasive Species. It has been noted in the baseline section that there is only one landfill in Ireland with the ability to process mildly contaminated inert materials. This has implications for the levels of contaminated waste which could be generated through the use of infill and brownfield sites for provision of housing, particularly in urban areas where there have been historic industry uses or old dumping sites. There may also be negative impacts to W due to additional demand on water and wastewater services which may already be operating at or above capacity. Water and wastewater services should be delivered on a phased basis to match projected demand.

Proposed SEA Recommendations and Mitigation Measures:

- **NPO1b:** It is recognised that NPO66, in Chapter 9 of the NPF outlines that zoned land for development purposes needs to estimate the full cost for delivery of associated services but there is a direct need to have a national policy objective that outlines the recognition that future housing development in Ireland needs to be aligned with the phasing of services, in particular water, wastewater and transport.
- **NPO3c:** There is a requirement for a specific policy objective that recognises the environmental issues associated with brownfield development and outlines measures to deal with hazardous material.
- **General Mitigation:** As part of the RSES, there will be a requirement to review the land area available to accommodate the additional people in each region ensuring that consideration of environmental sensitivities is incorporated within the review process.
- **General Mitigation:** The EPA-funded Environmental Sensitivity Mapping (ESM) Webtool which has been used in the assessment of the NPF will be applied at the lower tiers of planning to inform planning decisions in terms of zoning and provision of services. Future plans e.g. RSESs and CDPs, should look to investigate the potential application of the Webtool to strategically inform integrated land use management to better address cumulative analysis of impacts on the environment.
- **General Mitigation:** The RSES's will develop a regional strategic infrastructure and services map to inform the policies in Chapter 9 in relation to *Coordinating Land Use Zoning, Infrastructure and Services*.
- **General Mitigation:** The scope and role of the RSESs as part of a tiered planning structure needs to be defined.

8.3.2 Policy Area – Making Stronger Urban Places (Chapter 3)

This policy area provides details on the importance of urban centres and how to make cities, towns and villages attractive places to live, work and visit through planning for urban growth. A summary of the key messages includes:

- Encouraging proportionally higher levels of population growth at the locations where they can best be accommodated based on considerations of scale and capacity, accessibility and urban structure; and
- Ireland's cities and towns and their wider regions will be strengthened through proportionate growth at all scales with a key requirement to strengthen our cities as they are of strategic national importance for Ireland's overall competitiveness.

Table 8.2 – Policy Area: Making Stronger Urban Places

NPO	Making Stronger Urban Places
4	*Ensure the creation of attractive, liveable, well designed, high quality urban places that are home to diverse and integrated communities that enjoy a high quality of life and well-being.*
5	*To develop cities of sufficient scale and quality to compete internationally and to be drivers of national and regional growth and investment.*
6	*That cities, towns and villages of all types and scale are supported as environmental assets to be regenerated in order to accommodate changing roles and functions and enhanced levels of amenity and design in order to exert a positive influence on their surrounding area.*
7	*Strengthen all levels of Ireland's urban structure, with a particular focus on:* ▪ *Our Capital, Dublin* ▪ *the four Cities of Cork, Limerick, Galway and Waterford* ▪ *large towns (>10,000 population) located outside the five city regions[64] and particularly in the northern and western region* ▪ *small towns (<10,000 population) located outside the five city regions in conjunction with their surrounding rural areas[65]*
7a	*To achieve sustainable national growth in urban and rural areas, a National Smart Growth initiative will be put in place to support development and to leverage both public and private investment, as part of a ten year capital investment plan.*
8	*To ensure that the targeted pattern of population growth of Ireland's cities and large towns to 2040 is proportionate, in accordance with the targets set out in Table 3.1.*
9a	*Regional and Local Authorities to identify and quantify locations for strategic employment growth in the cities identified on Table 3.1.*
9b	*Regional and Local Authorities to identify and quantify locations for employment growth, where suitable, in urban areas generally.*
10	*That there is a presumption in favour of development that encourages more people, jobs and activity within existing urban areas, subject to development meeting appropriate planning standards and achieving targeted growth.*
11	*In urban areas, planning and related standards, including in particular building height and car parking will be based on performance criteria that seek to achieve well-designed high quality outcomes in order to achieve targeted growth. These standards will be subject to a range of tolerance that enables alternative solutions to be proposed to achieve stated outcomes, provided public safety is not compromised and the environment is suitably protected.*

[64] The standardized EU/OECD definition of a city region is the commuter catchment from which at least 15% of the relevant city area workforce is drawn. This will vary from Census to Census, but has been expanding in recent years.
[65] See chapter 4 of the NPF

NPO	Making Stronger Urban Places
12	*In urban areas, active land management will be applied to identify a range of opportunities to achieve targeted growth, up to and including the establishment of special purpose vehicles such as a national land development agency and seeking to broaden the applicability of compulsory purchase legislation to enable urban development in certain circumstances, to ensure the development infill and brownfield and infill lands in the most sustainable economic and environmental manner possible.*

NPO	PHH	BFF	S	W	AQ	CF	MA	CH	L
4	+	+	+	+	+	+	+	+	+
5	+	+/-	+/-	+/-	+	+	+	+	+/-
6	+	+/-	+/-	+/-	+	+	+	+	+/-
7	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-
7a	+/-	+/-	+/-	+/-	+/-	+/-	+	+/-	+/-
8	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-
9a	+	0	0	0	0	0	+	0	0
9b	+	0	0	0	0	0	+	0	0
10	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-
11	+	0	0	0	0	0	+	0	0
12	+/-	+/-	+/-	+/-	+/-	0/+	+/-	0/+	+/-

PHH – Population and Human Health; BFF – Biodiversity, Flora and Fauna; S – Soils; W – Water; AQ – Air Quality; CF – Climatic Factors; MA – Material Assets; CH – Cultural Heritage; L– Landscape.

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NPO4 will create high quality urban places providing quality of life for the citizens of Ireland. There will be long-term positive impacts on all of the environmental receptors through the development of urban environments that are cognisant of the natural environment whilst developing a place for people to live and work.

NPO5 will have positive impacts for PHH, MA, AQ, CF and CH as the development of quality and competitive urban places that can drive growth will be overall positive for these environmental receptors and contribute to investment and employment opportunities. To achieve sufficient scale to compete internationally will involve consolidation and intensification of growth. There will therefore be indirect positive impacts for BFF, S, W and L as long as this development and intensification takes place in a phased and sustainable way. There are also associated negative impacts to these environmental receptors as there will be increased demand for water and emissions of wastewater, potential generation of contaminated materials from development of brownfield sites, and changes to the skyline/ cityscape character.

Positive impacts overall are expected to arise from **NPO6** as regeneration is expected to improve the built environment and access to amenities. Accepting the role of changing functions within settlements is especially positive for PHH and MA in terms of future adaptability and taking advantage of opportunities. It is unclear how settlements are defined as environmental assets and as such there are potential negative connotations for BFF, W, S and L. This will depend on the scale of regeneration, infrastructure and municipal service demand and the type of amenity development (e.g. a greenway may provide an ecological corridor but equally a cycleway in proximity to protected sites may disturb wildlife).

Positive impacts overall will arise from **NPO7** as focussed urban development will have a positive impact on natural environment as it will reduce sprawl and haphazard development scenarios. However given the overall population growth targets and level of expected growth referred to in **NPO8**, there is invariably potential for negative impacts also i.e. increased emissions to air and water to accommodate the growing population. Clarity is needed on the meaning of “strengthen” in the context of **NPO7**, to fully establish the magnitude of potential benefit/ impact.

NPO7a proposes a National Smart Growth initiative which offers the opportunity for development to support and encourage communities to ensure that they are places that are attractive to live in, economically stronger and socially diverse while also protecting human health and the environment. Development guided by smart growth principles has the potential for direct and indirect long-term positive impacts for all environmental

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receptors. The guiding principles must however have a strong community and environmental focus if balance of public and private investment as part of the capital investment plan while also minimising air and water pollution, reducing greenhouse gas emissions, encouraging clean up and reuse of contaminated properties, and preserving natural lands is to be achieved in. The NPF includes Smart Growth Urban criteria in **Chapter 9** which reference a number of environmentally relevant criteria however a set of overarching guiding principles would greatly improve the focus and understanding of the criteria.

NPO8 has similar positive impacts for all environmental receptors as **NPO7**; targeted and consolidated growth within existing urban areas will reduce sprawl, land use change and encroachment on greenbelt. However this growth must be cognisant of the capacity of these urban areas to absorb such development and whether the growth targets align with the phasing of critical services such as adequate water/wastewater capacity (e.g. Irish Water Capital Investment Plan and others), public transport provision and access, denser urban areas and changing skylines etc. This consolidation and growth of urban places will therefore have potential negative impacts for all environmental receptors.

The **NPO9a and 9b** objectives have positive inferences for PHH and MA generally as they propose to plan strategic employment growth locations within the suitable and targeted growth cities and towns. The process of identifying and quantifying locations needs to take into account environmental sensitivities within an area relative to the type of employment sought.

NPO10 is considered to have positive impacts overall for all environmental receptors as the focus of growth is towards consolidation in existing areas and also refers to achieving appropriate standards. However with any growth there is potential for negative impacts also. Emissions to air and water will increase in existing urban areas and the development/reuse of brownfield sites has the potential to generate significant volumes of contaminated waste material in brownfield areas. The NPF also specifies in this section that there will be no car parking requirement for all new development in or near the five cities and reduced requirements in the inner suburbs. This could lead to inaccessibility issues if these cities are not catered for sufficiently in terms of public transport and sustainable transport methods in the interim period. There is also a risk of shifting parking behaviour to areas which are not able to accommodate it (e.g. industrial and residential areas). It should be noted that some existing urban areas are also located very close to European Sites and people, jobs and activities may already be impacting on these protected habitats and species e.g. disturbance of bird populations along the coasts where many of the SPA designations are in place. Similarly, sensitive riverine species such as freshwater pearl mussel are already suffering a significant decline from multiple sources including industry-related emissions from towns and cities where there were previously robust populations. The presumption of urban growth should be predicated on being targeted to the right locations and the ability to meet the objectives of key environmental legislation i.e. WFD and Habitats Directive as a minimum.

NPO11 is positive for PHH and MA in terms of achieving growth targets whilst recognising the need for high density buildings along with ensuring protection of the environment.

NPO12 is broadly positive across the environmental receptors as this policy will manage the use of existing brownfield site will be utilised over greenfield sites, hazardous sites potentially will be regenerated and remediated and lands identified for suitable intensification. Active land management however is dependent on the protection and conservation of designated sites and species and the conservation of wild areas that act as sources/ sinks for native flora and fauna. Development of brownfield sites, urban densification, increased emissions to air and water as well as increased demand on municipal services means there is potential to negatively impact on PHH, BFF, S, W, AQ, MA and L. The establishment of a national land development agency would be positive provided there is effective coordination at all planning levels.

Proposed SEA Mitigation Measures:

- **NPO7a:** The development of Guiding Principles for Smart Growth Urban and Rural.
- **NPO 9a and 9b**: Consider undertaking a feasibility study to accompany the decision-making with regards to strategic employment growth which acknowledges that different urban areas will be able to accommodate different employment and infrastructure types. The Environmental Sensitivity Mapping Webtool should be utilised to support such a study.
- **NPO10**: Many existing urban areas already located in close proximity to European Sites. Overall while densification of the existing urban space is desirable, any urban growth and development should be supported by a quality site selection process that addresses environmental concerns such as landscape, cultural heritage and biodiversity as a minimum. The EPA Environmental Sensitivity Mapping WebTool

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should be utilised to support such a study. ▪ **NPO12:** Should a land management agency be set up, its scope and responsibilities should be clearly outlined. ▪ **General Mitigation:** Regional Assemblies together with Local Authorities shall develop an inventory to identify the quantum of infill/ brownfield lands to facilitate delivery of the Framework as part of a wider contained growth strategy.

In addition to policies NPO4 to 12, a number of key growth enablers for the five cities are identified in the following sections.

Key enablers for Dublin include:-

- *D1: Identifying a number of ambitious large-scale regeneration areas for the provision of new housing and employment throughout the city and metropolitan area and the measures required to facilitate them as integrated, sustainable development projects;*
- *D2: Progressing the sustainable development of new greenfield areas for housing, especially those on public transport corridors, such as Adamstown, Cherrywood, Clonburris and Clongriffin;*
- *D3: Determining a limited number of accessible locations for significant people-intensive employment to complement the city-centre and docklands areas;*
- *D4: Enabling enhanced opportunities for existing communities as development and diversification occurs, particularly through employment, learning and education support;*
- *D5: Relocating less intensive uses outside the M50 ring in particular and from the existing built-up area generally;*
- *D6: Delivering the key rail projects set out in the Transport Strategy for the Greater Dublin Area including Metro North, DART expansion and the Luas green line link to Metro North;*
- *D7: The development of an improved bus-based system, with better orbital connectivity and integration with other transport networks;*
- *D8: Ensuring that water supply and waste-water needs are met by new national projects to enhance Dublin's water supply and increase waste water treatment capacity;*
- *D9: Improving sustainability in terms of energy, waste and water, to include district heating and water conservation;*
- *D10: Public realm and urban amenity projects, focused on streets and public spaces, especially in the area between the canals and where linked to social regeneration projects;*
- *D11: Measures to enhance and better link the existing network of green spaces, including the Phoenix Park and other parks, Dublin Bay and the canals, subject to the carrying out of routing study and necessary environmental assessments;*
- *D12: Delivery of the metropolitan cycle network set out in the Greater Dublin Area Cycle Network Plan inclusive of key commuter routes and urban greenways on the canal, river and coastal corridors;*
- *D13: Improving access to Dublin Airport, to include improved public transport access and road connections from the road network from the west and north and in the longer term, consideration of heavy rail access to facilitate direct services from the national rail network in the context of potential future electrification;*
- *D14: Facilitating the growth of Dublin Port through greater efficiency, limited expansion into Dublin Harbour and improved road access, particularly to/from the southern port area.*

Enabler	PHH	BFF	S	W	AQ	CF	MA	CH	L
D1	+	+/-	+/-	+/-	+	+	+	+/-	+/-
D2	+	+/-	+/-	+/-	+	+	+	+/-	+/-
D3	+	0	0	0	+	+	+	0	0

Enabler	PHH	BFF	S	W	AQ	CF	MA	CH	L
D4	+	0	0	0	0	0	0	0	0
D5	+	0/-	0/-	0/-	0/+	0/+	+/-	0/-	0/-
D6	+	0/-	0/-	0/-	+	+	+	0/-	0/-
D7	+	0/+	0	0/+	+	+	+	0	0
D8	+	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-
D9	+	+/-	+/-	+	+	+	+	+/-	+/-
D10	+	+/-	+/-	+/-	+	+	+	+/-	+
D11	+	+/-	+/-	+/-	+	+	+	+/-	+/-
D12	+	+/-	0/-	0/-	+	+	+	0/-	+/-
D13	+	+/-	+/-	+/-	+/-	+/-	+	+/-	+/-
D14	+/-	0/-	0/-	0/-	+/-	+/-	+/-	0/-	0/-

PHH – Population and Human Health; BFF – Biodiversity, Flora and Fauna; S – Soils; W – Water; AQ – Air Quality; CF – Climatic Factors; MA – Material Assets; CH – Cultural Heritage; L– Landscape.

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Enabler **D1** is considered to have positive impacts overall as regeneration is expected to improve the natural environment as well as human environment. By regenerating sites, uncontrolled run-off or contamination issues are generally improved upon resulting in positive impacts to S and W. The policy is also positive to MA and BFF as regeneration areas are targeted over developing greenfield or agricultural areas. Development, once sustainable, should result in positive impacts to AQ and CF. From a landscape and visual perspective regeneration generally results in improved visual impacts and restoration of cultural heritage where present. There are potential negative impacts for BFF, CH, L, S and W where regeneration results in emission to water or the generation of contaminated material from brownfield sites. Regeneration would need to be cognisant of the need for sensitive development of protected building and the type and scale of development could impact on the skyline/cityscape character.

Some potential negative impacts will arise from **D2** for BFF, W, S, L, CH and MA due loss of greenfield space and potentially increased risk of run-off or flood risk, and changes to the landscape with the potential to disturb heritage features. There are positive impacts from the provision of housing and employment delivered in a sustainable manner. There are also positive impacts for AQ and CF as such housing would have nearby access to public transport options.

There are positive impacts from **D3** for PHH and MA due to increased employment opportunities and for maximising the use of the existing built environment, although issues relating to the possibility of contaminated land particularly in relation to docklands must be borne in mind. There are positive for AQ and CF where such locations are accessible by public transport modes.

Enabler **D4** will give rise to positive impacts to PHH as it focuses on enabling opportunities for and improving communities through employment and education. The remaining environmental receptors are neutral with respect to this policy.

As for D1, Enabler **D5** is considered positive to PHH and MA as the aim is to maximise the use of land within the M50 Ring, however there is potential to contribute to traffic congestion and delays from more intense use of the M50 overall to access lands inside and outside the M50 Ring although there is potential for positive impacts to AQ and CF if use of public transport is maximised for more intensive uses within the M50 Ring. There are potential negative impacts to BFF, W, S, CH and L if relocation outside the M50 involves siting on greenfield and the choice of sites should be based on a robust site selection method.

D6 will give rise to positive impacts for PHH, MA, AQ and CF as this policy focuses on the provision and upgrade of public transport infrastructure. The remainder of the environmental indicators will likely experience some negative impacts arising from land use change, temporary emission to water (and groundwater for tunnelled sections) where new infrastructure is developed. It is noted that the transport strategy has undergone SEA and AA with the relevant mitigation to prevent negative effects included at that stage. Furthermore the projects referenced in D6 will also undergo EIA and AA processes as part of planning.

There are positive impacts from **D7** to PHH, MA, AQ and CF through the provision of an improved transport system and greater connectivity, with reduced emissions to air from use of same over private transport

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modes. There are potentially positive impacts to BFF and W due to reduced emissions from private cars.

Enabler **D8** will result in overall positive impacts to PHH, MA and W in terms of adequate capacity to meet demand and improved human health. There are also indirect positive impacts to BFF as wastewater discharges remain a key pressure to achieving WFD objectives for many water bodies. There are potential positive and negative impacts to the other environmental indicators depending on location, proximity to dwellings, land-take requirements etc. It should be acknowledged that both the Greater Dublin Drainage and Eastern Midlands Water Supply projects are currently in the planning process and are undertaking studies in support of EIA and AA.

Enabler **D9** has an overall positive impact for all environmental indicators as this policy supports re-use of natural resources, water conservation, recycling and energy-saving. There are potentially both positive and negative impacts to BFF, S, CH and L depending on the type and location of measures.

Enabler **D10** is considered to be overall positive to PHH, CH, L and MA as it focuses on improving the existing urban space. The focus on public realm and amenity also promotes walking/cycling options resulting in positive impacts to AQ and CF. Depending on the nature, scale and extent of the measures proposed there are potential positive and negative impacts to W, S and BFF.

For **D11** and **D12** there are positive impacts to PHH, MA, AQ and CF as providing greater connectivity between green spaces, amenity, and will result in opportunities for modal shift and the uptake of cycling and walking. There are both positive and negative impacts to remaining environmental indicators as the details of the measures proposed to provide the linkages is unknown at this stage. There could be potential positive impacts to BFF if ecological enhancement is included as part of development. It should be noted that cycleways can be problematic for bird populations by causing disturbance to feeding and triggering flight/scare responses, particularly for coastal routes. There is potential for negative impacts to BFF and protected bird populations, e.g. *Zostera* beds at the coast are routinely used by birds as a food source.

Priority **D13** is likely to give rise to positive impacts to PHH, MA, AQ and CF due to improved public transport and connectivity to the airport. Electrification of the rail network is also positive for these environmental indicators provided the increased demand on the electricity generating sector is offset by uptake of energy generated from renewable sources. For the remainder of the environmental indicators, there are both potential positive and negative impacts to as the details of the measures proposed to increase connectivity is unknown at this stage.

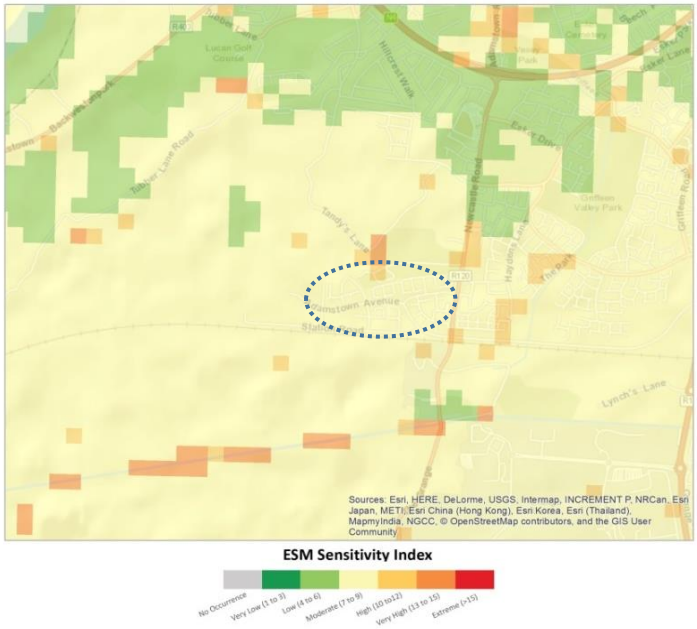
There are positive impacts to PHH and MA from **D14** through improved access and opportunities at Dublin Port. There are also potential negative impacts due to increased noise and air emissions due to expansion and construction activities. There are potentially neutral/negative impacts for L and CH as port expansion may effect change to the coastal and seascape character. Port growth may result in increased shipping and the need for dredging. This can disturb or damage submerged heritage features such as shipwrecks. Impacts to AQ and CF may be positive or negative depending on the degree to which alternative fuels and renewables are utilised in shipping and at the port (and provision of suitable port infrastructure such as charging stations or alternative fuel storage such as compressed natural gas). While it is stated that there will be limited expansion into Dublin Harbour, the port is located partly within and adjacent to a number of European Sites. Increased expansion, port activities and shipping volumes may have negative impacts for BFF as there are significant seabird and mammal populations. S and W have the potential to be negatively impacted by waste discharges/emissions to the water column and marine sediments.

Proposed SEA Mitigation Measures:

- **D1, D2, D3 and D5:** Identification of suitable sites for regeneration and development should be supported by a quality site selection process that addresses environmental concerns such as landscape, cultural heritage and biodiversity as a minimum. Siting guidelines need to be developed and incorporated within the NPF as a policy objective requirement.
- **D8:** Consideration needs to be given to alternative options allowing for potential delays in the planning system.
- **D14:** Harbour and port development needs a specific policy that deals with brownfield/contaminated land issues.

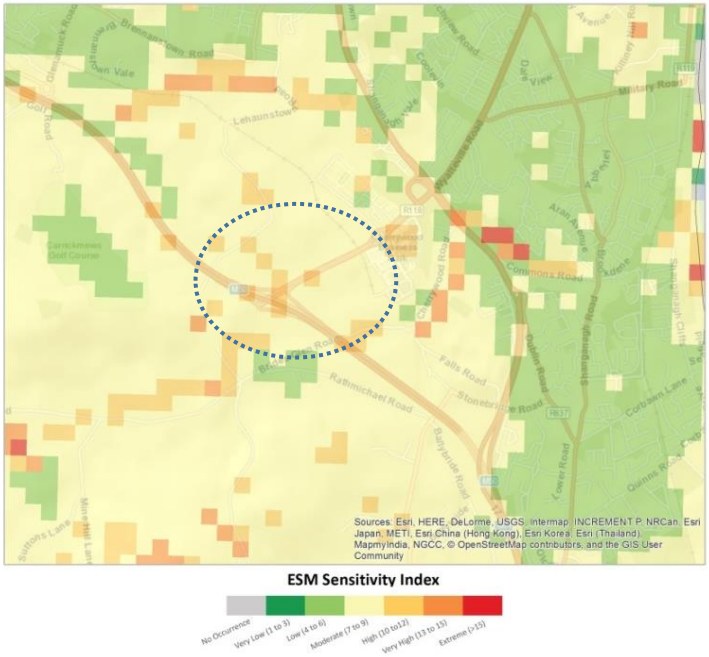
Environmental Sensitivity Mapping for the Dublin Area

As part of the environmental assessment process, previously discussed in **Section 5.3**, the ESM Webtool was utilised in relation to the key enablers for all five cities. For the Dublin enablers greenfield areas for housing have been identified in order to progress the sustainable development of Adamstown, Cherrywood, Clonburris and Clongriffin. However this requires consideration of the intrinsic sensitivity of the receivig environment at the various planning tiers.



The results of the environmental sensitivity mapping in **Figures 8.1** illustrates that the general area of **Adamstown** has moderate sensitivity, mainly due to groundwater resource protection considerations. Greenfield areas to the north of the current urban area contain pockets of higher sensitivity associated with cultural heritage, and to the south of the railway line, the potential for cumulative effects increases along the Grand Canal as a result of its ecological significance.

Figure 8.1 – ESM of Adamstown Lands



Aquifer vulnerability considerations render the general area of **Cherrywood,** outlined in **Figure 8.2** moderately sensitive in environmental terms. The potential for cumulative effects increases in areas of high and very high sensitivity, resulting from the overlapping occurrence of susceptible biodiversity (woodland habitats), drinking surface water and cultural heritage features on the landscape.

Figure 8.2 – ESM of Cherrywood Lands

The area around **Clonburris, Figure 8.3** is characterised by low environmental sensitivity due to its urbanised nature. Aquifer vulnerability considerations result in the lands north and south of the currently urbanised area to increase in sensitivity. The vicitinity of the Grand Canal is characterised by high sensitivity due to ecological considerations.

Figure 8.3 – ESM of Clonburris Lands

The lands around **Clongriffin** are generally environmentally robust, with some areas having moderate sensitivity as a result of groundwater protection considerations and discrete pockets of high sensitivity where cultural heritage features occur. Changes to the quality of water resources as a result of development in this area have the potential to result in secondary cumulative effects on the highly sensitive coastal environment.

Figure 8.4 – ESM of Clongriffin Lands

Key enablers for Cork include:-

- *C1: Delivering ambitious large-scale regeneration projects for the provision of new and employment, housing and supporting infrastructure in Cork Docklands (City Docks and Tivoli) as integrated, sustainable developments, including relocation of two 'Seveso' sites from the City Docks;*
- *C2: Progressing the sustainable development of new greenfield areas for housing, especially those on public transport corridors, such as Monard;*
- *C3: Identifying infill and regeneration opportunities to intensify housing development in inner city and inner suburban areas, supported by public realm and urban amenity projects;*
- *C4: Enabling enhanced opportunities for existing communities as development and diversification occurs, particularly through employment, learning and education support;*
- *C5: Development of a new science and innovation park to the west of the City, accessible by public transport;*
- *C6: The continued expansion of and integration with the City's third level institutions;*
- *C7: The development of a much enhanced Citywide public transport system to incorporate subject to further analysis, proposals for an east-west corridor from Mahon, through the City Centre to Ballincollig, a north-south corridor with a link to the Airport;*
- *C8: M8/N25/N40 Dunkettle Junction upgrade (approved) and improved Ringaskiddy Port access;*
- *C9: Enhanced regional connectivity through improved average journey times by road;*
- *C10: Improved traffic flow around the City, which subject to assessment could include upgrade of the N40, and/ or alternatives which may include enhanced public transport;*
- *C11: Improved rail journey times to Dublin and improved onward direct network connections.*
- *C12: Ensuring that water supply and waste-water needs are met by new national projects to enhance Cork's water supply and increase waste water treatment capacity;*
- *C13: Improving sustainability in terms of energy, waste and water to include district heating and water conservation.*

Enabler	PHH	BFF	S	W	AQ	CF	MA	CH	L
C1	+	+/-	+/-	+/-	+	+	+	+/-	+/-
C2	+	-	-	-	+	+	+/-	-	-
C3	+	+/-	+/-	+/-	+	+	+	+/-	+
C4	+	0	0	0	0	0	0	0	0
C5	+	0/-	0/-	0/-	0/+	0/+	+/-	0/-	0/-
C6	+	0/-	0/-	0/-	0/-	0/-	+/-	0/-	0/-
C7	+	+/-	+/-	+/-	+	+	+/-	+/-	+/-
C8	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-
C9	+	0	0	0	+/-	+/-	+/-	0	0
C10	+	-	-	-	+/-	+/-	+/-	+/-	-
C11	+	+/-	+/-	+/-	+	+	+/-	+/-	+/-
C12	+	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-
C13	+	+/-	+/-	+	+	+	+	+/-	+/-

PHH – Population and Human Health; BFF – Biodiversity, Flora and Fauna; S – Soils; W – Water; AQ – Air Quality; CF – Climatic Factors; MA – Material Assets; CH – Cultural Heritage; L– Landscape.

Discussion
C1 is considered to have some positive impacts as regeneration and integrated sustainable development is expected to improve the natural environment as well as human environment. By regenerating sites, uncontrolled run-off or contamination issues are generally improved upon resulting in positive impacts to S and W. The policy is also positive to MA and BFF as regeneration areas are targeted over developing

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greenfield or agricultural areas. Development, once sustainable, should result in positive impacts to AQ and CF. From a landscape and visual perspective regeneration generally results in improved visual impacts and restoration of cultural heritage where present. There are potential negative impacts for BFF, CH, L, S and W where regeneration results in emission to water or the generation of contaminated material from brownfield sites, particularly given the reference to the relocation of Seveso sites. Regeneration would need to be cognisant of the need for sensitive development of protected building and the type and scale of development could impact on the skyline/cityscape character.

C2 will likely result in negative impacts for BFF, W, S, L, CH and MA due loss of greenfield space and potentially increased risk of run-off or flood risk, and changes to the landscape with the potential to disturb heritage features. There are positive impacts to PHH and MA due to provision of housing and employment and the proximity to existing transport corridors results in some positive impacts for AQ and CF as such housing would have nearby access to public transport options.

C3 is considered to be overall positive to PHH, CH, L and MA as it focuses on improving the existing urban space and the benefits of regeneration as reflected in the discussion of Policy C1. The focus on public realm and amenity also promotes walking/cycling options resulting in positive impacts to AQ and CF. Depending on the nature, scale and extent of the measures proposed there are potential positive and negative impacts to W, S and BFF.

C4 will give rise to positive impacts to PHH as it focuses on enabling opportunities for and improving communities through employment and education. The remaining environmental indicators are neutral with respect to this policy.

C5 and **C6** are considered to have positive impacts for PHH and MA in terms of greater employment and education opportunities. These policies are also broadly positive for AQ and CF, provided these will be accessible by integrated public transport modes. There are likely neutral/negative impacts with respect to the remaining environmental indicators as the type, location and scale of education expansion and the innovation park is not specified i.e. it is unclear whether these park will be located in greenfield or urban area, however the Science and Innovation Centre Masterplan indicates that greenfield land banks could be developed.

Policy **C7** is likely to give rise to positive impacts to PHH, MA, AQ and CF due to improved public transport options and connectivity to the airport. The provision of more stations is also positive for PHH as more people will have access to the heavy rail network. For the remainder of the environmental indicators, there are both potential positive and negative impacts depending on the location, nature, scale and extent of the measures proposed.

For **C8**, the projects of this scale indicated have the potential for positive and negative impacts e.g. as identified in the EIS for the Dunkettle interchange. This policy will have positive impacts for PHH due to improved access and connectivity, however short term negative impacts will occur during the construction phase. Similarly any provisions for improved access to the port will have both positive and negative impacts.

C9 is positive for PHH due to reduced journey times and enhanced regional connectivity. It is unclear whether public transport options, speed limit revisions or demand-management options have been considered as viable alternatives. There are potential negative impacts for AQ and CF if speed limits are increased as this leads to less fuel efficiency and more emissions to air.

C10 is considered positive for PHH, AQ and CF due to enhanced public transport options and potential to reduce emissions. The options to enhance public transport are also overall positive. The construction or upgrades to road would have negative implications for BFF, W, S and L due to loss of greenfield and land-take given the unknown location, nature and extent.

C11 is positive for PHH, MA, AQ, and CF due to enhanced connectivity to Dublin Airport and improved journey times. Impacts are likely to be neutral for the remaining environmental indicators given the utilisation of the existing heavy rail network. Closer to Dublin there are potential negative implications for BFF, W, S and L given the unknown location of the connectivity proposals to Dublin Airport.

Enabler **C12** will result in overall positive impacts to PHH, MA and W in terms of adequate capacity to meet demand and improved human health. There are also indirect positive impacts to BFF as wastewater discharges remain a key pressure to achieving WFD objectives for many water bodies. There are potential positive and negative impacts to the other environmental indicators depending on location, proximity to dwellings, land-take requirements etc.

Discussion
Enabler **C13** has an overall positive impact for all environmental indicators as this policy supports re-use of natural resources, water conservation, recycling and energy-saving. There are potentially both positive and negative impacts to BFF, S, CH and L depending on the type and location of measures.
Proposed SEA Mitigation Measures: ▪ **C1:** Dock development and Seveso site relocation needs a specific policy that deals with brownfield/contaminated land issues. ▪ **C1, C2 and C3:** Identification of suitable sites for regeneration and development should be supported by a quality site selection process that addresses environmental concerns such as landscape, cultural heritage and biodiversity as a minimum. Siting guidelines need to be developed and incorporated within the NPF as a policy objective requirement. ▪ **C9:** This policy should consider alternative options to road-based transport, which may include enhanced public transport options.

Environmental Sensitivity Mapping for the Cork Area

Despite the urbanised nature of the area, the **city docks**, in Cork Harbour, shown in **Figure 8.5** present moderate to high sensitivity due to co-occurring groundwater, protected habitats and cultural heritage resources. In contrast, the industrial area of **Tivoli** has very low sensitivity as there are no susceptible receptors in the area. However, to the north of the site, the environmental sensitivity increases as a result of aquifer vulnerability, protected structures and land cover (mature broadleaf forests).

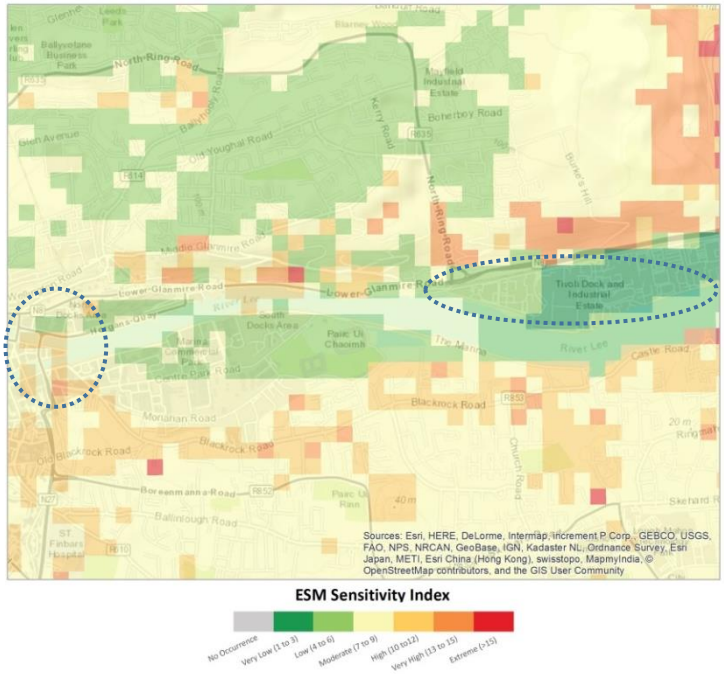


Figure 8.5 – ESM of Cork Docklands and Tivoli Dock and Industrial Estate

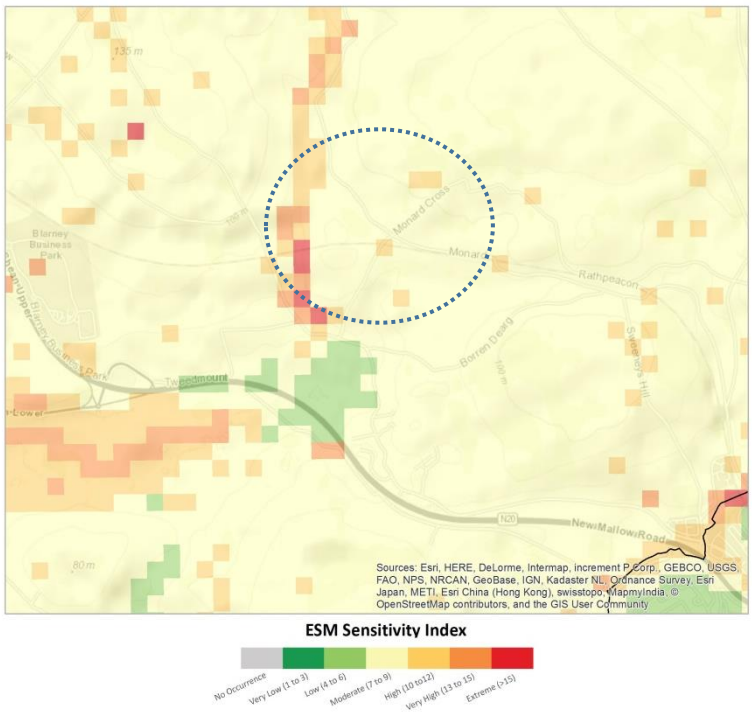


Figure 8.6 – ESM of Monard

The lands around **Monard** present overall moderate sensitivity resulting from vulnerable groundwater resources, as outlined in **Figure 8.6**. The sensitivity increases to high/ very high along the river corridor of Monard Glen due to surface waters and associated natural vegetation (mature broadleaf forests).

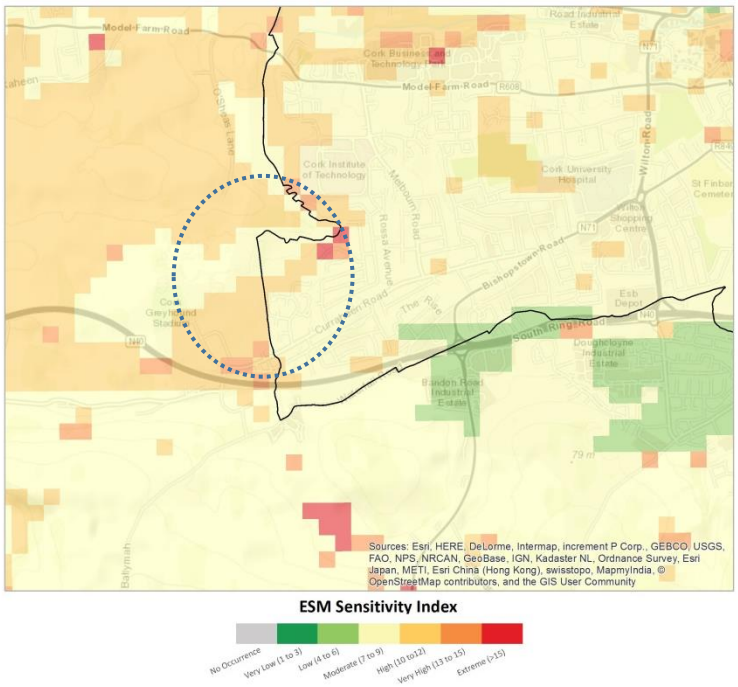


Figure 8.7 – ESM of Curraheen

The proposed Cork **Science and Innovation Park at Curraheen, Figure 8.7** would be located on moderate to high environmental sensitivity lands, associated to the protection of groundwater resources and highly permeable soils, as well as discrete protected structures (i.e. cultural heritage).

Key enablers for Limerick include:-

- *L1: Implementation of the Limerick 2030 economic strategy to create modern, city centre office accommodation and a series of transformational city centre public realm projects;*
- *L2: Complementary further development of the Limerick 2030 plan to include measures to encourage significant inner urban residential regeneration and development, to include the City's Georgian Quarter;*
- *L3: Extending the ambition of the Limerick 2030 plan to include extension of the City Centre towards Limerick Docks;*
- *L4: Identifying infill and regeneration opportunities to intensify housing and employment development throughout inner suburban areas;*
- *L5: Enabling enhanced opportunities for existing communities as development and diversification occurs, particularly through employment, learning and education support;*
- *L6: Progressing the sustainable development of new greenfield areas for housing and the development of supporting public transport and infrastructure, such as at Mungret;*
- *L7: The continued expansion of the City's third level institutions and integration with the wider City and region;*
- *L8: Provision of a Citywide public transport network, with enhanced accessibility from the City Centre to the National Technical Park, UL and Shannon Airport;*
- *L9: Development of a strategic cycleway network with a number of high capacity flagship routes;*
- *L10: Enhanced road connectivity to Shannon-Foynes Port, including local by-passes;*
- *L11: A northern environs access road, including new access to UL;*
- *L12: Enhanced regional connectivity through improved average journey times by road to Cork and Waterford.*
- *L13: Ensuring that water supply and waste-water needs are met by new national projects to enhance Limericks water supply and increase waste water treatment capacity;*
- *L14: Improving sustainability in terms of energy, waste and water to include district heating and water conservation.*

Enabler	PHH	BFF	S	W	AQ	CF	MA	CH	L
L1	+	+/-	+/-	+/-	+/-	+/-	+	+/-	+/-
L2	+	+/-	+/-	+/-	+/-	+/-	+	+/-	+/-
L3	+	+/-	+/-	+/-	+/-	+/-	+	+/-	+/-
L4	+	+	+	+	+	+	+	+	+
L5	+	0	0	0	0	0	0	0	0
L6	+	-	-	-	+	+	+/-	-	-
L7	+	0/-	0/-	0/-	0/+	0/+	+	0/-	0/-
L8	+	+	+	+	+	+	+	+	+
L9	+	+/-	0/-	0/-	+	+	+	0/-	+/-
L10	+	-	-	-	0/-	0/-	+	+/-	-
L11	+	-	-	-	0/-	0/-	+	+/-	-
L12	+	0/-	0/-	0/-	0/-	0/-	+	0/-	0/-
L13	+	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-
L14	+	+/-	+/-	+	+	+	+	+/-	+/-

PHH – Population and Human Health; BFF – Biodiversity, Flora and Fauna; S – Soils; W – Water; AQ – Air Quality; CF – Climatic Factors; MA – Material Assets; CH – Cultural Heritage; L– Landscape.

Discussion

L1, **L2**, **L3 and L4** will likely give rise to positive impacts in terms of PHH and MA due to the focus on infill, regeneration, focusing development within the city, public realm improvements and employment. Through regeneration, uncontrolled run-off or contamination issues are generally improved upon resulting in positive impacts to S and W. There are potential negative impacts for BFF, S and W where regeneration or infill development results in emissions to water or the generation of contaminated material from brownfield sites, such as the intention to extend towards the docks. However there are positive implications for BFF, S and W where infill development is preferable over the development of greenfield at the edges of the city. Development, once sustainable, should result in positive impacts to AQ and CF however increased emissions due to growth in the city centre may also have negative impacts in this regard. From a landscape and visual perspective regeneration generally results in improved visual impacts and the restoration of cultural heritage which is specified in L2, focussing on the Georgian Quarter.

L5 will give rise to positive impacts to PHH as it focuses on enabling opportunities for and improving communities through employment and education. The remaining environmental indicators are neutral with respect to this policy.

L6 will likely give rise to potential negative impacts for BFF, W, S, L, CH and MA due loss of greenfield space and potentially increased risk of run-off or flood risk, and changes to the landscape with the potential to disturb heritage features. There are positive impacts to PHH and MA due to provision of housing. There are also potential positive impacts for AQ and CF should such housing have nearby access to public transport options.

L7 is considered to give rise to positive impacts for PHH and MA, as it focuses on the expansion of education facilities and integration. This policy is likely to give rise to neutral/negative impacts for the remaining environmental indicators as the type, location and scale of this expansion is not specified (e.g. on in greenfield or urban areas).

L8 will have a broadly positive impact, particularly for PHH, MA, AQ and CF. Increasing access to and encouraging the use of public transport is a sustainable and efficient way to transport people from residential to education, employment areas and linking to major transport hubs. The increased uptake of public transport will also contribute to emissions reductions. There are positive effects overall should the public transport network make use of existing infrastructure where possible with no requirement for greenfield development.

L9 there are positive impacts to PHH, MA, AQ and CF as a strategic cycle network would provide greater connectivity, amenity and result in opportunities for modal shift and the uptake of cycling and walking. There are both positive and negative impacts to remaining environmental indicators as the details of the measures proposed to provide the linkages is unknown at this stage. There could be potential positive impacts to BFF if ecological enhancement is included as part of development. It should be noted that cycleways can be problematic for bird populations by causing disturbance to feeding and triggering flight/scare responses, particularly for important river corridors e.g. the Shannon system and the associated lakes.

L10 and L11 will give rise to positive impacts to PHH and MA due to improved quality of life due to reduced journey times and improved connectivity. There are likely negative effects in relation to BFF, S, W, AQ and L due to construction of new routes, and the specification of roads in particular over other options, and increased emission from road traffic. There are positive and negative impacts for CH due to the potential for damage, destruction or relocation of features but also through the discovery of new features that road projects can bring.

L12 has positive impacts for PHH due to improved journey times and enhanced regional connectivity. There are potential neutral/negative impacts for the remaining objectives given the unknown location, nature and extent of the measures proposed. It is unclear at this stage if improved journey times refers to the requirement for new infrastructure (such as roads or public transport options), or some changes to speed limits. Increasing the speed limit on roads for example can negatively impact AQ and CF due to increased fuel consumption at higher speeds and subsequent emissions.

Enabler **L13** will result in overall positive impacts to PHH, MA and W in terms of adequate capacity to meet demand and improved human health. There are also indirect positive impacts to BFF as wastewater discharges remain a key pressure to achieving WFD objectives for many water bodies. There are potential positive and negative impacts to the other environmental indicators depending on location, proximity to dwellings, land-take requirements etc.

Enabler **L14** has an overall positive impact for all environmental indicators as this policy supports re-use of

Discussion
natural resources, water conservation, recycling and energy-saving. There are potentially both positive and negative impacts to BFF, S, CH and L depending on the type and location of measures.
Proposed SEA Mitigation Measures: ▪ **L2, L3, L4 and L6:** Identification of suitable sites for regeneration and development should be supported by a quality site selection process that addresses environmental concerns such as landscape, cultural heritage and biodiversity as a minimum. Siting guidelines need to be developed and incorporated within the NPF as a policy objective requirement. ▪ **L3:** Dock development needs a specific policy that deals with brownfield/contaminated land issues.

Environmental Sensitivity Mapping for the Limerick Area

Development on **Limerick Docks** and regeneration and development in the **city centre** needs to take particular account of the highly sensitive environment along the River Shannon associated to protected habitats and various ecological designations, as well as flood risk areas. Protected structures throughout the city centre render some of the urbanised areas moderately sensitive to change.

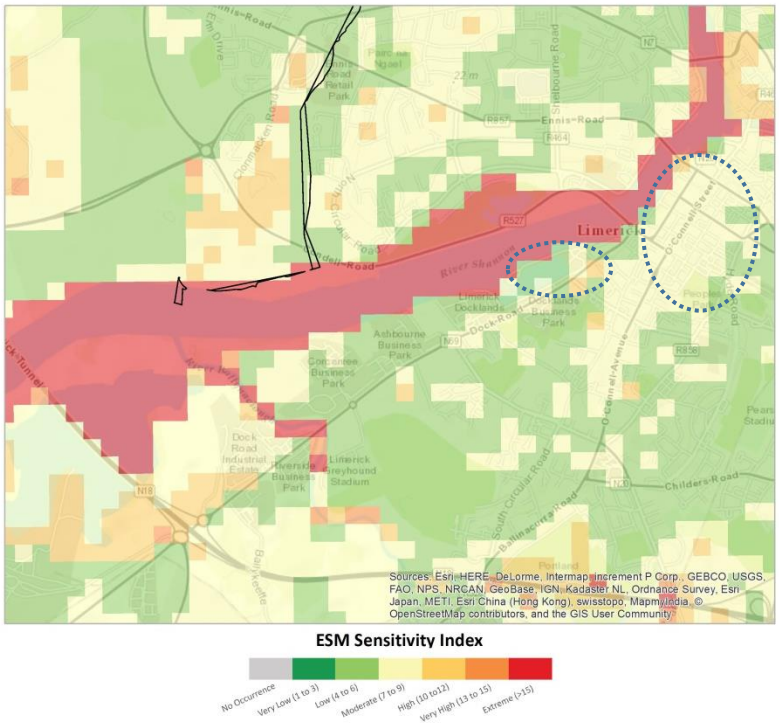


Figure 8.8 – ESM of Limerick Docks

Key enablers for Galway include:-

- *G1: Delivering a number of regeneration projects for the provision of new development to extend and intensify the City Centre, including the Station, Docks and Headford Road areas;*
- *G2: Identifying infill and regeneration opportunities to intensify housing and employment development throughout inner suburban areas;*

- *G3: Progressing the sustainable development of new greenfield areas for housing and the development of supporting public transport and infrastructure, such as at Ardaun;*
- *G4: Improving access and sustainable transport links to and integration with the existing employment areas to the east of the City at Parkmore, Ballybrit and Mervue;*
- *G5: The continued expansion of the city's third level institutions and integration with the city and region;*
- *G6: Determining the sustainable future development of the Galway Airport site for employment and/or residential use together with supporting facilities and infrastructure;*
- *G7: Provision of a Citywide public transport network, with enhanced accessibility between existing and proposed residential areas and the City Centre, third level institutions and the employment areas to the east of the city;*
- *G8: Public realm and urban amenity projects, focused on streets and public spaces, particularly in support of an extended city centre area and where residential and employment areas can be linked to pedestrian routes;*
- *G9: Development of a strategic cycleway network with a number of high capacity flagship routes;*
- *G10: Delivery of the Galway City Ring Road;*
- *G11: Delivery of the Galway East Main Drainage Waste Water Treatment Plant.*
- *G12: Ensuring that water supply and waste-water needs are met by new national projects to enhance Galway's water supply and increase waste water treatment capacity;*
- *G13: Improving sustainability in terms of energy, waste and water to include district heating and water conservation.*

Enabler	PHH	BFF	S	W	AQ	CF	MA	CH	L
G1	+	+/-	+/-	+/-	0/+	0/+	+/-	0/+	0/+
G2	+	+/-	+/-	+/-	0/+	0/+	+/-	0/+	0/+
G3	+	-	-	-	+	+	+/-	-	-
G4	+	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-
G5	+	0/-	0/-	0/-	0/+	0/+	+	0/-	0/-
G6	+	0/-	0/-	0/-	+/-	+/-	+/-	0	0
G7	+	0	0	0	+	+	+	0	0
G8	+	+/-	+/-	+/-	+	+	+	+/-	+
G9	+	+/-	0/-	0/-	+	+	+	0/-	0/-
G10	+	-	-	-	+/-	+/-	+	0/-	0/-
G11	+	+/-	+/-	+/-	0	0	+/-	+/-	+/-
G12	+	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-
G13	+	+/-	+/-	+	+	+	+	+/-	+/-

PHH – Population and Human Health; BFF – Biodiversity, Flora and Fauna; S – Soils; W – Water; AQ – Air Quality; CF – Climatic Factors; MA – Material Assets; CH – Cultural Heritage; L– Landscape.

Discussion

G1 and G2 gives rise to a number of positive impacts as regeneration focussing on brownfield sites and intensification of housing and employment will bring positive impacts for PHH, MA and BFF. Through regeneration, uncontrolled run-off or contamination issues are generally improved upon resulting in positive impacts to S and W. There are potential negative impacts for BFF, S and W where regeneration results in emissions to water or the generation of contaminated material from brownfield sites (particularly the port and docklands). Development, once sustainable, should result in positive impacts to AQ and CF. From a landscape and visual perspective regeneration generally results in improved visual impacts and restoration of cultural heritage where present. Negative impacts may result from the increased density of activities, particularly on infrastructure already at or near capacity. Expansion of the city has potential for negative impacts for BFF given the proximity to a number of extensive European Sites at the coast and Lough Corrib.

Discussion

G3 will have overall negative impacts for BFF, S, W, CH and L due to greenfield development over development/densification within existing urban areas. There are positive impacts for PHH and MA due to increased housing provision and connectivity.

G4 will give rise to positive impacts for PHH and MA given the emphasis on access and integration. Improved access and integration should reduce existing issues with traffic congestion, travel times and indirectly on AQ and CF should public/sustainable modes of transport be considered. Some impacts to BFF, S and W may arise in order to facilitate construction of access and integration routes.

G5 is considered to give rise to positive impacts for PHH and MA, as it focuses on the expansion of education facilities and integration. This policy is likely to give rise to neutral/negative impacts for the remaining environmental indicators as the type, location and scale of this expansion is not specified (e.g. on in greenfield or urban areas).

G6 will be broadly positive to PHH. Subject to the phased provision and/or the existing capacity of the supporting facilities and infrastructure (e.g. water supply, wastewater, broadband) the redevelopment of the airport site will provide additional housing and employment opportunities adjacent to existing high-density employment centres and the transport network. Slight negative impacts may be encountered for MA, resulting from the lack of air transport to and from Galway; the nearest airports, Ireland West (Knock) and Shannon, are located approximately 1 hour's travel time from Galway City. With appropriate mitigation measures, impacts to BFF, S, W, CH and L should be limited given that development would be within an existing built environment.

G7 will have a broadly positive impact, particularly for PHH, MA, AQ and CF. Increasing access to and encouraging the use of public transport is a sustainable and efficient way to transport people from residential to employment areas, as well as contributing to emissions reductions. There are positive effects overall should the public transport network make use of existing infrastructure where possible with no requirement for greenfield development.

G8 is considered to be overall positive to PHH, CH, L and MA as it focuses on improving the existing urban space and pedestrian linkages. The focus on public realm and amenity also promotes walking/cycling options resulting in positive impacts to AQ and CF. Depending on the nature, scale and extent of the measures proposed there are potential positive and negative impacts to W, S and BFF.

G9 will have positive impacts for PHH, MA, AQ and CF through providing greater connectivity between green spaces will result in opportunities for modal shift. Cycling routes provide opportunities for economic growth by attracting tourists and encouraging recreational activities. Positive impacts may be encountered through the reduction in emissions, increased employment opportunities, and the separation of cyclists from other road users. Neutral impacts can be expected for S and W, as cycling routes will typically not require greenfield development, depending on utilisation of the existing built environment. There are both positive and negative impacts to remaining objectives as the details of the measures proposed to provide the linkages is unknown at this stage. There could be potential positive impacts to BFF if ecological enhancement is included as part of development. It should be noted that cycleways can be problematic for bird populations by causing disturbance to feeding and triggering flight/scare responses, particularly for coastal routes.

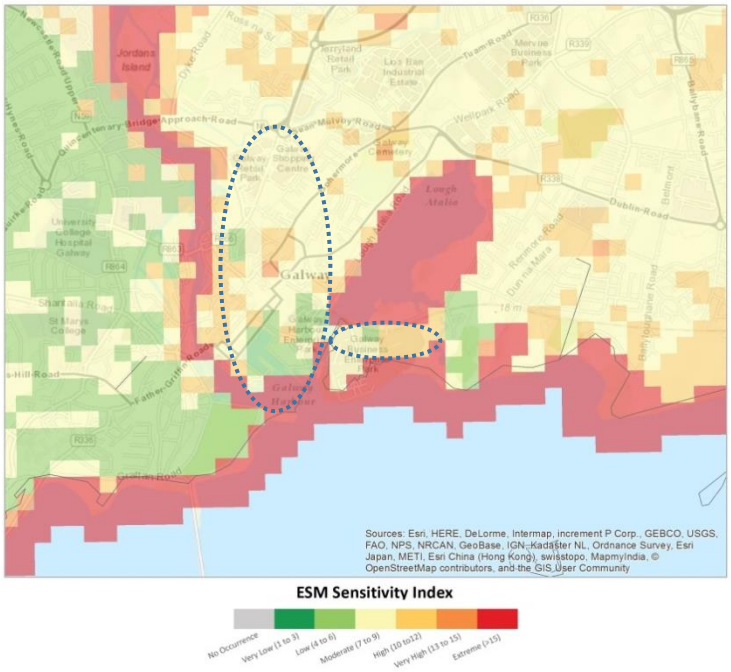
G10 will give rise to both positive and negative impacts. The Galway City Ring Road is essential to the future sustainable development of Galway City as it provides access from the east to the west side of the city, interlinking with the major transport routes into the city. This will impact positively on PHH and MA in relation to reduced journey times and improved connectivity. There is potential for negative effects in relation to BFF, S, W, CH and L due to the construction and land-take of a new route. There is potential for negative effects arising in relation to AQ and CF due to construction and use of new road routes particularly if the emphasis remains on the use of private vehicles, however better journey times may reduce emissions to air.

G11 will have positive impacts for PHH and MA through the provision of adequate wastewater treatment capacity which should also have indirect positive impacts for BFF, S and W through improved quality of wastewater discharges. There are potential positive and negative impacts to the remaining environmental indicators depending on siting, location, the proximity to dwellings and land-take requirements etc.

Enabler **G12** will result in overall positive impacts to PHH, MA and W in terms of adequate capacity to meet demand and improved human health. There are also indirect positive impacts to BFF as wastewater discharges remain a key pressure to achieving WFD objectives for many water bodies. There are potential positive and negative impacts to the other environmental indicators depending on location, proximity to dwellings, land-

Discussion
take requirements etc. Enabler **G13** has an overall positive impact for all environmental indicators as this policy supports re-use of natural resources, water conservation, recycling and energy-saving. There are potentially both positive and negative impacts to BFF, S, CH and L depending on the type and location of measures.
Proposed SEA Mitigation Measures: ▪ **G1:** Harbour/port development needs a specific policy that deals with brownfield/contaminated land issues. ▪ **G1, G2 and G3:** Identification of suitable sites for regeneration and development should be supported by a quality site selection process that addresses environmental concerns such as landscape, cultural heritage and biodiversity as a minimum. Siting guidelines need to be developed and incorporated within the NPF as a policy objective requirement.

Environmental Sensitivity Mapping for the Galway Area



Galway Bay, Lough Atalia and the River Corrib present high sensitivity areas resulting from the overlaying occurrence of susceptible surface and groundwater resources, cultural heritage, protected habitats and ecological designations. Due consideration should been taken when planning and implementing development intensification and expansion in the **city centre, station, Headford Road and Ardaun** areas as shown in **Figure 8.9**.

Figure 8.9 – ESM of Galway Area

Key enablers for Waterford include:-

- *W1: Delivering the North Quays SDZ regeneration project for integrated, sustainable development together with supporting infrastructure, including a new pedestrian bridge or a pedestrian/public transport bridge over the River Suir;*
- *W2: Identifying infill and regeneration opportunities to intensify housing and employment development throughout city centre and inner suburban areas;*
- *W3: Enabling enhanced opportunities for existing communities as development and diversification occurs, particularly through employment, learning and education support;*
- *W4: Progressing the sustainable development of new greenfield areas for housing and the development of supporting public transport and infrastructure;*

- *W5: Public realm and urban amenity projects, focused on streets and public spaces, particularly in the city centre and inner urban area in support of urban intensification;*
- *W6: The development and expansion of the City's third level institution and integration with the City and region;*
- *W7: Provision of Citywide public transport and strategic cycleway networks;*
- *W8: Extension of the Deise greenway to link WIT to the City Centre;*
- *W9: Enhanced regional connectivity through improved average journey times by road to Cork, Limerick and ports within the region.*
- *W10: Ensuring that water supply and waste-water needs are met by new national projects to enhance Waterford's water supply and increase waste water treatment capacity;*
- *W11: Improving sustainability in terms of energy, waste and water to include district heating and water conservation.*

Enabler	PHH	BFF	S	W	AQ	CF	MA	CH	L
W1	+	+/-	+/-	+/-	0/+	0/+	+	0/+	0/+
W2	+	+/-	+/-	+/-	0/+	0/+	+	0/+	0/+
W3	+	0	0	0	0	0	0	0	0
W4	+	-	-	-	0/+	0/+	+/-	-	-
W5	+	+/-	+/-	+/-	+	+	+	+/-	+
W6	+	0/-	0/-	0/-	0/+	0/+	+	0/-	0/-
W7	+	+/-	0/-	0/-	+	+	+	0/-	+/-
W8	+	+/-	+/-	+/-	+	+	+/-	+/-	+/-
W9	+	0/-	0/-	0/-	0/-	0/-	+	0/-	0/-
W10	+	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-
W11	+	+/-	+/-	+	+	+	+	+/-	+/-

PHH – Population and Human Health; BFF – Biodiversity, Flora and Fauna; S – Soils; W – Water; AQ – Air Quality; CF – Climatic Factors; MA – Material Assets; CH – Cultural Heritage; L– Landscape.

Discussion

W1 and W2 give rise to a number of positive impacts as regeneration focussing on brownfield sites and intensification of housing and employment will bring positive impacts for PHH, MA and BFF. Through regeneration, uncontrolled run-off or contamination issues are generally improved upon resulting in positive impacts to S and W. There are potential negative impacts for BFF, S and W where regeneration results in emissions to water or the generation of contaminated material from infill/brownfield sites (such as the quays). Development, once sustainable, should result in positive impacts to AQ and CF. From a landscape and visual perspective regeneration generally results in improved visual impacts and restoration of cultural heritage where present.

W3 will give rise to positive impacts to PHH as it focuses on enabling opportunities for and improving communities through employment and education. The remaining environmental indicators are neutral with respect to this policy.

W4 has potential negative impacts will arise for BFF, W, S, L, CH and MA due loss of greenfield space and potentially increased risk of run-off or flood risk, and changes to the landscape with the potential to disturb heritage features. There are positive impacts to PHH and MA due to provision of housing and employment. There are also neutral/positive impacts for AQ and CF should such development have access to or integration with nearby public transport options.

W5 is considered to be overall positive to PHH, CH, L and MA as it focuses on improving the existing urban space. The focus on public realm and amenity also promotes walking/cycling options resulting in positive impacts to AQ and CF. Depending on the nature, scale and extent of the measures proposed there are potential positive and negative impacts to W, S and BFF.

W6 is considered to give rise to positive impacts for PHH and MA, as it focuses on the expansion of education facilities and integration. This policy is likely to give rise to neutral/negative impacts for the remaining

Discussion
environmental indicators as the type, location and scale of this expansion is not specified (e.g. on in greenfield or urban areas). **W7** will have positive impacts for PHH, MA, AQ and CF through providing greater connectivity between green spaces and encouraging modal shift. There are both positive and negative impacts to the remaining environmental indicators as the details of the measures proposed to provide the linkages are unknown at this stage. There could be potential positive impacts to BFF if ecological enhancement is included as part of development. It should be noted that cycleways can be problematic for bird populations and cause negative impacts for BFF by causing disturbance to feeding and triggering flight/scare responses, particularly for coastal routes. **W8** has broadly positive impacts for PHH, MA, AQ and CF due to the improved public transport, amenity, tourism and the greenway initiative. There are potentially positive and negative impacts to remaining objectives depending on the location, nature, scale and extent of the measures proposed, and is also dependent on use of the existing built environment. **W9** has positive impacts for PHH due to improved journey times and enhanced regional connectivity. There are potential neutral/negative impacts for the remaining objectives given the unknown location, nature and extent of the measures proposed. It is unclear at this stage if improved journey times refers to the requirement for new infrastructure (such as roads or public transport options), or some changes to speed limits. Increasing the speed limit on roads for example can negatively impact AQ and CF due to increased fuel consumption at higher speeds and subsequent emissions. Enabler **W10** will result in overall positive impacts to PHH, MA and W in terms of adequate capacity to meet demand and improved human health. There are also indirect positive impacts to BFF as wastewater discharges remain a key pressure to achieving WFD objectives for many water bodies. There are potential positive and negative impacts to the other environmental indicators depending on location, proximity to dwellings, land-take requirements etc. Enabler **W11** has an overall positive impact for all environmental indicators as this policy supports re-use of natural resources, water conservation, recycling and energy-saving. There are potentially both positive and negative impacts to BFF, S, CH and L depending on the type and location of measures.
Proposed SEA Mitigation Measures: ▪ **W1:** Quays development needs a specific policy that deals with brownfield/contaminated land issues. ▪ **W1, W2 and W4:** Identification of suitable sites for regeneration and development should be supported by a quality site selection process that addresses environmental concerns such as landscape, cultural heritage and biodiversity as a minimum. Siting guidelines need to be developed and incorporated within the NPF as a policy objective requirement.

Environmental Sensitivity Mapping for the Waterford Area

Regeneration of the **North Quays** and the **city centre**, outlined in **Figure 8.10** is to take account of the ecological designation and existing protected habitats along the River Suir, discrete areas of flood risk on the South Quays, as well as concentration of protected structures throughout the city centre.

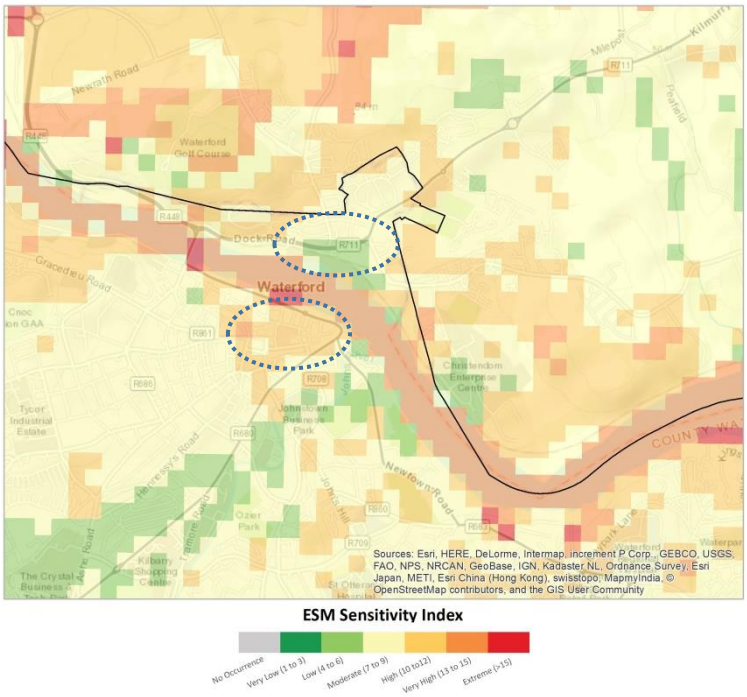


Figure 8.10 – ESM of Waterford North Quays and City Area

8.3.3 Policy Area – Planning for Diverse Rural Places (Chapter 4)

This chapter provides details on the approach to conserving and enhancing rural areas while planning for future growth and development. The key messages include:

- A significant number of people will live in our countryside in 2040;
- Ireland 2040 aims to secure 15% of national growth within the fabric of our network of smaller towns, villages and rural areas with a significant amount of that happening by redeveloping derelict and underutilised lands inside small towns and villages; and
- A new initiative will be introduced in areas in need of regeneration to incentivise local authorities to take the necessary land acquisition, site preparations and local infrastructure needed to deliver self-build development options in our smaller towns and villages.

Table 8.3 – Policy Area: Planning for Diverse Rural Places

NPO	Planning for Diverse Rural Places
13	*To protect and promote the quality, character and distinctiveness of the Irish landscape, the sense of place and culture that makes Ireland's rural areas authentic and attractive as places to live, work and visit. The Action Plan for Rural Development up to and including 2021 supports this objective and thereafter a review of the Action Plan for Rural Development is to be undertaken to ensure alignment*

NPO	Planning for Diverse Rural Places
	and consistency with the National Policy Objectives of this Framework.
14	*To ensure that the targeted population growth of Ireland's small towns and rural areas to 2040 is proportionate, at a targeted average rate of 15% in each Regional Assembly area, to be applied regionally through the Regional Spatial and Economic Strategy process and locally through the County Development Plans.*
15	*To target the reversal of rural decline in the core of small towns and villages through sustainable targeted measures that addresses vacancy and deliver sustainable reuse and regeneration outcomes.*
16	*To enhance, integrate and protect the special physical, social, economic and cultural value of built heritage assets through appropriate and sensitive use now and for future generations.*
17a	*To support the proportionate growth of and appropriately designed development in rural towns that will contribute to their regeneration and renewal, including interventions in the public realm, the provision of amenities, the acquisition of sites and the provision of services.*
17b	*To develop a programme for 'new homes in small towns and villages' with local authorities, public infrastructure agencies such as Irish Water and local communities to provide serviced sites with appropriate infrastructure to attract people to build their own homes and live in small towns and villages.*
18a	*To ensure, in providing for the development of rural housing that a distinction is made between areas under urban influence i.e. areas within the five city regions and the hinterland of towns, and elsewhere and that the standardized EU/OECD definition of a city region shall be applied to identify the urban influence of cities and large towns (>10,000), with influence of smaller (<10,000) towns determined locally.*
18b	*In rural areas under urban influence, to facilitate the provision of single housing in the countryside based on the core consideration of demonstrable economic need to live in a rural area, and relevant siting criteria for rural housing in statutory guidelines and plans.*
19	*To project need for single housing in the countryside through the local Housing Need Demand Assessment (HNDA) tool and county development plan core strategy processes.*
20	*To enhance the competitiveness of rural areas by supporting innovation in rural economic development and enterprise through the sustainable diversification of the rural economy into new sectors and in particular those with a low or zero carbon output.*
21	*To facilitate the development of the rural economy through supporting a sustainable and economically efficient agricultural and food sector, together with forestry, fishing and aquaculture and diversification into alternative on-farm and off-farm activities, whilst at the same time noting the importance of maintaining and protecting the natural landscape and built heritage which are vital to rural tourism.*
22	*To support and facilitate delivery of the National Broadband Plan as a means of developing further opportunities for enterprise, employment, education, innovation and skills development for those who live and work in rural areas.*
23	*Facilitate the development of a National Greenways/ Blueways Strategy which prioritises projects on the basis of achieving maximum impact and connectivity at national and regional level.*
24	*Working together with the Department of Rural and Community Development and the Department of Agriculture, Food and the Marine, establish a mechanism to co-ordinate structures for funding rural development that can align with Ireland 2040 and other national strategies.*

NPO	PHH	BFF	S	W	AQ	CF	MA	CH	L
13	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-
14	+	+/-	+/-	+/-	+	+	+	+/-	+
15	+	+	+	+	+	+	+	+	+
16	+	0	0	0	0	0	+	+	0
17a	+	+/-	+/-	+/-	+	+	+	+/-	+
17b	+	+/-	0/-	+/-	0	0	+	0/-	0/-

NPO	PHH	BFF	S	W	AQ	CF	MA	CH	L
18a	+/-	0	0	0	0	0	+	0	0
18b	+/-	0	0	0	0	0	+	0	0
19	+/-	0	0	0	0	0	+	0	0
20	+	0/-	0/-	0/-	+/-	+/-	+	0/-	0/-
21	+	+/-	+/-	+/-	0	0	+/-	+/-	+/-
22	+	0/-	0/-	0/-	+	+	+	0/-	0/-
23	+	0/-	0/-	0/-	+	+	+	0/-	0/-
24	+	0/-	0/-	0/-	0/-	0/-	+	0/-	0/-

PHH – Population and Human Health; BFF – Biodiversity, Flora and Fauna; S – Soils; W – Water; AQ – Air Quality; CF – Climatic Factors; MA – Material Assets; CH – Cultural Heritage; L– Landscape.

Discussion

There will be direct long term positive impacts for all of the environmental indicators as **NPO13** is focused on both protecting and improving our rural landscape and as such will bring positive benefits to the natural and human environment. It is outlined that the objectives within the Action Plan for Rural Development will be reviewed to ensure alignment and consistency with the policy objectives of the NPF providing an opportunity to identify any potential significant environmental impacts. However the Action Plan for Rural Development, including key objectives and specific actions may not have been subject to an SEA and AA process therefore there is potential for significant negative impacts on all environmental receptors. The review should include screening for both SEA and AA prior to implementation of any actions if this has not already been undertaken.

For **NPO 14**, targeted population growth within small towns is positive as it will result in concentrated growth within a central location which will promote good accessibility and improvement of services. This will also reduce growth that would otherwise take place outside the rural area impacting on greenfield lands. However development in rural areas, depending on the sensitivity of the natural environment has the potential to have negative impacts on BFF, S, W, CH and L through loss of habitats, increases in sediment release and changes made to the rural character of housing.

NPO15 will have a direct long term positive impact on PHH and MA through the focus on reducing population decline in the rural areas and encourage consolidation through regeneration. There will also be long term positive impacts on CH through ensuring that the next 20 years looks to retaining rural communities and the historical culture they hold, in particular the Gaeltacht areas. The regeneration of sites over greenfield generation is directly positive to BFF, S, W and L ensuring that habitats, species and our natural landscape are shielded from one off housing and the issues associated with provision of services. Regeneration will contribute to sustainability resulting in positive impacts to AQ and CF through greater density of populations and the contribution to maintenance of rural public transport services.

There will be direct positive impacts on PHH, CH and L in relation to **NPO16**. The quality and character of our national built heritage as a non-renewable resource is of direct benefit to Ireland as a nation, both for the rural and urban areas. As such it is important to ensure the continued enhancement and protection of our built assets and that they are appropriately utilised. Allowing for appropriate usage, our built heritage can contribute to consolidation within urban areas thus having positive impacts on MA.

As with **NPO14**, **NPO17a** will have positive impacts on PHH, MA, AQ and CF as it will result in concentrated growth within a central location which will promote good accessibility and improvement of services. The improvements to public realm will be directly positive for L ensuring that towns become an enjoyable place for people and provide positive visual impacts. The assurance that amenities and services are provided will benefit the citizens living in the rural towns however their implementation has the potential to negatively impact BFF, W, S, CH and L due to loss of greenfield land and the impacts to species, habitats and cultural features.

NPO17b will be directly positive for PHH, W and MA through the provision of housing which will be adequately serviced. There will be indirect positive impacts on the natural environment including BFF and W through the provision of adequate services to cater for housing and minimise issues associated with inadequate septic tanks. However as with any infrastructural development there is potential to negatively impact the environment through loss of greenfield lands, sediment release, pollution and disturbance of

Discussion
sensitive sites and as such there may be negative impacts on BFF, W, S, CH and L. **NPO18a**, **NPO18b** and **NPO19** are focused on ensuring that urban and rural development is kept in line with proper planning and sustainable development. The policies will have an overall positive influence on the natural environment through ensuring that single housing is only granted where the need is justified. There will be direct positive impacts on PHH and MA through ensuring focused development within settlements, however there could be negative impacts to PHH and CH as the planning system will significantly limit the potential for individuals to build one off housing. Overall **NPO20** will be positive, in particular for PHH, MA, AQ and CF as it will allow rural areas to develop and potentially reduce rural decline and the extensive need to commute to large urban settlements. Whilst it is indicated that the new sectors in the rural economy should have a low or zero carbon output, there is an unknown element as to what could be developed and as such there is in the absence of siting guidelines being utilised a potential for impacts on BFF, S, W, CH and L should loss of greenfield land occur. **NPO21** is similar to NPO20 in that it is positive for PHH to develop the rural economy there is potential for negative impacts on BFF, S, W, CH and L, depending on the type of activities and how and where they are developed. It is noted that the policy explicitly includes a reference to *supporting a sustainable and economically efficient agricultural and food sector... noting the importance of maintaining and protecting the natural landscape and built heritage which are vital to rural tourism.* As a result many of the environmental receptors for the natural environment are positive. **NPO22** and the development of broadband for rural Ireland will ensure that Ireland further strengthens our position through investment interventions outlined in the National Broadband Plan. Chapter 7 and NPO50 also support the facilitation and delivery of the National Broadband Plan. The implementation of the plan will have direct long term positive impacts for PHH and MA in particular for rural areas where the broadband network has not met commercial requirements. The provision of the ICT architecture could directly impact BFF, W, S, CH and L through the requirement to lay and string cables which could result in trimming of hedgerows, disturbance of soils leading to sediment loss and possibly the erection of masts introducing collision risk for birds. The development of blueways and greenways in **NPO23** is directly positive for PHH, MA, AQ and CF, through the provision of walking and cycling routes that can contribute to reduced emissions on the environment. However with linear infrastructure there is potential for both direct and indirect negative impacts on PHH, BFF, W, S, CH and L through loss or sterilisation of greenfield lands and permanent visual impacts. As with NPO20, for **NPO24** the development of the rural economy is positive for PHH and MA, through government bodies working to release funding for rural development. However as with any type of development, especially in the rural areas there is potential for negative impacts on PHH, BFF, W, CH and L, depending on the sensitivity of the natural environment.
Proposed SEA Mitigation Measures: ▪ **NPO13:** The review of the *Action Plan for Rural Development* should include screening for SEA and AA and recognition and this should be identified in the policy objective. ▪ **NPO14:** There is a need to include further explanatory information within either the policy objective or within the NPF document as to how the overall population growth target of 15% for small towns will be applied. ▪ **NPO18b:** To clarify how planners will apply the criteria of 'economic need' when deciding upon single housing.

8.3.4 Policy Area – People, Homes and Communities (Chapter 5)

Focusses on housing, local planning, health and leisure policies with a focus on the requirements of an ageing population. The key messages include:

- Housing provision in terms of housing type and tenure in Ireland outside of the social and voluntary housing sector has historically tended to be largely development/ developer-

driven rather than being shaped by a strong and clear assessment of housing needs from a community perspective;

- The "one size fits all" approach to much of present housing delivery will be replaced by a new system of Housing Demand and Need Assessment (HDNA); and
- The development of our communities in the future will identify the community's needs first and ensure the development process matches those needs.

Table 8.4 – Policy Area: People, Homes and Communities

NPO	People, Homes and Communities
25	*To facilitate the promotion and creation of sustainable community development and support community organisations in their work to provide for a more sustainable future.*
26	*To support the objectives of public health policy including Healthy Ireland and the National Physical Activity Plan, though integrating such policies, where appropriate and at the applicable scale, with planning policy.*
27	*To manage the efficient use of water and wastewater resources in a sustainable way that delivers an adequate supply of safe public drinking water to citizens, supports economic growth and preserves our environment.*
28	*To ensure the integration of safe and convenient alternatives to the car into the design of our communities, by integrating physical activity facilities for all ages, particularly prioritising walking and cycling accessibility to both existing and proposed future development, in all settlements.*
29	*That local planning, housing, transport/ accessibility and leisure policies will be developed with a focus on meeting the needs and opportunities of an ageing population and that a specific projection and statement supported by clear proposals in respect of ageing communities will form part of the core strategy of city and county development plans.*
30	*To plan for a more diverse and socially inclusive society that targets equality of opportunity and a better quality of life to all citizens, through improved integration and greater accessibility in the delivery of sustainable communities and the provision of associated services.*
31	*To facilitate fostering and protecting the Irish language, particularly within Gaeltacht regions.*
32	*To prioritise the alignment of targeted and planned population and employment growth with investment in:-* ▪ *The provision of early childhood care and education (ECCE) facilities and new and refurbished schools and early years care and education facilities (ECCE) facilities on well located sites within or close to existing built-up areas, that meet the diverse needs of local populations;* ▪ *The expansion and consolidation of third level facilities at locations where this will contribute to regional development, and* ▪ *Programmes for life-long learning, especially in areas of higher education and further education and training where skills gaps are identified.*
33	*To target the delivery of 550,000 additional households up to 2040 in accordance with the policy objectives of Ireland 2040.*
34	*To prioritise the provision of new homes at sustainable locations and at an appropriate scale relative to location.*
35	*To implement the short term measures to reduce vacancy and to progressively target the reduction of the national housing vacancy rate to 5% by 2040 (currently 9.15%).*
36	*To support the provision of lifetime adaptable homes that can accommodate the changing needs of a household over time.*
37	*To increase residential density in settlements, through a range of measures including reductions in vacancy, re-use of existing buildings, infill development schemes, area or site-based regeneration and increased building heights.*
38	*New statutory guidelines, supported by wider methodologies and data sources, will be put in place under Section 28 of the Planning Act to improve the evidence base, effectiveness and consistency of the*

NPO	People, Homes and Communities
	planning process for housing provision at regional, metropolitan and local authority levels. This will be supported by the provision of standardized requirements by regulation for the recording of planning and housing data by the local authorities in order to provide a consistent and robust evidence base for housing policy formulation.
39	*A 'Housing Need Demand Assessment' (HNDA) is to be undertaken for each Local Authority Area in order to correlate and accurately align future housing requirements. The HNDA is:* ▪ *to be undertaken by Local Authorities with coordination assistance to be provided by the Regional Assemblies, particularly where inter-county and inter-regional settlement interactions are to be planned for and managed.* ▪ *to primarily inform housing policies, housing strategies and associated land use zoning policies as well as assisting in determining where new policy areas or investment programmes are to be developed.* ▪ *to be supported, through the establishment of a coordination and monitoring unit to assist Local Authorities and Regional Assemblies in the development of the HNDA (DHPLG, Regional Assemblies and the Local Authorities). This will involve developing and coordinating a centralised spatial database for Local Authority Housing data that supports the HNDA being undertaken by Local Authorities.*

NPO	PHH	BFF	S	W	AQ	CF	MA	CH	L
25	+	+	+	+	+	+	+	+	+
26	+	0	0	0	0	0	0	0	0
27	+	0	0	+	0	0	+	0	0
28	+	0/-	0/-	0/-	+	+	+	0/-	0/-
29	+	0	0	0	0	0	+	0	0
30	+	0	0	0	0	0	0	0	0
31	+	0	0	0	0	0	0	+	0
32	+	0/-	0/-	0/-	0/+	0/+	+	0/-	0/-
33	+	0/-	0/-	0/-	+/-	+/-	+	0/-	0/-
34	+	0/-	0/-	0/-	+/-	+/-	+	0/-	0/-
35	+	0/-	0	0	0	0	+	0/-	0
36	+	0	0	0	0	0	0	0/-	0
37	+/-	+/-	+/-	+/-	+	+	+	+/-	+/-
38	+	+	+	+	+	+	+	+	+
39	+	0/-	0/-	0/-	0	0	+	0/-	0/-

PHH – Population and Human Health; BFF – Biodiversity, Flora and Fauna; S – Soils; W – Water; AQ – Air Quality; CF – Climatic Factors; MA – Material Assets; CH – Cultural Heritage; L– Landscape.

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The future facilitation to promote sustainable development for communities and their work in **NPO25** is directly positive for PHH and MA as it will strive to create places to live that are focused on sustainable living and as such will benefit people, their health and well-being. The activities conducted by the sustainable communities may reduce consumption e.g. waste/ energy and as such there could be positive impacts for BFF, S, W, AQ, CF, CH and L. For **NPO26** there will be direct positive impacts for PHH through providing support to national policy ensuring that future improvements are made to the people of Ireland in relation to their health and wellbeing. There will be neutral impacts on BFF, S, W, AQ, CF, MA, CH and L as they will not be affected by implementation of public health policy.

In **NPO 27** the provision of water resources that are safe for human consumption is directly positive for PHH. The plan clearly recognises that "by 2040 Ireland will be home to an additional 1 million people" and as such the population requires provision of drinking water. The plan recognises the important link between the Water

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Services Strategic Plan developed by Irish Water and the need to ensure that policies reflect the future development outlined by the NPF.

The focus in **NPO28** on increased movement through sustainable transport is directly positive for PHH and MA, through encouraging all ages to move away from the motor vehicle and to increase trips through sustainable means. There will be positive indirect impacts on AQ and CF if there are less people using cars and as a consequence there is the potential to reduce emissions. There are potentially neutral impacts on BFF, S, W, CH and L, however with any infrastructural development, such as a cycleway, and in the absence of specific details there is always the potential to impacts to a certain level on the environment and its natural resources.

NPO29 will have direct positive impacts on PHH and MA through the assurance that at a local level the future needs of our aging population are taken into account. It is imperative that whilst the core strategy takes account of the residential housing requirements for our population it will also have to include the changing needs of the older generation and the ensures the correct housing provisions are planned for. There will be neutral impacts on the other topics as the focus of the objective is for older people and their accessibility needs.

For **NPO30** there is assurance that at a national level there is a focus on ensuring that all members of society have equal opportunities is directly positive for PHH. Ireland currently has a varied population and it is likely over the next 20 years that it's diversity will continue to grow and as such future policy needs to recognise the variety of needs and associated service provision.

As only 2% of Ireland's population live in Gaeltacht areas it is imperative the future policy both protects and facilitates future growth of these regions. **NPO31** will have direct positive impacts on PHH and indirect positive impacts on CH, ensure that both the language and the cultural history associated with it are protected.

NPO32 is directly positive for PHH and MA that alignment is developed between where people live and work and their educational needs. The policy is focused on sustainable development ensuring that communities are adequately serviced therefore reducing transport needs within built up areas and thus having positive indirect impacts for AQ and CF. As with all infrastructural development there is potential for both direct and indirect negative impacts on BFF, S, W, CH and L unless proper siting and environmental studies are incorporated into the strategic planning of such facilities.

The future provision for additional households in **NPO33**, is directly positive for PHH. Currently there is a critical shortage of housing in Ireland and this is recognised by government through the Department of Housing, Planning and Local Government Statement of Strategy 2016-2019. It sets out a work plan to deliver services including "doubling the annual level of residential construction to 25,000 homes and deliver 47,000 units of social housing in the period to 2021". Priorities and core principles have been set in order to properly direct the housing sectors development and as such will be directly positive for MA as it is focused on ensuring that sustainable societies are grown thus focusing on consolidations and reduced urban sprawl. The adherence to the policy priorities and core principles is imperative in ensuring that households can access services through sustainable transport modes. The development of households will have both a direct and indirect neutral to negative impact on BFF, S, W, CH and L depending on their location and the type of land developed e.g. brownfield versus greenfield.

For **NPO34** the impacts on the environmental receptors are identical to NPO33. It will be the responsibility of the RSES's and the county and city development plans to plan for new homes in specific locations whilst ensuring that environmental impacts are minimised. The potential for neutral to negative impacts on landscape will be challenging unless there is clearly defined policy guidance in relation to how to apply 'appropriate scale' whilst ensuring that it is compatible with the National Landscape Strategy for Ireland 2015-2025.

The reduction in vacancy for **NPO35** is in principal a positive direct impact on PHH through ensuring that all available housing stock is fully utilised. In addition the consolidation of built areas is directly positive for MA by contributing to a reduced need for urban sprawl. However in the absence of understanding the process by which the vacancy and re-use would be applied there is a potential for neutral to negative impacts on BFF and CH as buildings could have become occupied by protected species such as bats and certain buildings may be of architectural merit requiring specific approaches in relation to renovation.

NPO36 recognises that our population is changing rapidly and over the next 20 years our homes will also have to adapt. There will be direct positive impacts to PHH as people's needs change at specific stages in their life and there could be neutral to negative impacts on CH depending on the types of adaptions required and

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whether the house is of cultural architectural merit. There will be neutral impacts on the rest of the topics as they will not be either directly or indirectly affected. The increase of residential density outlined in **NPO37** is directly positive for PHH and MA as it will directly contribute to the provision of additional households in Ireland and also contribute to ensuring the growth is consolidated. The focus on consolidation is directly positive for BFF, S, W, CH and L as there is a reduced need to develop on greenfield lands and encroach upon the rural natural environment. However as part of consolidation there is a potential to encounter contaminated land depending on the location of the scheme and therefore negative impacts for S could occur. Where consolidation is focused on increased building heights the location of such development would need to be assessed on a site by site basis in order to assess potential negative impacts on L. Consolidation and increased density for settlements facilitates justification for public transport and increased sustainable travel and as such would have indirect positive impacts on AQ and CF. Overall **NPO38** is positive as it relates to developing statutory guidelines for improving the planning process in relation to housing provision, which needs to consider the natural and human environment when looking forward to measures to increase housing units. Through **NPO39** the implementation of the HNDA is directly positive for PHH and MA, ensuring that future provision for housing is appropriately planned and that housing crisis are abolished. However it is unclear as to how the natural and human environment is to be protected in the process of inform future provision and zoning for residential development and as such there is potential for negative impacts on BFF, S, W, CH and L. There could be positive or negative indirect impacts for AQ and CF depending on the outcome of the HNDA step as it could contribute to more sustainable built up areas which would facilitate sustainable travel and reduced emissions.
Proposed SEA Mitigation Measures: ▪ **NPO34:** There is a need to outline how planners make the decision as to what is *appropriate scale*. ▪ **NPO38:** The New Statutory Guidelines should be screened for SEA and AA. ▪ **NPO39:** The Housing Need Demand Assessment (HNDA) will inform land use zoning and as such an understanding of environmental sensitivities must be incorporated within the assessment. This would ensure that areas for future zoning do not conflict with environmental protection policies. The monitoring unit developed to assist the Local Authorities would develop a relevant environmental methodology that could be incorporated within the HNDA.

8.3.5 Policy Area – Realising our Island and Marine Potential (Chapter 6)

This policy area provides details on the growing maritime economy and the planning processes needed to effectively drive development and management. The key messages are:

- Ireland's ocean economy has grown from 1.2. billion to over €1.4 billion[66] in just a few years and is performing on average better than the general economy;
- Ireland 2040's aim is to double the value of Ireland's ocean wealth by 2030 and more beyond; and
- To fully unleash the potential of our marine and terrestrial development, a radical new streamlined and integrated planning process is to be introduced to drive effective management of our marine areas and land-sea interface and avoid incompatible developments and activities.

Table 8.5 – Policy Area: Realising our Island and Marine Potential

[66] Socio-Economic Marine Research Unit (November 2011) Ireland's Ocean Economy Report.

NPO	Realising our Island and Marine Potential
40	*Regional and local development plans will take account of and integrate relevant maritime spatial planning issues.*
41	*To support the growth and development of the maritime economy, particularly in remote coastal communities and islands.*
42	*To ensure that the strategic development requirements of Tier 1 and Tier 2 Ports are considered and addressed as part of the Regional Spatial and Economic Strategy (RSES) and that any concurrent or subsequent metropolitan area or city/ county development plans and strategic plans for the Tier 1 and Tier 2 ports are aligned to ensure the effective growth and sustainable development of the city regions.*
43a	*To ensure that Ireland's coastal resource is managed to sustain its physical character and environmental quality.*
43b	*In line with the collective aims of national policy regarding climate adaptation, to address the effects of sea level changes and coastal flooding and erosion and to support the implementation of adaptation responses in vulnerable areas.*
44	*To support, within the context of the Offshore Renewable Energy Development Plan (OREDP) and its successors, the progressive development of Ireland's offshore renewable energy potential, including domestic and international grid connectivity enhancements.*

NPO	PHH	BFF	S	W	AQ	CF	MA	CH	L
40	+	+	+	+	+	+	+	+	+
41	+	+/-	0/-	0/-	+/-	+/-	+	0/-	0/-
42	+	+/-	+/-	0/-	0/-	0/-	+	+	0/-
43a	+	+	+	+	+	+	+	+	+
43b	+/-	+/-	+/-	+/-	0	+	+	+/-	+/-
44	+/-	+/-	0/-	0/-	+	+	+/-	+/-	0/-

PHH – Population and Human Health; BFF – Biodiversity, Flora and Fauna; S – Soils; W – Water; AQ – Air Quality; CF – Climatic Factors; MA – Material Assets; CH – Cultural Heritage; L– Landscape.

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It is considered that **NPO40** will have an overall positive impact. Sustainable development is at the heart of both the NPF and the principles of maritime spatial planning (MSP) and the idea of nurturing 'blue growth' and the 'blue economy'. In recent years, maritime spatial planning has been increasingly required to effectively and sustainably manage marine waters due to the ever-increasing use and exploitation of the maritime space and its resources by a cross-section of stakeholders across a number of sectors. The Maritime Spatial Planning Directive (MSPD) (2014/89/EU) supports on-going implementation of sea-related policies in Member States and requires them to to establish maritime spatial plans as soon as possible and at the latest by 31st March 2021. To date, Ireland has developed regulations to transpose the directive but has yet to develop and finalise the arrangements necessary to implement MSP. As such there is a regulatory and environmental gap in terms of fully bridging the terrestrial and foreshore planning systems with the marine. This policy is considered to be overall positive however as it promotes synergies between both planning systems.

It is likely that both positive and negative impacts will arise from **NPO41**. Increased populations (local and tourist) and developments may increase pressures from human activities. There may be negative impacts to PHH, BFF, W, L, S and CH due to increased demands on water and wastewater services, land use change and loss of coastal habitats/habitat fragmentation. Development in marine areas can have further positive and negative effects to BFF as development may permanently remove or physically alter habitats, however marine structures also can provide new habitats e.g. through the artificial reef effect. AQ and CF may be impacted by greater emissions due to increased activity; however where this activity involves the development of renewable energy sources, this is positive for AQ and CF in terms of helping to achieve national emissions reduction targets and improving energy security in the longer term. There are both positive and negative impacts in terms of MA; the provision of services and infrastructure to coastal communities is positive as this can support local opportunities and employment and provide wider economic benefits (e.g. from port activities, aquaculture). Any development however will also need to be cognisant of the vulnerability of

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sensitive coastal sites, as well as infrastructure, to climate change and the risk of increased storm events, storm surges, rising sea levels and coastal erosion.

NPO42 concerns the Tier 1 ports which comprise the international Dublin Port, Port of Cork and Shannon Foynes, and Tier 2 Ports which comprise ports of national significance i.e. Port of Waterford and Rosslare Europort. This policy will therefore have both positive and negative impacts. There are potential negative impacts from port activities to BFF as these ports are located within and adjacent to numerous European Sites. Increased human activity may increase pressures on AQ, CF and W through emissions to air and water. Port areas are highly modified coastal areas and have numerous legacy industrial uses as well as current Seveso sites. Impacts to S may therefore be positive as contaminated land is reclaimed and/or remediated and control measures introduced to mitigate pollution sources. Negative impacts to S and W are also likely to arise where contaminated land is disturbed and where pollutants/contaminated material is remobilised to the water column and soils/sediments. Dredging and dumping at sea will also be required in order to maintain shipping lanes with potential negative implications for water quality as well as CH (through disturbance to known or unknown marine heritage features). Improved port facilities should have a net positive impact on PHH/economic activity and MA, especially where connectivity and logistics are improved. As port areas already represent highly modified coastal features, the impacts to L are considered to be broadly neutral however negative impacts can arise where adjacent landscape character is affected by port expansion.

NPO43a is broadly positive as it seeks to manage and sustain coastal character and the quality of the environment. Ireland has a dynamic coastline and it is recognised that there are challenges to adapting to rising sea levels, increased frequency of storm events and erosion. The policy is broadly positive in terms of protecting all the environmental receptors which would otherwise be damaged through physical processes such as flooding and erosion.

NPO43b will have both positive and negative impacts. The National Policy Position on climate action and low carbon development was published in 2014 and sets the national objective to achieve transition to a competitive, low carbon, climate-resilient and environmentally sustainable economy by 2050. The policy states that greenhouse gas (GHG) mitigation and adaptation to the impacts of climate change are to be addressed in parallel national strategies through a series of National Mitigation Plans (first draft published in July 2017) and a series of National Climate Change Adaptation Frameworks (NCCAF, first published in 2012). Work is ongoing by the DCCAE to develop the next iteration of the NCCAF (a draft is expected for public consultation in late 2017). As Ireland's first statutory strategy for addressing climate change, its main objective is to bring focus to the challenges and opportunities associated with transitioning Ireland to a sustainable low carbon future. Aligning with the aims of national policy in this regard is considered to be positive for CF and MA as it will address climate change and give consideration towards adaptation and resiliency of current and future infrastructure developments. Addressing sea level changes, coastal erosion and flooding may require the construction of defences, or relocation of MA, both inland and at the coast. Protection/defence works are positive for PHH, S, CH and MA for managing the effects of flooding and storm surges and protecting against damage. The construction of hard defence works may result in loss of habitats and cause changes to ocean processes resulting in negative impacts to BFF, L, W and S (marine sediments). However, vulnerable areas will be protected and some positive impacts can also be expected for BFF, L, S, CH and L.

It is likely that **NPO44** will give rise to both positive and negative impacts. PHH may be impacted positively through the development of renewable energy sources (RES) and access to cleaner energy but impacts may be negative from increased levels of infrastructure required to generate and transmit the electricity. There is also the issue with viewsheds, particularly for offshore renewable energy infrastructure and proximity to the coastline. Marine transmission lines and offshore infrastructure can become habitats for certain species thereby increasing biodiversity and having a positive impact on BFF e.g. through the artificial reef effect. Offshore infrastructure can also have negative impacts for BFF through the alteration/removal of benthic substrate, traversing sensitive habitats, changing species composition/food webs or by acting as potential corridors for the spread of invasive species. There may be negative impacts to S and W where seafloor is permanently removed or cleared as part of site preparation activities leading to temporary or permanent effects. Certain seafloor sediments on the other hand may be afforded protection by offshore infrastructure which can have a stabilising influence. W may be impacted by increased siltation depending on the type of RES or by remobilisation/disturbance to contaminants previously locked up in sediments. L may be negatively impacted through impacts to landscape character or setting, which is also dependant on the siting of infrastructure (e.g. sightlines to wind turbines) and terrestrial connections such as substations. The

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development of RES and the supporting of successors to the OREDP are broadly positive for AQ, CF and MA as access to indigenous renewable energy supplies will improve energy security and contribute towards national emission reduction targets. Negative impacts to AQ from emissions may be encountered in the short-term, particularly during construction stage, but these should give way to broadly positive impacts in the long-term due to a net reduction in greenhouse gas emissions. For PHH and MA, there may be conflicts with other users of the sea where offshore and near-coastal infrastructure may interfere with coastal activities, both recreational and commercial e.g. where the physical presence of infrastructure acts as a barrier to movement, or the exclusion of certain fishing activities from areas with subsea cables. The extent of CH in the offshore environment is relatively unknown, but it is likely to be significant given Ireland's maritime history. There is therefore significant potential for offshore development to discover or uncover previously unknown heritage features.
Proposed SEA Mitigation Measures ▪ **NPO42:** The development of strategic plans for the ports must be subject to AA.

8.3.6 Policy Area – Working with our Neighbours (Chapter 7)

This policy area focusses on cooperation with Northern Ireland in order to grow key economic corridors, coordinate infrastructure investment and the responsible management of the shared environment. The key messages include:

- As an island of 8 million people sharing two major cities and having interdependent infrastructure, there are major benefits from a practical and coordinated approach to our development on the island and with neighbours; and
- By 2040, there could be 2 and a half million people living along the Dublin to Belfast Corridor as the largest economic agglomeration, and a driver of economic growth.

Table 8.6 – Policy Area: Working with our Neighbours

NPO	Working with Our Neighbours
45	*To work with the relevant Departments in Northern Ireland for mutual advantage in areas such as spatial planning, economic development and promotion, co-ordination of social and physical infrastructure provision and environmental protection and management.*
46	*In co-operation with relevant Departments in Northern Ireland, to further support and promote the sustainable economic potential of the Dublin- Belfast Corridor and enhance its international visibility.*
47	*To promote the development of Derry and Letterkenny as interlinked areas of strategic importance and a key growth centre in the North-West of Ireland, through collaborative structures and a joined-up approach to spatial planning.*
48	*To support enhanced public transport connectivity between large urban areas in Ireland and Northern Ireland.*
49	*Strengthen all-island energy infrastructure and interconnection capacity to enhance the security of electricity supply.*
50	*Develop a stable, innovative and secure digital communications and services infrastructure on an island basis.*
51	*To support the coordination and promotion of all-island tourism initiatives through continued cooperation between the relevant tourism agencies and Tourism Ireland.*
52	*Ensuring effective management of shared landscapes, heritage, water catchments, habitats, species and trans-boundary issues in relation to environmental policy.*

NPO	Working with Our Neighbours
53	*In co-operation with the United Kingdom Government and devolved Governments of Northern Ireland, Scotland and Wales, Ireland will support mutually beneficial development in the areas of spatial planning and infrastructure planning and other related areas.*

NPO	PHH	BFF	S	W	AQ	CF	MA	CH	L
45	+	+	+	+	+	+	+	+	+
46	+/-	+/-	+/-	+/-	0/-	0/-	+/-	+/-	+/-
47	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-
48	+/-	+/-	+/-	+/-	+/-	+/-	+	+/-	+/-
49	+/-	0/-	0/-	0/-	0/-	0/-	+	0/-	0/-
50	+	0/-	0/-	0/-	+	+	+	0/-	0/-
51	+	0	0	0	0	0	+	0	0
52	+	+	+	+	+	+	+	+	+
53	+	+/-	+/-	+/-	+	+	+	+/-	+/-

PHH – Population and Human Health; BFF – Biodiversity, Flora and Fauna; S – Soils; W – Water; AQ – Air Quality; CF – Climatic Factors; MA – Material Assets; CH – Cultural Heritage; L– Landscape.

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While the NPF is focused on spatial planning for the next 20 years we recognise that we share an island with approximately 28% of the people residing in Northern Ireland. **NPO45** is directly positive for the SEA objectives as it identifies that the NPF will work with the relevant Departments in Northern Ireland in relation to environmental management and as such should have positive impacts on all the environmental receptors.

For **NPO46** there are direct positive impacts for PHH and MA as it is focused on developing the corridor as a distinct spatial area which would bring employment opportunities to the region, in particular from foreign investment. It is identified in the NPF that the policy will seek to plan and develop designated centres, whilst improving the key transport corridors and protecting the landscapes and rural activities. Therefore there would be positive impacts on the natural environment such as BFF, S, W, CH and L if such development is undertaken with a focus of protecting green spaces between built up areas. However without any specific detail as to what measures would be implemented to promote this corridor there is the potential to impact on the natural environment especially BFF, due the existing sensitivity of the coastline and the abundant number of European Sites located along it. As with any type of economic focus through greenfield and brownfield infrastructural development there is potential for indirect negative impacts on PHH, BFF, W, S, AQ, CF and L through habitat loss, disturbance and emissions to air, soil and water. The potential of the economic corridor has to be considered in line with the impending Brexit process. Whilst the plan recognises that it is being developed at a time of great uncertainty for our borders it is not possible to establish the impacts on the environmental receptors, there can only be speculation. It is currently unknown whether there will be some form of hard border which if implemented could directly impact PHH and MA through distribution to travel patterns which may influence employment growth. It is also unknown if there will be any domestic rollback by the United Kingdom in relation to environmental legislation. There are currently approximately 650 pieces of EU legislation in force to protect the environment and as Ireland shares a border with common linkages e.g. river systems there is potential for both direct and indirect impacts on the natural and human environment, through breaches in air and water quality. In addition, a 2017 report by the Institute of International and European Affairs has identified that there could be a significant impact from Brexit on the global momentum to address climate change and reduce greenhouse gas emissions. This could then potentially have indirect negative impacts for Ireland on PHH, BFF, W, S, AQ, CF, MA, CH and L from the impacts of climate change such as increased temperature levels, sea level rising and increased flooding.

NPO47 will bring positive impacts on PHH and MA through the development of potential links between Derry and Letterkenny that could bring further employment and consolidation within the urban areas. Collaborative structures in particular for public services such as health and education would directly benefit the citizens on both sides of the border. Improvements to spatial planning could bring increased protection of the environment across all environmental receptors. Letterkenny town has seen high growth periods in particular the peak annual population increase in the period 2002-2006 of 17.27%, however during 2011 to 2016, the

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town has seen levels decrease and a population change of -1.6%. Therefore future consolidation and development would benefit with links to Derry City who has already formed a collaborative arrangement with Strabane District Council. The Letterkenny to Derry corridor has seen through population increases significant one off housing especially along corridors in proximity to the border. It will be imperative that the environment is included in the spatial planning process and that future growth recognises the environmental sensitives within the region. As with **NPO46**, the impending decisions around Brexit will have the potential to impact PHH, BFF, W, S, AQ, CF, MA, CH and L through potential impacts associated with climate change and reduced environmental compliance.

NPO48 will ensure that alongside the regional growth that public transport infrastructure is enhanced to align with a growing population. Whilst the assurance that connectivity is maintained is positive for PHH and MA there is potential for direct and indirect negative impacts on PHH, BFF, W, S, AQ, CF, CH and L through infrastructural development, potential loss of greenfield land and increased emissions through the facilitation of more infrastructure. There is a focus on the policy towards promotion of blueways, greenways and walking trails which is directly positive for PHH, AQ and CF, however there is a lack of focus in relation to public transport such as the railway line and bus routes which offer a direct positive alternative to sustainable travel.

NPO49 will be directly positive for PHH and MA as it is essential that as the population of Ireland increases, the necessary energy infrastructure is strategically planned for. As with all linear infrastructure there is potential for both direct and indirect negative impacts on PHH, BFF, W, S, CH and L through loss or sterilisation of greenfield lands, visual impacts and the outputs such as electric and magnetic fields (EMF). The focus of the policy is on security of supply and ensuring that Ireland is positioned to be able to deliver electricity to households. There are indirect impacts on AQ and CF as the electricity generation sector generates greenhouse gas emissions through the combustion of fossil fuels such as coal. The EPAs GHG emissions inventories for 2015 outlined in November 2016[67], noted that electricity generation was accountable to 19.7%, following behind the agriculture and transport sectors. For 2015 the EPA have noted that there is little evidence of any 'decoupling' of emissions from economic activity and that greenhouse gas emissions are on the rise when compared to 2014. For the energy sector it was noted that emissions from the energy industries sector increased by 5.4%, due largely to increased coal use for electricity generation.

The digital future for Ireland in **NPO50** is critical as due to our geographical location we need quality telecommunications to align with citizen's requirements. NPO 50 will ensure that Ireland further strengthens our position through investment interventions outlined in the National Broadband Plan which is currently in preparation and expected to be rolled out from 2018 onwards. The implementation of the plan will have direct long term positive impacts for PHH and MA in particular for cities within Ireland where the broadband network has not met commercial requirements. The provision of the ICT architecture could directly impact BFF, W, S, CH and L through the requirement to lay and string cables which could result in trimming of hedgerows, disturbance of soils leading to sediment loss.

NPO51 will be directly positive for PHH and MA through the roll out of tourism initiatives across the borders and the focus of the policy which is towards cooperation between the agencies.

NPO52 will have a long term direct positive impact on all of the environmental receptors through the commitment to work with Northern Ireland on transboundary issues relating to the natural environment. There will be indirect positive impacts for PHH through the provision of a safe and healthy environment for citizens. The NPF outlines key areas that specifically require transboundary coordination such as the International River Basin Districts which are managed under the requirements of the Water Framework Directive. Whilst the policy is directly positive the impending potential issues associated with Brexit and outlined in NPO 46 and 47 must be taken into account for all future management decisions.

NPO53 along with Chapter 6 of the NPF have outlined the Ireland will need to ensure that spatial land use planning is aligned with maritime spatial planning whilst recognising the resource potential that our marine environment holds. Ireland has put in place national policy such as Harnessing Our Ocean Wealth and the Offshore Renewable Energy Development Plan which addresses the future potential of this vast resource however it is recognised that without collaboration and co-operation with our neighbours that the full potential of the sustainable resources available to Ireland cannot be fully investigated and/ or developed. Projects such as ISLES have been positive in identifying regulatory issues that are preventing progress in relation to network development for the energy grid. Infrastructural planning of the marine environment will

[67] Ireland's Provisional Greenhouse Gas Emissions in 2015

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be directly positive for PHH, AQ, CF and MA through the generation of renewable sources of energy generated by offshore windfarms and the potential to reduce fossil fuel combustion and the generation of emissions. There is potential for negative impacts on BFF, S, W, CH and L through physical alteration of marine habitats or pollution to marine waters which could affect species. Depending on the type of development e.g. windfarms and their distance from the shoreline landscape impacts could be minimal. However positive impacts may come through the artificial reef effect and the discovery of unknown archaeology including shipwrecks.
Proposed SEA Mitigation Measures: ▪ **NPO46 and NPO47:** The NPF will be updated on a six year cycle but there is merit in including a policy objective supporting discussions with Northern Ireland on environmental protection and management in light of Brexit.

8.3.7 Policy Area – Realising our Sustainable Future (Chapter 8)

This section of the draft NPF focusses on the transition to a low-carbon, climate-resilient and environmentally sustainable economy by 2050. The key messages of this policy area relate to:

- In global terms, we are a small country with a relatively small population and yet our greenhouse gas emissions per person are much higher (45%) than EU averages at 12.6 tonnes of CO_2 equivalent per capita;
- There will be a national transition to a competitive low carbon, climate resilient and environmentally sustainable economy by the year 2050; and
- Our transition will be achieved through actions from government to business, communities and the citizen both harnessing our country's prodigious renewable energy potential and electrification of much of our mobility and energy systems.

Table 8.7 – Policy Area: Realising our Sustainable Future

NPO	Realising Our Sustainable Future
54	*That the planning system is responsive to our national environmental challenges and ensures that development occurs within environmental limits having regard to the requirements of all relevant environmental legislation and promotes the sustainable management of our natural capital.*
55	*To support the circular and bio economy, through greater efficiency in renewable resources and land management and by reducing the rate of land use change from urban sprawl and new development.*
56	*Reduce our carbon footprint by integrating climate action into the planning system in support of national targets for climate policy mitigation and adaptation objectives as well as targets for greenhouse gas emissions reductions.*
57	*To promote renewable energy generation at appropriate locations within the built and natural environment to meet objectives towards a low carbon economy by 2050.*
58	*Ensure flood risk management informs place making by avoiding inappropriate development in areas at risk of flooding and integrate sustainable water management solutions (such as SUDS, non-porous surfacing and green roofs) to create safe places in accordance with the Planning System and Flood Risk Assessment Guidelines for Local Authorities.*
59	*To promote the integration of Green Infrastructure (GI) and ecosystem services including landscape, heritage and biodiversity in the preparation of statutory land use plans.*
60	*Sustainably manage the quality of our water resources to support and deliver the growth strategy for Ireland 2040 and a healthy society.*
61	*Improve air quality and help prevent people being exposed to unacceptable levels of pollution in our*

NPO	Realising Our Sustainable Future
	urban and rural areas through integrated land use and spatial planning that supports public transport, walking and cycling as more favourable modes of transport to the private car, the promotion of energy efficient buildings and homes, green infrastructure planning and innovative design solutions.
62	*Promote the pro-active management of noise where it would have significant adverse impacts on health and quality of life and support the aims of the Environmental Noise Regulations through national planning guidance and Noise Action Plans.*

NPO	PHH	BFF	S	W	AQ	CF	MA	CH	L
54	+	+	+	+	+	+	+	+	+
55	+	+	+	+	+	+	+	+	+
56	+	+	+	+	+	+	+	+	+
57	+/-	0/-	0/-	0/-	+	+	+	0/-	0/-
58	+	+	+	+	0	0	+	0	0
59	+	+	+	+	+	+	+	+	+
60	+	+	0	+	0	0	+	0	0
61	+	+	+	+	+	+	0	+	0
62	+	+	0	0	0	0	+	0	0

PHH – Population and Human Health; BFF – Biodiversity, Flora and Fauna; S – Soils; W – Water; AQ – Air Quality; CF – Climatic Factors; MA – Material Assets; CH – Cultural Heritage; L– Landscape.

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NPO54 is directly positive for all the SEA objectives as it outlines that future development needs to recognise the carrying capacity of the environmental in addition to putting a value on our natural environment.

NPO55 focuses on supporting the circular economy and utilising resources for as long as possible. There are both direct and indirect positive impacts on the natural and human environment. The use of biomaterials is not specified and in principal is positive however the level of usage could impact on the natural environment. The NPF is focused on consolidation and reduced urban sprawl, and with a growing population and an increased need to provide households land retention will be challenging. In relation to waste management the NPF will be supported by the Southern, East-Midlands and Connacht-Ulster Regional Waste Management Plans which contain policies strategically aligned to the circular economy.

Through **NPO56** the incorporation of climate within the planning system is both directly and indirectly positive for the natural and human environment as the future physical development of Ireland needs to recognise both climate mitigation and adaptation measures. The various lower planning tiers including RSES's, County and City Development Plans as well as Local Development Plans need to account for climate change in all aspects of planning. This involves the consideration of Ireland's carbon footprint across key sectors such as agriculture, built environment, transport and the electricity generation sector.

Through **NPO57** the promotion of renewable energy is directly positive for AQ and CF as it will directly contribute to Ireland meetings its 2050 targets and contribute to a low carbon economy whilst reducing fossil fuel combustion and contributing to improved air quality. This policy objective is very high level and does not specify the types of renewable energy that may be developed and as such there is potential for neutral to negative impacts on PHH, BFF, S, W, CH and L depending on both the type and location of the renewable energy development. National planning documents addressing renewable energy development have or are currently within the SEA process. The Renewable Energy Policy and Development Framework [currently in prep] will focus on renewable electricity generation and the national Bioenergy Plan [currently being revised] looks at the potential for the bioenergy sector to contribute to renewable heat and transport. Offshore energy development potential has been outlined in the Offshore Renewable Energy Development Plan looks at offshore resources including wind, wave and tidal energy generation.

NPO58 is directly positive for PHH and MA through ensuring that future development is accommodation in the correct location and that citizens and strategic infrastructure are not impacted by flooding. Alongside the development of the NPF a Strategic Flood Risk Assessment has been undertaken to ensure that the policy objectives are robust in relation to current flood risk and future predictions which account for climate change.

Discussion
It has outlined that implementation of the Planning System and Flood Risk Assessment Guidelines for Planning Authorities (2009) and best practice for storm water runoff is vital to achieve sustainable development and reduce flood risk to areas. The integration of sustainable water management solutions will be directly positive to W in relation to reduced waste of water resources and for BFF and S through ensuring that clean water is released with a flow that is compatible to the surrounding environment. In **NPO59** the promotion of green infrastructure through statutory land use plans will be positive for all the SEA objectives as this resource will perform positive functions for our communities and natural environment. Green infrastructure is increasingly recognised as a vital competent to building resilient communities which brings direct benefits to the natural and human environment and in particular can directly contribution to communities adapting to climate change. Water is vital for the natural environment and in particular for the current and future citizens of Ireland. Through implementation of **NPO60** there will be direct positive impacts on PHH allowing for future growth and consumption of high quality clean water and ensuring that there is a direct contribution to the quality of human health. The management of water resources is also directly positive for W and BFF through ensuring that the requirements of the Water Framework Directive are met and that Ireland implements the River Basin Management Plan 2018-2023 Programme of Measures to provide a catchment based framework to protect our waters. **NPO61** is directly positive for Ireland's citizens as it encourages people to move away from the private car and towards sustainable modes of transport that do not generate emissions. As such it is directly positive for PHH and AQ as through a reduction in fossil fuel combustion and the release of harmful emissions such as nitrogen oxides and fine particulate matter. The World Health Organisation and the European Union have estimated that approximately 400,000 premature deaths in Europe are due to poor air quality. Ireland is currently addressing national air quality issues and has recently published for consultation the National Clean Air Strategy. CF will also benefit if there is a reduction in combustion and the generation of carbon dioxide and there could be indirect positive benefit for habitats and species along with positive impacts on CH and buildings of architectural significance through reduced levels of pollutants in the atmosphere. **NPO62** will have a positive direct contribution to PHH, BFF and MA. Unwanted noise has the potential to have harmful effects on humans and species and as such needs to be monitored and planning needs to recognise such sources when developing plans. Directive 2002/49/EC on the assessment and management of environmental noise outlines its aim "to define a common approach intended to avoid, prevent or reduce on a prioritised basis the harmful effects, including annoyance, due to exposure to environmental noise". As part of the directive there is a requirement for noise action plans and agglomerations and counties within Ireland have engaged in the preparation of such plans but continual forward planning in relation to noise is required to ensure that citizens and species and not affected.
Proposed SEA Mitigation Measures: ▪ **NPO62:** While this policy is positive it is identified that residential noise regulations are currently inadequate for home owners and need to be addressed in light of increased consolidation of residential urban areas. A review is required that presents tangible ways to improve the current regulations. ▪ **General Mitigation:** The NPF should identify the appropriate body or Department that is be responsible for the implementation and reporting of the SEA monitoring programme to ensure that national issues are identified over the 20 period and that revision to the NPF every 6 years can address such issues.

8.3.8 Policy Area – Implementing Ireland 2040 (Chapter 9)

This policy area highlights the national priorities to support Ireland's strategic development. The key messages are:

- New approaches to planning and new governance arrangements for settlements will support coordination and leadership at a regional and local level to support cities large towns and land management;

- The delivery of national policy objectives and strategy outcomes will be underpinned and driven forward through close alignment with a new National Investment Plan, including provision of a smart growth fund for urban and rural areas;
- Ireland 2040 will be placed on a statutory footing under the provisions of draft legislation including being subject to cyclical review in line with the wider review provisions for planning at local authority and regional levels; and
- Independent monitoring of the overall effectiveness of the implementation of Ireland 2040 will be undertaken.

Table 8.8 – Governance

NPO	Governance
NPO63	***Metropolitan Areas: Building Centres of Scale*** *Provision will be made for metropolitan area strategic plans to be prepared for the Dublin, Cork, Limerick, Galway and Waterford Metropolitan areas and in the case of Dublin and Cork, to also address the wider city region, by the appropriate authorities in tandem with and as part of the relevant RSES.*
NPO64	***Better Strategic Planning for Other Urban Areas*** *Provision will be made for urban area plans for larger towns and their environs with a population of more than 15,000 people. Provision will also be made for joint urban area plans and joint local area plans where a town and environs lies within the combined functional area of more than one local authority.*
NPO65	***Strengthening Local Authority Planning: Plan Making and Core Strategies*** *City/ county development plan core strategies shall comprehensively identify, co-ordinate and balance targeted population and housing growth in cities, large and small towns, rural settlements and in the open countryside for the relevant planning authority area and this will be supported by a standardised methodology for the preparation of core strategies.*
NPO66	***Integrating Spatial and Transport Planning*** *Statutory arrangements between spatial and transport planning in the Greater Dublin Area will be extended to other cities.*
NPO67	***Coordinating Land Use Zoning, Infrastructure and Services*** *Planning authorities will be required to apply a standardised, tiered approach to differentiate between i) zoned land that is available for development, ii) zoned land that requires further specified investment in basic infrastructural services for development to be realised and iii) zoned land unlikely to be serviced within the life of the relevant plan;* *When considering zoning land for development purposes that requires further investment in basic infrastructural services, planning authority will make a reasonable estimate of the full cost of delivery of the specified services and identify the responsible delivery agency(ies);* *When considering zoning land for development purposes that is unlikely to be serviced within the life of the relevant plan, planning authority will review the status of such lands.*
NPO68	***Prioritising Development Lands*** *When zoning land for development, planning authorities will apply a specified standardised approach in establishing an order of priority for development of land taking account of proper planning and sustainable development, and in the case of adjoining interdependent landholdings evidence of landholder commitment to necessary co-operation to release lands for development.* *Planning authorities will use compulsory purchase powers to facilitate the delivery of enabling development services to prioritised zoned lands, to accommodate planned growth and development.* *Infrastructure delivery agencies will focus on the delivery of enabling development services to prioritised zoned lands that deliver planned growth and development.*
NPO69	***State-led Strategic Land Development***

NPO	Governance
	A more effective strategic and centrally managed approach will be taken to realise the development potential of the overall portfolio of state owned and/or influenced lands in the five main cities and potentially other major urban areas as a priority.

NPO	PHH	BFF	S	W	AQ	CF	MA	CH	L
NPO63	+	+	+	+	+	+	+	+	+
NPO64	+	+	+	+	+	+	+	+	+
NPO65	+	+	+	+	+	+	+	+	+
NPO66	+	+	+	+	+	+	+	+	+
NPO67	+	+	+	+	+	+	+	+	+
NPO68	+	+	+	+	+	+	+	+	+
NPO69	+	+	+	+	+	+	+	+	+

PHH – Population and Human Health; BFF – Biodiversity, Flora and Fauna; S – Soils; W – Water; AQ – Air Quality; CF – Climatic Factors; MA – Material Assets; CH – Cultural Heritage; L– Landscape.

Discussion

Under **NPO63** it is intended to prepare the Regional Spatial and Economic Strategies (RSESs) for the three regional assembly areas, as well as five co-ordinated metropolitan area strategic plans (MASPs) for the Dublin, Cork, Limerick, Galway and Waterford metropolitan areas. The RSESs set out the higher level approach to planning while the MASPs will set out the strategic planning and investment frameworks for the city metropolitan areas and will act as the blueprints for provision of transportation, water services, large scale regeneration, housing location, economic development and metropolitan amenities. This level of coordinated and orderly planning at the city metropolitan area will give rise to overall indirect long-term positive impacts for all environmental receptors. When finalised, the metropolitan strategic plans will combine with the RSES for the remainder of the region to form the intermediate tier of the statutory national planning hierarchy for the overall region. It will be essential that these MASPs are fully assessed in line with the requirements of both 2001/42/EC and 92/43 EEC. It is noted that the City MAPS are a new tier of planning hierarchy and amendments to national legislation requiring SEA and AA will be required.

Similarly **NPO64** relates to the ordered and coordinated planning of larger urban areas through the provision of Urban Area Plans. As with the city MASPs, these larger urban area plans are expected to deliver overall long-term positive impacts for all environmental receptors. As the model is based on current Local Area Plan (LAP) legislation it is anticipated that the SEA and AA requirements for LAPs will be expanded to include the urban area plans (UAPs).

The requirement under **NPO65** in relation to Core Strategies is to be welcomed and will have indirect positive long-term effects for all environmental receptors. Core strategies were conceived in order to provide a more disciplined approach to planning, zoning and property development. This was to address over zoning of land coupled with market led delivery and instead refocus toward a plan led delivery. While gains have been made since the introduction of the concept in 2010, further improvements can be made through a standardization of methodologies.

NPO66 is positive as it aims to integrate spatial planning with planning for transport infrastructure for the other cities, as was done for Dublin and the Transport Strategy for the Greater Dublin Area. It aims to be clear on transport planning policy and to extend the statutory arrangements in place for the GDA to other areas.

NPO67 to NPO69 build on this with the requirement to tier zoned land and again this is broadly positive as it provides a more transparent approach to zoning and development. The additional information in terms of services will also better inform SEA and AA considerations at the CDP level as cumulative impacts from services and zoning can be better assessed. An integrated approach which fully considers the environmental implications would deliver more robust decision making. A specific cumulative impact assessment of zoning should therefore be considered as a requirement for statutory development planning.

Proposed SEA Mitigation Measures:

- **NPO63:** Update national SEA and AA related legislation to ensure that it applies to the newly formed City MASP and expand the SEA and AA requirements for LAPs to include UAPs.

Discussion
▪ **General Mitigation:** A specific cumulative impact assessment of zoning should be considered as a requirement for statutory development planning. ▪ **General Mitigation:** Statutory planning guidance and the standardised approaches to zoning discussed in this section of the NPF include an explicit requirement to consider the impacts of zoning on the receiving environment.

Table 8.9 – National Strategic Outcome: Compact, Smart Growth

Smart Growth Urban
Enable urban infill development that would not otherwise occur;
Improve 'liveability' and quality enabling greater densities of development to be achieved;
Encourage economic development and job creation, by creating conditions to attract internationally mobile investment and opportunities for indigenous enterprise growth;
Building on existing assets and capacity to create critical mass and scale as growth drivers;
Improve accessibility to and between centres of mass and scale and better integration with their surrounding areas;
Ensure transition to more sustainable modes of travel (walking, cycling, public transport) and energy consumption (efficiency, renewables) within an urban context;
Encourage labour mobility to support employment led growth, including affordable housing, education/ skills development and improved community and family services including childcare.
Smart Growth Rural
Enhance the attractiveness, viability and vibrancy of smaller towns and villages in rural areas as a means of achieving more sustainable patterns and forms of development.
Ensure transition to more sustainable modes of travel (walking, cycling, public transport) and energy consumption (efficiency, renewables) within smaller towns and villages.
Encourage and attract entrepreneurship and innovation in the context of the rural economy and its continuing sustainable diversification, particularly where low carbon outputs can be achieved.
Cater for a niche or specialised development that is intrinsically required to be located in a rural setting and has wider benefits for the local rural and regional economy.
Cross boundary collaboration at county and regional level to achieve more sustainable outcomes for rural communities e.g. applicable to shared settlements, landscapes and amenities as well as lands in state ownership.
Enhance co-ordination of various funding streams for rural development that supports the place making policies of Ireland 2040.

Discussion
While there are no specific objectives associated with this section it is noted that there are urban and rural criteria identified. These criteria are reflective of the objectives already presented in relation to Chapters 3 and 4 of the NPF which have been assessed earlier in this document. It is noted however that the criteria provided in the NPF do not fully address strategic environmental protection. It is therefore recommended that the DHPLG develop a set of Guiding Principles for Smart Growth in Urban and Rural Areas to better inform lower level criteria and guide development.

Table 8.10 – National Strategic Outcome: Enhanced Regional Accessibility

NSO2.1	*Inter-Urban Roads*
Maintaining the strategic capacity and safety of the national roads network including planning for future capacity enhancements;	
Improving average journey times targeting an average inter-urban speed of 90kph:	
Enabling more effective traffic management within cities and re-allocation of inner city road-space in favour of bus-based public transport services and walking / cycling facilities;	
Advancing orbital traffic management solution examples including the Galway Ring Road, Limerick Northern Distributor Road (LNDR) and M8/ N25/ N40 Dunkettle Junction upgrade (approved) in Cork.	
NSO2.2	***Accessibility to the Northwest***
Upgraded access to the Letterkenny-Derry City Area utilising existing routes (N2/ N14/ A5);	
Upgrade northern sections of the N4 route and sections of the N3/M3 national primary route;	
Progressive development of the Atlantic Economic Corridor from Galway through to Sligo and Letterkenny by completion of the M17/ M18 (Gort to Tuam), upgrading sections of the N17 north of Tuam where required and upgrading the N15/ N13 link from Sligo to Letterkenny.	

NSO	PHH	BFF	S	W	AQ	CF	MA	CH	L
NSO2.1	+/-	+/-	+/-	+/-	+/-	+/-	+	+/-	+/-
NSO2.2	+/-	0/-	0/-	0/-	+/-	+/-	+	0/-	0/-

PHH – Population and Human Health; BFF – Biodiversity, Flora and Fauna; S – Soils; W – Water; AQ – Air Quality; CF – Climatic Factors; MA – Material Assets; CH – Cultural Heritage; L– Landscape.

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NSO2.1 seeks to improve the national road network and explore traffic management solutions for our cities. Improving journey times on the national network will have direct positive impacts for MA as goods can be moved more efficiently through the road network. However it is acknowledged that the National Mitigation Plan includes a long-term objective to reduce motorways speed limits for cars, LGVs and HGVs in order to bring positive impacts for air quality and climate, and safety. This and similar measures relating to road transport should be integrated with DTTAS actions on climate change mitigation in terms of, for example, speed limits that promote more efficient driving behaviour that leads to a reduction in fuel consumed. Smoother driving and optimum speed limits would have an overall net positive impact for climate with a more positive impact associated with better driver performance. Optimising speed of vehicles can also significantly reduce emissions of other pollutants, particularly reducing NO_x and particulate matter output from diesel vehicles. As a consequence there are also direct positive impacts for air quality and human health. Finally, the safety gains for human health from slower driving are also well established and indisputable and hence a further positive impact for population and human health. **NSO2.1** also addresses traffic management within urban areas. This traffic management objective should align with DTTAS measures to reduce parking which would free up space in cities. An effective system that discourages the use of private cars in favour of a modal shift to walking, cycling or public transport would have direct positive impacts for CF, AQ and PHH. However, if poorly implemented or not effectively enforced, such a measure could have potentially negative impacts whereby punitive parking charges in city centres results in parking congestion in other areas of a town/city such as residential/industrial areas which are ill-equipped to cater for this parking. Equally, a situation where the cost of park and ride on public transport is greater than increased parking rates when more than one person is travelling also needs to be addressed. A phased reduction in public, particularly on-street parking provision, over the long term could have a considerable impact on modal shift addressing both energy and traffic congestion concerns. By reducing the public parking supply by a small percentage every year in urban centres, more space could be opened up to facilitate services and infrastructure for pedestrians, cyclists, and public transportation. However, any change to parking supply in urban centres would have to be considered in tandem with policies on 'out-of-town' parking where increased car travel demand is attributed to free car parking provision in large out-of-town or fringe retail centres.

NSO2.2 addresses connectivity to the northwest of Ireland. There is currently limited road and rail connection to the northwest constraining its ability to function effectively. The policy identifies a number of routes

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requiring improvement. Such improvements will lead to improved economic and social connectivity with direct benefit for PHH and MA in particular through improved viability of the region. However, as with any road building programme there is also potential for direct and indirect negative impacts on the receiving environment as a whole. This must be addressed through methodologies that identify constraints, carry out robust route selections and undertake detailed impact assessments as part of planning. As noted in Chapter 10 of the NPF, these assessments will be undertaken for projects arising from the NPF and this will ensure that potential for negative impacts can be avoided and/ or mitigated. The Atlantic Economic Corridor is also referenced in **NSO2.2**. The policy supports the concept which seeks to realise the hidden, untapped, present opportunity to bring jobs and investment, and to develop a 'city of scale', in the Atlantic Economic Corridor (AEC). Such proposals follow on from the success of initiatives such as the Wild Atlantic Way (WAW) which have opened up tourism, coastal and marine opportunities for many of the communities on and in the catchment of the WAW. It was noted early in the development of the WAW that the proposals could have a significant negative effect on the receiving environment unless appropriately considered. To address this, a separate SEA and AA were carried out on the draft WAW. The AEC presents similar opportunities and challenges as it seeks to bring more employment opportunities to the western seaboard. It is likely to give rise to positive impacts for PHH and MA from increased investment but holds significant potential for negative impacts on BFF, W, S, AQ, CF and L through greenfield and brownfield development, habitat loss and disturbance and emissions to air, soil and water. The western seaboard is significantly constrained particularly with regard to European and nationally designated sites. Planning of any new or upgrade routes should be accompanied by a robust options assessment that looks at systems and demand management options, online and offline solutions and other complimentary transport options in combination with exiting routes to better enhance connectivity. As such, it should undergo SEA and AA once there is clarity on a plan. This should include how the plan will protect wild places, natural and cultural heritage and landscape.
Proposed SEA Mitigation Measures: ▪ **NSO2.2:** The AEC plan should undergo SEA and AA once there is clarity on a plan. This should include how the plan will protect wild places, natural and cultural heritage and landscape.

Table 8.11 – National Strategic Outcome: High Quality International Connectivity

NSO3.1	*Airports*
The development of additional runway and terminal facilities such as the second runway for Dublin Airport for which planning permission has been approved;	
Enhancing land-side access and particularly in public transport terms such as the Metro-North project in Dublin; and	
Careful land-use management of land side areas to focus on the current and future needs of the airports.	
NSO3.2	***Ports***
Improve land transport connections to the major ports including:	
Facilitating the growth of Dublin Port through greater efficiency, limited expansion into Dublin Harbour and improved road access, particularly to/from the southern port area.	
Enhancing road connectivity to Shannon-Foynes Port, including local bypasses.	
Improving access to Ringaskiddy Port	

NSO	PHH	BFF	S	W	AQ	CF	MA	CH	L
NSO3.1	+/-	+/-	+/-	+/-	-	-	+	+/-	+/-
NSO3.2	+/-	+/-	+/-	+/-	0/-	0/-	+	+/-	+/-

PHH – Population and Human Health; BFF – Biodiversity, Flora and Fauna; S – Soils; W – Water; AQ – Air Quality; CF – Climatic Factors; MA – Material Assets; CH – Cultural Heritage; L– Landscape.

Discussion
NSO3.1 addresses airport policy in Ireland. Ireland is an island nation and has a significant dependency on air connections to and from the country. Dublin Airport is the principal gateway to Ireland and this is supported by regional airports at Waterford, Cork, Shannon, Kerry, Knock and Donegal. There are also 2 airports in Northern Ireland: Belfast City and Belfast International. Eighty five percent of all air traffic to and from the Republic of Ireland passed through Dublin Airport in 2016 with passenger traffic reaching 25 million in 2015. In 2007 Dublin airport secured planning permission for a new parallel runway at Dublin Airport and construction commenced in Q4 2016. A new Terminal 2 opened in 2010 which increased the total permitted passenger capacity at Dublin Airport, combined between Terminal 1 and 2, to 32 million passengers per annum. While such developments bring obvious positive benefits in terms of investment, economics and employment, development of airports in any location have significant potential for negative impacts. These include potential long-term direct negative impacts for PHH from increased aviation noise and air emissions from over flying aircraft and those in the landing and take-off cycle, increased ground noise, air emissions and disturbance from passenger's cars. Aviation-related emissions have been shown to increase potential for a number of diseases and this has to be considered in terms of ongoing plans for expansion and intensification for all Ireland's Airports. Significant land use change is also a factor as is run-off and pollution of watercourses and soils from airfield infrastructure e.g. from de-icing of planes. It is noted that the Public Safety Zones (PSZ) shown in relation to Dublin airport have not been formally adopted at a national level however they are included in the Fingal Development Plan. An update of the PSZ to include the new parallel runway is required. Furthermore the role of the Irish Aviation Authority in relation to regulation at Irish Airports is needed. International aviation is a major source of greenhouse gas emissions and as such any intensification or expansion of airport activities has the potential for long-term negative impacts in terms of climate. It is noted that international aviation is covered under the EU Emissions Trading Scheme. **NSO3.2** deals with ports policy with a focus on Tier 1 ports of international significance. Tier 1 ports include Dublin Port, Port of Cork and Shannon Foynes Port. Improvement and enhancement of these ports has the potential for long-term positive impact for P and MA as they offer investment and employment opportunities. However provision of port capacity also has potential for negative impacts on the wider receiving environment. There is potential for negative impacts on BFF, W and S as a result of construction noise and vibration and long-term negative impacts from ongoing operational noise and lighting. It is noted that all of the Tier 1 Ports are located within/ adjacent to European sites and as such have the potential to impact on associated qualifying interests. Any plans to facilitate growth must only be considered in the context of avoiding impacts to these European sites. Redevelopment and expansion of port areas also includes the risk of potential to liberate/ mobilise hazardous or contaminated material from port area and dredge spoil with consequent negative impacts for W, S and indirectly for BFF. While the references in **NISO3.2** relating to improved access are considered positive for PHH and MA, particularly where port traffic can avoid residential areas it is focussed on road transport only. The provision of additional road space does not offer an integrated long-term sustainable solution in terms of climate mitigation/ adaptation as it does not address modal shift of freight or passenger traffic to rail. There has been a move away from integration of ship and rail in Ireland.
Proposed SEA Mitigation Measures: ▪ **NSO3.1:** Official Public Health and Safety Zones should be developed for each of Irelands airports. These zones should adequately address protection of human health in terms of hazard, noise, air emissions etc. with associated restrictions on land use in the areas and should be adopted into the relevant regional and county planning. ▪ **NSO3.1:** The National Aviation Policy should be amended to require all relevant airports to undertake SEA and AA of their masterplans. ▪ **NSO3.2:** This policy should include consideration of rail alternatives to road-based land transport connections at Tier 1 and Tier 2 ports in Ireland.

Table 8.12 – National Strategic Outcome: Sustainable Mobility

NSO4	*Public Transport*
Develop attractive public transport alternatives to car transport, to reduce congestion and emissions and enabling the transport sector to cater for the demands associated with longer term population and	

NSO4	*Public Transport*
employment growth in a sustainable manner through the following measures:	
To strengthen public transport connectivity between cities and large growth towns in Ireland and Northern Ireland with improved services and reliable journey times;	
Deliver the key public transport objectives of the Transport Strategy for the Greater Dublin Area 2016-2035 by investing in projects such as New Metro North, DART Underground Programme, BusConnects in Dublin and key bus based projects in the other cities and towns;	
Provide public transport infrastructure and services to meet the needs of smaller towns, villages and rural areas;	
Develop a comprehensive network of safe cycling routes in metropolitan areas to address travel needs and to provide similar facilities in towns and villages where appropriate.	

NSO	PHH	BFF	S	W	AQ	CF	MA	CH	L
NSO4	+	+/-	+/-	+/-	+	+	+	+/-	+/-

PHH – Population and Human Health; BFF – Biodiversity, Flora and Fauna; S – Soils; W – Water; AQ – Air Quality; CF – Climatic Factors; MA – Material Assets; CH – Cultural Heritage; L– Landscape.

Discussion
NSO4 is seen as broadly positive as it is focussed on investment in public transport options. A modal shift from car to public transport has significant direct and indirect positive impacts for PHH, AQ and C in particular with reduced transport-related emissions such as NO_x and greenhouse gases. It is acknowledged that the construction of any linear transport has inherent potential for negative impacts on BFF, CH, L, S and W in particular as a result of short-term temporary construction related impacts and longer-term permanent operational impacts. These are best dealt with through robust route selection and environmental assessment (EIA and AA) at the project level. As committed to in **Chapter 10** of the NPF, all projects requiring development consent emanating from the framework will be subject to the requirements of EIA and AA.
Proposed SEA Mitigation Measures: ▪ None identified.

Table 8.13 – National Strategic Outcome: A Strong Digital Economy

NSO5	*Communications*
Implementation of the National Broadband Plan.	
Enhancing international fibre communications links including full interconnections between the fibre networks in Northern Ireland and the Republic of Ireland;	
Promotion of Ireland as a sustainable international destination for ICT infrastructure such as data storage and associated economic activities;	
Promoting our cities as demonstrators of 5G information and communications technology.	

NSO	PHH	BFF	S	W	AQ	CF	MA	CH	L
NSO5	+	0/-	0/-	0/-	+	+	+	0/-	0/-

PHH – Population and Human Health; BFF – Biodiversity, Flora and Fauna; S – Soils; W – Water; AQ – Air Quality; CF – Climatic Factors; MA – Material Assets; CH – Cultural Heritage; L– Landscape.

Discussion
A key aspect of the NPF is the delivery of broadband nationally and the continued upgrade of Irelands ICT offering and this is addressed in **NSO5**. The National Broadband Pan is in preparation and roll out is anticipated from 2018 onwards. An SEA and NIS are being prepared to inform that plan. This development will have direct long term positive impacts for PHH and MA in particular as a driver of economy outside existing cites where broadband has been commercially available up to now. Service levels of existing

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broadband are also likely to increase. This measure alone will assist in access by the wider population to education, health and employment resources that may not have been possible to this point. The provision of ICT architecture requires laying/ stringing of cables, provision of pole sets and masts and supporting infrastructure. All such activities have potential to have direct negative impacts to BFF, W, S, L and CH as a result of construction practices e.g. trimming of hedgerows, disturbance of soils leading to sediment loss, erection of masts in bird sensitive areas etc. It must be noted that some of these operations fall under exempt development and as such an EIA or AA process may not be applied to the works. It is therefore recommended that guidelines be developed in conjunction with Department of Culture, Heritage and the Gaeltacht and Department of Rural and Community Development to ensure the interests of BFF, CH and L are addressed in delivery of this vital infrastructure.
Proposed SEA Mitigation Measures: ▪ **NSO5:** Guidelines should be developed to support an assist the efficient roll out and delivery of national broadband.

Table 8.14 – National Strategic Outcome: Empowered Rural Communities

NSO6	*Rural Development*
Implementation of actions outlined in the Action Plan for Rural Development;	
Progressive development of rural broadband under the National Broadband Plan;	
Implementation of a targeted smart growth initiative to enable opportunities to secure the regeneration and re-purposing of rural towns and villages weakened by the structural changes in rural economies and settlement patterns;	
Investment in maintaining regional and local roads and strategic road improvement projects in rural areas to ensure access to critical services such as education, healthcare and employment.	
Investment in greenways and blue ways as part of a nationally coordinated strategy.	
Ongoing support through a well-funded Common Agricultural Policy for the Agri-Food sector.	

NSO	PHH	BFF	S	W	AQ	CF	MA	CH	L
NSO6	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-

PHH – Population and Human Health; BFF – Biodiversity, Flora and Fauna; S – Soils; W – Water; AQ – Air Quality; CF – Climatic Factors; MA – Material Assets; CH – Cultural Heritage; L– Landscape.

Discussion
NSO6 relates to maintaining connectivity in rural locations, which is challenging given the dispersed nature of housing outside town and village boundaries. Initiatives such as the Rural Transport Network for example, have been established which includes seventeen Local Link offices managing approximately 1,000 Public Bus Services in local and rural areas of Ireland[68] using a combination of scheduled services and door to door service. Improving rural transport provides direct and indirect long-term positive impacts partially for PHH by ensuring social connectivity in rural locations. There are also positive impacts for AQ and C as such services may reduce dependency on private car although it is acknowledged that many users of such services may not have access to a private car and the service is more focused on need than choice. International examples of rural and exurban transport approaches show enhancements can be achieved through more coordination on timetabling to grow networks of services at key hub points within an overlapping transport system. It seeks to improve social inclusion by ensuring lifeline routes are identified for more remote parts of Ireland. Identification of such routes will have broadly positive indirect medium to long-term impacts for PHH. The policy is based on maintenance of the road network, particularly in circumstances where the cost benefit ratio may not be immediately obvious using existing assessment methodologies. There may therefore be a parallel

[68] https://www.nationaltransport.ie/public-transport-services/rural-transport-programme/

Discussion
need to adjust assessment methodologies to reflect priorities that are currently not prioritised. Furthermore the policy points specifically to the road network as the lifeline however it is noted that to be effective other networks also need to be established to compliment the road network including access to broadband for social and educational inputs, satellite education and health services etc. As such the policy would be stronger if it referred to a cross-sectoral integrated policy approach. The development of blue ways and greenways is directly positive for PHH, MA, AQ and CF, through the provision of walking and cycling routes that can contribute to reduced emissions on the environment. However with linear infrastructure there is potential for both direct and indirect negative impacts on PHH, BFF, W, S, CH and L through loss or sterilisation of greenfield lands and permanent visual impacts. As with any type of development, especially in the rural areas there is potential for negative impacts on PHH, BFF, W, CH and L, depending on the sensitivity of the natural environment.
Proposed SEA Mitigation Measures: ▪ **NSO6:** The Action Plan for Rural Development has not been subject to SEA and AA and as such this plan should be reviewed. ▪ **NSO6:** In order to better address inter-regional connectivity a parallel NPO which addresses the need to promote use of electric vehicles as a way to tackle connectivity and climate should be considered.

Table 8.15 – National Strategic Outcome: Enhanced Urban Amenity

NSO7	*Green Networks and Infrastructure*
Metropolitan Area Strategic Plans will be required to include a metropolitan parks and amenity strategy;	
Implementation of planning and transport Strategies for the five cities and other urban areas will be progressed with a major focus on improving walking and cycling routes including continuous urban greenway networks and targeted measures to enhance permeability and connectivity.	
Smart Growth initiatives will seek to encourage transformational public realm initiatives to give city and town centre areas back to citizens, encouraging greater city and town centre living, enhanced recreational spaces and attractiveness from a cultural, tourism and promotional perspective;	
Strategies to further support urban active travel will be developed and implemented.	

NSO	PHH	BFF	S	W	AQ	CF	MA	CH	L
NSO7	+	0/-	0/-	0/-	+	+	+	0/-	0/-

PHH – Population and Human Health; BFF – Biodiversity, Flora and Fauna; S – Soils; W – Water; AQ – Air Quality; CF – Climatic Factors; MA – Material Assets; CH – Cultural Heritage; L– Landscape.

Discussion
NSO7 will be directly positive for PHH and MA as it is focused on green infrastructure. The focus on ensuring that city and towns include more green spaces is of direct benefit to AQ and CF along with a major focus towards walking and cycling. Any transport strategy will have to consider the environmental impacts of linear infrastructure and as there is potential for both direct and indirect negative impacts on PHH, BFF, W, S, CH and L through loss or sterilisation of greenfield lands and permanent visual impacts. As with any type of development, there is potential for negative impacts on PHH, BFF, W, CH and L, depending on the sensitivity of the natural environment.
Proposed SEA Mitigation Measures: ▪ None identified.

Table 8.16 – National Strategic Outcome: Transition to Sustainable Energy

NSO8	*Green Energy*
Deliver 40% of our electricity needs from renewable sources by 2020 with a strategic aim of in excess of 50% by 2030 and more by 2040 and beyond using wind, wave, solar, biomass and hydro sources.	
Reinforce the existing transmission network in the west to facilitate planned growth and the transfer of renewable energy generated to the major demand centres in the east.	
Strengthen energy security and resilience to support an island population of 8 million people through effective north-south electricity grid interconnection as well exploring other interconnection options in the longer term to 2040 such the 'Celtic Interconnector' with France.	
Consideration of carbon neutral electricity generation that would be facilitated through harnessing carbon capture and storage (CCS), using the Kinsale Head Gas Field.	
National Interconnector (Subsea Ring around Ireland (provides connection to EU via the proposed Celtic Interconnector) or other solutions offer the potential to connect Ireland to the EU electricity grid System.	
Roll out of the National Smart Grid Plan enabling new connections, grid balancing, energy management and micro grid development.	

NSO	PHH	BFF	S	W	AQ	CF	MA	CH	L
NSO8	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-

PHH – Population and Human Health; BFF – Biodiversity, Flora and Fauna; S – Soils; W – Water; AQ – Air Quality; CF – Climatic Factors; MA – Material Assets; CH – Cultural Heritage; L– Landscape.

Discussion

Energy security is the subject of **NSO8**. While Ireland has an abundance of renewable energy options from onshore and offshore wind farms as well as wave and tidal, the storage and distribution of the energy generated from these sources is a significant challenge. The policy is broadly positive for PHH and MA in particular as it provides medium to long-term comfort of national energy security. However, recent projects in relation to grid development have raised significant social and environmental concerns relating to PHH and L in particular as well as BFF depending on routing and use of overhead lines versus underground cables. Key issues for offshore grid include disturbance of BFF, disturbance of sediments, changes to coastal processes, water quality, and potential conflicts with marine industries such as fishing and oil/ gas. Many of the associated impacts are short term and relate to the laying of cables however longer-term exclusion/safety zones may apply and cables are at risk from damage from other marine users.

In relation to proposed renewable/ non-renewable energy generation and distribution in general; the usual planning development controls remain and all infrastructural developments will be subject to the appropriate planning development controls. This will be in line with relevant environmental legislation and regulatory processes, with Screening for Appropriate Assessment and/ or Appropriate Assessment being required at a project level, as well as other environmental assessments such as SEA and EIA. This will ensure that the potential likely significant effects of any proposal are considered and ensure no adverse effects on the integrity of European Sites.

Proposed SEA Mitigation Measures:

- **NSO8:** A review of the capacity of the electric charging infrastructure across Ireland to ensure that Ireland's '*ambition that that all new cars and vans sold in this country from 2030 will be zero emission (or zero emission capable*[69]*)* is achieved.

[69] National Policy Framework on Alternative Fuels Infrastructure for Transport in Ireland

Table 8.17 – National Strategic Outcome: Sustainable Management of Water and Other Environmental Resources

NSO9.1	*Water*
Coordinate the core objectives of the EU Flood Directive and Water Framework Directive implementation and statutory plans across the planning hierarchy, including national guidance on the relationship between the planning system and river basin management. Local authorities, DHPLG, OPW and other relevant Departments and agencies will work together to implement the recommendation of the CFRAM programme to ensure that flood risk management policies and infrastructure are progressively implemented.	
Eliminate untreated discharges from settlements in the short term, while planning strategically for long term growth in tandem with Ireland 2040;	
Development of a new rural settlement approach coordinating Irish Water, local authority, developer and community led solutions to ensuring that sustainable water services solutions are progressively implemented.	
A new long term water supply source for the Eastern and Midland Region, which includes the Dublin Water Supply Area (DWSA), is needed by the mid-2020s, to provide for projected growth up to 2050 and contribute to resilience and security of supply for the region. This requires infrastructure provision to be guided and prioritised in a manner that can benefit the greatest number of areas within the country possible;	
Implement the Greater Dublin Strategic Drainage Study, through enlarging capacity in existing wastewater treatment plants (Ringsend) and providing a new treatment plant in North County Dublin - known as the Greater Dublin Drainage Project (GDD) Project;	
Improve storm water infrastructure to improve sustainable drainage and reduce the risk of flooding in the urban environment	
Increase compliance with the requirements of the Urban WW Directive from 39% today to 90% by the end of 2021, to 99% by 2027 and to 100% by 2040.	
Reduce leakage, increasing water supply available for customers without creating further demand for capital investment in new water treatment capacity.	
NSO9.2	***Waste***
RSESs and the core strategies of MASPs and city and county plans will support national and regional waste policy and efficient use of resources;	
District heating networks will be developed where technically feasible to assist in meeting renewable heat targets and reduce Ireland's GHG emissions;	
Development of necessary and appropriate hazardous waste management facilities to avoid the need for treatment elsewhere.	

NSO	PHH	BFF	S	W	AQ	CF	MA	CH	L
NSO9.1	+	+	+	+	0	0	+	+	+
NSO9.2	+/-	+/-	+/-	+/-	+/-	+/-	+	+/-	+/-

PHH – Population and Human Health; BFF – Biodiversity, Flora and Fauna; S – Soils; W – Water; AQ – Air Quality; CF – Climatic Factors; MA – Material Assets; CH – Cultural Heritage; L– Landscape.

Discussion

NSO9.1 addresses water resources in Ireland both in terms of quantity and quality. Significantly, the DHPLG is now preparing the second cycle River Basin Management Plan (RBMP) which is due to be adopted in Q4 2017. This is undergoing separate SEA and AA which has influenced the policies and actions which will be included in the final RBMP.

NSO9.2 is aligned with national waste planning and the policy should have specific regard to the mitigation measures included in the three Regional Waste Management Plans, published in 2015. The policy is broadly positive, as it acknowledges the need for a coordinated and orderly response to waste management, flowing from national to regional and city level. Furthermore the policy acknowledges the need for national hazardous waste capacity to ensure that Ireland's waste does not have to be shipped internationally for disposal in suitable facilities. The provision of national capacity has potential for long-term passive effects on PHH, AQ and C as well as MA. However, the policy focuses on the development of hazardous waste management and

Discussion
the development of facilities which could impact on citizens and the natural environment depending on the chosen location(s).
Proposed SEA Mitigation Measures: ▪ **NSO9.2:** Specific regard to the mitigation measures included in the three Regional Waste Management Plans (2015) and the National Hazardous Waste Management Plan.

Table 8.18 – National Strategic Outcome: Access to Quality Health, Education and Community Services

NSO10.1	*Education*
The provision of additional investment in the schools sector is required to keep pace with demographic demand and to manage increasing building and site costs. Provision of new and refurbished schools on well-located sites within or close to existing built-up areas, to meet demographic growth and the diverse needs of local populations;	
The expansion and consolidation of third level facilities at locations where this will further strengthen the capacity of those institutions to deliver the talent necessary to drive economic and social development in the regions. The consolidation of the DIT campus at Grangegorman is a critical flagship infrastructural project for the higher education sector;	
Investment in higher and further education and training will be a key driver of Ireland's competitiveness. The development of programmes for life-long learning, especially in areas of education and training where skills gaps are identified by employers and the further and higher education and training system working together through Regional Skills Fora in responding to the skills needs of their regions.	
NSO10.2	***Health***
Acute Hospital Services *Delivering improved acute hospital services through the implementation of strategies and policies such as the National Maternity Strategy and the National Cancer Control Programme, and a wide range of programmes and projects including:* ▪ *Paediatric strategy to provide a national paediatric healthcare service through the construction of the new National Children's Hospital and associated satellite care units* ▪ *Maternity strategy including co-location of the National Maternity Hospital and other standalone maternity hospitals to acute hospital campuses* ▪ *Building additional capacity in line with identified service needs* ▪ *Reconfiguration of acute services within hospital groups* ▪ *Expansion of the Ambulance fleet and expanded ambulance bases* ▪ *National Cancer Control Programme – provision of oncology day units on a national basis*	
Healthcare Services in the Community *Facilitating the transformation of healthcare delivery by increasing the capacity of primary care, including:* ▪ *Provision of primary care centres on a national basis to match population changes including new builds and refurbishments of existing buildings* ▪ *Expansion of community diagnostics and minor surgery*	
Integrated Health and Social Care Services *Facilitate the transition of people across services, providing multi-disciplinary care at the lowest level of complexity close to where people live. Focus on improving access to primary and community care services, including:* *Mental Health – A Vision for Change* ▪ *Development of the National Forensic Mental Health Services Hospital* ▪ *Replacement and provision of additional Mental Health Units, Residential accommodation on a national basis*	

- *Disability services*
- *Redevelopment of the National Rehabilitation Hospital and establishment of Disability Rehabilitation Centres across the country*
- *Provision of Day Hospitals/Day care centres as part of Neuro strategy*
- *Reconfiguration of existing residential care facilities and support people with disabilities to live more independently away from congregated settings*
- *Services for Older People*
- *Replacement and upgrade of 90 Community Nursing Units and provision of additional step-down and long-stay accommodation*

NSO	PHH	BFF	S	W	AQ	CF	MA	CH	L
NSO10.1	+	0	0	0	0	0	+	0	0
NSO10.2	+	0/-	0/-	0/-	0	0	+	0/-	0/-

PHH – Population and Human Health; BFF – Biodiversity, Flora and Fauna; S – Soils; W – Water; AQ – Air Quality; CF – Climatic Factors; MA – Material Assets; CH – Cultural Heritage; L– Landscape.

Discussion

The provision of education in **NSO10.1** is directly positive for PHH allowing future populations with access to knowledge. The focus on reutilisation of buildings will be directly positive for MA ensuring that all possible buildings are properly utilised before building more facilities. To develop the third level sector and promote greater collaboration is directly positive for PHH and as the population is predicted to expand we need to ensure that we have well educated individuals.

NSO10.2 is focused on specific areas of health care including acute hospital services, healthcare in the community and integrated health and social care. The development of such facilities, including the National Children's Hospital, National Maternity Hospital and a National Forensic Mental are directly positive to PHH and MA ensuring that Ireland has the necessary infrastructure to deal with our current and future citizen's health. The development of infrastructure has the potential to impact on the environment and could be potentially negative for BFF, S, W, CH and L, however many of these facilities have or will be subject to planning processes that include protection of the environment. The policy is focused on the future and it is recognised that healthcare services for older people are required to ensure adequate care for an ageing population.

Proposed SEA Mitigation Measures:

- None identified.

8.3.9 Policy Area – Assessing Environmental Impact (Chapter 10)

Table 8.19 – Integrating Environmental Considerations into the Planning System

	Integrating Environmental Considerations into the Planning System
NPO70	*Ensure that all plans, projects and activities requiring consent arising from the National Planning Framework are subject to the relevant environmental assessment requirements including SEA, EIA and AA as appropriate.*

NPO	PHH	BFF	S	W	AQ	CF	MA	CH	L
NPO70	+	+	+	+	+	+	+	+	+

PHH – Population and Human Health; BFF – Biodiversity, Flora and Fauna; S – Soils; W – Water; AQ – Air Quality; CF – Climatic Factors; MA – Material Assets; CH – Cultural Heritage; L– Landscape.

Discussion

NPO70 is directly positive for the environment as it ensures that at all stages of plans and projects that the

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environment is central to decision making.
Proposed SEA Mitigation Measures: ▪ None required.

8.3.10 Cumulative Impacts

Broadly speaking cumulative impacts at the plan level can occur from two sources as follows:

- Interaction of measures within the NPF; and
- Interaction from policies and proposals in other related plans, programmes and policies.

Interaction of Measures within the Draft NPF

Cumulative environmental benefits are anticipated from the combined actions (policy objectives) proposed within the draft NPF. These actions are expected to materialise over the plan period and beyond. As might be anticipated the greatest cumulative benefit should be in relation to Population and Human Health, as the objectives proposed emphasise coordinated spatial planning, balanced growth and consolidation/ densification of existing built-up areas, both urban and rural. This positive approach to planning represents forward-thinking for people, places and services. Consolidation will also bring positive cumulative impacts to air quality and climate from increased sustainable transport access.

It is acknowledged that even with a high level of consolidation, e.g. through brownfield and infill development, that there will remain a need for greenfield development. As such there is potential for cumulative negative impacts on receptors such as biodiversity, water, soils, cultural heritage and landscape. There is also a need for the phasing of future development to ensure that services are in place in advance of, or rolled out in tandem with, the development of both brownfield and greenfield lands.

The anticipated cumulative impacts associated with the policy objectives proposed in the draft NPF are summarised below.

Population and Human Health: Cumulative impacts to PHH will be primarily related to the effects of population growth and the environmental impacts resultant from the development needed to sustain a growing population. Through the increase of population within the targeted cities and towns on average at a rate of 50-60%, there is potential for negative cumulative impacts; however the NPF focuses on sustainable planned expansion and densification in suitable areas i.e. brownfield sites and urban areas. Increased growth may place additional demand on existing water and wastewater services which may be at or over capacity; as such water services should be delivered on a phased basis to match projected demand. Improving connectivity through better transport links will have broadly positive environmental impacts and lead to increased employment opportunities.

There is potential for overall positive cumulative effects in towns in rural areas due to planned focused growth within the towns while also maintaining population and services within the rural areas. The use of a Housing Needs Assessment Tool and the need to provide a functional economic need for housing in the countryside will have a positive cumulative effect in reducing the number of

one-off dwellings within the countryside in the long-term. The NPF also recognises that citizen needs change over time, and that housing and services will need to be modified to suit these needs; this will have an overall positive impact for PHH and MA.

***Biodiversity Flora and Fauna**:* There are broadly neutral to negative cumulative impacts for BFF. Increased population and development may increase pressures from human activities, in terms of housing provision, infrastructure development and demands on water supply and wastewater treatment, leading to the potential for direct and indirect negative impacts on BFF. The key impacts relate to land use change (particularly loss of greenfield), habitat loss/ fragmentation, loss of or disturbance to species, and spread of invasive species. Development in marine areas can have further positive and negative effects to BFF as development may permanently remove or physically alter habitats ad hydrodynamics, however artificial marine structures also can provide new habitats. There is also potential for impact on the natural environment should services, such as water/ wastewater and transport not be phased to match projected demand. The key potential negative impacts from a lack of services will be on W and BFF through non-compliance with the requirements of the Water Framework Directive.

Soils: Potential for cumulative impacts as a result of a proportion of future development occurring outside existing settlement envelopes, as well as the loss of greenfield to future development and infrastructure provision. The objectives which emphasise the use of brownfield and infill in urban areas to service future housing demand means there is the potential to generate significant levels of contaminated materials.

Water: Due to the projected levels of population growth, there may be negative impacts to W due to additional demand on water supply and wastewater services which may be at capacity in some areas, or have limited or no treatment. Water and wastewater services should be delivered on a phased basis to match projected demand.

From the marine side, the goals of Harnessing Our Ocean Wealth (HOOW) seek the sustainable development of Ireland's marine economy and are compatible with the policy objectives of the NPF. However, increased economic activity occurring across a number of sectors, both terrestrially and offshore, will result in increased pressures from human activities and the potential for cumulative negative impacts. For instance, on the terrestrial side there will be intensification of agriculture and increased wastewater demand and discharge, some of which will be to the marine environment. Continued development, including ports and exploitation of offshore resources will also lead to increased competition for space in the marine environment.

The potential for cumulative impacts is greatly increased once consideration is given to the requirements of related environmental legislation (e.g. WFD, MSFD, UWWD etc.), and other obligations to international organisations such as OSPAR and MARPOL. Maritime Spatial Planning (MSP) will also play an important role in the environmental impacts on our maritime areas and the environment's assimilative capacity from developments resulting directly or indirectly from the NPF and HOOW. The redevelopment of ports could have negative cumulative impacts in terms of the resultant increase in shipping and tourism in Irish waters, which will increase the number of sources of pollution e.g. emissions to air, wastewater and litter. Under adaptation measures to combat climate change, cumulative impacts to water may arise from the implementation of coastal protection measures, such as changing or redirecting coastal processes.

Air Quality and Climatic Factors: The focus on road transport has the potential to impact negatively on AQ and C as well as PHH and BFF. The EPA has reported that between 1990 and 2015, the transport sector showed the greatest overall increase in GHG emissions per sector (at 130.3%). Although decreasing for a period after 2007, primarily due to the economic downturn, improving vehicle standards and the increase use in biofuels, more recent trends are showing an increase. In addition, the share of petrol to diesel cars has significantly changed over the last decade as a result of incentives to use fuel with less GHG emissions however it is now widely understood that this shift has had an unforeseen consequence in terms of AQ and HH with more NO_x and particulates emitted from diesel. However policies relating to electrification of the transport sector and continued uptake of renewable energy have positive cumulative impacts for AQ and CF, provided the increased demand on the transport and electricity generating sectors is offset by uptake of energy generated from renewable sources.

Material Assets: Whilst the provision of 550,000 additional households up to 2040 is positive for PHH, the associated infrastructure and services will have to be developed in both a local and a strategic manner to ensure that environmental protection and enhancement policies are adhered to and reduce cumulative impacts on the natural environment. Smart Growth investment has the potential for significant positive cumulative impacts by ensuring a more efficient network of transport links for both the private and commercial stakeholder. A more efficient network will have the potential to attract inward investment with knock-on positive effects for PHH and MA. However it is noted that transport provision whether airports, rail or road have potential for negative impacts at both the local level (site-specific issues and temporary construction impacts) and also at a wider scale e.g. transport-related emissions, particularly NO_x, SO_x, particulates and GHGs).

There are overall long-term positive cumulative effects due to improved transport connectivity, access to alternative modes, public transport in the cities, as well as improved employment and housing opportunities within the cities and an improved living environment. The encouragement of walking and cycling as alternative modes are also positive for PHH, AQ and CF. There is potential for cumulative negative effects should a number of projects proceed at the same time. Expansion of airport activities can also elicit potential negative cumulative impacts to communities in the vicinity of Dublin Airport.

Cultural Heritage and Landscape*:* The measures proposed in the draft NPF could have a cumulative negative impact on both cultural heritage and landscape as a result of land use change, new infrastructure and loss of greenfield to development. Sensitive siting and consideration of the wider environment prior to siting new infrastructure will greatly reduce this potential cumulative impact.

Interaction from Policies and Proposals in Other Related Plans

There are a number of key national policies which have the potential to result in cumulative impact (both positive and negative) on the receiving environment with the NPF. The most noteworthy of these are policies relating to land use planning and the built environment, transport, services (e.g. water and wastewater), climate and maritime spatial planning. These can positively contribute to achieving the objectives laid out in the draft NPF if implemented in a holistic, phased and coordinated. Critical to this is the linking of national policy with lower level planning hierarchies, such as the RSESs and CDPs, so that issues can be evaluated from both the local and strategic regional perspectives. **Chapter 4** outlines other plans and programmes with relevance to the draft NPF and which could have a cumulative impacts with the objectives and actions proposed.

9 MITIGATION AND MONITORING

9.1 INTRODUCTION

Article 10 of the SEA Directive requires that monitoring should be carried out in order to identify at an early stage any unforeseen adverse effects due to implementation of the draft NPF, with the view to taking remedial action where adverse effects are identified through monitoring. A monitoring programme is developed based on the indicators selected to track progress towards achieving strategic environmental objectives (SEOs) and reaching targets, enabling positive and negative impacts on the environment to be measured. The environmental indicators have been developed to show changes that would, as far as possible, be attributable to implementation of the draft NPF.

9.2 SOURCES OF INFORMATION FOR MONITORING

Monitoring will focus on aspects of the environment that are likely to be significantly impacted by the draft NPF. Where possible indicators have been chosen based on the availability of the necessary information and the degree to which the data will allow the target to be linked directly with the implementation of the draft NPF. **Table 9.4** presents the Environmental Monitoring Programme to track progress towards achieving SEOs and reaching targets, and includes sources of relevant information. This follows on from the objectives, targets and indicators presented in **Chapter 6**. From **Table 9.4** it can be seen that the majority of information required is already being actively collected (under various other plans and other programmes), but not all of this is being gathered and reported on at a national level.

9.3 MITIGATION MEASURES AND RECOMMENDATIONS

The Environmental Report has highlighted the more significant potential positive and negative environmental impacts from the implementation of the draft NPF (including cumulative impacts). It has also had regard to the assessment work carried out to inform the Appropriate Assessment and Strategic Flood Risk Assessment of the draft NPF. The mitigation measures, presented in **Table 9.1, Table 9.2** and **Table 9.3** have been identified to reduce the negative impacts identified. A number of the mitigation measures have been included in the draft NPF and the remaining are for discussion during the consultation period.

Table 9.1 – Proposed SEA Mitigation Measures Relating to Assessment of Policies (see Chapter 8)

Reference	Proposed Mitigation Measure
Chpt 2 A New Way Forward	**NPO1b:** It is recognised that NPO66, in Chapter 9 of the NPF outlines that zoned land for development purposes needs to estimate the full cost for delivery of associated services but there is a direct need to have a national policy objective that outlines the recognition that future housing development in Ireland needs to be aligned with the phasing of services, in particular water, wastewater and transport.
	NPO3c: There is a requirement for a specific policy objective that recognises the environmental issues associated with brownfield development and outlines measures to deal with hazardous material.
	General Mitigation: As part of the RSES, there will be a requirement to review the land area available to accommodate the additional people in each region ensuring that consideration of environmental sensitivities is incorporated within the review process.
	General Mitigation: The EPA-funded Environmental Sensitivity Mapping (ESM) Webtool

Reference	Proposed Mitigation Measure
	which has been used in the assessment of the NPF will be applied at the lower tiers of planning to inform planning decisions in terms of zoning and provision of services. Future plans e.g. RSESs and CDPs, should look to investigate the potential application of the Webtool to strategically inform integrated land use management to better address cumulative analysis of impacts on the environment.
	General Mitigation: The RSES's will develop a regional strategic infrastructure and services map to inform the Actions in Chapter 9 in relation to Coordinating Land Use Zoning, Infrastructure and Services.
	General Mitigation: The scope and role of the RSESs as part of a tiered planning structure needs to be defined.
Chpt 3 Making Stronger Urban Places	**NPO7a:** The development of Guiding Principles for Smart Growth Urban and Rural.
	NPO 9a and 9b: Consider undertaking a feasibility study to accompany the decision-making with regards to strategic employment growth which acknowledges that different urban areas will be able to accommodate different employment and infrastructure types. The Environmental Sensitivity Mapping Webtool should be utilised to support such a study.
	NPO10: Many existing urban areas already located in close proximity to European Sites. Overall while densification of the existing urban space is desirable, any urban growth and development should be supported by a quality site selection process that addresses environmental concerns such as landscape, cultural heritage and biodiversity as a minimum. The Environmental Sensitivity Mapping WebTool should be utilised to support such a study.
	NPO12: Should a land management agency be set up, its scope and responsibilities should be clearly outlined.
	General Mitigation: Regional Assemblies together with Local Authorities shall develop an inventory to identify the quantum of infill/ brownfield lands to facilitate delivery of the Framework as part of a wider contained growth strategy.
Chpt 3 Growth Enablers Dublin	**D1, D2, D3 and D5:** Identification of suitable sites for regeneration and development should be supported by a quality site selection process that addresses environmental concerns such as landscape, cultural heritage and biodiversity as a minimum. Siting guidelines need to be developed and incorporated within the NPF as a policy objective requirement.
	D8: Consideration needs to be given to alternative options allowing for potential delays in the planning system.
	D11: From the AA perspective, this policy requires a commitment to feasibility and route selection studies for cycleways with a view to identifying and subsequently avoiding high sensitivity feeding or nesting points for birds.
	D14: Harbour and port development needs a specific policy that deals with brownfield/contaminated land issues.
Chpt 3 Growth Enablers Cork	**C1:** Dock development and Seveso site relocation needs a specific policy that deals with brownfield/contaminated land issues.
	C1, C2 and C3: Identification of suitable sites for regeneration and development should be supported by a quality site selection process that addresses environmental concerns such as landscape, cultural heritage and biodiversity as a minimum. Siting guidelines need to be developed and incorporated within the NPF as a policy objective requirement.
	C9: This policy should consider alternative options to road-based transport, which may include enhanced public transport options.
	General Mitigation: Consider including Dublin Policies D8 and D9 for Cork also: *Ensuring that water supply and waste-water needs are met by new projects to enhance water supply and increase waste water treatment capacity.* *Improving sustainability in terms of energy, waste and water, to include district heating and water conservation.*
Chpt 3 Growth Enablers Limerick	**L2, L3, L4 and L6:** Identification of suitable sites for regeneration and development should be supported by a quality site selection process that addresses environmental concerns such as landscape, cultural heritage and biodiversity as a minimum. Siting guidelines need to be developed and incorporated within the NPF as a policy objective requirement.
	L3: Dock development needs a specific policy that deals with brownfield/contaminated land

Reference	Proposed Mitigation Measure
	issues.
	L9: From the AA perspective, this policy requires a commitment to feasibility and route selection studies for cycleways with a view to identifying and subsequently avoiding high sensitivity feeding or nesting points for birds.
	General Mitigation: Consider including Dublin Policies D8 and D9 for Limerick also: Ensuring that water supply and waste-water needs are met by new projects to enhance water supply and increase waste water treatment capacity. Improving sustainability in terms of energy, waste and water, to include district heating and water conservation.
Chpt 3 Growth Enablers Galway	**G1:** Harbour/port development needs a specific policy that deals with brownfield/contaminated land issues.
	G1, G2 and G3: Identification of suitable sites for regeneration and development should be supported by a quality site selection process that addresses environmental concerns such as landscape, cultural heritage and biodiversity as a minimum. Siting guidelines need to be developed and incorporated within the NPF as a policy objective requirement.
	G4: This policy would be more sustainable if provision of public transport or sustainable transport methods of transport could be promoted here.
	G8: From the AA perspective, this policy requires a commitment to feasibility and route selection studies for cycleways with a view to identifying and subsequently avoiding high sensitivity feeding or nesting points for birds.
	General Mitigation: Suggest including a new policy: "*The continued expansion of the city's third level institutions and integration with the city and region.*"
	Suggest including Dublin Policies D8 and D9 for Galway also: *Ensuring that water supply and wastewater needs are met by new projects to enhance water supply and increase wastewater treatment capacity.* *Improving sustainability in terms of energy, waste and water, to include district heating and water conservation.*
Chpt 3 Growth Enablers Waterford	**W1:** Quays development needs a specific policy that deals with brownfield/contaminated land issues.
	W1, W2 and W4: Identification of suitable sites for regeneration and development should be supported by a quality site selection process that addresses environmental concerns such as landscape, cultural heritage and biodiversity as a minimum. Siting guidelines need to be developed and incorporated within the NPF as a policy objective requirement.
	General Mitigation: Consider including Dublin Policies D8 and D9 for Waterford also: *Ensuring that water supply and waste-water needs are met by new projects to enhance water supply and increase waste water treatment capacity.* *Improving sustainability in terms of energy, waste and water, to include district heating and water conservation.*
Chpt 4 Planning for Diverse Rural Places	**NPO13:** The review of the *Action Plan for Rural Development* should include screening for SEA and AA and recognition and this should be identified in the policy objective.
	NPO14: There is a need to include further explanatory information within either the policy objective or within the NPF document as to how the overall population growth target of 15% for small towns will be applied.
	NPO18b: To clarify how planners will apply the criteria of 'economic need' when deciding upon single housing.
	NPO21: Due to the pressure on the natural environment from agriculture, could the word sustainable be incorporated within the policy e.g. '*supporting a sustainable and economically efficient…*' In addition whilst it is important to maintain the natural landscape and built heritage it would be important to also protect the environment e.g. '*maintaining the natural environment and landscape and built heritage…*'
Chpt 5 People, Homes and Communities	**NPO27:** The policy should also recognise the need to deliver efficient wastewater facilities.
	NPO32: Should this policy objective include employment growth as it seems out of context and it is not clear how it is linked to the alignment of schools. In addition while the primary, secondary and third level needs are accounted for, should the needs of our infant and child population also be considered in relation to crèches and pre-school.

Reference	Proposed Mitigation Measure
	NPO34: There is a need to outline how planners make the decision as to what is *appropriate scale*.
	NPO39: The Housing Need Demand Assessment (HNDA) will inform land use zoning and as such an understanding of environmental sensitivities must be incorporated within the assessment. This would ensure that areas for future zoning do not conflict with environmental protection policies. The monitoring unit developed to assist the Local Authorities would develop a relevant environmental methodology that could be incorporated within the HNDA.
Chapt 6 Realising Our Island & Marine Potential	**NPO42:** The development of strategic plans for the ports must be subject to AA.
Chpt 7 Working with our Neighbours	**NPO45:** Reword to include *'infrastructure provision, environmental **protection** and management'*.
	NPO46 and NPO47: The NPF will be updated on a six year cycle but there is merit in including a policy objective supporting discussions with Northern Ireland on environmental protection and management in light of Brexit.
	NPO46: The section needs to take regard for the natural environment ensuring that urban centres such as Letterkenny are consolidated and one off housing is limited. The following text should be included: "*The North West Partnership, working with both Governments local communities and the private sector, promotes regional co-operation on planning, **environmental protection and management**, public services and infrastructural investment including…".*
	NPO48: Suggest inclusion in the text under the heading 'Transport' that outlines that rail and bus services are included within public transport connectivity.
	NPO52: After habitats, the word 'species' should be included.
Chpt 8 Realising our Sustainable Future	**NPO54:** Inclusion of words to **'***environmental limits, **having regard to the requirements of all relevant environmental legislation** and promotes'.*
	NPO62: While this policy is positive it is identified that residential noise regulations are currently inadequate for home owners and need to be addressed in light of increased consolidation of residential urban areas. A review is required that presents tangible ways to improve the current regulations.
	General Mitigation: The NPF should identify the appropriate body or Department that is be responsible for the implementation and reporting of the SEA monitoring programme to ensure that national issues are identified over the 20 period and that revision to the NPF every 6 years can address such issues.
Chpt 9 – Investing in Ireland Implementation	**NPO63:** Update national SEA and AA related legislation to ensure that it applies to the newly formed City MASP.
	NPO64: Expand the SEA and AA requirements for LAPs to include UAPs
	General Mitigation: A specific cumulative impact assessment of zoning should be considered as a requirement for statutory development planning.
	General Mitigation: Statutory planning guidance and the standardised approaches to zoning discussed in this section of the NPF include an explicit requirement to consider the impacts of zoning on the receiving environment.
	NSO2.2: The AEC plan should undergo SEA and AA once there is clarity on a plan. This should include how the plan will protect wild places, natural and cultural heritage and landscape.
	NSO3.1: Official Public Health and Safety Zones should be developed for each of Irelands airports. These zones should adequately address protection of human health in terms of hazard, noise, air emissions etc. with associated restrictions on land use in the areas and should be adopted into the relevant regional and county planning.
	NSO3.1: The National Aviation Policy should be amended to require all relevant airports to undertake SEA and AA of their masterplans.
	NSO3.2: This policy should include consideration of rail alternatives to road based land transport connections at tier 1 and tier 2 ports in Ireland.

Reference	Proposed Mitigation Measure
	NSO5: Guidelines should be developed to support an assist the efficient roll out and delivery of national broadband.
	NSO6: The Action Plan for Rural Development has not been subject to SEA and AA and as such this plan should be reviewed.
	NSO6: In order to better address inter-regional connectivity a parallel NPO which addresses the need to promote use of electric vehicles as a way to tackle connectivity and climate should be considered.
	NSO8: A review of the capacity of the electric charging infrastructure across Ireland to ensure that Ireland's 'ambition that that all new cars and vans sold in this country from 2030 will be zero emission (or zero emission-capable') is achieved.
	NSO9.2: Specific regard to the mitigation measures included in the three Regional Waste Management Plans (2015) and the National Hazardous Waste Management Plan.

Table 9.2 – Proposed AA Mitigation Measures Relating to Assessment of Actions

Reference	***Amendment***
Chapter 2, NPO3c	*It is therefore proposed that a map is developed by each local authority, coordinated at the Regional Assembly level, showing potential infill and brownfield opportunities in order to spatially inform decision making on the suitability of these sites for further development or regeneration.*
Chapter 3, NPO7a	*It is recommended that the DHPLG develop a set of Guiding Principles which integrate biodiversity for Smart Growth in Urban and Rural areas to better inform lower level criteria and guide development.*
Chapter 3, NPO10	*That there is a presumption in favour of development that encourages more people, jobs and activity within existing urban areas, subject to development meeting appropriate standards, achieving targeted growth and subject to the outcome of an Appropriate Assessment.*
Chapter 3, NPO12	*It is therefore proposed that a map is developed by each local authority, coordinated at the Regional Assembly level, showing potential infill and brownfield opportunities in order to spatially inform decision making on the suitability of these sites for further development or regeneration.*
Chapter 4, NPO13	*This policy is broadly positive for rural communities however the Action Plan for Rural Development and it subsequent reviews should be subject to AA prior to implementation, if this has not already been completed.*
Chapter 4, NPO18b	*The following text is added to the policy:…and subject to environmental suitability of the sites.*
Chapter 4, NPO21	*Policy to be reworded to state:* *To facilitate the development of the rural economy through supporting an economically efficient and long-term sustainable agricultural and food sector, together with forestry, fishing and aquaculture and diversification into alternative on-farm and off-farm activities, whilst at the same time noting the importance of maintaining the natural landscape, and protecting the natural / built heritage which are vital to rural tourism through application of sustainable limits on productivity.*
Chapter 4, NPO24	*It is recommended that the DHPLG, DRCD and the DAFM liaise with the DCHG to identify a workable approach to identify synergies with national funding instruments to better align national funding with national biodiversity policy. This could be led by the Office of the Planning Regulator which has been proposed in the NPF.*
Chapter 5, NPO38	*No information is provided on the nature of the guidelines but it is recommended that they reflect the recent case law in relation to Appropriate Assessment and provide practical tools for planning authorities to complete their statutory obligations under the Planning and Development Act and the Birds and Natural habitats Regulations.*

Reference	*Amendment*
	Furthermore it is recommended that guidelines on site and route selection which identifies where and how European Sites should be considered be developed to support decision making.
Chapter 6, NPO42	*The development of strategic plans for the ports must be subject to AA.*
Chapter 7, NPO46	*The word economic to be replaced by "sustainable" to acknowledge that balance is needed with economics if the environment is to be fully protected.*
Chapter 7, NPO47	*Regional planning will need to consider the cumulative effects of any collaborative structures and the carrying capacity of the environmental receptors in terms of water quality, air quality, human disturbance and land use change and habitat loss.*
Chapter 7, NPO51	*Similar to the Wild Atlantic Way, large tourism initiatives must consider SEA and AA prior to implementation to offset any negative impacts.*
Chapter 9, National Strategic Outcome 6	*Empowered Rural communities: The Action Plan for Rural Development and it subsequent reviews should be subject to AA prior to implementation, if this has not already been completed.*

Table 9.3 – Proposed SFRA Mitigation Measures Relating to Assessment of Actions

Reference	Proposed Mitigation Measure
Chapter 8 **Realising Our Sustainable Future**	**Policy 58:** *Ensure flood risk management informs place making by avoiding inappropriate development in areas at risk of flooding and integrate sustainable water management solutions (such as SUDS, non-porous surfacing and green roofs) to create safe places.* ***Development plans should assess flood risk by implementing the recommendations of The Planning System and Flood Risk Assessment Guidelines for Planning Authorities (2009) and Circular PL02/2014 (August 2014).***
Chapter 9 **National Strategic Outcome: Sustainable Management of Water and Other Environmental Resources**	▪ ***Coordinate the core objectives of the EU Flood Directive and statutory plans across the planning hierarchy, including national guidance on the relationship between the planning system and flood risk management. (DHPLG, OPW, LAs);*** ▪ ***Local authorities, DHPLG, OPW and other relevant Departments and agencies will work together to implement the recommendation of the CFRAM programme to ensure that flood risk management policies and infrastructure are progressively implemented. (DHPLG, OPW, LA's); and*** ▪ ***Prioritising investment to improve storm water infrastructure to improve sustainable drainage and reduce the risk of flooding in the urban environment.***

Table 9.4 – Environmental Monitoring Programme

Strategic Objective	Target	Indicator	Data Source
Objective 1 Population & Human Health *To create an environment where every individual and sector of society can play their part in achieving a more healthy Ireland.*	▪ Increase the proportion of people who are healthy at all stages of life. ▪ Increase by 20% proportion of the population undertaking regular physical activity.	▪ Achievement of objectives, targets and indicators outlined in *Healthy Ireland Implementation Plan 2016-2019.*	▪ Health Service Executive
Objective 2 Biodiversity, Flora and Fauna *To preserve, protect, maintain and, where appropriate, enhance the terrestrial, aquatic and soil biodiversity, particularly EU designated sites and protected species.*	▪ Require all regional, county and local level land use plans to include ecosystem services and green/blue infrastructure provisions in their land use plans and as a minimum, to have regard to the required targets in relation to the conservation of European sites, other nature conservation sites, ecological networks, and protected species.	▪ Number of spatial plans that have included ecosystem services and green/ blue infrastructure provisions when their relevant plans are either revised or drafted.	▪ Regional Spatial Economic Strategies (RSES) ▪ Development Plans ▪ Local Area Plans
Objective 3 Soils *Protect soils against pollution, and prevent degradation of the soil resource.*	▪ Maintain built surface cover nationally to below the EU average of 4%.[70] ▪ To avoid or minimise adverse effects on mineral resources, important geological and geomorphological sites and soils.	▪ Percentage land cover change in Ireland.	▪ Environmental Protection Agency (EPA), Geoportal
Objective 4 Water *Ensure that the status of water bodies is protected, maintained and improved in line with the requirements of the WFD and MSFD.*	▪ The stated expected outcomes of the second cycle of the River Basin Management Plan are achieved by 2021. ▪ The stated expected targets of the MSFD are achieved or maintained by 2020.	▪ Status of water bodies as reported by the EPA Water Monitoring Programme for the WFD. ▪ Indicators for descriptors as reported for the MSFD are achieved or maintained by 2020.	▪ EPA Monitoring Programme for WFD compliance ▪ Department of Housing, Planning and Local Government, Marine and Foreshore Section
Objective 5 Air Quality (i) *To avoid, prevent or reduce*	▪ Decrease in proportion of journeys made by private fossil fuel-based car compared	▪ Percentage change from 2014 position of 74% car modal share.	▪ Central Statistics Office, National Travel Survey

[70] http://www.epa.ie/irelandsenvironment/environmentalindicators/#land_and_soil

Strategic Objective	Target	Indicator	Data Source
harmful effects on human health and the environmental as a whole resulting from emissions to air. (ii) *Maintain and promote continuing improvement in air quality through the reduction of emissions and promotion of renewable energy and energy efficiency.*	to 2014 National travel Survey levels ▪ Adoption of the National Clean Air Strategy [to be published in Q4, 2017]	▪ Achievements of the Key Performance Indicators outlined in the National Clean Air Strategy.	▪ Department of Transport Tourism and Sport, Transport Trends (DTTAS) ▪ Department of Communications, Climate Action and Environment (DCCAE)
Objective 6 Climatic Factors *To minimise emissions of greenhouse gases.*	▪ Achieve transition to a competitive, low-carbon, climate-resilient and environmentally sustainable economy by 2050. ▪ A net reduction in the GHG emissions from the transport as outlined in the Greenhouse Gas Emissions Inventory. (Inventory for 2014 reported a 2.5% increase in carbon dioxide equivalent emissions). ▪ The Renewable Energy Directive (2009/28/EC) set a target for all Member States to reach a 10 % share of renewable energy in transport by 2020. ▪ Reduce overall emissions of carbon dioxide (CO_2) by at least 80-95% of 1990 levels by 2050. ▪ To promote reduced energy consumption and support the uptake of renewable options and a move away from solid fuels for residential heating.	▪ No. of actions delivered through the National Mitigation Plan, published in July 2017. ▪ A net annual reduction in the GHG emissions from the relevant sectors (electricity generation, built environment and transport). Carbon neutrality in the agriculture/forestry sector.	▪ Department of Communications, Climate Action and Environment (DCCAE) ▪ EPA Annual National GHG Emissions Inventory reporting
Objective 7 Material Assets (i) *Consolidate growth and limit*	▪ To map brownfield and infill land parcels in each administrative area.	▪ Number of administrative areas that have developed maps showing	▪ Department of Housing, Planning and Local Government in conjunction

Strategic Objective	Target	Indicator	Data Source
urban sprawl. (ii) *Optimise existing infrastructure and provide new infrastructure to match population distribution proposals in the draft NPF.*	▪ Increased budget spend on water and wastewater infrastructure. ▪ By 2020 all citizens will have access to speeds of 30Mbps, and that 50% of citizens will be subscribing to speeds of 100Mbps.	brownfield and infill lands ▪ Budget allocated to Irish Water under the National Capital Plan 2017. ▪ Percentage completion of broadband by 2021.	with Local Authorities ▪ Department of Communications, Climate Action and Environment (DCCAE) ▪ Department of Public Expenditure and Reform (DPER)
Objective 8 Archaeology, Architecture and Cultural Heritage *Protect places, features, buildings and landscapes of cultural, archaeological or architectural heritage.*	▪ No unauthorised physical damage or alteration of the context of cultural heritage features.	*More appropriately dealt with at project level.*	N/A
Objective 9 Landscape *To provide a framework for identification, assessment, protection, management and planning of landscapes having regard to the European Landscape Convention.*	▪ Avoid damage to designated landscapes as a result of NPF implementation.	*More appropriately dealt with at project level, however the* Development of a National Landscape Character Map will contribute to protecting landscapes.	N/A

10 NEXT STEPS

There is still some important work to be done before the National Policy Framework can be adopted. The next step in the SEA and NPF process will be a public consultation period. During this time comment on the findings of the Environmental Report, the Natura Impact Statement and the Strategic Flood Risk Assessment and the content of the draft NPF may be submitted for consideration. **Table 10.1** outlines the remaining steps in this process.

Table 10.1 – Remaining Steps in the draft NPF, SEA, AA, SFRA Processes

Milestone	
National Planning Framework	**Strategic Environmental Assessment, Appropriate Assessment and Strategic Flood Risk Assessment**
Publication of draft National Planning Framework	Publication of Environmental Report, Natura Impact Report and Strategic Flood Risk Assessment
End of statutory consultation	End of statutory consultation Review of submissions and preparation of SEA Statement
Review of submissions and amendments to draft National Planning Framework	Review of submissions and preparation of SEA Statement
Adoption of draft National Planning Framework	End of Q4
Publication of final National Planning Framework	Publication of SEA Statement

Witten submission or observation on the draft framework or associated environmental reports can be made by email, preferably in 'word' format, to npf@housing.gov.ie or by logging on to www.npf.ie and following the instructions provided. Alternatively, responses can be posted to: NPF Submissions, Forward Planning Section, Department of Housing, Planning and Local Government, Custom House, Dublin 1, D01 W6X0.

The final date for responses in respect of this consultation is **noon on Friday 3rd November 2017**.

These submissions/ observations will be taken into consideration before finalisation of the draft NPF. Early responses would be appreciated to allow more time to clarify and resolve issues that may arise.

APPENDIX A

Summary of SEA Statutory Scoping Consultation Responses

Summary of Issues Raised by the Statutory Consultees

Statutory Consultee	Summary of Issues Raised in Consultation
DAHRRGA	▪ Interrelationships/ interdependencies should be explored in SEA ▪ SEA to address overlaps/ links between Biodiversity Flora & Fauna and Birds & habitats Directive ▪ Incorporate the findings of the SEA into the NPF ▪ Prepare Biodiversity, Flora & Fauna section of the ER by/with a qualified ecologist ▪ Revise Biodiversity SEO to reflect at a minimum '*required targets in relation to the conservation of European sites, other nature conservation sites, ecological networks, and protected species*' ▪ May be efficient to use monitoring programmes already in place by other authorities - examine whether useful or will identify effects ▪ Clearly set out responsibilities for monitoring programme, mechanism for response to negative effects, remedial action etc. ▪ Key elements of Biodiversity, Flora & Fauna for SEA set out (submission Appendix 1 of the submission) ▪ Sources of available ecological information set out ▪ Unclear if the NPF is a land use plan for the purposes of Part XAB of Planning and Development Act ▪ If not, Part 5 Regulation 42 of the Birds and Habitats Regulations applies to the AA ▪ List of guidance provided on AA and the preparation of an NIS (submission Appendix 2 of the submission) ▪ General notes on preparation of NIS set out (submission Appendix 3 of the submission) ▪ Sources of available ecological information set out ▪ Where NIS/NIR identifies plan-level mitigation to be reflected in final plan ▪ Repeated cross-referencing to mitigation in other sections or reports may be used but do so clearly, consistently and unambiguously ▪ AA to take account of the NIS – obligations to address scientific uncertainties/ issues raised by other parties (e.g. Baltz and others vs. An Bord Pleanála; case C-258/11) ▪ Recommended that natural heritage/ biodiversity be considered in their own right under topics of green infrastructure, blue infrastructure and ecosystem services ▪ In-combination effects on Natura 2000 network from plans and projects arising from the NPF ▪ Recommend full integration of requirements of the nature directives in the NPF across all sectors/ objectives/ plan-level mitigation ▪ Any plans/ strategies to comply with AA/ SEA and if not possible should be excluded from the NPF ▪ Incorporate the findings of the SEA into the NPF ▪ Existing problematic/ recurrent planning issues (not exhaustive): o If no national sectoral plans in place, and NPF includes policies for those sectors' development, such policies will need to be assessed as part of the NPF o Given its 2040 timeframe, NPF should assist in managing/ adapting to predicted sea level rise and coastal squeeze o Integrate requirements of Habitats directive and WFD and provide compliant water and wastewater services as part of new settlement and development policies o Integrated planning for provision of green/ blue infrastructure so appropriate locations/ routes are targeted, avoid changeable habitats (e.g. mobile coastal habitats, peatlands) o Address and plan for increased run-off, identify areas for flood storage o Carry out evidence-based assessment for SUDS in practice o Consider cumulative effects of existing/ proposed infrastructure, particularly in terms of habitat fragmentation, pressures on water sources (e.g. aquifers) o Opportunity to highlight optimum multiple uses of an area with nature conservation

Statutory Consultee	Summary of Issues Raised in Consultation
	areas o Clarify the meaning of 'better planning to avoid environmental harm' *[in the Issues and Choices Paper, p.46]*
DCCAE (IFI)	▪ NPF must address water quality as well as protection of physical environment, aquatic processes and biodiversity ▪ Requires a greater commitment than merely to maintain water quality or prevent fish mortality ▪ Habitat maintenance/ protection of food chain are priorities for IFI ▪ Sufficient sewage treatment capacity must be available locally to the plant and in the downstream environment – developments should be constrained/planning permission refused where capacity/ services don not exist ▪ Welcomes the use of integrated wetland systems (IWS) but as part of good agricultural practice and mindful of abstraction pressure to sustain these IWS ▪ Protection of aquatic environment to date based on ad-hoc approach/ urban development has allowed draining, culverting, impermeable surfaces ▪ Planning authorities legally obliged to protect status under the WFD ▪ Environmental impacts are more numerous when not managed/ policy-driven ▪ Open water corridors, particularly through towns, often first to be covered/ diverted/ culverted even though amenity/ biodiversity value ▪ Essential that riparian zones are maintained and for LAs to recognise the need to protect these buffer zones ▪ IFI should be consulted on any development impacting aquatic/ riparian areas ▪ Include policies regarding invasive alien species ▪ Consider that river crossings contain sufficient fish passage – consult with IFI prior to development ▪ Information on stream fragmentation/AMBER Project provided ▪ Promotion of best-practice in water conservation/ note issue with unregulated abstraction for summer crop irrigation ▪ River Management Policies should be an integral part of any development programme ▪ Note the Habitats Regulations/SACs do not necessarily cover all watercourses which are important for fish and other species ▪ List of topics provided which should be considered for potential significant impacts ▪ NPF should be consistent with the RBMP & WFD requirements ▪ NPF should promote integration/ improvement of natural watercourses in urban renewal/development proposals ▪ NPF should Encourage Local participation in urban and rural renewal ▪ List of key IFI publications provided
DAFM	▪ List provided of additional plans and programmes ▪ Development of any plan or programme should give due consideration to positive and negative impacts on aquaculture, fish/shellfish stocks and knock-on effects for human health ▪ Major land use changes can have an impact on the quality of marine waters ▪ List of sources of marine data provided ▪ List of consultees provided ▪ The majority of marine European Sites are located inshore – existing mitigation measures include site-specific temporal and spatial restrictions and specific requirements for fishing methods ▪ Marine Protected Areas, in addition to Natura 2000, will be designated under the MSFD and may be wider in purpose than Natura 2000 network ▪ To note that the relationship between SPAs and forestry is under review ▪ In relation to Section 4.3 *[of the Issues and Choices Paper]* "The Potential for Rural Ireland",

Statutory Consultee	Summary of Issues Raised in Consultation
	additional background information provided by DAFM on the Rural Innovation and Development Fund under the CEDRA process ▪ In relation to rural schemes/ programmes, beneficial to identify synergies between the various schemes to maximise fund/ resource use, establish cross-cutting approaches ▪ Design and developments that promote resilience in rural areas should be key ▪ The inter-dependence of rural-urban areas should also be a key part of the NPF, however care in identifying these are as 'separate' as this may prevent synergies and important flows/linkages of people from being identified ▪ Acknowledged that towns/ villages act as focal points but also to recognise individual farms involved in innovative activities should be recognised and included as centres of growth, employment etc. ▪ Multifaceted solutions needed for areas which have experienced population decline
EPA	▪ Use the most recent greenhouse gas emissions/ projections data ▪ Baseline could include summary of vulnerability of infrastructure to climate change ▪ Dublin's role in economic growth – consider describing proportion of its emissions ▪ For baseline Air Quality use most recent emissions inventories (to inform sectors for NPF) ▪ Role of transport in relation to air quality (particulate matter) and increase in estimate of premature deaths from impacted air quality ▪ In addition to Raised Bog SAC Plans, similar will be prepared for Blanket Bogs ▪ Catchments.ie as a data resource/ informing the public of catchment concept ▪ Acknowledges lack of data with respect to national landscape/ land cover maps ▪ List of other plans and programmes provided. Could include a diagram showing relationships between key national plans ▪ Consider naming the lead authorities for achieving/progressing SEOs ▪ Consider adding the additional SEOs outlined ▪ Welcomes the use of EPA guidance on Alternatives (assumptions, selection, assessment criteria to be clearly set out) ▪ SEA (and NPF) to consider setting the key targets Ireland is to meet by 2040 (GHG, water quality etc.) – independent national indicators where possible (e.g. NBDC, EEA, CSO) ▪ Acknowledges engagement with NI on transboundary effects ▪ Extensive list of environmental resources and plans/programmes provided for consideration ▪ ER to include relevant maps showing designated national and European sites ▪ The status of the LA Noise Actions Plans could be described in the SEA ▪ In identifying what infrastructure investments need to be made to maximise sustainable potential for ocean resource, ensure that the full range of potential likely significant effects, including in particular cumulative effects, are taken into account and assessed within the SEA ▪ Norway SOE website has a range of specific environmental targets which may be worth exploring as a means of setting targets to monitor progress ▪ Beneficial for NPF to consider a commitment to establishing a national landscape/ land cover dataset - essential for strategic forward planning ▪ Recommends environmental protection be placed at the heart of the NPF ▪ Clarity needed on how the NPF will be implemented and the roles of other bodies ▪ Consider including an Implementation Programme setting out key responsibilities ▪ Could include a table outlining how NPF sits with other EU/international long-term plans ▪ Vital there are clear links to the proposed Maritime Spatial Plan and the NPF to avoid planning conflicts inshore/ offshore and to protect marine environment ▪ Address climate change as a priority, promote *Ireland's Transition to a Low Carbon Energy Future 2015-2030*, and further policies/ regulations/ incentives are needed, and emissions neutrality in agriculture/ land use sectors by 2050 ▪ Monitor agriculture intensification to ensure it is undertaken in the right place and protect

Statutory Consultee	Summary of Issues Raised in Consultation
	high value areas/ high quality soils ▪ Include a separate section on Biodiversity ▪ Ensure enough green/ blue space is kept from development for tourism/ health/ biodiversity value ▪ Include strong commitment to protecting designated national and European sites and include relevant maps ▪ Include a separate section on Air Quality– recognise the importance of buffer areas between industrial/ commercial areas and residential/ sensitive receptors ▪ Include a separate section on Water Quality– opportunity to summarise outputs of WFD/ Characterisation/ RBMP process, to be cognisant of need for water services and WFD objectives/ water body risk ▪ Consider further development designated 'quiet areas', set out vision of how future urban areas could look and sound ▪ NPF could provide strategic recommendations for noise planning guidelines ▪ The Blue Economy should be promoted in line with e.g. *Harnessing Our Ocean Wealth* ▪ Island communities can become role models for sustainable development ▪ Look at links between spatial land use plans and marine plans, and review areas of concern e.g. infrastructure deficiencies, capacity issues, environmental sensitivities, economic restrictions etc. ▪ NPF could recommend that a review of existing sectoral marine-related plans with respect to climate change and resiliency/adaptability ▪ Scale of offshore infrastructure (energy, wastewater etc.) could be assessed for ability to expand/adapt to future needs and population growth ▪ NPF to acknowledge Ireland's obligation to protect habitats/species, examine certain initiative s(e.g. Food Wise) to unsure sustainable implementation ▪ Ensure any SEA/AA processes put forward realistic alternatives ▪ Promote the concept of SEA Monitoring, with responsibilities and timelines ▪ Commit to reviewing new and updated national plans/programmes ▪ Commit to requiring implementation of *Ireland's Transition to a Low Carbon Energy Future* at all levels (national, regional etc.) ▪ Review key energy plans as appropriate and seek amendments if required to promote transition to a low-carbon economy ▪ Key environmental issues are included in the EPA's State of the Environment Report (SOER) 2016 ▪ NPF should provide for integration of National Landscape Strategy at various planning levels ▪ List of nationally important infrastructure provided ▪ Determine adaptability to cater for redesign/ upgrade/ replacement of existing infrastructure. ▪ Close coordination of spatial planning with measures at all levels to ensure key commitments are reflected, and monitoring of implementation with the latest data ▪ Future reviews of the NPF could take account of updated SOER reports (next EPA update: 2020) ▪ Prioritise areas where biggest improvements can be made to achieve low-carbon economy ▪ Development approval should be carefully controlled and set out in relevant statutory guidelines ▪ Potential barriers to effective implementation of the NPF outlined
NIEA (DAERA)	▪ List provided of other plans and programmes for Northern Ireland to include. ▪ Suggestion to change wording of *Biodiversity, Flora and Fauna* SEO ▪ List of baseline data sources provided ▪ Notice provided of three newly proposed European and one new nationally designated sites

Statutory Consultee	Summary of Issues Raised in Consultation
	▪ Suggestion to include EU Strategy on Adaptation to Climate Change 2013 as a relevant plan ▪ Assessment of Air Quality in the Environmental Report to consider transboundary ammonia emissions/air pollution impacts in border areas ▪ Notice provided of three newly proposed European Sites and one new nationally designated site

APPENDIX B

Other Plans and Programmes

Note: this is not intended to be an inventory of all environmental legislation, plans, programmes and policies. Rather it is a consideration of the objectives of key texts which are relevant to the NPF and supplements **Chapter 4** of the SEA Environmental Report.

Review of International Level Plans, Programmes and Policies

Topic	Title	Summary of Objectives: International
Biodiversity	UN Convention on Biological Diversity (1992)	The Convention on Biological Diversity (CBD), known informally as the Biodiversity Convention, is a multilateral treaty. The Convention has three main goals: ▪ Conservation of biological diversity (or biodiversity); ▪ Sustainable use of its components; and ▪ Fair and equitable sharing of benefits arising from genetic resources. In other words, its objective is to develop national strategies for the conservation and sustainable use of biological diversity. It is often seen as the key document regarding sustainable development. The Convention was opened for signature at the Earth Summit in Rio de Janeiro on 5 June 1992 and entered into force on 29 December 1993.
	Ramsar Convention on Wetlands of International Importance (1971 and amendments)	Objectives include protection and conservation of wetlands, particularly those of importance to waterfowl as Waterfowl Habitat.
	The Convention for the Protection of the marine Environment of the North-East Atlantic (OSPAR) (1992)	Objectives include international cooperation on the protection of the marine environment of the north-east Atlantic.
	Bern Convention (Convention on European Wildlife and Natural Habitats) 1982	The Bern Convention is a binding international legal instrument in the field of nature conservation, covering most of the natural heritage of the European continent and extending to some States of Africa.
Climate Change	Paris Agreement (UNFCCC, 2015)	The Paris Agreement and the outcomes of the UN climate conference (COP21) cover all the crucial areas identified as essential for a landmark conclusion: ▪ Mitigation – reducing emissions fast enough to achieve the temperature goal; ▪ A transparency system and global stock-take – accounting for climate action; ▪ Adaptation – strengthening ability of countries to deal with climate impacts; ▪ Loss and damage – strengthening ability to recover from climate impacts; and ▪ Support – including finance, for nations to build clean, resilient futures.

Topic	Title	Summary of Objectives: International
	DOHA Climate Gateway (2012)	A UN climate change conference in Doha, Qatar, concluded in December 2012 with a new agreement called the "Doha Climate Gateway." Its major achievements included the extension until 2020 of the 1997 Kyoto Protocol on reducing greenhouse gas emissions, as well as a work plan for negotiating a new global climate pact by 2015, to be implemented starting in 2020.
	Cancun Agreements (2010)	The Cancun Agreements are a set of significant decisions by the international community to address the long-term challenge of climate change collectively and comprehensively over time and to take concrete action now to speed up the global response. The agreements, reached on December 11 in Cancun, Mexico, at the 2010 United Nations Climate Change Conference represent key steps forward in capturing plans to reduce greenhouse gas emissions and to help developing nations protect themselves from climate impacts and build their own sustainable futures.
	Bali Road Map (2007)	The Bali Climate Change Conference in 2007 produced the Bali Road Map, which comprised a number of decisions to present various tracks essential to reaching a secure climate future.
	UN Kyoto Protocol, The United Nations Framework Convention on Climate Change (UNFCC, 1997)	The United Nations Framework Convention on Climate Change (UNFCCC) is an international environmental treaty negotiated at the Earth Summit in Rio de Janeiro from 3 to 14 June 1992, then entered into force on 21 March 1994. The UNFCCC objective is to "stabilize greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system". The framework set no binding limits on greenhouse gas emissions for individual countries and contains no enforcement mechanisms. Instead, the framework outlines how specific international treaties (called "protocols" or "Agreements") may be negotiated to set binding limits on greenhouse gases.
Cultural Heritage	Convention for the Protection of the Archaeological Heritage of Europe (revised) (Valletta, 1992)	Objective is to protect the archaeological heritage as a source of the European collective memory and as an instrument for historical and scientific study.
	Convention for the Protection of the Architectural Heritage of Europe (Granada, 1985)	Objectives seek to provide a basis for protection of architectural heritage and are a means for proclaiming conservation principles, including a definition of what is meant by architectural heritage, such as monuments, groups of buildings and sites. The Convention also seeks to define a European standard of protection for architectural heritage and to create legal obligations that the signatories undertake to implement.
	World Heritage Convention United Nations Convention Concerning the Protection of the World Cultural and Natural Heritage (Paris, 1972)	Objectives seek to ensure the identification, protection, conservation, presentation and transmission to future generations of the cultural and natural heritage and ensure that effective and active measures are taken for these.
Human Health/ Air Quality	Stockholm Convention (2004)	Global treaty with the objective of seeking to protect human health and the environment from persistent organic pollutants (POPs).

Topic	Title	Summary of Objectives: International
	World Health Organisation (WHO) Air Quality Guidelines (1999) and Guidelines for Europe (1987)	Objectives seek the elimination or minimisation of certain airborne pollutants for the protection of human health.
	The Gothenburg Protocol (1999)	The 1999 Gothenburg Protocol to Abate Acidification, Eutrophication and Ground-level Ozone (known as the Multi-effect Protocol or the Gothenburg Protocol) is a multi-pollutant protocol designed to reduce acidification, eutrophication and ground-level ozone by setting emissions ceilings for sulphur dioxide, nitrogen oxides, volatile organic compounds and ammonia to be met by 2010. As of August 2014, the Protocol had been ratified by 26 parties, which includes 25 states and the European Union.

Review of European Level Plans, Programmes and Policies

Topic	Title	Summary of Objectives: European
Biodiversity	EU Biodiversity Strategy to 2020 (COM(2011) 244)	The EU Biodiversity Strategy aims to prevent and eliminate the causes of biodiversity loss and maintain and enhance current levels of biodiversity. The EU strategy has six main targets which focus on: full implementation of EU nature legislation; better protection for ecosystems and more use of green infrastructure; more sustainable agriculture and forestry; more sustainable fisheries; tighter controls on invasive alien species; and a greater contribution to averting global biodiversity loss. Key objectives: ▪ To mainstream biodiversity in the decision making process across all sectors; ▪ To substantially strengthen the knowledge base for conservation, management and sustainable use of biodiversity; ▪ To increase awareness and appreciation of biodiversity and ecosystems services; ▪ To conserve and restore biodiversity and ecosystem services in the wider countryside; ▪ To conserve and restore biodiversity and ecosystem services in the marine environment; ▪ To expand and improve on the management of protected areas and legally protected species; and To substantially strengthen the effectiveness of international governance for biodiversity and ecosystem services.
	Freshwater Fish Directive (2006/44/EC)	Objectives seek to protect those fresh water bodies identified by Member States as waters suitable for sustaining fish populations.

Topic	Title	Summary of Objectives: European
	Conservation of Natural Habitats and of Wild Flora and Fauna (Habitats) Directive (92/43/EEC)	The Habitats Directive (92/43/EEC) provides legal protection for habitats and species of wild plants and animals of European importance. The Directive protects around 1200 European species, other than birds, which are considered to be endangered, vulnerable, rare and/or endemic. Included in the Directive are mammals, reptiles, fish, crustaceans, insects, molluscs, bivalves and plants. Together with the Birds Directive, it underpins a European network of protected areas known as Natura 2000: Special Protection Areas (SPAs, classified under the Birds Directive) and Special Areas of Conservation (SACs, classified under the Habitats Directive). Objectives of the Habitats Directive include: ▪ Propose and protect sites of importance to habitats, plant and animal species; ▪ Establish a network of Natura 2000 sites hosting the natural habitat types listed in Annex I and habitats of the species listed in Annex II, to enable the natural habitat types and the species' habitats concerned to be maintained or, where appropriate, restored at a favourable conservation status in their natural range; ▪ Carry out comprehensive assessment of habitat types and species present; and ▪ Establish a system of strict protection for the animal species and plant species listed in Annex IV.
	Conservation of Wild Birds (Birds) Directive (79/409/EEC)	The Birds Directive protects all wild birds, their nests, eggs and habitats within the European Community. It gives EU member states the power and responsibility to classify Special Protection Areas (SPAs) to protect birds which are rare or vulnerable in Europe, as well as all migratory birds which are regular visitors. Objectives seek to prevent and eliminate the causes of bird species loss and maintain and enhance current levels of biodiversity; ▪ Preserve, maintain or re-establish a sufficient diversity and area of habitats for all the species of birds referred to in Annex I; ▪ Preserve, maintain and establish biotopes and habitats to include the creation of protected areas (Special Protection Areas); ▪ Ensure the upkeep and management in accordance with the ecological needs of habitats inside and outside the protected zones, re-establish destroyed biotopes and creation of biotopes; and ▪ Measures for regularly occurring migratory species not listed in Annex I is required as regards their breeding, moulting and wintering areas and staging posts along their migration routes; and ▪ Ensuring the protection of wetlands and particularly wetlands of international importance.

Topic	Title	Summary of Objectives: European
	The Convention on the Conservation of Migratory Species of Wild Animals (also known as CMS or "The Bonn Convention" [L210, 19/07/1982 (1983)]	The Bonn Convention focuses on preserving the habitats used by migratory species and aims to enhance the conservation of terrestrial, marine and avian species on a global scale throughout their range. Key actions/ provisions under the Convention include: ▪ Establishment of a legal foundation for internationally coordinated conservation measures throughout a migratory range; ▪ Migratory species threatened with extinction are listed on Appendix I of the Convention. CMS Parties strive towards strictly protecting these animals, conserving or restoring the places where they live, mitigating obstacles to migration and controlling other factors that might endanger them; and ▪ In Europe, legislation to ensure that the provisions of the Bonn Convention are applied includes the Birds Directive and the Habitats Directive.
	Prioritised Action Framework for Natura 2000 (2014-2020)	This plan identifies the range of actions needed to help improve the status of Ireland's habitats and wildlife.
Air Quality/ Noise	EU Clean Air Package (2013) & A Clean Air Programme for Europe (COM(2013) 918)	The clean air package aims to substantially reduce air pollution across the EU. The proposed strategy sets out objectives for reducing the health and environmental impacts of air pollution by 2030, and contains legislative proposals to implement stricter standards for emissions and air pollution. The package was published by the Commission on 18 December 2013, and consists of a communication on the 'clean air programme for Europe', plus three legislative proposals on emissions and air pollution.
	Ambient Air Quality and Cleaner Air for Europe (CAFE) Directive (2008/50/EC) and Fourth Daughter Directive (2004/107/EC)	The Ambient Air Quality and Cleaner Air for Europe (CAFE) Directive (2008/50/EC) was published in May 2008. It replaced the Framework Directive and the first, second and third Daughter Directives. The CAFE Directive was transposed into Irish legislation by the Air Quality Standards Regulations 2011 (S.I. No. 180 of 2011). It replaces the Air Quality Standards Regulations 2002 (S.I. No. 271 of 2002), the Ozone in Ambient Air Regulations 2004 (S.I. No. 53 of 2004) and S.I. No. 33 of 1999. The fourth Daughter Directive was transposed into Irish legislation by the Arsenic, Cadmium, Mercury, Nickel and Polycyclic Aromatic Hydrocarbons in Ambient Air Regulations 2009 (S.I. No. 58 of 2009).
	Industrial Emissions Directive (IED) (2010/75/EU)	The IED is the successor of the IPPC Directive. Objectives seek the reduction and control of emissions to the atmosphere arising from industrial activities through established permit procedures and the requirements for discharges (integrated pollution prevention and control (IPPC)). The Directive was transposed onto Irish law under the Industrial Emissions Regulations S.I. 138/2013.

Topic	Title	Summary of Objectives: European
	National Emissions Ceiling Directive (2016/2284/EU)	This Directive sets national reduction commitments for the five pollutants (sulphur dioxide, nitrogen oxides, volatile organic compounds, ammonia and fine particulate matter) The NECD sets national emission ceilings for four main pollutants, namely that of sulphur dioxide (SO_2), nitrogen oxides (NO_x), volatile organic compounds (VOCs) and ammonia (NH_3). These pollutants are responsible for long-range transboundary air pollution such as acidification, eutrophication and ground-level ozone pollution. Data on these four pollutants are reported to the European Commission under the National Emissions Ceiling Directive on an annual basis.
	The 1979 Geneva Convention on Long-range Transboundary Air Pollution (LRTAP)	The LRTAP was the first international legally binding instrument to deal with problems of air pollution on a broad regional basis. It was signed in 1979 and entered into force in 1983. It has since been extended by eight specific protocols. The Convention is one of the central means for protecting our environment. It has substantially contributed to the development of international environmental law and has created the essential framework for controlling and reducing the damage to human health and the environment caused by transboundary air pollution. It is a successful example of what can be achieved through intergovernmental cooperation.
	Environmental Noise Directive (END) (2002/49/EC)	Objectives seek to limit the harmful effects to human health from environmental noise.
Sustainable Development	The Common Agricultural Policy (CAP)	Aims to provide farmers with a reasonable standard of living, consumers with quality food at fair prices and to preserve rural heritage. With increased development pressure from urban areas, protection of rural communities and agricultural enterprise must be considered.
	Seventh Environmental Action Programme to 2020 of the European Community	Objectives seek to make the future development of the EU more sustainable. It identifies three key objectives: ▪ To protect, conserve and enhance the Union's natural capital; ▪ To turn the Union into a resource-efficient, green, and competitive low-carbon economy; and ▪ To safeguard the Union's citizens from environment-related pressures and risks to health and wellbeing. Two additional horizontal priority objectives complete the programme: ▪ To make the Union's cities more sustainable; and ▪ To help the Union address international environmental and climate challenges more effectively.
	EUROPE 2020 A strategy for smart, sustainable and inclusive growth (COM/2010/2020)	Europe 2020 is a 10-year strategy proposed by the European Commission on 3 March 2010 for advancement of the economy of the European Union. It aims at "smart, sustainable, inclusive growth" with greater coordination of national and European policy. It follows the Lisbon Strategy for the period 2000–2010.

Topic	Title	Summary of Objectives: European
	Horizon 2020: the EU Framework Programme for Research and Innovation (2014-2020)	Horizon 2020 is the biggest EU Research and Innovation programme ever with nearly €80 billion of funding available over 7 years (2014 to 2020) – in addition to the private investment that this money will attract. It promises more breakthroughs, discoveries and world-firsts by taking great ideas from the lab to the market. Horizon 2020 is the financial instrument implementing the Innovation Union, a Europe 2020 flagship initiative aimed at securing Europe's global competitiveness. Seen as a means to drive economic growth and create jobs, Horizon 2020 has the political backing of Europe's leaders and the Members of the European Parliament. They agreed that research is an investment in our future and so put it at the heart of the EU's blueprint for smart, sustainable and inclusive growth and jobs.
	SEA Directive (2001/42/EC)	This Directive requires that Plans & Programmes must take into account protection of the environment and integration of the Plan into the sustainable planning of the country as a whole. Eleven sectors are specified in the Directive and Competent Authorities (Plan/ Programme makers) must subject specific Plans and Programmes for these sectors to an environmental assessment where they are likely to have significant effects on the environment. The SEA Directive was transposed into Irish law under S.I. 435/2004, as amended in 2011.
	EIA Directive (85/337/EEC), as amended by Directive 97/11/EC & Directive 2014/52/EU	The Directive's objective is to require Environmental Impact Assessment of the environmental effects of those public and private projects, which are likely to have significant effects on the environment. The EIA Directive was transposed into Irish law under S.I. 349/1989 (as amended).
	EU Sustainable Development Strategy (EU SDS)	The overarching sustainable development policy document in the EU. During the 2009 review the EU noted a number of unsustainable trends that require urgent action including a decrease in high energy consumption in the transport sector in line with the 2020 Strategy.
	Innovating for Sustainable Growth: A Bio-economy for Europe (EU, 2012)	Launched and adopted on 13 February 2012, Europe's Bio-economy Strategy addresses the production of renewable biological resources and their conversion into vital products and bio-energy. It aims to focus Europe's common efforts in the right direction in this diverse and fast-changing part of the economy. Its main purpose is to streamline existing policy approaches in this area. The Strategy is also needed to ensure that fossil fuels are replaced with sustainable natural alternatives as part of the shift to a post-petroleum society.
	Indirect Land Use Change Directive (2015/1513)	Directive 2015/1513 amends the Renewable Energy Directive and the Fuel Quality Directive to address indirect land-use change (ILUC). Member States are obliged to transpose the Directive into national legislation by 10 September 2017 and should establish the level of their national indicative sub-targets for advanced biofuels by 6 April 2017. While biofuels are important in helping the EU meet its greenhouse gas reductions targets, biofuel production typically takes place on cropland which was previously used for other agriculture such as growing food or feed. Since this agricultural production is still necessary, it may be partly displaced to previously non-cropland such as grasslands and forests. This process is known as indirect land use change (ILUC).

Topic	Title	Summary of Objectives: European
	Ecodesign Framework Directive (2009/125/EC)	This Directive establishes a framework for the setting of Community eco design requirements for energy-related products with the aim of ensuring the free movement of such products within the internal market. This Directive provides for the setting of requirements which the energy-related products covered by implementing measures must fulfil in order to be placed on the market and/or put into service. It contributes to sustainable development by increasing energy efficiency and the level of protection of the environment, while at the same time increasing the security of the energy supply.
	Integrated Pollution Prevention Control Directive (96/61/EC)	Objective is to achieve a high level of protection of the environment through measures to prevent in the first instance or to reduce emissions to air, water and land from industrial sources.

Topic	Title	Summary of Objectives: European
Water	Water Framework Directive (WFD) (2000/60/EC) (as amended by Decision 2455/2001/EC and Directives 2008/32/EC, 2008/105/EC and 2009/31/EC	WFD objectives overall seek to maintain and enhance the quality and quantity of all surface waters, i.e. rivers, estuaries, coasts and aquifers, in the EU and to prevent the deterioration of aquatic ecosystems and associated wetlands by setting out a timetable until 2027 to achieve good ecological status or potential. Member States are required to manage the effects on the ecological quality of water which result from changes to the physical characteristics of water bodies. Action is required in those cases where these "hydro-morphological" pressures are having an ecological impact which will interfere with the ability to achieve WFD objectives. The assessment of potential impacts on water quality needs to be considered in the context of the WFD and the River Basin Management Plan and Programme of Measures for the River Basin districts which lays out the objectives for all waters within the individual district. It is noted the next cycle of River Basin Management Plans is due in 2017. Key objectives of the WFD include: ▪ Identification and establishment of individual river basin districts; ▪ Preparation of individual river basin management plans for each of the catchments. These contain the main issues for the water environment and the actions needed to deal with them; ▪ Establishment of a programme of monitoring water quality in each RBD; and ▪ Establishment of a Register of Protected Areas (includes areas previously designated under the Freshwater Fish and Shellfish Directives which have become sites designated for the protection of economically significant aquatic species under WFD and placed on the Protected Areas register). Promotion of sustainable management of the water environment by carefully considering current land use and future climate scenarios, minimising the effects of flooding and drought events and facilitating long term improvements in water quality, including the protection of groundwater near landfill sites, as well as minimising agricultural runoff. The following Directives have been subsumed into the Water Framework Directive: ▪ The Drinking Water Abstraction Directive; ▪ The Sampling Drinking Water Directive; ▪ The Exchange of Information on Quality of Surface Freshwater Directive; ▪ The Shellfish Directive ; ▪ The Freshwater Fish Directive; ▪ The Groundwater (Dangerous Substances) Directive; and ▪ The Dangerous Substances Directive.

Topic	Title	Summary of Objectives: European
	Marine Strategy Framework Directive (MSFD) (2008/56/EC)	The aims of the MSFD are to protect the marine environment across Europe through achieving and maintaining good environmental status of marine waters by 2020, and acts as complimentary legislation to the WFD. To achieve this goal the directive has set out marine regions; Ireland falls within the North-east Atlantic Ocean Region and for the purposes of the MSFD Ireland is required to produce a Maritime Spatial Plan (MSP), preparation of which is underway and required on or before March 2021 at the latest. The first phase of work and public consultation has been completed and involved the assessment and characterisation of Ireland's marine waters. The draft Marine Strategy Framework Programme of Measures has been prepared and the next phase will involve the eventual implementation of environmental targets. The MSP will ensure there is a system in place for managing human activities and to achieve and maintain good environmental status of marine waters.
	Floods Directive (2007/60/EC)	The Floods Directive applies to river basins and coastal areas at risk of flooding. It basically prescribes a three-step procedure for the assessment and management of flood risks: First step: Preliminary Flood Risk Assessment; Second step: Risk Assessment; and Third step: Flood Risk Management Plans.
	Bathing Water Directive (2006/7/EC)	The overall objective of the revised directive remains the protection of public health whilst bathing, but it also offers an opportunity to improve management practices at bathing waters and to standardise the information provided to bathers across Europe. Bathing waters are an important resource and it is therefore essential that the standards within the Bathing Water Directive are adhered to. The Directive was transposed onto Irish law under the Bathing Water (Amendment) Regulations S.I. 79/2008.
	Groundwater Directive (2006/118/EC)	Objectives seek to maintain and enhance the quality of all groundwaters in the EU. The Environmental Objectives (Groundwater) Regulations S.I. 9/2010 was transposed into Irish Law and gives effect to the Groundwater Directive
	Drinking Water Directive (80/778/EEC) as amended by Directive 98/83/EC	The primary objective is to protect the health of the consumers in the European Union and to make sure drinking water is wholesome and clean.
	Urban Wastewater Treatment Directive (91/271/EEC), as amended by Directive 98/15/EEC	The primary objective is to protect the environment from the adverse effects of discharges of urban wastewater, by the provision of urban wastewater collecting systems (sewerage) and treatment plants for urban centres. The Directive also provides general rules for the sustainable disposal of sludge arising from wastewater treatment.
	Sewage Sludge Directive (86/278/EEC)	The objective of the directive is to encourage the use of sewage sludge in agriculture and to regulate its use in such a way as to prevent harmful effects on soil, vegetation, animals and man. To this end, it prohibits the use of untreated sludge on agricultural land unless it is injected or incorporated into the soil. The Directive is given effect in Irish law by the Waste Management (Use of Sewage Sludge in Agriculture) (Amendment) Regulations (S.I. 267/2001).

Topic	Title	Summary of Objectives: European
	Nitrates Directive (91/676/EEC)	The directive has the objective of reducing water pollution caused or induced by nitrates from agricultural sources. Under the regulations, sewage sludge is considered a fertiliser under the definitions of the regulations: "fertiliser" means any substance containing nitrogen or phosphorus or a nitrogen compound or phosphorus compound utilised on land to enhance growth of vegetation and may include livestock manure, the residues from fish farms and sewage sludge. The Nitrates Regulations provide for the mandatory implementation of agricultural measures for protecting surface and groundwater quality by all Irish farmers. The measures include limits on storage and land spreading of nutrients, including no-spread zones adjacent to drinking water abstraction points, and uncultivated buffer/riparian strips, to prevent nutrients and sediment from entering water.
	Dangerous Substances Directive (2006/11/EC)	This directive refers to pollution caused by certain persistent, toxic and bioaccumulative substances that are discharged into the aquatic environment of the community.
	Priority Substances Directive (2013/39/EU)	This directive amends Directives 2000/60/EC and 2008/105/EC regarding priority substances and water policy. Directive 2000/60/EC set out a strategy against water pollution, including the identification of priority substances pose a significant risk to, or through, the aquatic environment.
	Environmental Liabilities Directive (2004/35/EC)	The Directive was transposed onto Irish law under S.I. 547/2008. The objective is the 'polluter pays' principle wherein those whose activities have caused environmental damage are held financially liable for remedying that damage; the legislation is particularly aimed at impacts to water quality status under the Water Framework Directive.
	A Blueprint to Safeguard Europe's Water Resource (COM(2012)673)	This Communication outlines actions that relate to better implementation of current water legislation, integration of water policy objectives into other policies and filling gaps particularly in relation to water quantity and efficiency. These actions are to ensure that water of sufficient quantity and good quality is available to service the needs of people as well as the environment and the EU's economy. The Blueprint's time horizon is closely related to the EU 2020 Strategy particularly the Resource Efficiency Roadmap, of which the Blueprint is the water milestone. However, the Blueprint covers a longer time span, up to 2050, and is expected to be the driver of long-term EU water policy.
Waste	Waste Framework Directive (2008/98/EC)	The directive sets out the definitions of waste and basic management principles for waste in order to ensure waste is managed so as to not impact the environment or human health. The Directive lays down some basic waste management principles: it requires that waste be managed without endangering human health and harming the environment, and in particular without risk to water, air, soil, plants or animals, without causing a nuisance through noise or odours, and without adversely affecting the countryside or places of special interest. The Directive requires that waste legislation and policy of EU Member States is applied according to a waste management hierarchy.
	Landfill Directive (99/31/EC)	The Landfill Directive sets targets to reduce landfilling of biodegradable municipal waste.
	EU Circular Economy Strategy (2015)	The European Commission adopted an ambitious Circular Economy Package, which includes revised legislative proposals on waste to stimulate Europe's transition towards a circular economy which will boost global

Topic	Title	Summary of Objectives: European
		competitiveness, foster sustainable economic growth and generate new jobs. The Circular Economy Package consists of an EU Action Plan for the Circular Economy that establishes a concrete and ambitious programme of action, with measures covering the whole cycle: from production and consumption to waste management and the market for secondary raw materials. The annex to the action plan sets out the timeline when the actions will be completed. The proposed actions will contribute to "closing the loop" of product lifecycles through greater recycling and re-use, and bring benefits for both the environment and the economy.
	Use and Disposal of Animal By-products (2011/EU/142)	Commission Regulation (EU) No 142/2011 of 25 February 2011 implementing Regulation (EC) No 1069/2009 of the European Parliament and of the Council laying down health rules as regards animal by-products not intended for human consumption and implementing Council Directive 97/78/EC as regards certain samples and items exempt from veterinary checks at the border under that Directive.
	EU Health Rules Regarding Animal By-products Not Intended for Human Consumption Directive (2002/1774/EC)	This Directive lays down animal and public health rules for: (a) the collection, transport, storage, handling, processing and use or disposal of animal by-products, to prevent these products from presenting a risk to animal or public health; (b) the placing on the market and, in certain specific cases, the export and transit of animal by-products and those products derived therefrom referred to in Annexes VII and VIII.
Population/ Human Health	Seveso III Directive (2012/18/EU)	The Chemicals Act (Control of Major Accident Hazards involving Dangerous Substances or 'COMAH') Regulations 2015 (S.I. 209/2015) implement the Seveso III Directive in Ireland and seeks to reduce the risk and to limit the consequences to both man and the environment, of accidents at manufacturing and storage facilities involving dangerous substances that present a major accident hazard.
	Biocidal Products (98/8/EC and 2007/107/EC)	A biocide is classified as a substance (whether chemical or biological) designed to destroy or render harmless a harmful organism (e.g. disinfectants, preservatives etc.). These products have a high degree of regulation owing to the potential effects on human health and the environment. The directive is regularly updated as new products are manufactured and authorised. The new Biocidal Products Regulation (Regulation EU 528/2012) has been transposed by the European Union (Biocidal Products) Regulations S.I. 427/2013.
Climate/ Energy	The EU 20-20-20 Climate and Energy Package Agreement (2007)	The climate and energy package is a set of binding legislation which aims to ensure the European Union meets its ambitious climate and energy targets for 2020. The targets were set by EU leaders in March 2007, when they committed Europe to become a highly energy-efficient, low carbon economy, and were enacted through the climate and energy package in 2009. These targets, known as the "20-20-20" targets, set three key objectives for 2020: ▪ A 20% reduction in EU greenhouse gas emissions from 1990 levels; ▪ Raising the share of EU energy consumption produced from renewable resources to 20%; and ▪ A 20% improvement in the EU's energy efficiency.

Topic	Title	Summary of Objectives: European
		These targets represent an important first step towards building a low-carbon economy. They are also headline targets of the Europe 2020 strategy for smart, sustainable and inclusive growth. This recognises that tackling climate and energy challenge contributes to the creation of jobs, the generation of "green" growth and a strengthening of Europe's competitiveness. In relation to reductions in GHG emissions, the 2009 Effort Sharing Decision (Decision No. 406/2009/EU) set individual Member State targets for reductions in non-ETS GHG emissions. The two main directives which set about achieving this target are the Energy Efficiency Directive (2012/27/EC, transposed into Irish law by the Energy Efficiency Obligation Scheme Regulations 2014 S.I. 131/2014) and the Renewable Energy Sources (RES) Directive (2009/28/EC, transposed into Irish law by the Renewable Energy Regulations S.I. 147/2011).
	The EU Policy Framework for Climate and Energy in the period from 2020 to 2030	Sets targets for the period 2020 to 2030: ▪ Target of 27% renewable energy in the EU; ▪ Increase energy efficiency by 27% by 2020; and ▪ Reaching electricity interconnection target of 15% between EU countries by 2030.
	Effort Sharing Decision 2009 (Decision No. 406/2009/EU	The 2009 Effort Sharing Decision (Decision No. 406/2009/EU) set individual Member State targets for reductions in non-ETS GHG emissions. The target agreed for Ireland for the year 2020 is that non-ETS emissions should be 20% below their level in 2005 compared to an EU average reduction of 10%. The non-ETS target is legally binding on the State.
	Renewable Energy Directive (2009/28/EC)	The Renewable Energy Directive establishes an overall policy for the production and promotion of energy from renewable sources in the EU. It requires the EU to fulfil at least 20% of its total energy needs with renewables by 2020 – to be achieved through the attainment of individual national targets. All EU countries must also ensure that at least 10% of their transport fuels come from renewable sources by 2020. A national target of 16% renewable energy by 2020 has been set for Ireland.
	EU Strategy on Adaptation to Climate Change 2013	The strategy was adopted by the EC in April 2013. It outlines the measures for taking climate change preparedness to a new level. The strategy has three main objectives: ▪ Promote climate action in Member States through encouraging the adoption of adaptation strategies; ▪ The promotion of informed decision-making through addressing knowledge gaps and the development of the European Climate Adaptation Platform for better knowledge dissemination; and ▪ Promoting adaptation in key vulnerable sectors.
	2030 Energy Strategy and A Policy Framework for Climate and Energy in the Period 2020-2030 (EU (COM),2014)	EU countries have agreed on a new 2030 Framework for climate and energy, including EU-wide targets and policy objectives for the period between 2020 and 2030. These targets aim to help the EU achieve a more competitive, secure and sustainable energy system and to meet its long-term 2050 greenhouse gas reductions target. This Communication develops a framework for future EU energy and climate policies and launches a process to arrive at a shared understanding of how to take these policies forward in the future.

Topic	Title	Summary of Objectives: European
	Energy Roadmap 2050	The ultimate goal is to cut EU-wide emissions by 90% of 1990 levels by 2050. The EC analysed the implications of this goal as part of its communication "A Roadmap for moving to a competitive low carbon economy in 2050". This 2050 Roadmap explores the challenges of this decarbonisation objective while maintaining competitiveness as well as security of supply.
	European Framework Policy's Seventh Action Programme and Roadmap to a Resource Efficient Europe	Both focus on encouraging a resource efficient, low carbon economy. Both have energy and climate targets. The Roadmap to a Resource Efficient Europe's main aim is to "to decouple economic growth from resource use and its environmental impacts, and proposed a long-term vision, 2020 milestones and a number of short-term actions to start the transition".
	The Green Paper - A 2030 Framework for Climate and Energy Policies (EC, 2013)	This framework integrates different policy objectives such as reducing greenhouse gas (GHG) emissions, securing energy supply and supporting growth, competitiveness and jobs through a high technology, cost effective and resource efficient approach. These policy objectives are delivered by three headline targets for GHG emission reductions, renewable energy and energy savings. There are additional targets for energy used by the transport sector. In parallel, the EU has put in place a regulatory framework to drive the creation of an open, integrated and competitive single market for energy which promotes the security of energy supplies.
	EU Emissions Trading Directive (2003/87/EC)	Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC (Text with EEA relevance). This Directive establishes a scheme for greenhouse gas emission allowance trading within the Community (hereinafter referred to as the "Community scheme") in order to promote reductions of greenhouse gas emissions in a cost-effective and economically efficient manner.
	Energy Efficiency Directive (2012/27/EC)	Under the Energy Efficiency Directive: ▪ EU countries make energy efficient renovations to at least 3% of buildings owned and occupied by central government; ▪ EU governments should only purchase buildings which are highly energy efficient; and ▪ EU countries must draw-up long-term national building renovation strategies which can be included in their National Energy Efficiency Action Plans.
	EU Energy Performance of Buildings Directive (2002/91/EC) and updated Directive (2010/31/EU)	The 2010 Energy Performance of Buildings Directive and the 2012 Energy Efficiency Directive are the EU's main legislation when it comes to reducing the energy consumption of buildings. Under the Energy Performance of Buildings Directive: ▪ Energy performance certificates are to be included in all advertisements for the sale or rental of buildings; ▪ EU countries must establish inspection schemes for heating and air conditioning systems or put in place measures with equivalent effect; and ▪ All new buildings must be nearly zero energy buildings by 31 December 2020 (public buildings by 31

Topic	Title	Summary of Objectives: European
		December 2018). EU countries must set minimum energy performance requirements for new buildings, for the major renovation of buildings and for the replacement or retrofit of building elements (heating and cooling systems, roofs, walls, etc.) EU countries have to draw up lists of national financial measures to improve the energy efficiency of buildings.
	Second European Climate Change Programme (ECCP II) 2005	The objectives seek to develop the necessary elements of a strategy to implement the Kyoto Protocol.
	EU Fuel Quality Directive (2009/30/EC)	This Directive amends Directive 98/70/EC as regards the specification of petrol, diesel and gas-oil and introducing a mechanism to monitor and reduce greenhouse gas emissions and amending Council Directive 1999/32/EC as regards the specification of fuel used by inland waterway vessels and repealing Directive 93/12/EEC.
	Medium Combustion Plant Directive (MCPD) Directive (EU) 2015/2193	This Directive concenrs the limitation of emissions of certain pollutants into the air from medium combustion plants (Medium Combustion Plant (MCP) Directive) and regulates pollutant emissions from the combustion of fuels in plants with a rated thermal input equal to or greater than 1 megawatt (MWth) and less than 50 MWth.
	Directive (UE) 2015/1513 amending Directives 98/70/CE and 2009/28/CE - Regarding the promotion of renewable energy usage	The Directive (EU) 2015/1513 of the European Parliament and of the Council of September 9th 2015 was issued, amending Directive 98/70/EC relating to the quality of petrol and diesel fuels and amending Directive 2009/28/EC on the promotion of the use of energy from renewable sources. Member States shall bring into force the laws, regulations and administrative provisions necessary to comply with this Directive by 10 September 2017.
	EU Transport Greenhouse Gas: Routes to 2050 (2010)	This was a 15-month project funded by the European Commission's DG Climate Action that started in January 2011 and was completed in July 2012. The context of the project was the Commission's long-term objective for tackling climate change.
	A Sustainable Bioenergy Policy for the period after 2020 (under consultation)	EU Member States have agreed on a new policy framework for climate and energy. In January 2014, in its Communication on A policy framework for climate and energy in the period from 2020 to 2030, the Commission stated that 'an improved biomass policy will also be necessary to maximise the resource-efficient use of biomass in order to deliver robust and verifiable greenhouse gas savings and to allow for fair competition between the various uses of biomass resources in the construction sector, paper and pulp industries and biochemical and energy production. This should also encompass the sustainable use of land, the sustainable management of forests and address indirect land-use effects as with biofuels'.
	A Roadmap for moving to a competitive low carbon economy in 2050 (EC (COM), 2011/0112))	A Roadmap for Moving to a Competitive Low Carbon Economy in 2050 is a fifteen-page document produced by the European Commission in 2011 as a communication to other European Union (EU) institutions. As part of the Europe 2020 flagship initiative for a resource-efficient Europe, it outlines a long-term policy framework for actions to be taken across the EU region to ensure that 2050 greenhouse gas reduction targets are met.
	Transport White Paper 2011	The European Commission adopted a roadmap of 40 concrete initiatives for the next decade to build a competitive

Topic	Title	Summary of Objectives: European
	(Roadmap to a Single European Transport Area – Towards a competitive and resource efficient transport system) (COM/2011/0144 final)	transport system that will increase mobility, remove major barriers in key areas and fuel growth and employment. At the same time, the proposals will dramatically reduce Europe's dependence on imported oil and cut carbon emissions in transport by 60% by 2050. The roadmap confirms that our low-carbon goal is economically feasible. All the scenarios reach it with no major differences in overall costs or security of supply implications.
	EU Biofuels Directive (2003/30/EC)	The Directive on the Promotion of the use of biofuels and other renewable fuels for transport, officially 2003/30/EC and popularly better known as the biofuels directive is a European Union directive for promoting the use of biofuels for EU transport. The directive entered into force in May 2003, and stipulates that national measures must be taken by countries across the EU aiming at replacing 5.75% of all transport fossil fuels (petrol and diesel) with biofuels by 2010. The directive also called for an intermediate target of 2% by 31 December 2005. The target of 5.75% is to be met by 31 December 2010. The percentages are calculated on the basis of energy content of the fuel and apply to petrol and diesel fuel for transport purposes placed on the markets of member states. Member states are encouraged to take on national "indicative" targets in conformity with the overall target.
	Alternative Fuels Infrastructure Directive (2014/94/EU) (*Still to be transposed into Irish Law*)	This Directive establishes a common framework of measures for the deployment of alternative fuels infrastructure in the Union in order to minimise dependence on oil and to mitigate the environmental impact of transport. This Directive sets out minimum requirements for the building-up of alternative fuels infrastructure, including recharging points for electric vehicles and refuelling points for natural gas (LNG and CNG) and hydrogen, to be implemented by means of Member States' national policy frameworks, as well as common technical specifications for such recharging and refuelling points, and user information requirements.
	Roadmap to a Resource Efficient Europe (Roadmap 2050)	The mission of Roadmap 2050 is to provide a practical, independent and objective analysis of pathways to achieve a low-carbon economy in Europe, in line with the energy security, environmental and economic goals of the European Union. The Roadmap focuses on establishing EU policy to cut total greenhouse gas emissions by 80-95% (compared to 1990 levels) by 2050. The National Low-Carbon Roadmap will be coordinated by the Department of the Environment, Community and Local Government with substantial input from other relevant Departments. The sectoral roadmap for the transport sector will be developed by the Department of Transport, Tourism and Sport.
Landscape	European Landscape Convention, 2000	The Convention's purpose is to promote landscape protection, management and planning of European landscapes and to organise European co-operation on landscape issues. It is the first international treaty to be exclusively concerned with protection, management and enhancement of European landscape. It is extremely wide in scope: the Convention applies to the Parties' entire territory and covers natural, rural, urban and rural-urban transitional areas, also including land, inland water and marine areas. The Convention covers every-day or degraded landscapes as well as those that can be considered outstanding i.e. recognition of the importance of all landscape types. The Convention incorporates a number of measures which are to be undertaken to put into effect at national level General Measures, including:

Topic	Title	Summary of Objectives: European
		▪ To recognise landscapes in law as being an essential component of people's surroundings; ▪ The establishment and implementation of policies which aim to protect landscapes, and to inform landscape management and planning considerations; ▪ To better incorporate the public, local and regional authorities as well as other organisations in defining and implementing landscape policies; and ▪ The integration of landscape into local and regional planning policies that have possible direct or indirect impacts on the landscape.

Review of National Level Plans, Programmes and Policies

Topic	Title	Summary of Objectives: National
Biodiversity	National Biodiversity Action Plan 2017 – 2021 (*draft*)	In response to the requirements set out in Article 6 of the UN Convention of Biological Diversity 1992, the first Biodiversity Action Plan (BAP) was prepared by the Department of Arts, Heritage and the Gaeltacht, subsequently revised in 2011. The aims are to achieve Ireland's Vision for Biodiversity through addressing issues ranging from improving the management of protected areas to increasing awareness and appreciation of biodiversity and ecosystem services. Ireland's third iteration of the BAP for conserving and restoring Ireland's biodiversity covers the period 2017 to 2021.
	Wildlife Acts 1976 – 2010 (as amended)	The purpose of the Wildlife Acts 1976-2010 is to provide for the protection of wildlife (both flora and fauna) and the control of activities, which may impact adversely on the conservation of wildlife.
	Flora Protection Order 2015	Objectives are to protect listed flora and their habitats from alteration, damage or interference in any way. This protection applies wherever the plants are found and is not confined to sites designated for nature conservation.
	European Communities (Natural Habitats) Regulations, SI 94/1997, as amended S.I. 233/1998 and S.I. 378/2005	These Regulations give effect to Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (Habitats Directive) and the Minister to designate special areas of conservation (endangered species and habitats of endangered species) as a contribution to an EU Community network to be known as NATURA 2000. See EU Habitats Directive.
	All Ireland Pollinator Plan 2015-2020	Ireland has developed a strategy to address pollinator decline and protect pollinator service. A total of 81 actions have been identified in order to achieve this. It is about raising awareness about pollinators and how to protect them.
	Quality of Salmonid Waters Regulations 1988 (S.I. 293/1988)	Prescribe quality standards for salmonid waters and designate the waters to which they apply, together with the sampling programmes and the methods of analysis and inspection to be used by local authorities to determine compliance with the standards. Also, give effect to Council Directive No. 78/659/EEC on the quality of fresh waters

Topic	Title	Summary of Objectives: National
		needing protection or improvement in order to support fish life. See EU Water Framework Directive.
	NPWS Conservation Plans for SACs and SPAs and NHAs	The NPWS produces a draft conservation plan for each SAC, SPA and NHA. Each plan lists the wildlife resources of the area, the current human uses, any conflicts between the two, and strategies for retaining the conservation value. These documents are made available on the NPWS website and to interested parties for a consultation period, following which the final version of the conservation plan is completed. It is intended that plans will be reviewed every 5 years. It is expected that these plans will be consulted/referenced during the preparation of farm management plans for holdings within and nearby the nature conservation site.
	National Peatland Strategy (Draft) (DAHG, 2014)	In April 2011 the Government made a number of key decisions relating to the conservation and management of Ireland's peatlands, particularly those sites nominated for designation as Special Areas of Conservation and Natural Heritage Areas. A commitment was made to draw up a national strategy on peatlands conservation and management, in cconsultation with bog owners and other stakeholders, to deal with long-term issues such as land management & development, restoration, conservation, tourism potential, carbon accounting and community participation in managing this resource.
	Review of Raised Bog Natural Heritage Area Network (NPWS, 2014) Raised Bog SAC Management Plan (*draft*) (DAHG, 2014) National Raised Bog Special Area of Conservation (SAC) Management Plan (*draft*)	In 2014, following approval by Government, the Minister for Arts, Heritage and the Gaeltacht, published three documents, a draft National Peatlands Strategy, a draft National Raised Bog Special Areas of Conservation (SAC) Management Plan and a Review of Raised Bog Natural Heritage Areas (NHAs). These documents set out a strategic, long term vision for the future use and management of Ireland's peatlands including specific measures for the protection of sites designated for the protection of endangered bog habitats.
	European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. 477/2011)	The Birds Directive was transposed into Irish law under the Birds and Habitats Regulations S.I. 477/2011 (as amended).
	Fisheries Natura Plans & Declarations made under European Union (Birds and Natural Habitats) (Se-fisheries) Regulations 2013	Sea-fisheries are in Natura 2000 areas are regulated in accordance with: ▪ The European Communities (Birds and natural Habitats) Regulations 2011 (S.I. 477/2011); and ▪ The European Union (Birds and Natural Habitats) (Sea-fisheries) Regulations 2013 (S.I. 290/2013). These two sets of Regulations transpose into Irish law the obligations on the Minister with regard to sea-fisheries arising from the EU Habitats and Birds Directives. Regulation 27 of SI 477 of 2011 places legal obligations on the Minister for Agriculture Food and the Marine in relation to his functions. These obligations transpose article 6.2 of the Habitats Directive and in short require the Minister to manage sea-fisheries to ensure that significant impacts

Topic	Title	Summary of Objectives: National
		on designated habitats and species are avoided. Regulation 42 of S.I. 477/2011 places legal obligations on the Minister for Agriculture Food and the Marine in consenting to or adopting a plan or project that may have significant impacts on a Natura 2000 site. These obligations transpose article 6.3 of the Habitats Directive. In short, the Minister is required to conduct a screening for appropriate assessment before consenting to or adopting the plan or project. On the basis of that screening assessment, the Minister must determine if an appropriate assessment is required. He must conclude that it is required where he cannot exclude significant impacts based on objective scientific information. The Minister may only consent to a plan or project or adopt or implement the plan or project where he has determined that it will not affect the integrity of the Natura 2000 site.
Population/ Human Health	Healthy Ireland – a Framework for Improved Health and Wellbeing 2015-2025	The main aims of Healthy Ireland are: to increase the numbers of people experiencing good health (mental and physical) at all life stages; reduce health inequalities with a focus on social factors; protect the public and increase preparedness for threats to public health; and to encourage every individual and society as a whole to collaboratively engage with its own health and wellbeing. The first Implementation Plan has been published covering 2015-2017.
	Classified Shellfish Production Areas under Regulation (EC) No. 85412004	Shellfish areas which are classified by the Sea-Fisheries Protection Authority for food safety and consumer protection purposes
Climate/ Energy	National Mitigation Plan 2017	To ensure that Ireland can effectively and equitably contribute to the EU objective of reducing greenhouse gas emissions by 80-95% and for the purposes of compliance with EU and Irish law, it is necessary to develop a low-carbon development strategy for the period to 2050. As provided for in the Climate Action and Low Carbon Development Act, 2015, the Department of the Communications, Climate Action and Environment (DCCAE), in conjunction with Departments with responsibility for key sectors, is currently preparing the National Mitigation Plan (NMP), the first in a series of statutory national plans setting out, on an incremental basis, Ireland's low carbon development strategy for the period to 2050. The first plan outlines the measures and actions of four specific sectors to mitigate climate change in the areas of transport, energy, the built environment and agriculture.
	National Policy Position on Climate Action and Low-Carbon Development (2015)	The National Policy Position establishes the fundamental national objective of achieving transition to a competitive, low carbon, climate-resilient and environmentally economy by 2050. It sets out the context for the objective, clarifies the level of GHG mitigation ambition envisaged and establishes the process to pursue and achieve the overall objective.
	Ireland's Transition to a Low Carbon Energy Future 2015-2030 (DCENR White Paper, 2015)	The White Paper is a complete energy policy update, which sets out a framework to guide policy and the actions that Government intends to take in the energy sector from now up to 2030. The paper takes into account European and International climate change objectives and agreements, as well as Irish social, economic and employment

Topic	Title	Summary of Objectives: National
		priorities. As we progress towards a low carbon energy system, this policy update will ensure secure supplies of competitive and affordable energy to our citizens and businesses.
	Climate Action and Low Carbon Development Act 2015	An Act to provide for the approval of plans by the Government in relation to climate change for the purpose of pursuing the transition to a low carbon, climate resilient and environmentally sustainable economy; to establish a body to be known in the Irish language as *An Chomhairle Chomhairleach um Athrú Aeráide* or, in the English language, as the Climate Change Advisory Council; and to provide for matters connected therewith.
	National Climate Change Adaptation Framework 2012	Sets out how Ireland is to meet its adaptation objectives under the Kyoto Protocol. The Strategy sits within the National Climate Change Adaptation Framework which provides the policy context for the national response to achieving the objectives in a strategic manner. The Framework also requires Local Authorities, relevant agencies and Government Departments to prepare and publish draft adaptation plans. With the establishment of the Climate Action and Low Carbon Development Act 2015, there is now a statutory basis on which National Climate Change Adaptation Frameworks and Sectoral Adaptation Plans are to be established. It is expected that the National Climate Change Adaptation Framework will be finalised in late 2017 followed by the development of sectoral adaptation plans.
	Biofuel Obligation Scheme (2010)	The BOS Scheme places an obligation on suppliers of mineral oil to ensure that 8.695% (by volume) of the motor fuels (generally Gasoline and Motor Diesel) they place on the market in Ireland is produced from renewable sources, e.g. Ethanol and Biodiesel. The obligation was increased from the 1st January, 2017. It was previously 6.383% Under the terms of the National Oil Reserves Agency Act 2007 (Returns and Biofuel Levy) Regulations 2010, a Biofuel Levy of 2.00 cent per litre is payable on the sales of all Biofuels into the market with effect from 1st July 2010.
	National Oil Reserves Agency Act 2007	This Act provides for the establishment of the National Oil Reserves Agency Limited and sets out its functions, including those in relation to oil stockholding obligations and to impose a levy on relevant disposals of petroleum products.
	National Climate Change Strategy 2007-2012	In 2007, the Government published the National Climate Change Strategy 2007-2012, which set out a range of measures, building on those already in place under the 2000 Strategy, to meet Ireland's commitments under the Kyoto Protocol. The Strategy projected a reduction in emissions from the agricultural sector through a number of measures including Common Agricultural Policy Reforms, participation in REPS, AEOS and Organic Schemes, supports for management of manure in line with the EU Nitrates Directive, supports for afforestation, and through development of renewable energy resources.
	Energy Efficiency Regulations (S.I. 426/2014)	These regulations set out several obligations on public bodies with respect to their “exemplary role” for energy efficiency. These include obligations with regard to: Energy efficient procurement; Exemplar energy management practices; Energy audits; Energy services; Use of energy efficient buildings – public bodies may only purchase or

Topic	Title	Summary of Objectives: National
		lease buildings with Building Energy Ratings of A3 or higher; Maintenance and construction of energy efficient buildings; & Reporting data.
	Bioenergy Roadmap (SEAI, 2010)	Bioenergy demand to 2050 has been forecast using specialist in-house modelling, with the impact of technology development considered to determine the primary bioenergy demand. The main goal of the 2050 model is to indicate the challenges, and the need for action, if we are to achieve the internationally discussed 80% reduction in CO_2 emissions to curb global warming. What is presented is just one possible scenario of how we can approach this challenge, and the contribution of bioenergy.
	Bioenergy Plan (draft)	Aims to develop cost-effective harnessing of sustainable, indigenous, renewable energy resources. Also aims to reduce harmful emissions from traditional fuels. This plan will underpin the development of the sector in the period up to 2020 and lay foundations for its longer term growth and in contributing to renewable energy targets.
	Towards a Sustainable Energy Future for Ireland (SEAI)	Energy growth in Ireland is predicted to grow by 2-3% annually to 2020, still relying heavily on imported fossil fuels. This policy paper outlines the energy options for Ireland, the government's core goals including sustainability of development, security of energy supply as well as economically and technologic efficiencies.
	Strategy for Renewable Energy: 2012-2020 (DCENR)	This Government policy document covers Ireland's renewable energy policy up to 2020. It contains 36 actions for the country to maximise the economic potential of renewable sources, including the increase of both onshore and offshore wind farm developments, encouraging research and development in wave and tidal power, rolling out smart energy networks and building a sustainable bioenergy sector.
	National Energy Efficiency Action Plans (NEEAP)	Ireland's third National Energy Efficiency Action Plan (NEEAP 3) reaffirmed Ireland's commitment to delivering a 20% reduction in energy demand across the whole of the economy by 2020, along with a 33% reduction in public sector energy use. Each NEEAP outlines the energy efficiency measures that will be implemented to reach the national energy saving targets as well as the progress towards this target. NEEAPs shall also include information on the exemplary role of the public sector and on provision of information and advice to final customers. The fourth NEEAP was produced in 2017.
	Renewable Energy Feed-In Tariff (REFIT) Schemes 1, 2 and 3	The Renewable Energy Feed in Tariff (REFIT) schemes/supports are funded by the Public Service Obligation (PSO) which is paid for by all electricity consumers. The REFIT schemes have been designed to incentivise the development of renewable electricity generation in order to ensure Ireland meets its goal of 40% of electricity coming from renewable sources by 2020. The Department of Communications, Climate Action and Environment is working on developing a new support scheme for renewable electricity to be available from 2017 onwards.
	Renewable Electricity Policy and Development Framework (*under development*)	To ensure Ireland meets its future needs for renewable electricity in a sustainable manner, the Renewable Electricity Policy and Development Framework will guide the development of renewable electricity projects which are key objectives of Irish energy policy.

Topic	Title	Summary of Objectives: National
	National Policy Framework for Alternative Fuels Infrastructure in Transport 2017-2030	The Department of Transport, Tourism and Sport (DTTAS) is tasked with transposing the Alternative Fuels Infrastructure Directive (2014/94/EU). Given the close relationship between transport and energy in this area, the Department is working closely with the Department of Communications, Climate Action and Environment (DCCAE). Ireland's National Policy Framework was published in March 2017 and addresses such infrastructure requirements as EV charging points and natural gas refuelling stations.
	National Renewable Energy Action Plan (NREAP)	Ireland's NREAP (a requirement of the Renewable Energy Directive) commits to achievement of the 16% RES target for 2020 to be met by 40% from electricity (RES-E), 12% from heat (RES-H), and 10% from transport (RES-T).
	Offshore Renewable Energy Development Plan (OREDP)	The OREDP recognises the opportunity for developing, in a sustainable manner, Ireland's offshore renewable energy resources and sets out the principles, policy actions and enablers for realising this potential. This would lead to an increase in the production of renewable electricity indigenously, which would contribute to greenhouse gas reductions and improve security of energy supply. The Sustainable Energy Authority of Ireland (SEAI) is providing financial support for wave and tidal ocean research, development and demonstration projects.
	European Union (Renewable Energy) Regulations 2014 S.I. No. 483/2014	This regulation pertains to the implementation of Directive 2009/28/EC on the promotion of the use of energy from renewable sources. Elements of the directive are transposed including the provisions relating to access to and operation of the grid; guarantees of origin and the exemplary role of public bodies regarding public buildings.
	Delivering a Sustainable Energy Future for Ireland - The Energy Policy Framework 2007 – 2020 (White Paper, DCMNR)	This White Paper sets out the Government's Energy Policy Framework 2007-2020 to deliver a sustainable energy future for Ireland. It is set firmly in the global and European context which has put energy security and climate change among the most urgent international challenges. In charting the course for Irish energy policy, the Government is taking full account of global and EU developments. Ireland faces similar energy challenges to those being confronted worldwide. Our situation is made more acute by our small energy market, peripherality and limited indigenous fuel resources. Sustained economic growth and population growth also add to the challenges for Irish energy policy. We have however major opportunities to be realised in harnessing the full potential of our renewable and bioenergy resources. As committed members of the European Union, with specific energy policy objectives, Ireland supports the development of a European Energy Policy which delivers a sustainable energy future for Europe through measures to tackle climate change ensure energy security and enhance competitiveness.
	Green Paper on Energy Policy in Ireland (DCENR, 2014)	The Green Paper on Energy Policy in Ireland was launched on 12th May 2014 commencing a public consultation process on the future of energy policy in Ireland for the medium to long-term. That process concluded on 31st July and the Department of Communications, Energy and Natural Resources (DCENR) worked on the analysis of the 1,200 submissions received. On the 24th September 2014 a further Stakeholder Engagement process was launched. This included six special topic seminars on each of the six priority areas and a seventh seminar on energy prices and costs. There were also four regional seminars in Moate, Cork, Sligo and Wexford to facilitate wider engagement of stakeholders.

Topic	Title	Summary of Objectives: National
	Towards Nearly Zero Energy Buildings in Ireland – Planning for 2020 and Beyond	Proposed approach to Irish compliance with the EPBD commitments, prepared by the DECLG in November 2012. By 2020 all new dwellings in Ireland will have a Maximum Permitted Energy Performance Coefficient (MPEPC) and Maximum Permitted Carbon Performance Coefficient (MPCPC) of 0.30 and 0.35 in accordance with the common general framework set out in Annex I of EPBD.
Planning	Ireland 2040 Our Plan: The National Planning Framework	The new framework document will be the successor to the National Spatial Strategy 2002 (NSS) and will be known as the National Planning Framework (NPF). The National Planning Framework will be the long-term, 20 year strategy for the spatial development of Ireland that will promote a better quality of life for all, with sustainable economic growth and an environment of the highest quality as key underlying principles.
	Capital Investment Plan 2016-2021 (DPER, 2015)	On 29 September 2015 the Government announced its capital spending plan which is a high level budgetary and finance document worth an estimated €27 billion in direct investment by the Exchequer over 6 years. This amounts to an average of €4.5 billion per year and is expected to create in the region of 45,000 jobs during the construction phase. Following public consultation, a review of the plan is expected to be published in 2017 and a new ten year plan to be published before end of 2017.
	Planning and Development Act (as amended) and the Planning and Development Regulations (S.I. 600/2001)	Revised and consolidated the law relating to planning and development by repealing and re-enacting with amendments the Local Government (Planning and Development) Acts, 1963 to 1999; to provide, in the interests of the common good, for proper planning and sustainable development including the provision of housing; to provide for the licensing of events and control of funfairs; to amend the Environmental Protection Agency Act 1992, the Roads Act 1993, the Waste Management Act 1996 (as amended), and certain other enactments.
	Planning and Development (Strategic Infrastructure) Act 2006	An act to provide for the making directly to An Bord Pleanála of applications for planning permission in respect of developments of strategic importance to the State.
	Rural Development Programme 2014-2020 (DAFM, 2015)	The Rural Development Programme (RDP) is part of the Common Agricultural Policy (CAP), a common set of objectives, principles and rules through which the European Union (EU) co-ordinates support for European agriculture. The CAP framework is comprised of two complementary pillars; Pillar 1 deals with direct payments to farmers and market measures while Pillar 2 covers multi-annual rural development measures which include those that are beneficial for the environment and climate change.
	The Planning System and Flood Risk Management Guidelines (DHPCLG, 2009)	The flood risk guidelines were issued under Section 28 of the Planning and Development Act 2000 (as amended), and sets out that development plans and local area plans, must establish the flood risk assessment requirements for their functional area. Flood risk assessment is required by planning authorities to be an integral and leading element of their development planning functions. The guidelines are specifically aimed at linking planning and development with flood protection and flood risk assessment and recommend a clear and transparent assessment of flood risk at all stages in the planning process. It is a requirement of the guidelines that Plans and all future planning decisions have regard to the guidelines.

Topic	Title	Summary of Objectives: National
	Environmental Protection Agency Act 1992	An Act to make further and better provision for the protection of the environment and the control of pollution, to establish an Environmental Protection Agency, for these and other purposes to increase certain existing monetary penalties and to provide for other matters connected with the matters aforesaid.
Sustainable Development	The Protection of the Environment Act 2003	Act implementing Directive 96/61/EC of 24 September 1996 concerning integrated pollution prevention and control and certain other Acts adopted by the institutions of the European Communities. Amends the Environmental Protection Agency Act 1992, Waste Management Act 1996, and Litter Pollution Act 1997.
	State of the Environment Report (EPA, 2016)	This report is the latest in the EPA State of the Environment series, which is published every 4 years. The report outlines at a strategic level the current state of Ireland's environment. It provides an update on environmental challenges that we face both nationally and globally. The report adds to the range of thematic and research reports available from the EPA that cover many of the issues reported on in further detail. To complement this report the EPA has developed the "Ireland's Environment" section on the EPA website1 which provides up-to-date online information that includes environmental indicator data.
	Our Sustainable Future: A Framework for Sustainable Development in Ireland (2012)	This framework takes account of developments at international and EU level designed to deliver an effective transition to an innovative, low carbon and resource efficient future. It has followed the model used in the EU Sustainable Development Strategy, which focuses on identifying key gaps where progress has been limited since the 1997 National Sustainable Development Strategy and it aims to set out a range of measures to address the outstanding challenges.
	National Sustainable Development Policy	Under the terms of "Towards 2016", the current Social Partnership Agreement, the Government is committed to publishing a renewed National Sustainable Development Strategy in 2007. The Sustainable Development Unit is co-ordinating the preparation of this Strategy. The renewed Strategy will replace the first National Sustainable Development Strategy, "Sustainable Development – A Strategy for Ireland", published in 1997, and "Making Ireland's Development Sustainable", published in 2002.
	Food Wise 2025	Food Wise is sets out the strategic plan for the development of the Irish agri-food sector over the next decade. Growth projections include increasing the value added in the agri-food, fisheries and wood products sector by 70% to in excess of €13 billion. Sustainable production at its core setting out a range of specific recommendations aimed at managing the projected growth in a sustainable way. There is a strong commitment to the measurement and monitoring of the sustainability credentials of the sector as the strategy rolls out.
	Forest Policy Review - Forests, products and people - Ireland's forest policy (a renewed vision) (DAFM)	The forerunner to this document was G*rowing for the Future* (1996). Substantial changes in the forest sector have occurred since then leading to a revision and the publication of a 'Renewed Vision'. The strategic goal of this vision is stated as: "*To develop an internationally competitive and sustainable forest sector that provides a full range of economic, environmental and social benefits to society and which accords with the Forest Europe definition of sustainable forest management*". The document sets out a summary of recommended policies and actions.

Topic	Title	Summary of Objectives: National
	Forestry Programme 2014-2020 (DAFM, 2015)	The document sets out the state aid funding programme for forestry for the period 2014-2020. Four needs were identified in preparing the proposal, namely: to increase forest cover in Ireland in order to capture carbon, produce wood and help mitigation; to increase in a sustainable way enough biomass to help in meeting renewable energy targets; support to forest holders in the management of their plantations; and to optimise the benefits, environmental and social, of forest. A number of schemes and measures are proposed in order to meet these needs, such as the Neighbour Wood Scheme and Native Woodland Conservation. The total cost of the programme is estimated at €666m for the period 2015 – 2020 (2014 is covered under the previous programme).
	Afforestation Grant and Premium Scheme (DAFM, 2015)	The Afforestation Grant and Premium Scheme aims to increase the area under forest in Ireland from its current low base of 11% (EU average is 38%). This will be undertaken in a sustainable manner contributing towards the EU's priority for "Restoring, preserving and enhancing ecosystems related to agriculture and forestry".
	Environmental Liability Regulations, S.I. 547/2008	These Regulations (SI 547 of 2008) transpose EU Directive 2004/35/CE on environmental liability with regard to the prevention and remedying of environmental damage.
	European Communities (Environmental Assessment of Certain Plans and Programmes Regulations 2004, (S.I. 435 of 2004) as amended by S.I. 200 of 2011	These regulations transpose the SEA Directive into Irish law.
	Environmental Impact Assessment Regulations (S.I. 349/1989) (as amended)	The Regulations modify the provisions of the Local Government (Planning and Development) Acts, 1963 to 1983 so as to provide a framework for the application of Environmental Impact Assessment (EIA) to the planning control procedures under those Acts, and for the application of EIA to relevant development by local authorities. They also modify development consent procedures under 9 other enactments in light of the Directive's requirements, and they establish an EIA procedure for relevant development by State authorities. The Regulations specify, in the First and Second Schedules respectively, the development for which EIA will be required and the information which must be furnished in an environmental impact statement prepared in connection with proposed development
Transport	National Transport Authority Integrated Implementation Plan 2013-2018	In accordance with Section 13 (1) of the Dublin Transport Authority Act 2008, an Integrated Implementation Plan has been prepared for the Greater Dublin Area. The Plan sets out the NTA's programme of investment and development in the Greater Dublin Area for the period 2013-2018. The Plan provides the framework for a capital and operational investment amounting to almost €900 million and is comprised of: an infrastructure investment programme; identification of the key objectives and outputs to be pursued by the NTA; relevant actions to be taken to ensure effective integration of public transport; and an integrated services plan.

Topic	Title	Summary of Objectives: National
	Smarter Travel – A Sustainable Transport Future, *'A New Transport Policy for Ireland'* 2009-2020	Smarter Travel aims to encourage consideration of travel choices and sets out the strategic vision of achieving sustainable travel and transport system. The Smarter Travel programme also provides funding to provide information and improve facilities for cyclists, p and public transport users. As an Action Plan developed by the Government, it has been designed to show how we can reverse current unsustainable transport and travel patterns and reduce the health and environmental impacts of current trends and improve our quality of life. It sets out five key goals: to reduce overall travel demand; to maximise the efficiency of the transport network; to reduce reliance on fossil fuels; to reduce transport emissions; and to improve accessibility to transport. In order to achieve these goals the policy establishes targets, outlines the forty nine actions to be undertaken and details the funding which must be secured. It will be the role of the Framework to secure the funding necessary to continue to implement key remaining actions.
	Investing in our Transport Future: A Strategic Framework for Integrated Land Transport	Investing in our Transport Future is an integrated, evidence-based framework which establishes the overall principles guiding expenditure decisions in transport. It outlines the business case for investment in transport infrastructure including road, heavy and light rail, pedestrian and cycle facilities. This land transport funding framework is required for delivering projects based on policy in the context of exchequer funds. The Framework will guide key land transport investment decisions based on a number of identified priorities, however, it does not set out a list or identify specific projects to be prioritised.
Water/ Wastewater	Irish Coastal Protection Strategy Study	The Irish Coastal Protection Strategy Study (ICPSS) was commissioned as a national study in 2003 with the aim of providing information to aid decision-making at a strategic level regarding the issues of coastal flooding and coastal erosion, and to inform planning and development in and around coastal areas. Phase 1 of the study was completed in 2013 and contains strategic coastal erosion maps and flood hazard maps for the present scenario and looking forward to the future (to 2100). Phases 2, 3, 4 and 5 have now been completed covering the South East Coast, North East & South Coast, South West & West Coast, and North West Coast.
	Water Services Strategic Plan	Irish Water has prepared a Water Services Strategic Plan (WSSP, 2015), under Section 33 of the Water Service No. 2 Act of 2013 to address the delivery of strategic objectives which will contribute towards improved water quality and WFD requirements. The WSSP forms the highest tier of asset management plans (Tier 1) which Irish Water prepare and it sets the overarching framework for subsequent detailed implementation plans (Tier 2) and water services projects (Tier 3). The WSSP sets out the challenges we face as a country in relation to the provision of water services and identifies strategic national priorities. It includes Irish Water's short, medium and long term objectives and identifies strategies to achieve these objectives. As such, the plan provides the context for subsequent detailed implementation plans (Tier 2) which will document the approach to be used for key water service areas such as water resource management, wastewater compliance and sludge management. The WSSP also sets out the strategic objectives against which the Irish Water Capital Investment Programme is developed. The current version of the CAP outlines the proposals for capital expenditure in terms of upgrades and new builds within the Irish

Topic	Title	Summary of Objectives: National
		Water owned asset.
	National Strategy to Reduce Exposure to Lead in Drinking Water – Irish Water Lead in Drinking Water Mitigation Plan	Irish Water has developed and implemented a Lead Strategy which aims to reduce the potential for dissolved lead from pipework to enter drinking water to and to replace public lead water mains over a ten year period. This will involve dosing public water supplies with orthophosphate. Orthophosphate works as a corrosion inhibitor by converting some of the lead carbonate to lead phosphate, forming a protective coating inside lead pipes, reducing corrosion which is a contributor of lead to the water supply.
	National Wastewater Sludge Management Plan *(draft)*	The National Wastewater Sludge Management Plan (NWSMP) is a national plan for the management of sludges arising primarily from facilities under the control of Irish Water. As such the assessment is focussed at a national strategic level.
	Wastewater Compliance Strategy *(to be prepared)*	Irish Water is proposing to prepare and implement a Wastewater Compliance Strategy which would aim to improve management of the wastewater systems. This will seek to address unacceptable discharges through improvements to treatment and remediate problems associated with combined sewers, where feasible.
	Waste Water Discharge (Authorisation) Regulations (S.I. 684/2007	This has been derived from the Dangerous Substances Directive 2006/11/EC, to address pollution caused by certain toxic substances that are discharged to the aquatic environment and to establish a framework for Community action in the field of water policy.
	Urban Wastewater Treatment Regulations (S.I. 254/2001)	The Urban Wastewater Treatment Directive was transposed into Irish law by the Urban Wastewater Treatment Regulations (S.I. 254/2001).
	National Water Sludge Management Plan *(in preparation)*	A national water sludge management plan will be developed by Irish Water in due course as a national plan for the management of sludges arising primarily from facilities under the control of Irish Water. As such the assessment is focussed at a national strategic level.
	Assessment and Management of Flood Risks Regulations (S.I. 122/2010)	The directive was transposed into Irish law by the European Communities (Assessment and Management of Flood Risks) Regulations (S.I. 122/2010). The Regulations set out the responsibilities of the OPW and other public bodies in the implementation of the Directive. With trends such as climate change and increased domestic and economic development in flood risk zones, this poses a threat of flooding in coastal and river basin areas.
	Freshwater Pearl Mussel Catchment Management Plans for Forestry (in preparation)	The development of procedures is currently underway to ensure that forestry activities undertaken within all 27 freshwater pearl mussel catchments (including the Priority 8 catchments) are compatible with the conservation of the species.
	Irish Water's Capital Investment Programme 2014-2016	In May 2014, Irish Water published its Investment Programme covering the period 2014-2016. The estimate is that €1.77 billion is required over the programme period. Investment priorities are set out for where improvements are needed urgently, and cover drinking water quality, leaks, water and wastewater compliance and availability and customer service. Irish Water's priorities as set out in the programme include the following: ▪ Eliminating Boil Water Notices in Roscommon;

Topic	Title	Summary of Objectives: National
		▪ Providing more water and in particular reducing disruption to supply in the Dublin area; ▪ Improving Water Quality; ▪ Investing for economic development; ▪ Tackling leakage; ▪ Increasing wastewater treatment capacity and improving environmental compliance; ▪ Better Control and Monitoring; and ▪ Improving existing plants.
	European Communities (Good Agricultural Practice for Protection of Waters) Regulations 2014 (S.I. 31/2014)	These Regulations give effect to Ireland's Nitrates Action Programme, provide statutory support for good agricultural practice to protect waters against pollution from agricultural sources and include measures such as- ▪ Periods when land application of fertilisers is prohibited; ▪ Limits on the land application of fertilisers; ▪ Storage requirements for livestock manure; and ▪ Monitoring of the effectiveness of the measures in terms of agricultural practice and impact on water quality. ▪ The Regulations give further effect to several EU Directives including Directives in relation to protection of waters against pollution from agricultural sources ("the Nitrates Directive"), dangerous substances in water, waste management, protection of groundwater, public participation in policy development and water policy (the Water Framework Directive).
	Ireland's Nitrates Action Programme (NAP)	Ireland's first Nitrates Action Programme (NAP) came into operation in 2006 and gave effect to the Nitrates Directive. The NAP was given effect through a series of regulations, most recently the European Communities (Good Agricultural Practice for Protection of Waters) Regulations 2014 (S.I. No. 31 of 2014), known as the Nitrates Regulations. The aim of the NAP is to prevent pollution of surface waters and groundwater from agricultural sources and to protect and improve water quality. In accordance with the Nitrates Directive and Article 28 of the Good Agricultural Practice Regulations, the Minister for Housing, Planning and Local Government, in consultation with the Minister for Agriculture, Food and the Marine reviewed the NAP for the first time in 2010. Article 28 of the Nitrates Regulations, in line with the Nitrates Directive, requires a review of the NAP every four years. Ireland's fourth NAP will run until the end of 2021.
	Drinking Water Regulations (S.I. 122/2014)	The Drinking Water Regulations S.I. 122/2014 provides the EPA with supervisory powers for public water supplies.
	Water Policy Regulations (S.I. 350/2014)	These Regulations provide for the establishment and composition of a Water Policy Advisory Committee and related procedural and ancillary matters. The Regulations also transfer certain local authority responsibilities provided for in the European Communities (Water Policy) Regulations 2003 to the Environmental Protection

Topic	Title	Summary of Objectives: National
		Agency and to the Minister for the Environment, Community and Local Government.
	The Water Policy Regulations (S.I. 722/2003), Environmental Objectives (Surface Water) Regulations (S.I. 272/2009) and Groundwater Regulations (S.I. 9/ 2010)	The Water Policy Regulations (S.I. 722/2003), Environmental Objectives (Surface Water) Regulations (S.I. 272/2009) and Groundwater Regulations (S.I. 9/ 2010) govern the shape of the WFD characterisation, monitoring and status assessment programmes in terms of assigning responsibilities for the monitoring of different water categories, determining the quality elements and undertaking the characterisation and classification assessments. The Surface Water Regulations institute a wide-ranging set of environmental standards for Irish surface waters. The Groundwater Regulations establish environmental objectives to be achieved in groundwater bodies and include groundwater quality standards and threshold values for the classification of groundwater and the protection of groundwater against pollution and deterioration in groundwater quality.
	European Communities Environmental Objectives (Freshwater Pearl Mussel) Regulations 2009 (S.I. 296/2009)	The Regulations require the EPA, when classifying surface waters in accordance with the ecological objectives approach of the Water Framework Directive, to assign a status of "less than good ecological status" where Margaritifera is found to be in unfavourable conservation status. This will trigger further actions as waters classified as less than good must be restored to at least good status within a prescribed timeframe.
	Foreshore Act (as amended) 1933-2011	The foreshore is classed as the land and seabed between the high water of ordinary or medium tides and the twelve nautical mile limit. Under the Foreshore Act, a lease/licence must be obtained from the Minister for Agriculture, Food and the Marine for certain works undertaken on the foreshore which are deemed to be in relation to a fishery harbour centre or any function relating to: the use, development or support of aquaculture; or an activity involved in the use, development or support of sea-fishing including the processing and sale of sea-fish and manufacture of products derived from sea-fish.
	Quality of Bathing Waters Regulations 1988 (S.I. 84/1988) as amended	These Regulations prescribe bathing water quality standards and the bathing areas to which they apply, together with the sampling programmes and the methods of analysis and inspection to be used by local authorities to determine compliance with the standards. The Regulations give effect to Council Directive No. 76/160/EEC of 8 December, 1975 (O.J. No. L31/1,5 February, 1976) concerning the quality of bathing water.
	European Communities (Quality of Shellfish Waters) Regulations 2006 (S.I. 268/2006	The Shellfish Waters Directive was transposed into legislation in Ireland by the European Communities (Quality of Shellfish Waters) Regulations 2006 (S.I. 268/2006), which were subsequently amended by the European Communities (Quality of Shellfish Waters) (Amendment) Regulations 2009 (S.I. 55/2009).
	Local Government (Water Pollution) Act, 1977 (Water Quality Standards for Phosphorus) Regulations 1998 (S.I. 258/1998)	These Regulations provide for specified improvements in water quality conditions in rivers and lakes based on phosphorus concentrations or related water quality classifications. The Regulations also provide for periodic reporting in relation to progress in implementing the requirements of the Regulations. These Regulations give effect to certain requirements arising under Council Directive 76/46/EC on pollution caused by certain dangerous substances discharged into the aquatic environment of the Community.

Topic	Title	Summary of Objectives: National
	Marine Strategy Framework Regulations S.I. 249/2011.	The Marine Strategy Framework Directive (MSFD) was transposed onto Irish law under the Marine Strategy Framework Regulations S.I. 249/2011.
	Harnessing Our Ocean Wealth - An Integrated Marine Plan for Ireland (2012)	Ireland aims to have the ocean become a key component for economic recovery and sustainable growth. As a national asset the potential of the Irish Sea is seen as something to be harnessed as outlined in Harnessing our Ocean Wealth an Integrated Marine Plan for Ireland 2012. Three high-level goals have been developed: Ireland will utilise market opportunities to improve the maritime economy and create sustainable growth; Improve the health of the sea ecosystems for economic benefit, and goods and services such as food, climate, health and well-being; and Encourage engagement with the sea to increase awareness of its value. There are two key targets: Double the value of our ocean wealth to 2.4% of GDP by 2030; and increase the turnover from our ocean economy to exceed €6.4bn by 2020.
Air	Industrial Emissions Regulations (S.I. 138/2013)	These Regulations primarily amend the Environmental Protection Agency Act 1992 and the Waste Management Act 1996 to transpose Chapters II and VI of Directive 2010/75/EC of the European Parliament and of the Council of 24 November 2010 on industrial emissions (integrated pollution prevention and control) (Recast). The Regulations apply to the industrial emissions directive activities specified in the First Schedule to the Environmental Protection Agency Act 1992, as amended by these Regulations.
	Air Quality Standards Regulations 2011 (S.I. 180/2011)	These Regulations transpose the Directive on ambient air quality and cleaner air for Europe (CAFE) into Irish law. They introduce a limit value to $PM_{2.5}$ in addition to the existing limit values for PM_{10}, nitrogen dioxide and oxides of nitrogen, sulphur dioxide, lead, ozone, carbon monoxide and benzene.
	Arsenic, Cadmium, Mercury, Nickel and Polycyclic Aromatic Hydrocarbons in Ambient Air Regulations 2009 (S.I. No. 58 of 2009).	The Ambient Air Quality and Cleaner Air for Europe (CAFE) Directive (2008/50/EC) was published in May 2008. It replaced the Framework Directive and the first, second and third Daughter Directives. The fourth Daughter Directive (2004/107/EC) will be included in CAFE at a later stage. The limit and target values for both Directives are outlined below. The CAFE Directive was transposed into Irish legislation by the Air Quality Standards Regulations 2011 (S.I. 180/2011). It replaces the Air Quality Standards Regulations 2002 (S.I. No. 271 of 2002), the Ozone in Ambient Air Regulations 2004 (S.I. 53/2004) and S.I. 33/1999. The fourth Daughter Directive was transposed into Irish legislation by the Arsenic, Cadmium, Mercury, Nickel and Polycyclic Aromatic Hydrocarbons in Ambient Air Regulations 2009 (S.I. 58/2009).
	National Clean Air Strategy (DCCAE) (in preparation)	With improvement in the scientific knowledge of the threats posed to people's health and the environment by air pollutants, it is now clear that air pollution causes more damage than previously understood. The DCCAE are therefore currently developing a national Clean Air Strategy. Establishing a National Strategy will provide a policy framework by which Ireland can develop the necessary policies and measures to comply with new and emerging EU legislation, as well helping to tackle climate change. The

Topic	Title	Summary of Objectives: National
		Strategy will also necessarily consider a wider range of national policies that are relevant to clean air policy such as transport, energy, home heating and agriculture. In any discussion relating to clean air policy, the issue of people's health is paramount and this will be a strong theme of the Strategy.
	Persistent Organic Pollutant Regulations 2010 (S.I. 235/2010)	These Regulations give statutory effect in Ireland to Regulation (EC) No. 850/2004 of 29 April 2004 as amended on persistent organic pollutants. The EC Regulation is intended to ensure coherent and effective implementation of the European Community's obligations under the 2001 Stockholm Convention on Persistent Organic Pollutants and the 1998 Protocol on Persistent Organic Pollutants to the 1979 UNECE Convention on Long-Range Transboundary Air Pollution.
Waste	Waste Management (Amendment) Act 2001	Objectives include (amongst others) the more effective and environmentally sensitive management of wastes in Ireland.
	The National Strategy on Biodegradable Waste (DEHLG, 2006)	The National Strategy on Biodegradable Waste was published in April 2006 and set out measures to progressively divert biodegradable municipal waste from landfill in accordance with the agreed targets in EU Directive 1999/31/EC on the landfill of waste.
	Waste Management Act 1996 (as amended) and the European Communities (Waste Directive) Regulations 2011 (S.I. 323 of 2011 & S.I. 126 of 2011)	The Waste Framework Directive sets out the approach for the sustainable management of waste in the Member States of the European Community and this has been transposed into Irish law by the Waste Management Act 1996 and the European Communities (Waste Directive) Regulations 2011. This legislation requires the preparation of a regional waste management plan for all regions within the state.
	Changing our Ways (1998)	Objectives include better waste management in Ireland including improved infrastructure, higher recycling rates and diversion of waste from landfill.
	National Waste Prevention Programme 'Towards a Resource Efficient Ireland'	The National Waste Prevention Programme is a non-statutory strategic plan which sets out the framework for waste prevention and resource efficiency in Ireland. This plan seeks to continue to work with established links within local authorities and seeks to work in partnership with the newly established waste planning regions.
	National Hazardous Waste Management Plan 2014-2020	The EPA has published the 3rd National Hazardous Waste Management Plan which sets out priorities to improve the management of hazardous waste in Ireland. Their priority actions include in the first instance the prevention of hazardous waste. In addition, the plan seeks to improve Ireland's self-sufficiency for the management hazardous waste and continued identification and regulation of legacy issues, such as the remediation of historic unregulated waste disposal sites. A key aspect of the plan is the continuation of prevention projects to reduce the generation of hazardous waste in certain priority sectors, led by the EPA through the National Waste Prevention Programme including coordination with the Regional Waste Management Plans.
	European Union (Household Food Waste & Bio-Waste) Regulations	These Regulations are designed to promote the segregation and recovery of household food waste. They will, in particular, contribute to the achievement of the targets set out in article 5 of EU Directive 99/31/EC on the landfill

Topic	Title	Summary of Objectives: National
	2015 (S.I. 430 of 2015)	of waste for the diversion of biodegradable municipal waste from landfill sites to composting and biogas plants and to other forms of authorised treatment. They will also increase the amount of food waste that is recovered.
	Waste Management (Landfill Levy) Regulations 2015 (S.I. 189 of 2015)	These Regulations replace the Waste Management (Landfill Levy) Regulations 2011. They make provision for the continued operation of the landfill levy provided for under section 73 of the Waste Management Act 1996 and make some amendments to application of the levy.
	Waste Management (Food Waste) Amendment Regulations 2015 (S.I. 190 of 2015)	These Regulations amend the Waste Management (Food Waste) Regulations 2009 (S.I. 508/2009) and are designed to promote the segregation and recovery of food waste arising in the commercial sector and to take account of the advent of "Type 8" plants in Ireland providing for the successful coexistence of these and composting plants within the overall waste treatment infrastructure in Ireland.
	Waste Management (Food Waste) Regulations 2009 (S.I. 508 of 2009)	These Regulations are designed to promote the segregation and recovery of food waste arising in the commercial sector. They will facilitate in particular the achievement of the targets set out in Directive 99/31/EC on the landfill of waste for the diversion of biodegradable municipal waste from landfill sites to composting and to other forms of authorised treatment. They will also increase the amount of food waste that is recovered.
	The Environment (Miscellaneous Provisions Act 2015 (No. 29 of 2015))	An Act to make provision for transfer of certain functions under the Bourn Vincent Memorial Park Act 1932 to the Minister for Arts, Heritage and the Gaeltacht; to amend and extend the Finance (Excise Duties) (Vehicles) Act 1952 , the Air Pollution Act 1987, the Environmental Protection Agency Act 1992 , the Waste Management Act 1996 , section 6 of the Local Government Act 1998; to amend the Water Services Act 2007, the Water Services (No. 2) Act 2013 and the Water Services Act 2014 ; to amend other Acts and to provide for related matters.
	Waste Management (Use of Sewage Sludge in Agriculture) (Amendment) Regulations (S.I. 267/2001).	These Regulations amend the Waste Management (Use of Sewage Sludge in Agriculture) Regulations, 1998 (S.I. 148/1998) by replacing the two tonne per hectare per year limit on the amount of dry matter to be added to soil, with limits based on absolute quantities of specified heavy metals which may be introduced into soil per hectare per year subject to the carrying out of nutrient management plans. The regulations also require that sludge is used in accordance with a nutrient management plan and provide for the inclusion of additional technical parameters to be entered in the sludge register provided for in the 1998 Regulations.
	Waste Statistics Regulation (2150/2002/EC, as amended)	The EU has created a framework for the production of statistics on the generation, recovery and disposal of waste. This regulation permits the gathering of regular and comparable data in EU countries and their transmission to Eurostat. The statistics collected allow the EU waste policy implementation to be monitored and evaluated.
Landscape	National Landscape Strategy 2015-2025	Objectives are to provide a cross-sector approach at government level to plan and manage the landscape (rural and urban) alongside communities and stakeholders. An implementation programme is included in the Landscape Strategy and will take place over the duration of the strategy period. The key objectives of the strategy are: ▪ To recognise landscapes in law; ▪ The provision of a policy framework to put measures in place for the management and protection of

Topic	Title	Summary of Objectives: National
		landscape; ▪ To develop a National Landscape Character Assessment through data-gathering and an evidence-based description of character assessment; ▪ To develop landscape policies; ▪ To increase awareness of the landscape and public consultation; and ▪ To identify education and training needs.
Cultural Heritage	Culture 2025	Culture 2025 is a Framework Policy to 2025 which sets the vision for the future of culture and the arts in Ireland and prioritises actions. It recognises the diverse and multi-faceted nature of culture in Ireland and the contribution of 'culture' to sense of self, national identity and the arts.
	Government Policy on Architecture 2009-2015	This paper addresses issues that have arisen in the years since the publication of the first policy on architecture by setting out a number of goals: emphasising sustainable development of the environment and urban design; the encouragement and support of high quality modern architecture; the incorporation of architectural heritage in a more holistic and integrated manner; and developing actions which respond to and promote awareness in these areas. This Policy in tandem with the government's policy "Building Ireland's Smart Economy: A Framework for Sustainable Economic Renewal" sets out a number of priorities and actions that the Government will be taking in the short and medium term. Key elements include investment in research and development, a focus on co-ordinated "forward planning" and investment in renewable energy together with the promotion of the green enterprise sector and the creation of jobs.
	Historic Towns Initiative	The Historic Towns Initiative and the Living City Initiative (2015) apply to the six large urban areas as developed by the Department of Finance. As well as the European Regional Development Fund-supported Designated Urban Centres Grants Scheme 2014 – 2020, the aims of these are to encourage urban regeneration and facilitate consolidation of towns and cities.
	Living City Initiative (2015)	
	Designated Urban Centres Grants Scheme 2014 – 2020	
	National Heritage Plan 2002 - 2007	Core objective is to protect Ireland's heritage. Plan uses the "polluter pays principle" and the "precautionary principle." Sets out archaeological policies and principles that should be applied by all bodies when undertaking a development. The department has identified the intention to update the plan.
	Framework and Principles for the Protection of Archaeological Heritage (1999)	The document sets out the basic principles of national policy regarding the protection of archaeological heritage. The document focuses particularly on the principles which should apply in respect of development and archaeological heritage.
	The National Monuments Acts (1930 to 2004)	Objectives seek to protect monuments of national importance by virtue of the historical, architectural, traditional, artistic or archaeological interest attaching to them and includes the site of the monument, the means of access to it and any land required to preserve the monument from injury or to preserve its amenities.

Topic	Title	Summary of Objectives: National
	The Architectural Heritage (National Inventory) and Historic Monuments (Miscellaneous Provisions) Act 1999	Provides for the establishment of a National Inventory of Architectural Heritage (NIAH). The objective of the NIAH is to aid in the protection and conservation of the built heritage, especially by advising planning authorities on the inclusion of particular structures in the Record of Protected Structures (RPS).
	Guidelines for Planning Authorities: Architectural Heritage Protection, 2004	The Planning and Development Act 2000, required additional development objectives relating to the protection of structures which are deemed to be of special architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest and to preserve the character of architectural conservation areas.
	The Planning and Development Act 2000	Under this Act the County Councils are required to compile and maintain a Record of Protected Structures (RPS) in their Development Plans. Sites included in the RPS are awarded automatic protection and may not be demolished or materially altered without grant of permission under the Planning Acts.
Material Assets	Grid25 Implementation Programme 2011-2016 and Ireland's Grid Development Strategy, 'Your Grid Your Tomorrow' (EirGrid)	EirGrid's Grid25 Strategy looks forward to the longer term date of 2025 and envisions that electricity infrastructure demands will be much different in the future, and that EirGrid must plan for strategic transmission development. The Implementation Programme provides a strategic overview of how the early stages of the Grid25 Strategy are intended to be implemented. The Grid25 Implementation Programme (IP) was a practical strategic overview of how the early stages of Grid25 were intended to be implemented. The IP identified the best current understanding of those parts of the transmission system that were envisaged as likely to be developed over the five years. Ireland's Grid Development Strategy, 'Your Grid Your Tomorrow' published in 2017, outlines that Grid25 will be replaced in 2017 with an updated Implementation Programme and will be subject to environmental assessment.
	National Ports Policy (DTTAS, 2013)	The national Ports Policy outlines the organisational and ownership structure of ports in Ireland. This policy document covers: the Trans European Network – Transport (TEN-T), Ports of National Significance (Tier 1 and Tier 2) and Ports of Regional Significance; corporate governance; how ports policy relates to the planning and development system; and environmental and foreshore issues. The policy document also sets out key actions and timelines up to 2018.
	A National Aviation Policy for Ireland (DTTAS, 2015	This policy document sets out the international context for aviation policy in Ireland. The document covers: safety, security and sustainability; connectivity and aviation services; airports; regulation and governance; aircraft leasing, financing and MRO; general aviation, education and training.

Review of Regional Level Plans, Programmes and Policies

Topic	Title	Summary of Objectives: Regional
Biodiversity	Hen Harrier Threat Response Plan (see also Hen Harrier Conservation and the Forestry Sector in Ireland (2015)	Under regulation 39 of the European Communities (Birds and Natural Habitats) Regulations 2011 provision is made to develop and implement appropriate threat response plans. The purpose of such a plan would be to cease, avoid, reduce or prevent threats, pressures or hazards that may be having an adverse effect on the conservation status of a species of bird referred to in Article 1 of the Birds Directive and/or causing the deterioration of the habitats of species for which a European Site has been classified pursuant to the Birds Directive.
Planning	Regional Spatial and Economic Strategies	Regional Spatial and Economic Strategies (RSES) are intended to replace the current Regional Planning Guidelines. The RSESs are expected to cover the period 2016-2022. Regional structures and functions are currently being revised and strengthened; the existing eight regional authorities and two assemblies are being replaced by three new Regional Assemblies to perform an updated range of strategic functions. In addition to formulating RSESs, the main functions of the new Regional Assemblies will also include strategic functions under relevant legislation, functions that relate to EU funding programmes as well as oversight of local authority performance and the implementation of national policy.
	Northern Ireland Regional Development Strategy 2025	The Regional Development Strategy (RDS) is a document published in 2010 by the Department of Regional Development. This document provides an overarching strategic planning framework influencing spatial development for Northern Ireland up to 2035, aimed at guiding both the public and private sectors. It complements the policy document *Strategic Planning Policy Statement (Department of the Environment, 2015): the Sustainable Development Strategy* and informs the spatial aspects of the strategies of all Government Departments. Key objectives of the RDS are: ▪ Support strong, sustainable growth for the benefit of all parts of Northern Ireland; ▪ Strengthen Belfast as the regional economic driver and Londonderry as the principal city of the North West; ▪ Support towns, villages and rural communities to maximise their potential; ▪ Promote development which improves the health and wellbeing of communities; ▪ Improve connectivity to enhance the movement of people, goods, energy and information between places; ▪ Protect and enhance the environment for its own sake; ▪ Take action to reduce carbon footprint and facilitate adaptation to climate change; and ▪ Strengthen links between north and south, east and west, with Europe and the rest of the world.
	Strategic Planning Policy Statement (NI Department of the Environment, 2015)	This policy document represents a statement of the Department of the Environment's policy on important planning matters, reflecting the Environment Ministers expectations for delivery of the planning system. It key aims are: ▪ Delivering sustainable planning policies and plans; ▪ Integrating and balancing social, economic and environmental factors when plan-making and decision-taking;

Topic	Title	Summary of Objectives: Regional
		and ▪ Helping to mitigate and adapt to climate change and the reduction of greenhouse gases.
	County Development Plans (including Landscape Character Assessments where available)	This Development Plan is the county's principle strategic planning policy document. Detailed land-use zoning maps for the main settlements of the county are contained in the Electoral Area Local Area Plans and the Special Local Area Plans. It is a six year development plan for the County that attempts to set out, as concisely as possible the County Council's current thinking on planning policy. The plan also sets out the overall planning and sustainable development strategy for the county which must be consistent with the National Spatial Strategy 2002-2020 and the Regional Planning Guidelines 2010-2022.
	Local Development Plans in Northern Ireland sharing a border with the Republic of Ireland	These include: Fermanagh and Omagh, Newry, Mourne and Down, Derry City and Strabane, Armagh, Banbridge and Craigavon District Council and Mid-Ulster District Council.
	County Tourism Strategies	The purpose of these Strategies is to provide an agreed framework to guide the actions of the many interests involved in the tourism sector. They normally include priorities and recommended actions to achieve the tourism vision for a County.
Transport	Greater Dublin Area Transport Strategy 2016-2035	Objective of this long-term strategy is to inform transport planning in the Greater Dublin Area and how it should evolve. The strategy emphasises sustainable land use planning, public transport modes and the integration of land use planning with transport planning.
	Draft Transport Strategy for the Greater Dublin Area 2016 – 2035 (NTA)	This strategy provides a framework for the planning and delivery of transport infrastructure and services in the Greater Dublin Area (GDA) over the next two decades. It also provides a transport planning policy around which other agencies involved in land use planning, environmental protection, and delivery of other infrastructure such as housing, water and power, can align their investment priorities.
	A Platform for Change: An integrated transportation strategy for the Greater Dublin Area 2000 to 2016 (DTO, 2001)	The Greater Dublin Area comprises the local authority areas of Dublin Corporation and the counties of Fingal, South Dublin and Dún Laoghaire-Rathdown (the Dublin Region), and the counties of Kildare, Meath and Wicklow (the Mid-East Region). The Dublin Transport Office published its 'Platform for Change' document in 2000, in which it outlined the transportation strategy for the Greater Dublin Area (GDA) from 2000 to 2016. The document produced a practicable set of recommendations for new transport infrastructure and complimentary measures to manage projected growth in the demand for travel from all sections of the community over twenty years.
Cultural Heritage	Heritage Plans	The Heritage Plans identify objectives and actions to achieve those objectives as well as providing a mechanism to measure progress.

Topic	Title	Summary of Objectives: Regional
Water and Wastewater	Catchment Flood Risk and Management Studies (CFRAMS)	The Office of Public Works (OPW) is responsible for the implementation of the Floods Directive 2007/60/EC which is being carried out through a Catchment-based Flood Risk Assessment and Management (CFRAM) Programme. As part of the directive Ireland is required to undertake a Preliminary Flood Risk Assessment (PFRA), to identify areas of existing or potentially significant future flood risk and to prepare flood hazard and risk maps for these areas. Following this, Flood Risk Management Plans (FRMPs) are developed for these areas setting objectives for managing the flood risk and setting out a prioritised set of measures to achieve the objectives. The CFRAM programme is currently being rolled out and Draft FRMPs have been prepared.
	River Basin Management Plan (RBMP)	A key development in meeting the requirements of the Water Framework Directive has been the publication of River Basin Management Plans. The plans implement the objectives of the Water Framework Directive. The aim is to achieve good water quality status in all waterbodies by 2015, through the implementation of a programme of Measures (POM). The Minister for the Environment, Community and Local Government has put in place new governance structures and administrative arrangements for the implementation of a second cycle of River Basin Management Plans and this will change the context for future reporting on water quality in Ireland. The existing seven River Basin Districts are to be reconfigured into three RBDs. The second cycle of RBM plans cover the period 2017-2021.
	Water Services Strategic Plan	The Water Services Act 2014 provides that the water services authority makes a Water Services Strategic Plan (WSSP) with regard to the provision of water services. As such, Irish Water, as the national water service utility for Ireland, has developed a Water Services Strategic Plan for the next 25 years. The priorities for Irish Water under the WSSP are the delivery of improved and affordable water services, remediation of existing water quality problems (e.g. boil notices), complying with the Urban Wastewater Treatment Directive, reduction of leaks in the water system and the capture of water infrastructure information in databases. The WSSP's objectives also have regard to flood risk management.
	Groundwater Protection Schemes	Groundwater protection schemes are undertaken jointly between the Geological Survey of Ireland and the local authorities. The objectives of such schemes are to preserve groundwater quality, in particular having regard to extraction for drinking water purposes. The schemes do not have any statutory authority but do set out a framework to help inform decision-making and provide guidelines for the local authorities in carrying out their functions. The Plan should have regard to any such groundwater protection schemes.
	Shellfish Pollution Reduction Programmes	The aim of the Shellfish Waters Directive is to protect or improve shellfish waters (see Shellfish Waters Directive, 2006/113/EC). The Directive requires Member States to designate waters that need protection in order to support shellfish life and growth. The Directive also provides for the establishment of pollution reduction programmes for the designated waters, of which there are 63 nationally.
	Freshwater Pearl Mussel Sub-basin Management Plans (Draft)	The draft Sub-basin Management Plans identify issues relevant to mussel conservation and propose realistic solutions.

Topic	Title	Summary of Objectives: Regional
	Shannon Integrated Framework Plan (SIFP)	The Strategic Integrated Framework Plan (SIFP) for the Shannon Estuary is an inter-jurisdictional land and marine based framework plan to guide the future development and management of the Shannon Estuary.
	Forestry and Freshwater Pearl Mussel Plan (DAFM, in preparation)	As the consenting authority for key forestry activities, the Department of Agriculture, Food & the Marine (DAFM), through the Forest Service (FS-DAFM), has direct responsibilities under the Habitats Directive in relation to the protection of Freshwater Pearl Mussel (FPM) and its habitat. These responsibilities provide the underlying basis for the These responsibilities provide the underlying basis for the development of procedures to ensure that forestry activity undertaken with in all 27 FWPM catchments (including the Priority 8 catchments) are compatible with the conservation of the species.
	Water Quality Management Plans	Water Quality Management Plans are a requirement under The Water Pollution Acts, 1977 and 1990 and regulations made thereunder. The aim of the plans is to manage and protect water at catchment-based level.
Waste	Regional Waste Management Plans 2015-2021	Ireland is divided into 3 regions for the purposes of waste management – Eastern-Midlands, Southern and Connacht-Ulster Regions. The plans set out the framework for the management of waste in a sustainable way, with overall targets to reduce the quantity of household waste generated per capita per year on year, to eliminate the disposal of residual waste to landfill and to aim for a reuse and recycle target of 50% of municipal waste by 2020.
	Delivering Resource Efficiency: Northern Ireland Waste Management Strategy, (DOE, 2013)	This Strategy follows the priority order for waste treatment set out in the Waste Hierarchy, a cornerstone of EU waste policy and legislation, with Part 2 divided into seven sections containing policy measures that build on the core principles of the 2006 Strategy. The Strategy has a renewed focus on waste prevention (including re-use), preparing for re-use and recycling, and moves the emphasis of waste management in Northern Ireland from resource management to resource efficiency i.e. using resources in the most efficient way while minimising the impact of their use on the environment.
	Waste Management – Changing our Ways (1998)	This was the first in a series of comprehensive government policy documents on the management of waste in Ireland. It endorsed the integrated waste management approach, based on the internationally adopted hierarchy of options which places greatest emphasis on waste prevention, followed by minimisation, re-use, recycling, energy recovery and finally, the environmentally sustainable disposal of residual waste.
	Preventing and Recycling Waste – Delivering Change (2002)	This government policy document built on Changing Our Ways moving to concrete proposals to give authorities more power to tackle the problem of waste. The document also announced the establishment of a National Waste Prevention Programme in the Environmental Protection Agency.
	Waste Management – Taking Stock and Moving Forward (2004)	This document (published April 2004) reviews progress and the continuing challenges in dealing with waste. It envisages the near-term introduction of thermal waste treatment as an alternative to landfill.

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	A Resource Opportunity: Waste Management Policy in Ireland (DECLG, 2012)	National policy on waste management is set out in A Resource Opportunity, published in July 2012, and which sets out the measures through which Ireland will make the further progress necessary to become a recycling society, with a clear focus on resource efficiency and the virtual elimination of landfilling of municipal waste.
Sustainable Development/ Energy	Wind Energy Strategy	County Wind Energy Strategies are informed by the DECLG Wind Energy Development Guidelines (currently under review) and the SEAI's Local Authority Renewable Energy Strategies (LARES) methodology.
	Sustainable Rural Housing – Guidelines for Planning Authorities, Circular PL 2/2017 (April, 2005)	The guidelines set out in detail how the Government's policies on rural housing are to be implemented by planning authorities in making their development plans and in the operation of the development control system.
	County Renewable Energy Strategies	These support energy efficiency and conservation to achieve balanced social and economic development throughout the local authorities and assist with obtaining Ireland's Green Energy Target.